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Short communication

New species of *Himalmartensus* Wang & Zhu, 2008 (Araneae: Amaurobiidae) with the first description of a male from the Nanda Devi Biosphere Reserve, Western Himalaya, IndiaShazia Quasin^{a,*}, Manju Siliwal^b, Virendra Prasad Uniyal^a^a Landscape Level Planning & Management, Wildlife Institute of India, Chandrabani, Dehradun, Uttarakhand, India^b Wildlife Information Liaison Development Society/Zoo Outreach Organisation, Coimbatore, Tamil Nadu, India

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ABSTRACT

A new species of the genus *Himalmartensus* Wang & Zhu, 2008 (Family: Amaurobiidae) is described from Nanda Devi Biosphere Reserve, Western Himalaya, India. In this study, a male specimen of this genus is described for the first time from India.

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Introduction

The family Amaurobiidae is well represented worldwide by 51 genera and 285 species. All species of family Amaurobiidae in India have undergone taxonomic revisions and many species have been transferred to other families (Marusik et al 2012). *Coelotes* Blackwall, 1841 and *Tamgrinia* Lehtinen, 1967 were transferred back to the family Agelenidae with Miller et al's (2010) rejection of Wunderlich's (1986) placement of *Coelotes* and allied genera in Amaurobiidae. The remaining three Indian species placed in *Amaurobius* C.L. Koch, 1837 were transferred to Titanoecidae upon revision of *Amaurobius* from India and Nepal (Marusik et al 2012). *Amaurobius andhraca* and *Amaurobius nathabhaii* were transferred to the genus *Pandava* Lehtinen, 1967, whereas *Amaurobius sharmai* was transferred to the genus *Titanoeca* Thorell, 1870 (Marusik et al 2012). Therefore, at present, only a single species, *Amaurobius koponeni* Marusik et al, 2012, is reported from India (World Spider Catalog 2015).

The Amaurobiidae specimens from Nanda Devi Biosphere Reserve were identified as *Himalmartensus* Wang & Zhu, 2008

based on the presence of a colulus, a single chilum, smooth trichobothrial bases, simple tracheal tubes, five to eight teeth on promargin and retromargin of chelicerae; and epigynum with long and looping copulatory ducts (Wang and Zhu 2008). Till date, *Himalmartensus* is known only from Nepal and includes three species: *Himalmartensus martensi* Wang & Zhu, 2008, *Himalmartensus ausobskyi* Wang & Zhu, 2008 and *Himalmartensus nepalensis* Wang & Zhu, 2008.

All descriptions were based on females, as the authors were unable to collect a male specimen after 8 long years of searching (Wang and Zhu 2008). Our present study of spider diversity documents the distribution of the family Amaurobiidae in Nanda Devi Biosphere Reserve: (30°08'–31°02'N, 79°12'–80°19'E), a World Heritage site, located in the northern region of the Western Himalaya (India). Here, we describe a new species of *Himalmartensus*, based on both sexes, from the Western Himalaya of India. As males of this genus remained unknown until now, it will be the first description of male of this genus.

Materials and methods

Specimens were collected from bare ground by hand and preserved in 70% ethanol. They were then examined under a stereomicroscope (MOTIC); all the illustrations were prepared with the aid of a camera lucida. All the measurements, which are in

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millimeters, were performed using an ocular micrometer. The epigyne was dissected and cleaned using NaOH. Photographs were taken with a Leica DFC 290 stereomicroscope. Type material was deposited in the public museum of Wildlife Information Liaison Development Society (WILD), Coimbatore, Tamil Nadu, India.

Taxonomic accounts

Himalmartensius Wang & Zhu, 2008

Himalmartensius Wang & Zhu, 2008: 241–250.

Type species: *Himalmartensius martensi* Wang & Zhu, 2008

Diagnosis. *Himalmartensius* differs from other known genera by Anterior Median Spinnerets (AMS) comprising a colulus (same in *Rubrius* Simon, 1887 and few *Macrobunus* Tullgren, 1901 spp.), single undivided chilum (as in *Rubrius*- and *Amaurobius*-related genera), smooth trichobothrial base (as in *Rubrius* and agelenids), simple tracheal tubes, chelicerae with five to eight promarginal and retromarginal teeth, and epigyne with copulatory ducts winding around spermathecae in loops (Wang and Zhu 2008). Tibial apophysis is simple, undivided, pointed, slightly twisted distally; palp conductor, long and broad at the base, emerges from tegulum and extends like a sheet, gradually narrowing down retrolaterally and ending in a pointed tip; embolus is thin, whip like, coiled once in tegulum, and enters the sheet of conductor.

Himalmartensius nandadevi sp. nov.

(Figures 1A–L, Table 1)

LSID urn:lsid:zoobank.org:act:77B69732-D47E-4CC2-A65D-CB9EC5F7154E

Type. Holotype female, 21 November 2009, Joshimath, Nanda Devi Biosphere Reserve, Uttarakhand, India: elevation 2182 m, 30°29'42.1"N 79°42'19.3"E, 24, WILD-13-ARA-1280 (Shazia Quasin). Allotype male, 17 November 2009, same data as holotype, WILD-13-ARA-1281. Paratype 2 males, same data as holotype, WILD-13-ARA-1282, WILD-13-ARA-1283.

Diagnosis. The female of new species resembles *H. martensi* in having short spermathecal stalks (long stalks in *H. nepalensis* and *H. ausobskyi*); atrium distinct, broad (small in *H. ausobskyi*) with distinctly sclerotized posterior plate (not sclerotized in *H. ausobskyi*), but differs from all the species in having short copulatory ducts and two times winding around spermathecal stalks (4 times winding in *H. ausobskyi* and 5 times winding in *H. nepalensis*); chelicerae with seven promarginal and six retromarginal teeth (6 promarginal and 8 retromarginal teeth in *H. ausobskyi*, 6–7 promarginal and 5–8 retromarginal teeth in *H. martensi*, 7 promarginal and 5 retromarginal teeth in *H. nepalensis*). Male palp possesses single tibial apophysis, which is simple, undivided, pointed, slightly twisted distally; palp conductor, long and broad at the base, emerges from tegulum and extends like a sheet, gradually narrowing down retrolaterally and ending in a pointed tip; embolus thin, whip like, coiled once in tegulum, and enters the sheet of conductor.

Description. Holotype female (WILD-13-ARA-1280): total length 10.33. Carapace 4.67 long, 3.83 wide. Abdomen 5.67 long, 4.58 wide. Morphometry of legs is given in Table 1. Carapace: reddish brown, elongated, cephalic area darker (brownish black) than thoracic area (reddish brown), with margin, striae darker, caput raised, fovea, longitudinal, slightly depressed. Eyes: both rows slightly procurved; anterior median eyes (AME), posterior median eyes (PME) subequal and smallest; anterior lateral eyes (ALE) largest [AME 0.15, ALE 0.23, PME 0.16, posterior lateral eyes (PLE) 0.2]. Distance between eyes: PME–PLE = 2PLE, ALE–PLE = 1/4ALE, AME–ALE = 1/2ALE, AME–AME = 1/2AME, PME–PME = 2PME.

Both rows equally spaced. Chilum undivided, hairless. Clypeus with 14 bristles. Chelicerae brownish black, moderately long with normal margins except for concavity on the mid-prolateral side leaving a clear gap at mid-length between the chelicerae when held together; densely covered with long and short brown hairs with pallid tips; seven promarginal and six retromarginal teeth; condyle undivided. Sternum: reddish brown with margins darker, oval, covered with small black hairs. Endites brownish black, lighter anteriorly, longer than broad, broader anteriorly than distal end, pallid brush of hair distally. Labium brownish, lighter anteriorly, longer than wide, notched distally. Legs: 1423, moderately long, reddish brown. Tarsi with three claws, paired claws with seven to nine dentitions, unpaired claw with three small dentitions. Scopulae absent. Trichobothria smooth, in four rows on all legs tibia to tarsi. Spinnation on legs: I—femur (fe) prolateral (p)2, tibia (ti) ventral (v)5+1 (broken), metatarsus (mt) v8; II—fe p2, dorsal (d)1, ti v5, mt v8; III—fe p5, ti v6, p2, retrolateral (r)2, mt v6; IV—fe p2, patella (pa) p1, ti v5, p1, mt r1, v3.

Abdomen: grayish brown with light yellow chevron markings, chevron in four to five rows, merging toward centre, dorsal side of abdomen covered with long and short hairs and bristles, ventrally light grayish brown, covered with small hairs. Spinnerets: anterior and posterior spinnerets with two segments, moderately long; posterior median spinnerets (PMS) small, single, segmented, not clearly visible; colulus present.

Epigyne ventrally with broad atrium, posterior plate of atrium distinctly sclerotized; spermathecae with large bases; copulatory ducts winding around spermathecal stalk two times.

Allotype. Allotype. Male (WILD-13-ARA-1281). Total length 8.75. Carapace 4.42 long, 3.67 wide. Abdomen 4.33 long, 3.50 wide. Morphometry of legs is given in Table 1. Carapace: brownish black, rough, lighter posteriorly; caput raised; fovea longitudinal as in female. Eyes: both rows slightly procurved. AME and PME subequal and smallest, ALE largest. Eyes: AME 0.11, ALE 0.2, 0.15, PLE 0.17. Distance between eyes: PME–PME = 2PLE, ALE–PLE = 1/4ALE, AME = 1/2ALE, AME–AME = 1/2AME, PME–PME = 2PME. Both rows equally spaced out. Chilum undivided, hairless. Clypeus with 18 bristles. Chelicerae brownish black, long, geniculate with undulating margins and concavity on the mid-prolateral side leaving a clear gap at mid-length between the chelicerae when held together; densely covered with long and short brown hairs with pallid tips; seven promarginal and six to seven retromarginal teeth; condyle undivided. Sternum reddish brown with darker margins, oval, covered with small black hairs. Endites brownish black, lighter anteriorly, broader anteriorly than distally, pallid brush of hair distally. Labium brownish, lighter anteriorly; longer than wide, notched distally. Legs: 1423, moderately long, greenish brown, darker femur, covered with long and short brown hair and bristles. Tarsi with three claws, paired claws with eight to 11 dentitions, unpaired claws with three small dentitions. Scopulae absent. Trichobothria smooth, in four rows on all legs tibia to tarsi. Spinnation: I—fe p3, ti v8, mt v5; II—fe p1, ti v9, p1, mt v6; III—fe p3, ti v6, p1, r2, mt v5+1, p4; IV—fe p1, ti v6, mt v5.

Abdomen grayish brown with irregular cream-colored chevron markings mid-dorsally; ventrally grayish except for book lungs and epigastric area cream colored. Spinnerets: anterior and posterior spinnerets two segmented and moderately long, PMS small, single segmented, not clearly visible; colulus present.

Male palp: femur moderately concaved prolaterally. Retrolateral tibial apophysis with long pointed spine, slightly twisted distally. Cymbium long, covered with long hair with pallid curved tips; distal bristles and six to seven spines. Medium and distal tegulum merged. Conductor, long and broad at the base, emerges from tegulum and extends like a sheet, gradually narrowing down retrolaterally and ending in a pointed tip; embolus thin whip like, encircled once around tegulum and enters the sheet of conductor.

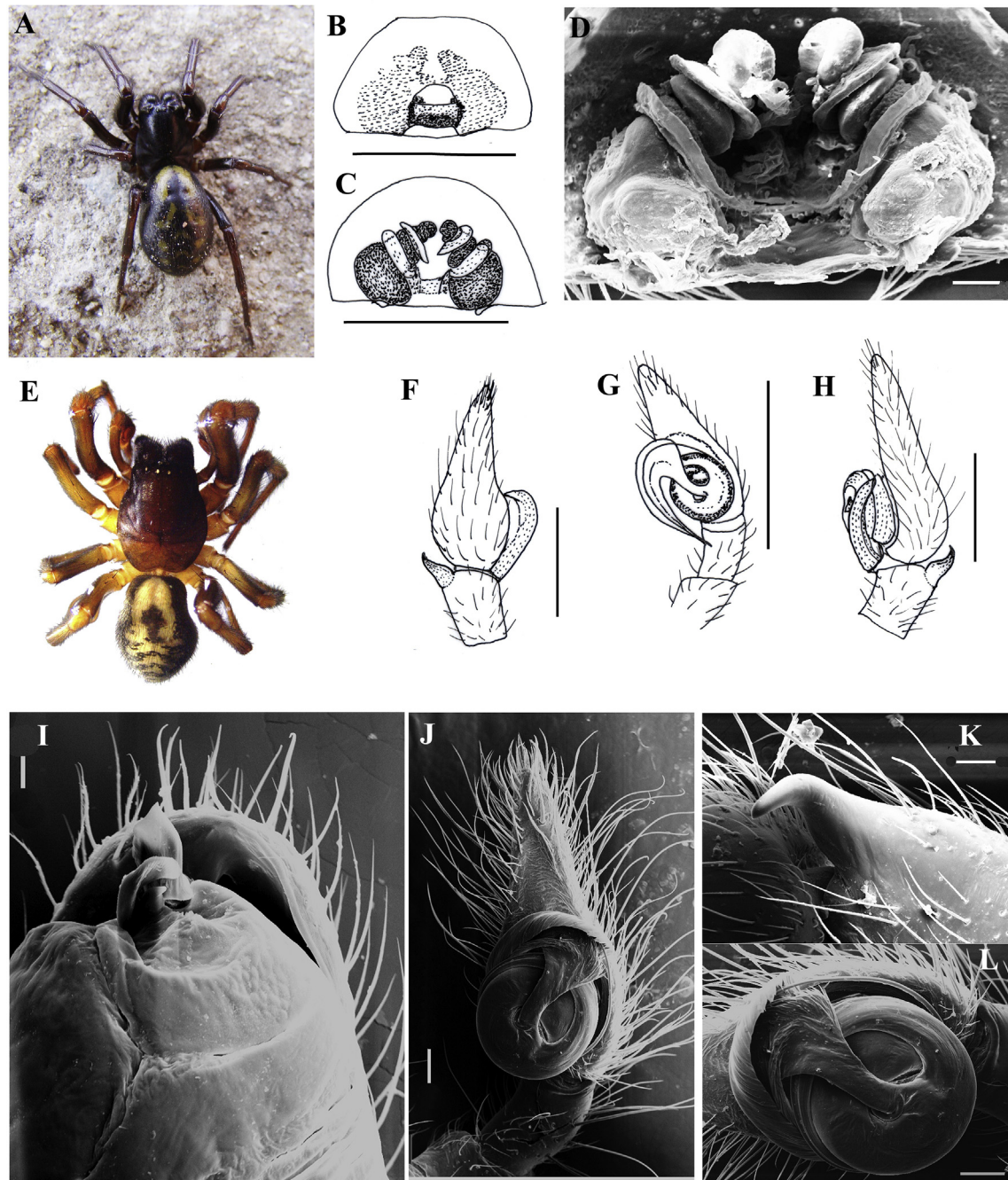


Figure 1. *H. nandadevi* sp. nov., holotype female: A, dorsal view of female; B, external epigynum; C, internal epigynum; D, SEM image of epigynum. E–L, Allotype male. E–L, male palp; SEM images. E, Dorsal view of male; F, retrolateral view; G, ventral view; H, prolateral view; I, embolus; K, tibial apophysis; L, tegulum. B, C scale = 0.1 mm; F, G, H scale = 1.0 mm; D, K scale = 100 μ m; I, J, L scale = 200 μ m. SEM = scanning electron microscopy.

Table 1. Leg measurements of *H. nandadevi* sp. nov. from Nanda Devi Biosphere Reserve, holotype—WILD-13-ARA-1280, allotype—WILD-13-ARA-1281, and paratype—WILD-13-ARA-1282 (WILD-13-ARA-1283).

Legs	I			II			III			IV		
	HT	AT	PT	HT	AT	PT	HT	AT	PT	HT	AT	PT
Fe	3.33	3.00	4.01 (3.53)	2.58	1.92	3.03 (2.82)	2.67	2.33	2.96 (2.59)	2.75	2.00	3.74 (3.26)
Pa	1.58	1.58	1.65 (1.52)	0.42	1.25	1.57 (1.44)	1.50	1.25	1.28 (1.33)	1.25	1.42	1.61 (1.46)
Ti	2.75	3.00	3.27 (2.90)	2.42	2.75	2.72 (2.26)	1.75	1.75	2.08 (1.85)	1.83	2.92	3.10 (2.87)
Mt	1.92	2.17	3.03 (2.63)	2.00	1.92	2.81 (2.50)	1.83	1.83	2.50 (2.30)	2.00	2.75	3.37 (3.20)
Ta	1.00	1.00	1.69 (1.61)	1.00	1.00	1.43 (1.43)	0.92	0.75	1.34 (1.23)	1.08	1.00	1.44 (1.34)
Total	10.58	10.75	13.65 (12.19)	8.42	8.84	11.56 (10.45)	8.67	7.91	10.16 (9.30)	8.91	10.09	13.26 (12.13)

AT = allotype; Fe = femur; HT = holotype; Mt = metatarsus; Pa = patella; PT = paratype; Ta = tarsus; Ti = tibia; WILD = Wildlife Information Liaison Development Society.

Distribution. Joshimath, Nanda Devi Biosphere Reserve, India. Known only from the type locality.

Etymology. The specific epithet is a noun taken in apposition with reference to the type locality, Nanda Devi.

Remarks. The distance between the spermathecae stalks anteriorly could be variable depending on dissection and cleaning of epigyne, and therefore, we do not consider it as an important character for the identification of a species.

Natural history. Male and female specimens of this species were seen wandering on the ground and were quiet active. These specimens were then collected for identification.

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