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ON THE COMB-TAILED *Neohahnia ernsti* (SIMON, 1898) (ARANEAE: HAHNIIDAE): REDESCRIPTION AND NEW DISTRIBUTION RECORDS

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ABSTRACT

Neohahnia ernsti (Simon, 1898) is redescribed and illustrated based on newly examined material. For the first time, the male palp (retrolateral view) and female epigynum (ventral view) are documented. Scanning electron micrographs complement the species' description, and new distribution records are provided. *Neohahnia chalupas* Dupérré & Tapia, 2024 **syn. nov.** with *N. ernsti* (Simon, 1898) is proposed. Previously recorded only in its type locality, *N. ernsti* is now reported from several Neotropical regions, including location across the Caribbean, such as Saint Vincent Island, Puerto Rico, and Cuba, as well as Venezuela, Colombia, Ecuador, and Brazil. This study expands the known distribution of *N. ernsti* and offers morphological description into the species. Most specimens were collected from Neotropical rainforests, indicating a possible soil-dwelling habitat.

Keywords: dwarf sheet spiders; Hahniinae; taxonomy.

RESUMO

***Neohahnia ernsti* (Simon, 1898) (Araneae: Hahniidae): redescrição e novos registros de distribuição.** *Neohahnia ernsti* (Simon, 1898) é reescrita e ilustrada com base em material recentemente examinado. Pela primeira vez, o palpo masculino (visão retrolateral) e o epígino feminino (visão ventral) são documentados. Micrografias eletrônicas de varredura complementam a descrição da espécie, e novos registros de distribuição são fornecidos. *Neohahnia chalupas* Dupérré & Tapia, 2024 **syn. nov.** com *N. ernsti* (Simon, 1898) é proposto. Anteriormente registrada apenas para sua localidade tipo, *N. ernsti* agora é relatada em várias áreas neotropicais, incluindo locais no Caribe, como Ilha de São Vicente, Porto Rico e Cuba, bem como Venezuela, Colômbia, Equador e Brasil. Este estudo expande a distribuição conhecida de *N. ernsti* e oferece descrição morfológica da espécie. A maioria dos espécimes foi coletada em florestas tropicais neotropicais, indicando um possível habitat de solo.

Palavras-chave: aranhas anãs de teia em lençol; Hahniinae; taxonomia.

INTRODUCTION

Neohahnia Mello-Leitão 1917 was originally described in the subfamily 'Hahniae' under Agelenidae, but it has been listed under Hahniidae since Gertsch (1934) and belonging to the subfamily Hahniinae as per Lehtinen (1967) until the present. Some authors have suggested a close relationship between *Neohahnia* and Neotropical species included in *Hahnia* (Mello-Leitão, 1917; Gertsch, 1934; Heimer and Müller, 1988), as well as *Alistra* and *Scotopsillus* (Mello-Leitão, 1917).

According to Mello-Leitão (1917), *Neohahnia* is closely related to *Alistra, Scotopsillus* and *Hahnia* because its anterior median eyes are smaller than the others. Additionally, *Neohahnia* is related to *Hahnia* due to the tracheal spiracle being closer to the spinnerets than the genital furrow (Schiapelli and Gerschman, 1958; Heimer and Müller, 1988). However, *Neohahnia* differs from all these genera because its anterior median eyes are contiguous and distinctly separated from anterior lateral eyes (Mello-Leitão, 1917).

Lehtinen (1967, p. 251) noted that the taxonomic status of this genus has remained somewhat obscure,

partly because the type specimen's preservation was unknown for him. Currently, *Neohahnia* Mello-Leitão 1917 comprises ten species (WSC, 2024). The type of specie *N. sylviae* was described based in juvenile exemplar from Rio de Janeiro, Brazil (Moreira et al., 2010). Mello-Leitão (1917) also described *N. palmicola,* which, like *N. sylviae,* was described based on a juvenile specimen from the same type locality. *N. chibcha* was described by Heimer and Müller (1988) based in male and female specimens from Colombia. Six species of *Neohahnia* were recently described from Ecuador (Dupérré and Tapia, 2024): *Neohahnia catleyi*, based on a female; *N. piemontana*, based on both male and female specimens; *N. pristirana*, based on both male and female specimens; *N. freibergi*, based on both male and female specimens; *N. paramo*, based on both male and female specimens; and *N. chalupas*, based on a male.

Neohahnia ernsti (Simon, 1898) was described based in male and female specimens reported from St. Vincent, Venezuela. Later, Petrunkevitch (1929) described the structural characteristics for female species, as Simon had only provided details on the color pattern in his original descriptions. Petrunkevitch also expanded the know distribution of the species to Naguabo and Adjunas in Puerto Rico. *N. ernsti* was originally placed in the genus *Hahnia* but was transferred to *Neohahnia* by Lehtinen (1967), who also provided figures of the male palp (ventral view) and female epigynum (dorsal view).

In the present paper, *N. ernsti* is recognized, redescribed, and illustrated. *Neohahnia chalupas* Dupérré and Tapia, 2024 is synonymized with *N. ernsti* (Simon, 1898). Male palp (retrolateral view) and female epigynum (ventral view) are illustrated for the first time. Scanning electron micrographs were taken as a complement to the species description, and new distribution records are provided.

MATERIAL AND METHODS

All morphological measurements, descriptions, drawings and color patterns were based on specimens immersed in 70% alcohol, using a stereomicroscope ZEISS SV11. The measurements were taken with an ocular micrometer and was used a conversion factor from the known measurement to convert the physical length of the marks on the scale in millimeters. Drawings were made with *camera lucida* attached on the stereomicroscope, male palp drawing were based on left pedipalp, female genitalia were first dissected following Levi (1965) then digested in trypsin enzyme (for digesting internal soft tissues) following modified protocol of Álvarez-Padilla & Hormiga (2007) and immersed in clove oil to be cleared for an easy examination of internal sclerotized structures. For scanning electron micrographs (SEM), the structures, after dissected, were cleaned for 3 min in alcohol in an ultrasonic bath (Ultrasonic Cleaner USC 700) with water, then structures were submitted to dehydration by crescent alcohol concentration series (4 series: 80%, 85%, 90%, 96%) passed after to acetone 100% and then critical point dried from CO2 using a critical point Dryer (Bal-Tec CPD 030 Critical Point Dryer) for 2h, the dried structures were fixed to an aluminum stub with a double-sided adhesive carbon tape, and sometimes glued in the tip of an entomological pins, the stubs were sputter coated with gold in a Bal-Tec SCD 005 Sputter Coater and placed in a vacuum desiccator until examination under a Philips XL 30 scanning electron microscope operated at 20kV. All the SEM protocol and images were made at Centro de Microscopia e Microanálises (CEMM) of the Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS). Map produced with QGIS 3.40.3. Drawings and SEM images were processed with Open-Source image editing Gimp 2.6 (GNU Image Manipulation Program) and the final plates were edited with Open-Source vector graphics editor Inkscape 0.48.

Abbreviations used in the text and figures, as follows:

ALE Anterior lateral eyes; **ALS** Anterior lateral spinnerets; **AME** Anterior median eyes; **CD** Copulatory ducts; **CO** Copulatory openings; **cx** Coxae; **Cy** Cymbium; **d** Dorsal; **E** Embolus; **FD** Fertilization Ducts; **fe** Femur; **mt** Metatarsus; **p** Prolateral; **pa** Patella; **PA** Patellar apophysis; **PLE** Posterior lateral eyes; **PLS** Posterior lateral spinnerets; **PME** Posterior median eyes; **PMS** Posterior median spinnerets; **r** Retrolateral; **RTA** Retrolateral tibial apophysis; **T** Tegulum; **ta** Tarsus; **ti** Tibia.

Specimens examined are deposited in the following institutions (curators in parentheses):

IBSP Instituto Butantan, São Paulo, São Paulo (A.D. Brescovit)

MPEG Museu Paraense Emílio Goeldi, Belém, Pará (A.B. Bonaldo)

UFMG Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais (A.J. Santos)

Taxonomy

***Neohahnia ernsti* (Simon, 1898)**

Hahnia ernsti Simon 1898: 888 (male and female syntypes from Saint Vincent Island, in the Caribbean, also material from Caracas, Venezuela) (examined). WSC, 2024.

Hahnia ernesti Petrunkevitch 1929: 78-79, figs. 67-68 (four females from Puerto Rico: two from Naguabo, March 7, 1914; two from Adjuntas, June 8-13, 1915). Gertsch 1934: 9, 11 (two females from North America). Schiapelli and Gerschman de Pikelin 1958: 213 (cited from Central America). Opell and Beatty 1976: 421. Calvo 2000: 135-136 (one subadult female and one juvenile female

from Cuba). *Lapsus calami*. WSC, 2024.

Neohahnia ernesti (Simon). Transference established by Lehtinen 1967: 251, figs. 366, 370. Heimer and Müller 1988: 229-230. *Lapsus calami*. WSC, 2024.

Neohahnia chalupas Dupérré and Tapia, 2024: 86-87 (male holotype from Ecuador, Napo Province, Tena, Colonso Chalupas Natural Reserve). WSC, 2024. **Syn. Nov.**

Type material. Syntypes of *Hahnia ernsti* Simon, 1898: male and female from St. Vincent Island and Caracas, Venezuela (MNHN 13284) (examined)

Note: … "The tube labelled *B. antarctica* in Paris contains a single female of a *Neohahnia* sp., and it was interpreted as the holotype by Galiano" (in Schiapelli and Gerschman de Pikelin, 1959) (Lehtinen, 1967, p. 240-241). This information highlights historical taxonomic ambiguities in the group and the need to revisit and revise earlier type interpretations in the light of modern taxonomy, ensuring the accuracy of the redescriptions and distribution records.

Additional material examined. COLOMBIA: *Caqueta*: (Fazenda José Antonio Polo), 17.VI.2009, P. Lavelle et al., CSP214, 1♂ (MPEG 17760); BRAZIL: *Amazonas*: Coari (Base de Operações Geólogo Pedro de Moura, Porto Urucu), 4º52'31"S 65º10'27"W, 22.VIII.2008, S.C. Dias et al., Sid 1-206, 1♀ (MPEG 13455); Sid 1-204, 1♀ (MPEG 13456); *Pará*: L. Macambira, 94♂ , 15♀ (MPEG 18429); Bragança, 22.VIII.2008, FST3-C3, 7♂, 1♀ (MPEG 13458); F5T1-C10, 7♂, 1♀ (MPEG 13462); F3T2-C9, 21♂, 1♀ (MPEG 13481); TT3-C9, 1♀ (MPEG 13485); TT3-C1, 1♀ (MPEG 13486); FST2-C14, 1♀ (MPEG 13490); FST1-C7, 9♂, 2♀ (MPEG 13491); FST3-C11, 3♂, 1♀ (MPEG 13493); FST3-C5, 3♂, 1♀ (MPEG 13494); FST3-C11, 2♀ (MPEG 13496); FST1-C17, 35♂, 1♀ (MPEG 13501); TT1-C5, 7♂, 1♀ (MPEG 13503); FST3-C17, 2♂ (MPEG 13515); FST2-C20, 6♂, 1♀ (MPEG 13517); FST2-C1, 6♂ , 1♀ (MPEG 13518); FST2-C8, 3♂ , 1♀ (MPEG 13523); FST2-C14, 1♀ (MPEG 13490); Belém (Ilha de Cotijuba), 01º14'S 48º35'W, 22.VIII.2008, Cotijuba 56, 1♀ , 1j (MPEG 4717); Tailândia (Empresa Juruá Florestal. Fazenda Santa Marta), 21.I.2010, Equipe IPAN, Am 669, 1♀ (MPEG 17441); Am 225, 1♀ (MPEG 17442); Am 568, 1♀ (MPEG 17443); Am 574, 1♀ (MPEG 17445); Am 618, 1♀ (MPEG 17446); Am 656, 1♀ (MPEG 17447); Am 627, 1♀ (MPEG 17450); Am 705, 1♀ (MPEG 17452); Am 243, 1♀ (MPEG 17453); Am 245, 2♀ (MPEG 17454); Am 267, 1♀ (MPEG 17455); Am 276, 1♀ (MPEG 17457); Am 262, 2♀ (MPEG 17458); Am 606, 1♀ (MPEG 17460); Am 596, 1♀ (MPEG 17461); Am 264, 1♀ (MPEG 17462); Am 601, 1♀ (MPEG 17463); Am 637, 1♀ (MPEG 17465); Am 639, 1♀ (MPEG 17468); Am 699, 1♀ (MPEG 17470); Am 258, 2♀ (MPEG 17473); Am 247, 2♀ (MPEG 17475); Am 616, 1♀ (MPEG 17477); Am 701, 1♀ (MPEG 17478); Am 275, 1♀ (MPEG 17481); Am 713, 1♀ (MPEG 17482); Am 274, 2♀ (MPEG 17483); Am 578, 1♀ (MPEG 17484); Am 676, 1♀ (MPEG 17485); Am 610, 1♀ (MPEG 17486); Goianésia do Pará (Empresa Cikel Brasil Verde. Fazenda Rio Capim), 03º18'50'S 48º28'54' W, 21.I.2010, Equipe IPAN, Am 450, 1♀ (MPEG 17444); Am 76, 1♀ (MPEG 017449); Am 11, 1♀ (MPEG 17451); Am 439, 1♀ (MPEG 17459); Am 445, 1♀ (MPEG 17464); Am 9, 1♀ (MPEG 17467); Am 78, 1♀ (MPEG 17469); Am 407, 1♀ (MPEG 17472); Novo Repartimento (Empresa Juruá Florestal. Fazenda Arataú), 21.I.2010, Equipe IPAN, Am 483, 1♀ (MPEG 17448); Am 384, 1♀ (MPEG 17456); Am 532, 1♀ (MPEG 17466); Am 168, 1♀ (MPEG 17471); Am 510, 1♀ (MPEG 17474); Am 142, 1♀ (MPEG 17476); Am 372, 1♀ (MPEG 17479); Am 481, 1♀ (MPEG 17480); Am 345, 1♀ (MPEG 17487); Am 155, 1♀ (MPEG 17488); Am 359, 1♀ (MPEG 17489); Nova Ipixuna (Macaranduba), 682382.74/ 9469861.49, 17.VI.2009, P. Lavelle et al., BMB 1 DB4, 1♀ (MPEG 17759); *Tocantins*: Ananás, 06º13'34.70''S 52º25'2.39"W, U. Oliveira and M.D. Miranda, 2♂, 2♀ (UFMG 5751); Xambioá, 06º26'12.6"S 50º34'2.5"W, U. Oliveira and M.D. Miranda, 1♂ (UFMG 5701); Santa Fé do Araguaia, 06º43'41.6"S 48º48'8"W, U. Oliveira and M.D. Miranda, 1♂ (UFMG 5735); 1♂ (UFMG 5732); *Piauí*: José de Freitas (Fazenda Nazareth), 4º47'58.1"S 42º37'48.8"W, V.O. Costa, VOC(1)14, 1♀ (MPEG 9717); 08.VIII.2009, NZ TMSC 77, 1♂ (MPEG 17758); NZ TMSCO 168, 1♂ (MPEG 18177); NZ TMSCO 167, 1♂ (MPEG 18178); NZ TMSC 205, 2♂ (MPEG 18179); NZ TMSC 92, 1♀ (MPEG 18180); NZ TMSC 144, 1♂ (MPEG 18181); NZ TMSC 147, 1♂ (MPEG 18182); NZ TMSC 164, 1♂ (MPEG 18183); NZ TMSC 205, 1♂ (MPEG 18179); Maranhão: Caxias (APA do Inhamum), 2017-2018, I. Lima, Am 475 pitfall, 1♀ (IBUSP 246475); Bahia: Ilhéus (Campus UFSC, Cabruaca), 20.VII.1999, M.F. Dias, 1♀ (IBUSP 24226); *Mato Grosso*: Cotriguaçu (Ilhas do Rio Juruá), 09º52'40"S 58º12'38"W, A.J. Santos, 1♂, 3♀ (UFMG 7859); (Fazenda São Nicolau), 09º50'24''S 58º14'54"W, A.J. Santos, 1♂, 2♀, 1j (UFMG 7708); 1♂ (UFMG 7709); Canarana/Querência (Fazenda Tanguro, antiga Fazenda Morro Azul), 13º04'25.1"S 52º22'54.9"W, 22.VIII.2008, D.F. Candiani and N.F. Lo-Man-Hung, Tang 416, 1♀ (MPEG 13452); Nossa Senhora do Livramento (Distrito de Pirizal, Fazenda Retiro Novo), 16º22'1"S 56º17'58"W, F.S.F. Leite, 1♀ (UFMG 8771); *Mato Grosso do Sul*: Três Lagoas (Horto Barra do Moeda), 20º57'0"S 51º47'0"W, M. Uehara-Prado, 1♂, 4♀ (UFMG 5684); 13♂, 5♀ (UFMG 5685); 1♂, 1♀ (UFMG 5686); 6♂, 3♀ (UFMG 5687); 3♂, 4♀ (UFMG 5688); 6♀ (UFMG 5689); 11♂, 2♀, 1j (UFMG 5690); Brasilândia (Horto Rio Verde), 20º50'S 51º40'W, M. Uehara-Prado, 3♂ , 2♀ (UFMG 5713); (Usina Hidrelétrica Sérgio Motta), 31.VII-07.VIII.2000, Equipe IBSP, Etapa II, pitfall 03, 2♀ (IBSP 30826); Etapa II, pitfall 43, 2♂ (IBSP 30841); Etapa II, pitfall 19, 2♂ (IBSP 30854); Etapa II, pitfall 43, 1♂ (IBSP 30863); Etapa II,

pitfall 46, 1♂ (IBSP 30864); (Usina Hidrelétrica Sérgio Motta, Fazenda Cizalpira), 15-9.VIII.2000, C. Fukushima and J.P. Guadanucci, Etapa II, pitfall 37, 1♂ (IBSP 35376); Etapa II, pitfall 23, 1♂ (IBSP 35378); Etapa II, pitfall 25, 1♂ (IBSP 35393); MS 21, 2♂ (IBSP 35394); Etapa II, pitfall 6, 1♂, 2♀ (IBSP 35518); 2000, Equipe IBSP, pitfall 25, MS 16, 1♀ (IBSP 30454); pitfall 2, MS 26 1♀ (IBSP 30456); MS 24, 1♂, 1♀ (IBSP 30471); pitfall 2, 1♀ (IBSP 35519); MS 24, 1♂ (IBSP 35527); MS 8, 1♂ (IBSP 35536); pitfall 47, 1♂, 1♀ (IBSP 35373); MS 41, 3♂ (IBSP 35374); MS 51, 4♂ (IBSP 35375); MS 50, 2♂ (IBSP 35389); MS 35, 4♂ (IBSP 35408); MS 38, 1♂ (IBSP 35410); MS 05, 3♂ (IBSP 35532); *Minas Gerais*: Jaboticatubas (Parque Nacional da Serra do Cipó), 19º15'S 43º31"W; 1♂ (IBUSP 159025); 1♂ (IBUSP 159026); 1♂ (IBUSP 159027); 1♂ (IBUSP 159028); 1♂ (IBUSP 159029); 1♂ (IBUSP 159030); 1♂ (IBUSP 159031); 1♂ (IBUSP 159032); 1♂ (IBUSP 159033); 1♂ (IBUSP 159034); 1♂ (IBUSP 159035); 1♂ (IBUSP 159036); 1♂ (IBUSP 159037); 1♂ (IBUSP 159038); 1♂ (IBUSP 159039); 1♂ (IBUSP 159040); 1♂ (IBUSP 159041); 2♂ (IBUSP 159042); 1♂ (IBUSP 159043); 1♂ (IBUSP 159044); 1♂ (IBUSP 159045); 1♂ (IBUSP 159046); 1♂ (IBUSP 159047); 1♂ (IBUSP 159048); 1♂ (IBUSP 159050); 1♂ (IBUSP 159051); 1♂ (IBUSP 159052); 1♂ (IBUSP 159053); 1♂ (IBUSP 159055); 1♂ (IBUSP 159057); 1♀ (IBUSP 159058); 1♂ (IBUSP 159059); 1♂ (IBUSP 159060); 1♂ (IBUSP 159061); 1♂ (IBUSP 159062); 1♂ (IBUSP 159063); 2♂ (IBUSP 159064); 1♂ (IBUSP 159065); 1♂ (IBUSP 159066); 2♂ (IBUSP 159067); 1♂ (IBUSP 159069); 1♂ (IBUSP 159070); 07-14.X.2002, coleta 3: Am 100, 2♂ (IBUSP 159123); Am 37, 1♂ (IBUSP 159136); Am 73, 1♂ (IBUSP 159183); 03-09/I.2003, equipe Biota, Am 63 pitfall: campo rupestre, coleta 4, 2♂ (IBUSP 159184); Am 49, 2♂ (IBUSP 159185); Am 55 pitfall, 4♂ (IBUSP 159186); Am 50, 1♂ (IBUSP 159188); Am 33, 1♂ (IBUSP 159190); Am 150, 1♂ (IBUSP 159192); Am 36, 2♂ (IBUSP 159193); Am 15 pitfall: campo rupestre, 1♂ (IBUSP 159194); Am 71, 2♂ (IBUSP 159196); Am 42, 1♂ (IBUSP 159197); Am 48, 1♂ (IBUSP 159198); Am 47, 1♂ (IBUSP 159199); Am 62, 1♂ (IBUSP 159200); Am 116, 1♂ (IBUSP 159203); Am 59, 1♂ (IBUSP 159205); Am 112, 1♂ (IBUSP 159206); Am 62, 1♂ (IBUSP 159207); Am 53, 1♂ (IBUSP 159208); Am 94, 2♂ (IBUSP 159209); Am 120, 1♂ (IBUSP 159211); Am 70, 3♂ (IBUSP 159212); Am 96 pitfall, 1♂ (IBUSP 159214); Am 137, 2♂ (IBUSP 159215); Am 99, 1♂ (IBUSP 159216); Am 75, 2♂ (IBUSP 159217); Am 58, 1♂ (IBUSP 159219); Am 9 pitfall: campo rupestre, coleta 4, 1♂ (IBUSP 159221); Am 5, 1♂ (IBUSP 159223); Am 138, 1♂ (IBUSP 159225); Am 29, 1♂ (IBUSP 159229); Am 93 pitfall: campo rupestre, coleta 4, 1♂ (IBUSP 159226); Am 87, 2♂ (IBUSP 159227); Am 145 pitfall: campo rupestre, coleta 4, 1♂ (IBUSP 159228); Am 148, 1♂ (IBUSP 159233); 2♂ (IBUSP 159235); Am 142, 1♂ (IBUSP 159237); Am 80, 1♂ (IBUSP 159238); Am 83, 2♂ (IBUSP 159239); Am 126 pitfall, 1♂ (IBUSP 159241); Am 119, 1♂ (IBUSP 159242); Am 108, 1♂ (IBUSP 159245); Am 105, 1♂ (IBUSP 159246); Am 19 pitfall: campo rupestre, coleta 4, 2♂ (IBUSP 159247); 1♂ (IBUSP 159249); Am 24, 1♂ (IBUSP 159924); Santana do Riacho (Parque Nacional da Serra do Cipó, Portaria Palácio), 19º15'S 43º31'W, E.S.S. Álvares and E.O. Machado, 1♀ (UFMG 1413); Belo Horizonte (Estação Ecológica da UFMG), 19º52'28"S 43º58'22"W, E.S.S. Álvares and E.O. Machado, 6♂ (UFMG 1587); E.S.S. Álvares and E.O. Machado, 3♂, 7♀ (UFMG 1588); E.S.S. Álvares, 3♂, 1♀ (UFMG 5016); E.S.S. Álvares et al., 1♂ (UFMG 5436); E.S.S. Álvares, 4♂ (UFMG 6030); E.S.S. Álvares, 3♂ (UFMG 6049); I.L.E. Magalhães, 2♂ (UFMG 8528); Ouro Preto (Parque Estadual do Itacolomi), 20º22'S 32º32'W, K.P. Santos et al., 1♀ (UFMG 2022); 1♂ (UFMG 2025); 1♀ (UFMG 2105); 1♂, 2♀ (UFMG 2284); 62♂ (UFMG 2332); 56♂, 37♀ (UFMG 2333); 4♂ (UFMG 2334); (Estação Ecológica de Tripuí), Am P1-6, 3♂, 3♀ (IBUSP 159020); Am P8-6, 3♂ (IBUSP 159021); *São Paulo*: São Paulo (Parque da Previdência), 16-23.XI.1999, D.F. Candiani, Verão PREV IV-37, 1♀ (IBUSP 42105); Verão PREV IV-43, 1♀ (IBUSP 42106); Verão PREV IV-35, 1♂ (IBUSP 42107); Verão PREV IV-24, 1♂, 1♀ (IBUSP 42108); Verão PREV IV-34, 1♀ (IBUSP 42109); Verão PREV IV-22, 1♂ (IBUSP 42112); Verão PREV IV-12, 1♀ (IBUSP 42115); Inverno PREV II-12, 1♂ (IBUSP 42120); Inverno PREV II-21, 1♂ (IBUSP 42121); Inverno PREV II-47, 1♂ (IBUSP 42126); Inverno PREV II-43, 1♂ (IBUSP 42127); Inverno PREV II-35, 1♂ (IBUSP 42129); Primavera PREV III-40, 1♂ (IBUSP 42135); Primavera PREV III-02, 1♂, 1♀ (IBUSP 42142); V.2000-II.2001, pitfall 1♀ (IBUSP 76547); Santa Rita do Passo Quatro (Parque Estadual de Vassununga), 21º43"S 47º35"W, 19-24.III.2002, Equipe Biota, 2♀ (IBUSP 60121); Campos do Jordão (Parque Estadual de Campos do Jordão), 22º43"S 45º27"W, alt 1557 m, IX.2004 – IX.2005, D. Baretta, Am 10, 1♂ (IBUSP 88022); Am 65, 1♂ (IBUSP 88023); Am 65, 1♂ (IBUSP 88035); *Rio de Janeiro*: Petrópolis (Fazenda Ranchinho da Roça), 15-16.VIII.2001, Equipe Biota, Am 14 cascata pitfall traps, 1♂ (IBUSP 157041); Am 134 cascata pitfall traps, 1♂ (IBUSP 157042); Am 35 PF cascata pitfall traps, 3♂, 1♀ (IBUSP 157045); Am 21 cascata pitfall traps, 1♂ (IBUSP 157051); Am 01 cascata pitfall traps, 1♂ (IBUSP 157053); Am 9 PF cascata pitfall traps, 1♂, 1♀ (IBUSP 157055); Am 02 cascata pitfall traps, 2♂ (IBUSP 157063); Am 33 cascata pitfall traps, 1♀ (IBUSP 157065); Am 38 cascata pitfall traps, 2♂, 1♀ (IBUSP 157066); (Fazenda Ranchinho, Ponto da Roça Km 78,5 – BR 040), 2001, F.S. Cunha, 1♀ (IBUSP 35884); *Paraná*: Cornélio Procópio (PE Mata São Francisco), 28º08'47"S 50º34'19"W, V.2009-IV.2010, N. Cipola, Am:133, 1♀ (IBSP 163861); Am:180, 1♀ (IBSP 163862); Am:47, 1♂ (IBSP 164673); Am:89, 4♂ (IBSP 164674); Am:69, 4♂, 1♀ (IBSP 164675); Am:88 1♂ (IBSP 164676); Am:26, 2♂ (IBSP 164677); Am:68, 2♂ (IBSP 164678); Am:158, 1♂ (IBSP 164679); Am:48, 1♂ (IBSP 164680); Am:182,

1♂(IBSP 164681); Rio Grande (Fazenda Experimental Grelha Azul), 25º40'16''S 49º16'44''W, IX.2010-X.2011, J. Ricetti, FEGA 183, 1♀ (IBUSP 220616); IRATI 270, 1♀(IBUSP 220618);

Diagnosis. *Neohahnia ernsti* shares several characteristics with other species, particularly *N. chibcha*, *N. piemontana*, *N. pristirana*, *N. freibergi*, and *N. paramo*, but can be distinguished by a combination of key features. The males of *N. ernsti*, like those of *N. chibcha*, *N. piemontana*, *N. pristirana*, have a rounded cymbium. Additionally, similar to *N. chibcha*, *N. ernsti* males have an embolus that curves in a clockwise direction around the bulbus in a complete circle (Fig. 2), lying in a furrow on the tegulum, without a median apophysis, and exhibiting a long, curved retrolateral tibial apophysis (RTA). However, *N. ernsti* males differ from other species in the direction of the RTA and the shape of the embolus. In *N. chibcha*, the embolus curves in an S-shape toward the cymbium (Heimer and Müller, 1988: fig. 4), while in *N. piemontana*, the RTA is larger (Dupérré and Tapia, 2024: fig. 11B), and in *N. pristirana*, the RTA is shorter and more angular than in *N. ernsti*, with a different orientation (Dupérré & Tapia, 2024: fig. 18B). In *N. chibcha*, the RTA points toward a curved patellar apophysis (PA) (Heimer and Müller, 1988: fig. 3), in *N. piemontana*, the PA is bi-dentate (Dupérré & Tapia, 2024: fig. 11B), and in *N. freibergi*, the PA is single-pointed (Dupérré and Tapia, 2024: fig. 20B). In contrast, in *N. ernsti* the embolus curve in a slight V-shape in the cymbial furrow, between the bulbus and the cymbium laterally, and the RTA is thin and semicircular, direct against the PA which is also curved with 1-3 hook (Figs. 3-4). Females of *N. ernsti* resemble females of *N. chibcha* in having a simple epigynum, but they differ in the shape and direction of the copulatory openings, copulatory ducts, and fertilization tubes. In *N. chibcha*, the copulatory openings are rectangular (Heimer & Müller, 1988: fig. 5), and the copulatory ducts form highly coiled, irregular loops, which terminate in connection with the posterior spermathecae. The fertilization tubes are small and lateral (Heimer and Müller, 1988: fig. 6). Whereas females of *N. ernsti* present a simple epigynum, with paired copulatory openings (or “pockets”) that are very conspicuous, and the copulatory ducts are almost globular with small central fertilization tubes (Figs. 5-6). When compared to *N. piemontana*, *N. ernsti* females can be distinguished by their copulatory openings, which are less separated (Fig. 5), whereas in *N. piemontana*, the openings are more widely spaced (Dupérré and Tapia, 2024: fig. 11D). Females of *N. pristirana* have large, rounded secondary spermathecae and bean-shaped primary spermathecae (Dupérré & Tapia, 2024: fig. 18D), while *N. freibergi* has elongated, joined copulatory openings accompanied by a small triangular hood (Dupérré and Tapia, 2024: fig. 20C, D). In contrast, *N. ernsti* females have copulatory ducts more globular. Furthermore, compared to *N. paramo*, the internal genitalia and spermathecae of *N. ernsti* differ in the arrangement of the copulatory ducts and the absence of more defined loops (Dupérré and Tapia, 2024: fig. 22D), which is observed in *N. paramo*.

Description. Male (MPEG 18179). Total length 1.64, Cephalothorax 0.70 long, 0.60 wide. Eye diameters and interdistances: AME 0.08, ALE 0.06, PME 0.06, PLE 0.04, AME-AME 0 (contiguous), AME-ALE 0.01, PME-PME 0.06, PME-PLE 0.02, ALE-PLE 0 (contiguous). Clypeus shallow 0.08. Spinnerets total length and interdistances: ALS 0.24, PLS 0.36, MLS 0.14, ALS-PLS 0.20, ALS-MLS 0.04, MLS-MLS 0.02. Legs length: Coxae I 0.22, II 0.22, III 0.22, IV 0.24, Trochanter I 0.08, II 0.08, III 0.08, IV 0.10, Femur I 0.56, II 0.56, III 0.50, IV 0.60, Patella I 0.20, II 0.20, III 0.20, IV 0.20, Tibia I 0.50, II 0.44, III 0.40, IV 0.46, Metatarsus I 0.38, II 0.38, III 0.38, IV 0.50, Tarsus I 0.32, II 0.34, III 0.36, IV 0.42. Dorsal carapace pale brown with prominent border mottled dark brown, dark brown bands in *pars thoracica*. *Pars cephalica* a little darker than *pars thoracica* (see Fig. 1 for mottled pattern). Carapace with plate structure (Fig. 7-8). Longitudinal black thoracic low groove (Fig. 8). Eyes bordered in black, except PME. Carapace almost smooth, with a few long setae in a longitudinal row between fovea and PME, some long setae scattered in eyes (Fig. 7). Chelicerae pale brown mottled dark brown, with two promarginal (Fig. 9, 16) and one retromarginal teeth, without stridulatory files. Endites rectangle shape (Figs. 10-11), 0.20 long, 0.16 wide, with same color's pattern of chelicerae, long setae scattered, serrula in a single row of teeth (Figs. 12-13, 18, 20). Labium trapezoidal shape (Fig. 14), 0.04 long, 0.08 wide, pale brown with few long setae. Sternum circular shape, 0.42 long, 0.42 wide, pale brown with soft border dark brown, long setae in border and short setae scattered in the middle of sternum. Coxae and trochanters pale beige (especially in ventral view), remaining segments of legs and pedipalps brown-orange, setae, macrosetae and trichobothria, three claws. Dorsal abdomen dark brown with large and well-defined beige chevrons in the middle of abdomen and pale beige points around it (see Fig. 1 for chevrons pattern). Ventral abdomen unicolor, pale, same color as sternum, without chevrons or points, few setae (about eight) in epigastric furrow and book lungs base, tracheal spiracle in the middle of abdomen, same distance of spinnerets base as epigastric furrow. Spinnerets with modified topology, arranged in transversal row (Fig. 23), PMS, ALS and MLS with same color as ventral abdomen, pale brown, PMS and ALS segmented (Fig. 23), PMS longer than others (Fig. 23), gland spigots PLS cylindrical spigots and piriform spigots (Figs. 24-28, 35), ALS gland spigots; cylindrical spigots and piriform spigots (Figs. 29-30, 36-37), MLS gland spigots; cylindrical spigots and piriform spigots (Figs. 31-34, 38). Cymbium rounded, embolus thin and long (Fig. 2), without

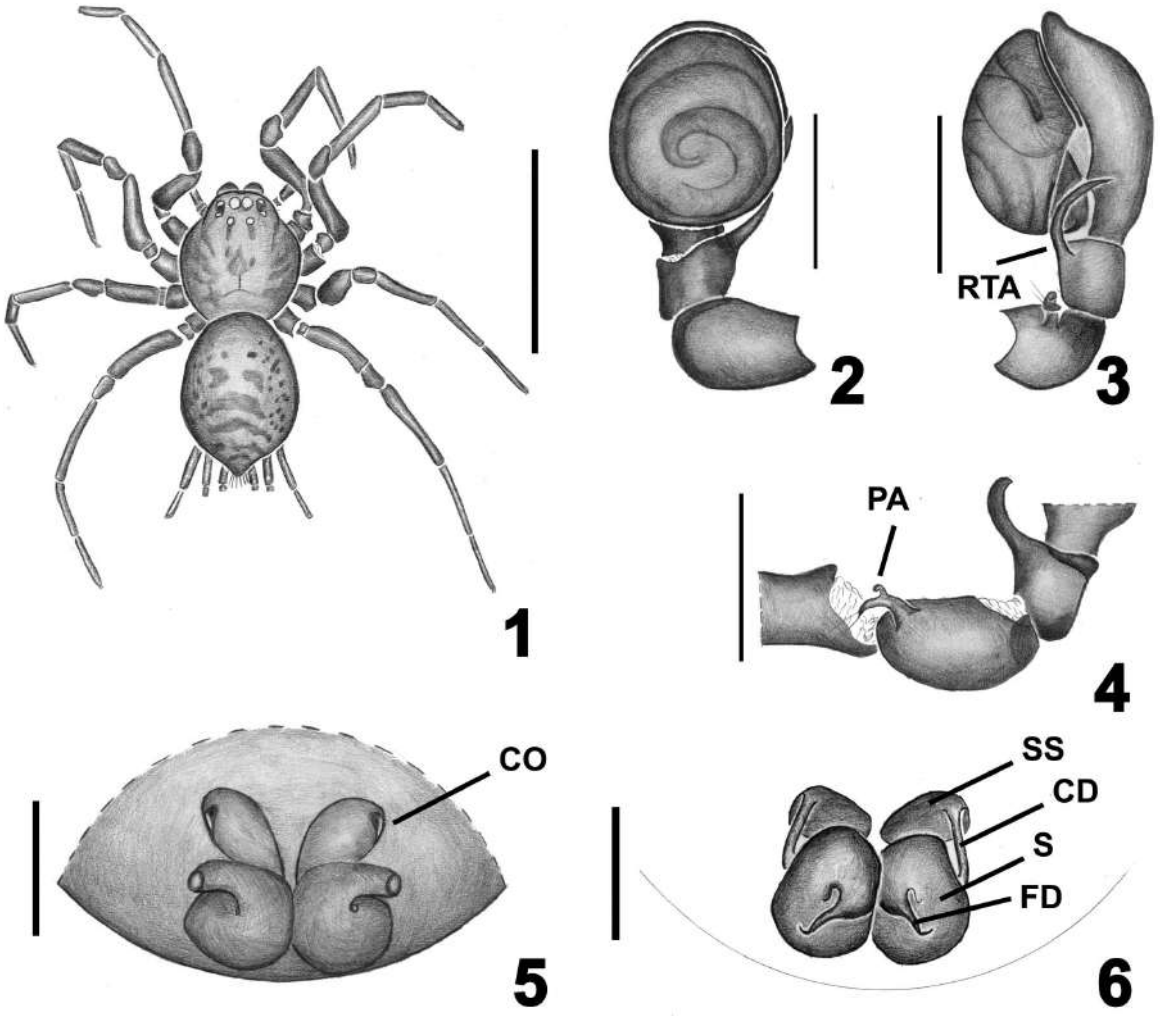

Fig. 1-6. *Neohahnia ernsti* (Simon 1898). 1, Habitus male, dorsal view; 2, Male palp ventral view; 3, Male palp retrolateral view; 4, Male tibia and patella palp; 5, Female epigynum dorsal view; 6, Female epigynum ventral view.

median apophysis, shape of retrolateral tibial apophysis, thin, long and curved against the patellar apophysis which is also curved (Fig. 3-4). Retroventral tibial apophysis.

Description. Female (MPEG 13490). Total length 1.86, Cephalothorax 0.66 long, 0.56 wide. Eye diameters and interdistances: AME 0.06, ALE 0.06, PME 0.06, PLE 0.04, AME-AME 0.02, AME-ALE 0.01, PME-PME 0.06, PME-PLE 0.02, ALE-PLE 0 (contiguous). Spinnerets total length and interdistances: ALS 0.22, PLS 0.42, MLS 0.14, ALS-PLS 0.20, ALS-MLS 0.06, MLS-MLS 0.04. Legs length: Coxae I 0.22, II 0.20, III 0.20, IV 0.22, Trochanter I 0.10, II 0.08, III 0.08, IV 0.10, Femur I 0.56, II 0.54, III 0.48, IV 0.60, Patella I 0.22, II 0.20, III 0.18, IV 0.20, Tibia I 0.46, II 0.40, III 0.38, IV 0.58, Metatarsus I 0.38, II 0.32, III 0.34, IV 0.50, Tarsus I 0.32, II 0.32, III 0.38, IV 0.42. Color and description same as male, except dorsal carapace with border mottled dark brown and dark brown bands in *pars thoracica*, not too defined as in male. Endites (Figs. 15, 17, 19) 0.12 long, 0.10 wide. Labium 0.06 long, 0.10 wide (Figs. 15, 21). Sternum ovoid shape (Fig. 22), 0.32 long, 040 wide. Coxae and trochanters pale brown (especially in ventral view), remaining segments of legs and pedipalps with same color pattern of carapace, pale brown with mottled dark brown. Dorsal abdomen chevrons and points not too defined as in male. Epigynum larger (almost the same length of book lung, almost twice wider than book lung), globose (Fig. 5-6), copulatory opening next to pedicel.

Variation. Females: size, color pale, mottled pattern not too defined; Males: size, color not too brown-orange.

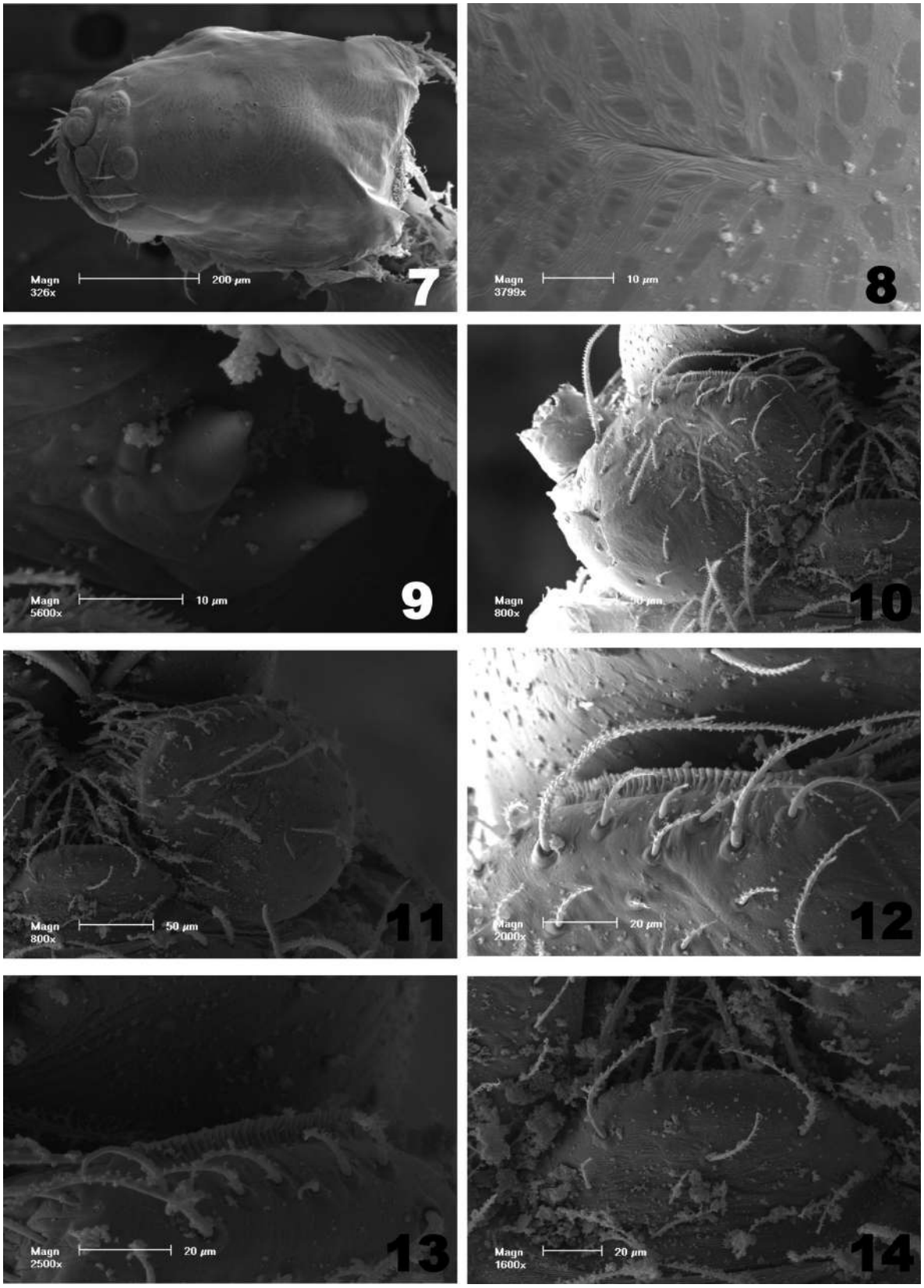

Fig. 7-14. *Neohahnia ernsti* (Simon 1898) male. 7, Carapace dorsal view; 8, Carapace dorsal view, fovea and plate structure; 9, Two promarginal teeth; 10, Right endite ventral view; 11, Left endite ventral view; 12, Right serrula ventral view; 13, Left serrula ventral view; 14, Labium ventral view.

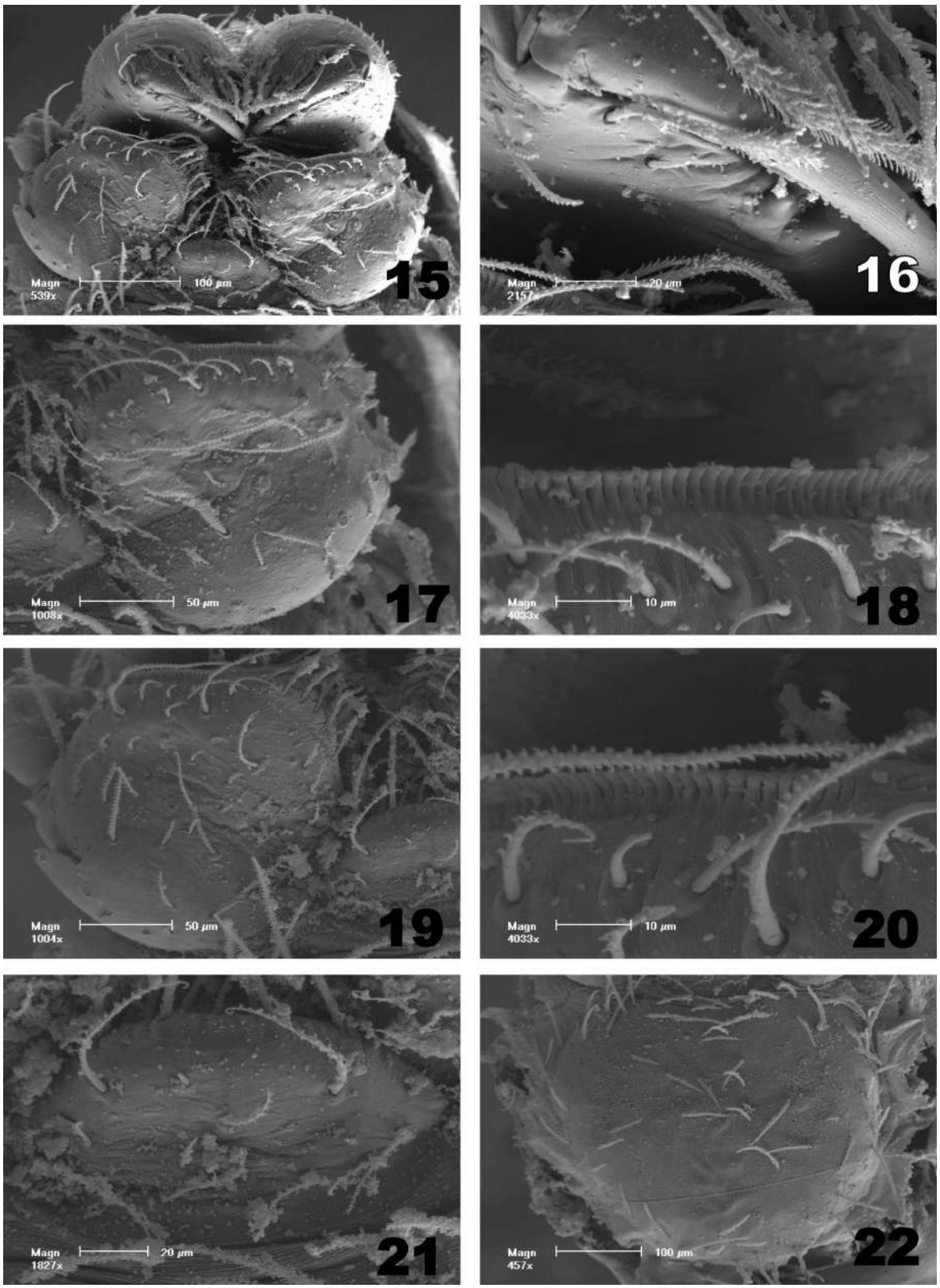

Fig. 15-22. *Neohahnia ernsti* (Simon 1898) female. 15, Chelicerae, endites and labium ventral view; 16, Two promarginal teeth; 17, Left endite ventral view; 18, Left serrula ventral view; 19, Right endite ventral view; 20, Right serrula ventral view; 21, Labium ventral view; 22, Sternum ventral view.

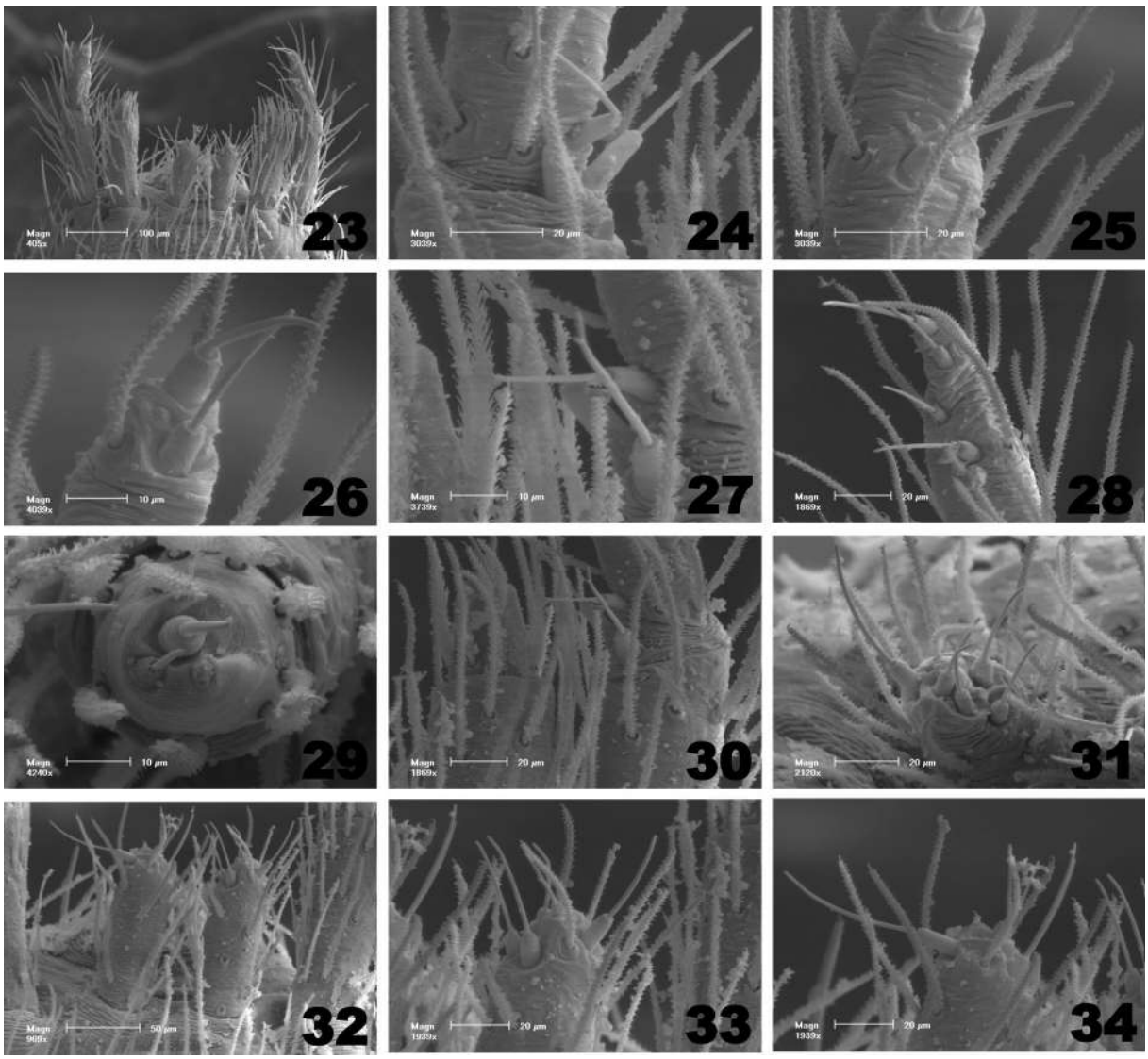

Fig. 23-34. *Neohahnia ernsti* (Simon 1898) male. 23, Spinnerets ventral view; 24, PLS ventral view; 25, PLS ventral view; 26, PLS ventral view; 27, PLS ventral view; 28, PLS ventral view; 29, Left ALS apical view; 30, ALS ventral view; 31, Left MLS apical view; 32, MLS ventral view; 33, MLS ventral view; 34, MLS ventral view.

Natural history. Most individuals were collected in Neotropical rain forests. When collected in Amazon, the places were characterized by tall dense jungle on dry soil. Most individuals were collected by Winkler's extractor, pitfall traps and Tropical Soil Biology and Fertility Program (TSBF) method, suggesting the specimens has a soil habitat.

Distribution. Island in Saint Vincent and the Grenadines (type locality) (Simon, 1898)**,** Venezuela, (Simon, 1898), Puerto Rico: Naguaboi, Adjuntas (Petrunkevitch 1929), Cuba (Calvo 2000), Colombia, Ecuador (Dupérré & Tapia, 2024), Brazil: Pará, Tocantins, Piauí, Maranhão, Bahia, Mato Grosso, Mato Grosso do Sul, Minas Gerais, São Paulo, Rio de Janeiro, Paraná (Map 1).

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Map 1. Distribution map of *Neohahnia ernsti* (Simon, 1898) currently occurrences

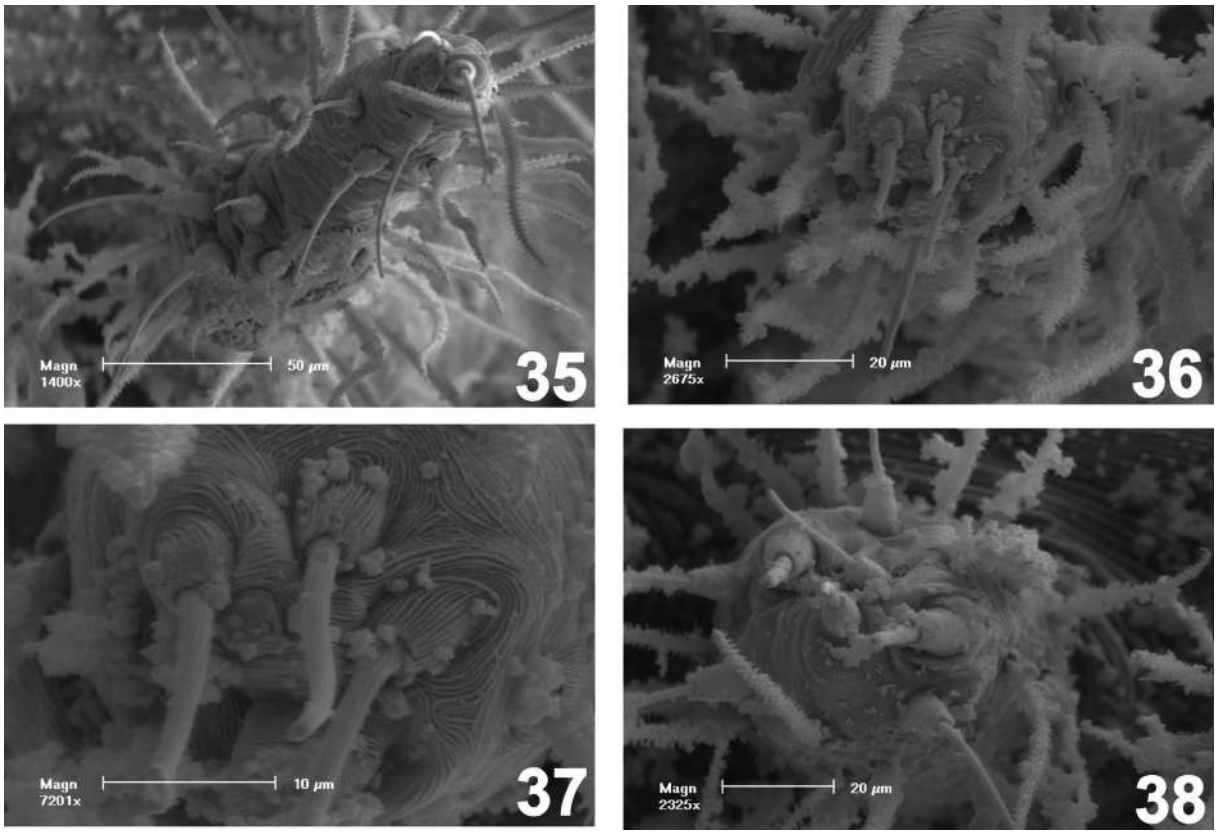

Fig. 35-38. *Neohahnia ernsti* (Simon 1898) female. 35, Right PLS apical view; 36, Right ALS apical view; 37, Right ALS apical view; 38, Right MLS apical view.

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