



The huntsman genus *Decaphora* Franganillo, 1931 (Araneae: Sparassidae: Sparianthinae)

CRISTINA ANNE RHEIMS¹ & GIRALDO ALAYÓN²

¹Laboratório Especial de Coleções Zoológicas, Instituto Butantan, Av. Vital Brazil 1500, 05503-900, São Paulo, SP, Brazil.

E-mail: carheims@gmail.com

²Museo Nacional de Historia Natural, Obispo No. 61, Ciudad de La Habana, C.P. 10100, Cuba. E-mail: moffly@infomed.sld.cu

Abstract

The genus *Decaphora* Franganillo, 1931 is revised. *Pseudosparianthis variabilis* F.O. Pickard-Cambridge, 1900, *Pseudosparianthis cubana* Banks, 1909 and *Thecticopis pestai* (Reimoser, 1939) are transferred to the genus; and *P. cubana* is considered a senior synonym of the type species, *Decaphora trabisformis* Franganillo, 1931. In addition, the female of *T. pestai* and the male of *P. variabilis* are described for the first time; and a new species, *Decaphora kohunlich* **spec. nov.**, is described from Mexico and Guatemala.

Key words: Mexico, Neotropical region, new species, spiders, taxonomy, transfer

Introduction

The subfamily Sparianthinae Simon is represented in the Neotropical region by seven genera: *Stasina* Simon, 1877, *Pseudosparianthis* Simon, 1887, *Sparianthis* Simon, 1880, *Thecticopis* Karsch, 1884, *Defectrix* Petrunkevitch, 1925, *Decaphora* Franganillo, 1931, and the recently described *Uaiuara* Rheims, 2013. *Sparianthis*, *Decaphora* and *Defectrix* are all monotypic and together with *Pseudosparianthis* and *Uaiuara* are exclusively Neotropical. *Stasina* and *Thecticopis* include both Neotropical and Oriental species.

Pseudosparianthis was originally described by Simon (1887) to include the type species, *Pseudosparianthis fusca* Simon, 1887, and *P. picta* Simon, 1887. To date, the genus comprises 11 species distributed from Mexico to northern South America (Platnick 2014). A careful examination of the type specimens of all species showed that not all are congeneric with *P. fusca* and probably belong to other genera.

Aware of this, Fox (1937) proposed the genus *Tentabunda* to include *Pseudosparianthis cubana* Banks, 1909, for which he also described the male. The genus was considered very similar to *Pseudosparianthis* Simon from which it was distinguished by the number of ventral spines on metatarsi I and II, one pair in *Tentabunda* and two in *Pseudosparianthis*. Based on this distinction, he also transferred *P. variabilis*, described by F.O. Pickard-Cambridge (1900) from Mexico, and *P. antiguensis*, described by Bryant (1923) from the West Indies, both known solely from females. Bryant (1940) transferred *T. cubana* back to *Pseudosparianthis* but gave no reasoning for this transfer and neglected to deal with the other two species, placed in the genus by Fox. Gertsch (1941) ignored Bryant's synonymy and described *Tentabunda chickeringi*, from Panama. Finally, Roewer (1955) accepted Bryant's synonymy and transferred *T. chickeringi* to *Pseudosparianthis*. He was, however, unaware of Fox's (1937) new combinations and listed *P. antiguensis* and *P. variabilis* as never having been assigned to *Tentabunda* (Penney 2001).

Indeed *P. cubana* is not congeneric with the type species of *Pseudosparianthis*, *P. fusca* Simon, and Fox (1937) was correct in proposing a new genus. What he neglected to realize were the similarities between his *Tentabunda* and the genus *Decaphora*, described by Franganillo in 1931. *Decaphora* was proposed to include *D. trabisformis* Franganillo, 1931, from Sierra Rangel in Cuba, based on a male and female specimen. Both *Tentabunda* and *Decaphora* have only one pair of spines on ventral metatarsi I and II and five small denticles on the retromargin of the chelicerae, a character that has not been recorded for any other Neotropical Sparianthinae genera.

While searching through the collection of the Institute of Ecology and Systematics, La Habana, the second author located a single juvenile syntype of *D. trabiformis* in the collection, which we believe might have been described as the female. Although the male specimen is lost, the description of the male palp is very detailed and states the presence of a canoe-shaped RTA with large ventral and dorsal projections, the latter armed with a series of nine strong spines. This is an exact match to the structure of the male palp of *P. cubana* and we consider both species as synonyms. Thus, *P. cubana* is here transferred to *Decaphora*, and considered a senior synonym of *D. trabiformis*.

Of the three other species previously attributed to *Tentabunda*, only *P. variabilis* shows the diagnostic characters of *Decaphora* and is also transferred to this genus. *Pseudosparianthis chickeringi* is clearly congeneric with the type species of *Pseudosparianthis*, and *P. antiguensis* is not congeneric with the type species of either genus and is currently being transferred to a new one (Rheims & Alayón, in prep.). Of the remaining *Pseudosparianthis* species, none belongs to *Decaphora* as delimited in this paper, and they remain in *Pseudosparianthis* until a thorough revision of this genus is carried out.

In this paper, the genus *Decaphora* is revised and its type species redescribed and illustrated. *Pseudosparianthis variabilis* and *Theleticopsis pestai* (the only Neotropical species still assigned to the oriental *Theleticopsis* Karsch) are transferred to *Decaphora*. Thus, *Theleticopsis* becomes exclusively oriental. In addition, the female of *T. pestai* and the male of *P. variabilis* are described for the first time and a new species is described from Mexico and Guatemala.

Material and methods

The material examined is deposited in the following institutions (abbreviation and curator in parenthesis): American Museum of Natural History, New York, USA (AMNH, N.I. Platnick); California Academy of Sciences, San Francisco, USA (CAS, C.E. Griswold); Institute of Ecology and Systematics, La Habana, Cuba (IES, L.F. Armas); Museo de Zoología, Universidad de Costa Rica, San José, Costa Rica (UCR, M. Springer); Museo Nacional de Historia Natural de Cuba, La Habana, Cuba (MNHNCu, G. Alayón); Museum of Comparative Zoology at Harvard University, Cambridge, USA (MCZ, G. Giribet); National Biodiversity Institute, Santo Domingo de Heredia, Costa Rica (INBIO, C. Viquez); National Museum of Natural History, Smithsonian Institution, Washington D.C., USA (USNM, J.A. Coddington); Natural History Museum, London, UK (NHM, J. Beccaloni); Naturhistorisches Museum, Vienna, Austria (NMW, C. Hörweg).

Morphological observations and illustrations were made using a Leica M165C stereomicroscope with a camera lucida. Measurements were taken with a micrometric ocular and are given in millimeters. Female copulatory organs were observed in clove oil after dissection. Digital SEM photographs were taken using a JEOL (JSM 840A) scanning electron microscope from the Laboratório de Microscopia Eletrônica, Departamento de Física Geral, Instituto de Física, Universidade de São Paulo. Pictures of dorsal habitus were taken at the Departamento de Zoologia da Universidade de São Paulo, using a digital camera model Canon EOS Digital Rebel XS.

Format of descriptions follows Rheims (2007). Spine notation follows Petrunkevitch (1925). Leg measurements are listed as: total length (femur, patella, tibia, metatarsus, tarsus); eye diameters as: AME, ALE, PME, PLE; and interdistances: AME–AME, AME–ALE, PME–PME, PME–PLE, AME–PME, ALE–PLE. Coloration patterns are described based on specimens preserved in 70% ethanol. Positions of tegular appendages are given according to clock positions, based on the left male palp in ventral view. Species are listed in alphabetical order.

Abbreviations used throughout the text are: ALE = anterior lateral eyes; AME = anterior median eyes; d = dorsal; dRTA = dorsal branch of RTA; mRTA = median branch of RTA; p = prolateral; PLE = posterior lateral eyes; PME = posterior median eyes; PTP = paraembolic tegular projection; r = retrolateral; TBC = tegular projection at base of conductor; TBE = tegular projection at base of embolus; v = ventral; vRTA = ventral branch of RTA. For descriptive purposes only, the RTA of the male palp is divided into three branches, one ventral (vRTA), one median (mRTA) and one dorsal (dRTA). Although these branches are probably homologous between species of

Decaphora, we cannot point towards homologies with other Sparassidae genera until a more detailed and comparative study of the RTA is carried out.

Geographical coordinates of collection localities were obtained with Google Earth (Lat/Lon-WGS84).

Taxonomy

Genus *Decaphora* Franganillo, 1931

Decaphora Franganillo, 1931: 46 (Type species: *Decaphora trabiformis* Franganillo, 1931 by monotypy). Platnick 2014.

Tentabunda Fox, 1937: 464 (type species: *Pseudosparianthis cubana* Banks, 1909 by original designation). Platnick 2014. **Syn. nov.**

Diagnosis. Species of the genus *Decaphora* are distinguished from those of the remaining Sparianthinae genera by the following combination of characters: in males a basal RTA with two (Fig. 17) or usually three branches (Figs 24, 31, 39), and paraembolic tegular projection (PTP) resting within a distally sheath-like embolus (Figs 18, 25, 32, 40); and in females the presence of an oval, anterior atrium in the epigyne (Figs 19, 26, 34, 41) and anterior blind-ended projections in the vulva (Figs 20–21, 27–28, 35–36, 42–43).



FIGURES 1–4. Habitus, dorsal view. 1–2 *Decaphora cubana* (Banks) **comb. nov.** (1 male, 2 female); 3–4 *Decaphora kohulich* **spec. nov.** (3 male, 4 female). Scale lines: 1 mm.



FIGURES 5–8. Habitus, dorsal view. 5–6 *Decaphora pestai* (Reimoser) **comb. nov.** (5 male, 6 female); 7–8 *Decaphora variabilis* (F.O.Pickard-Cambridge) **comb. nov.** (7 male, 8 female). Scale lines: 1 mm.

Description. Total length of males 7.5–10.2, of females 6.6–11.1. Prosoma longer than wide. Cephalic region slightly lower than thoracic region. Fovea conspicuous, situated on posterior third of prosoma. Eyes arranged in two rows, the anterior straight and the posterior procurved. AME larger than ALE in males, similar sized in females, and more separated from each other than from laterals in both sexes. PME smaller than PLE, equidistant or slightly closer to each other than to laterals in both sexes (Figs 1–8). Clypeus short, slightly shorter than AME diameter. Chilum median. Chelicerae longer than wide. Cheliceral groove with 4 promarginal teeth and 5–7 retromarginal denticles. Intermarginal denticles absent. Internal margin of chelicerae with one single strong seta at base of fang (Fig. 9). Labium rebordered, as wide as long. Endites slightly convergent, longer than wide, with dense scopulae on internal margin. Serrula with a single row of denticles. Sternum as long as wide, slightly projected between coxae IV. Female pedipalp with single, pectinate claw, with 5 teeth (Fig. 13). Legs laterigrade (2143). Spination in males: femora I–III: p1-1-1; d0-1-1; r1-1-1; femur IV: p1-1-1; d0-1-1; r0-0-1; patellae I–IV: 0; tibiae I–IV: p1-0-1; d0-1-1; r1-0-1; v2-2-2; metatarsi I–II: p1-1-0; r1-1-0; v2-0-0; metatarsi III–IV: p1-1-1; r1-1-1; v2-2-0. Palp: femora: p0-0-1; d0-1-2; r0-0-1, patellae: 0; tibiae: p0-0-1. Spination in females: femora I–IV: p1-1-1; d0-1-1; r0-0-1; patellae I–IV: 0; tibiae I–II: v2-2-2; tibia III: p1-0-0; v2-2-2; tibia IV: p1-0-1; d0-0-1; r1-0-1; v2-2-2; metatarsi I–II: v2-0-0; metatarsus III: p1-1-0; v2-0-0; metatarsus IV: p1-1-1; r1-1-1; v2-2-0; palp: femora: d0-0-2; patellae: 0; tibiae: p2-0-1, d0-0-1; r1-0-1; metatarsi: p2-0-1; r2-0-1. Trochanter smooth. Metatarsi I–IV distally with dorsal trilobate membrane with median hook shorter than lateral projections (Fig. 10). Metatarsi III–IV distally with ventral preening comb. Tarsi and distal half of metatarsi slightly scopulate ventrally. Tarsal organ capsulate with keyhole-shaped opening (Fig. 11), located dorsally at the distal end of tarsi. Trichobothria present on

dorsal tibiae, metatarsi and tarsi, arranged in several rows that converge to a single row at the proximal end of tarsi and metatarsi. Bothrium with crescent plate, with 6–7 grooves, projected over a smooth basal plate (Fig. 12). Tarsi with claw tufts and pair of pectinate claws, with 7–9 short and slightly curved teeth (Fig. 14). Opisthosoma oval, longer than wide. Male epiandrous spigots absent. Six spinnerets: anterior lateral spinnerets contiguous, conical and bi-segmented; basal segment elongate and cylindrical, distal segment short and truncated. Posterior median spinnerets conical and short. Posterior lateral spinnerets conical and bi-segmented; basal segment elongate and cylindrical, distal segment short and truncated. Palp: tibia short, slightly longer than half cymbium length, with 1 distal prolateral spine (absent in *T. pestai*) (Figs 15, 22, 37); RTA with two (Fig. 17) or usually three branches (Figs 24, 31, 39), vRTA small and truncated (Figs 17, 24, 31, 39), mRTA longer and more developed bearing spines (Figs 17, 24, 31) or projections (Fig. 39), and dRTA (absent in *D. cubana*) long and slender bearing very long strong spines (Figs 24, 31, 39); cymbium with small, rounded, dorsal scopula and retrolateral rim swollen and projected (Figs 17, 24, 31, 39); basal and median haematodochae well developed; subtegulum with 6–7 prolateral anelli (Fig. 32); conductor hyaline with large thick base; tegular projection at base of conductor (TBC) partly hyaline, large and variable in shape; median apophysis concave, arising from tegulum at 3 o'clock position; embolus distally sheath-like with wide laminar base, bent retrolaterally in the middle, arising from tegulum at 9 o'clock position; tegular projection at base of embolus (TBE) triangular; paraembolic tegular projection (PTP) arising dorsally to the base of embolus from tegulum, long and cylindrical, resting within the distally sheath-like embolus (Figs 16, 23, 30, 38). Epigyne: epigynal field wider than long or as wide as long, divided into lateral lobes and median septum; lateral lobes simple, smooth (Figs 19, 41) or with triangular projections at posterior margins (Figs 26, 34), touching each other posteriorly; median septum anterior, oval, wider than long, with pair of anterior copulation openings (Figs 19, 26, 34, 41). Vulva: duct system with blind-ended projections (no pores visible under light microscopy) close to copulatory opening, running from anterior to posterior, followed by a lateral loop that ends at a slightly thicker region of the duct, here considered the spermathecae; fertilization ducts short, hook-shaped and pointing away from each other (Figs 20–21, 27–28, 35–36, 42–43).

Distribution. Known from North and Central America, from Florida in the United States to Costa Rica.

Composition. Five species: *Decaphora cubana* (Banks) **comb. nov.**; *D. kohunlich* **spec. nov.**, *D. pestai* (Reimoser) **comb. nov.**; *D. variabilis* (F.O. Pickard-Cambridge) **comb. nov.**

***Decaphora cubana* (Banks, 1909) comb. nov.**

Figs 1–2, 9–21, 44

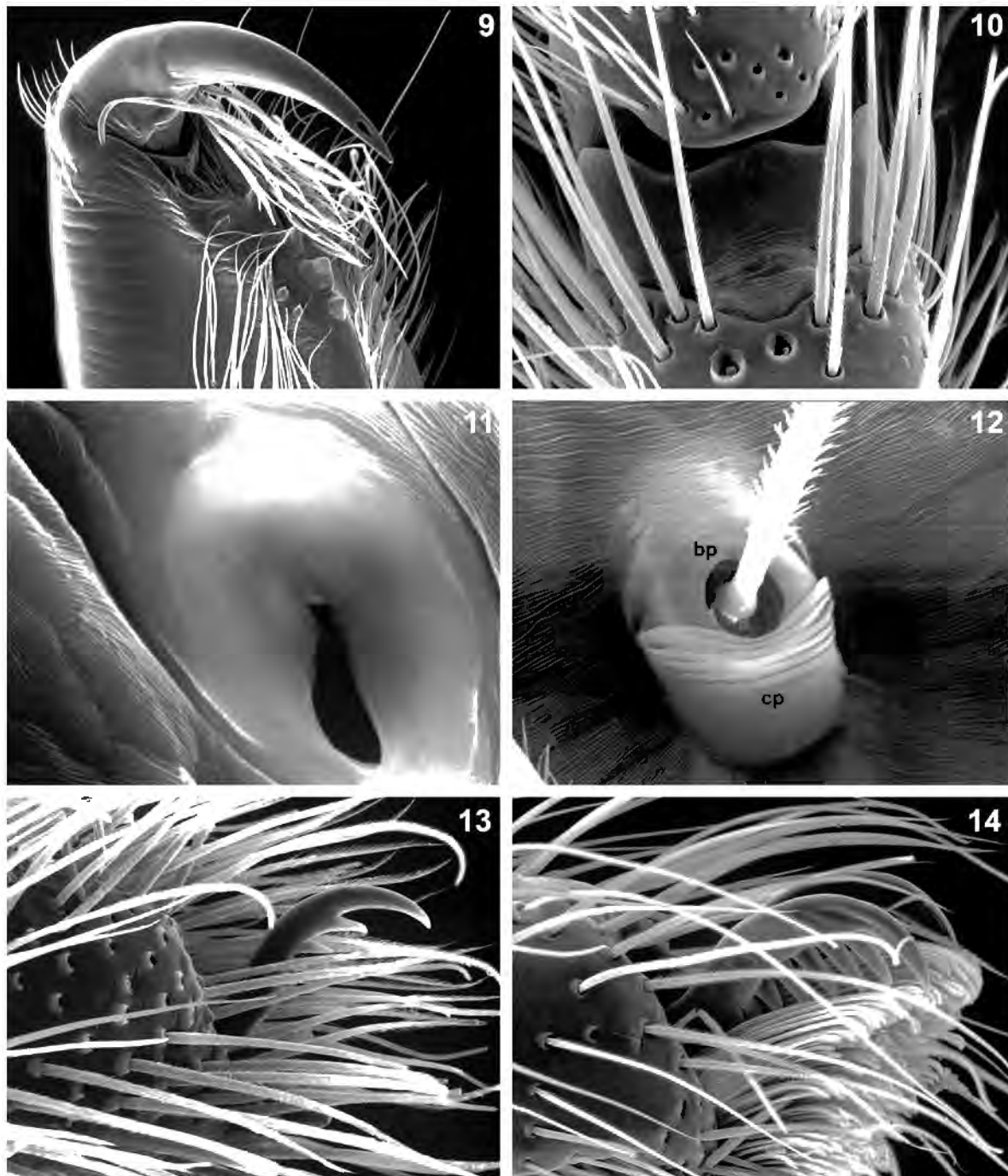
Pseudosparianthis cubana Banks, 1909: 165, plate 4, fig. 4 (holotype female from Havana (23°07'N; 82°21'W), Cuba, Baker leg., deposited in MCZ 20968, examined). Platnick 2014.

Decaphora trabiformis Franganillo, 1931: 46 (Male and juvenile syntypes from Sierra Rangel, Artemisa Province, Cuba, deposited in IES. Juvenile syntype examined. Male lost). **Syn. nov.**

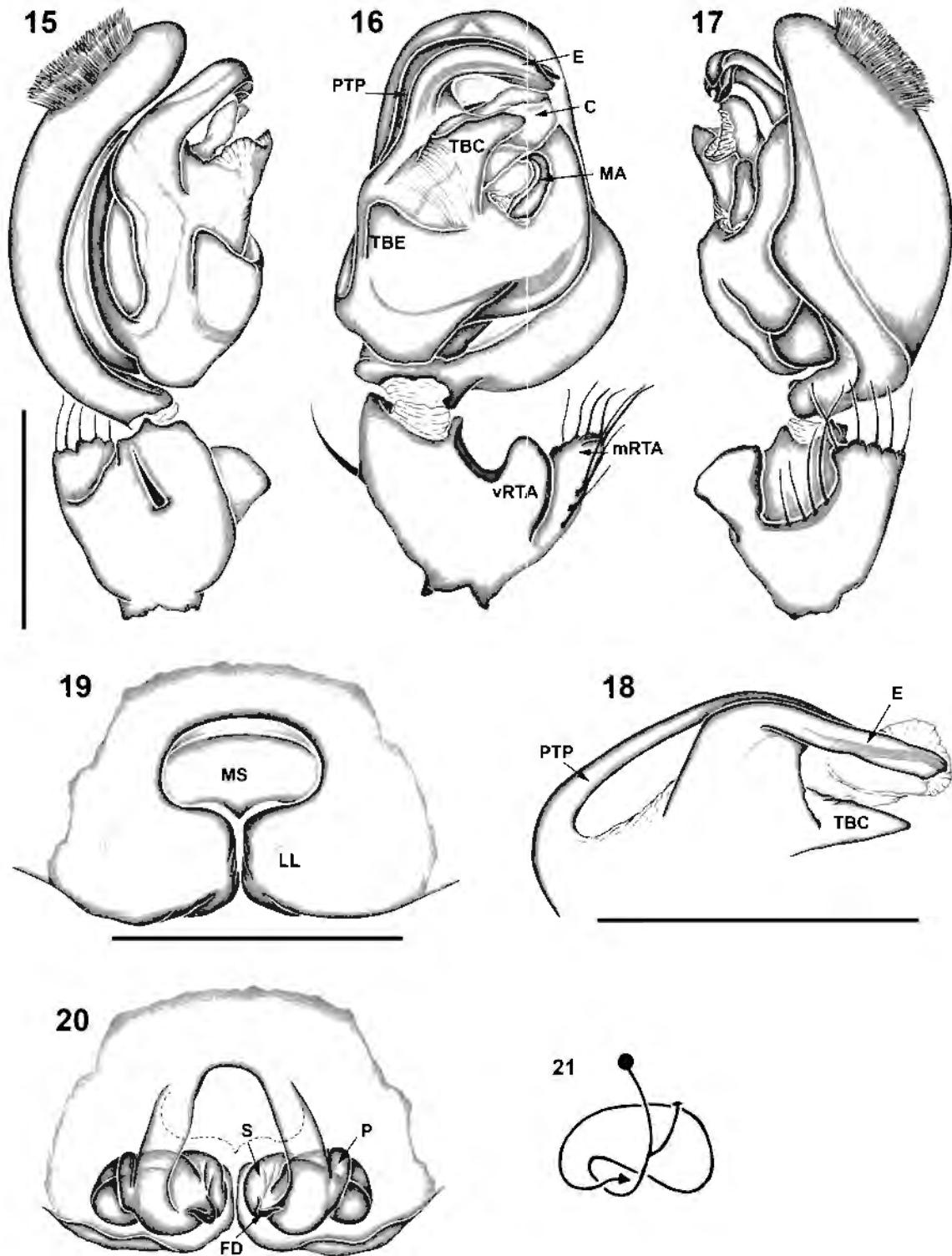
Tentabunda cubana (Banks). Fox 1937: 464, figs. 5, 11.

Other material examined. UNITED STATES OF AMERICA: Florida: 1♂, 1934, W.M. Barrows leg. (AMNH); 1♀, Alachua County, Alachua (29°46'N, 82°28'W), 5 May 1937 (AMNH); 1♀, Gainesville, Sugarfoot Hammock (29°39'N, 82°19'W), 19 March 1938, W.J. Gertsch leg. (AMNH); 1♂, 1♀, Volusia, Coronado Beach (29°01'N, 80°53'W), August 1935, M. Broyles leg. (AMNH); 1♀, Port Orange, Oakland Park (29°05'N, 80°59'W), 7–14 March 1930, W.S. Blatchey leg. (MCZ 69669); 1♂, 3 juv., Orange City (28°56'N, 81°17'W), 9 December 1962, W. Ivie leg. (AMNH); 2♂, Palmetto Key (27°31'N, 82°34'W), June 1942, C.M. Breder leg. (AMNH); 1♀, De Soto City (27°12'N, 81°46'W), 5 October 1962, A.M. Nadler leg. (AMNH); 4♂, Dade County, Long Pine Key, Everglades National Park (25°24'N, 80°41'W), 8 June - 26 August 1986, S. & J. Peck leg. (AMNH); 1♂, Monroe County, Key Largo (25°05'N, 80°26'W), 4 March - 28 April 1985, S. & J. Peck leg. (AMNH); 1♂, Fat Deer Key (24°44'N, 81°00'W), 4 May - 4 August 1985, S. & J. Peck leg. (AMNH); 1♂, Sugarloaf Key (24°37'N, 81°32'W), 4 August - 19 November 1985, S. & J. Peck leg. (AMNH); 1♀, 3 March - 29 April 1985, S. & J. Peck leg. (AMNH); 1♀, 19 November 1985 - 26 February 1986, S. & J. Peck leg. (AMNH); 2♂, 1 juv., 29 August - 14 December 1986, S. & J. Peck leg. (AMNH). **BAHAMAS: Freeport District:** 1♀, Dundee Bay (26°30'N, 78°42'W), 20–23 December 1965, L. Pinter leg. (MCZ 30714). **South Bimini:** 1♀, (25°44'N, 79°15'W), May 1951, W.J. Gertsch & M.A. Cazier leg. (AMNH); 1♀, June 1951, M.A. Cazier leg. (AMNH); Eleuthera Island: 1♂, New Portsmouth (25°08'N, 76°08'W), 28 March 1953, G. Rabb leg. (AMNH).

CUBA: 1♀, 1967, P. Alayo leg. (MCZ 30713); 1♀, 23 October 1931, N. Banks leg. (MCZ 69668); **Matanzas:** 1♀, Cuabales de San Francisco (22°52'N, 81°17'W), May 1984, L.F. de Armas leg. (MNHNCu). **Artemisa:** 1♂, San Antonio de los Baños (22°53'N, 82°28'W), 11 March 1999, R. Quiñones leg. (MNHNCu). **Pinar del Río:** 1♂, Guanahacabibes, El Veral (21°58'N, 84°32'W), November 1981, L.R. Hernández leg. (MNHNCu). **Camaguey:** 1♂, 1♀, 1 juv., Sierra de Cubitas, Limones-Tuabaquey Ecological Reserve (21°34'N, 77°45'W), March - April 2012, Team CarBio leg. (USNM). **Granma:** 1♂, 2♀, Niquero, Monte Gordo (20°35'N, 77°50'W), 28 November 1987, A.R. Estrada leg. (MNHNCu); 1♀, Río Canto, El Mango (20°33'N, 77°12'W), 23 April 2003, A. Sanchez leg. (MNHNCu). **Holguín:** 1♂, 1♀, Pinares de Mayari (20°32'N, 75°28'W), 25 April 1997, A. Sánchez leg. (MNHNCu). **Santiago de Cuba:** 3♀, Soledad (20°25'N, 75°27'W), 8 August 1931, L.G. Worley leg. (MCZ 60773).



FIGURES 9–14. *Decaphora cubana* (Banks) **comb. nov.** 9 Male, right chelicerae, ventral view; 10 Male, metatarsus I, trilobate membrane, dorsal view; 11 Male, tarsus I, tarsal organ, dorsal view; 12 Male, tarsus I, trichobothria, dorsal view; 13 Female, left palp, claw; 14 Male, leg I, tarsal claws. bp = basal plate; cp = crescent plate.



FIGURES 15–21. *Decaphora cubana* (Banks) **comb. nov.** 15–18 Male, left palp (15 prolateral, 16 ventral, 17 retrolateral, 18 detail of embolus); 19–21 Female (19 epigyne, 20 vulva, 21 schematic course of internal duct system). C = conductor; E = embolus; FD = fertilization duct, LL = lateral lobes; MA = median apophysis; mRTA = median branch of RTA; MS = median septum; P = blind ended projection; PTP = paraembolic tegular projection; TBC = tegular projection at base of conductor; TBE = tegular projection at base of embolus; S = spermathecae; vRTA = ventral branch of RTA. Scale lines: 1 mm.

Diagnosis. Distinguished from the remaining species of the genus by the male palp with mRTA short and truncated with five short distal spines and four slightly longer spines along the lateral margin and by dRTA absent (Figs 16 17). The females resemble those of *D. variabilis* (F.O. Pickard Cambridge) by the epigyne lacking

triangular projections in the lateral lobes (Figs 19, 41) but are distinguished by the oval, median septum wider than long and by the touching part of lateral lobes as long as median septum length (Fig. 19).

Redescription. Male (AMNH, Everglades National Park, Florida): Prosoma orange with slightly darker margins. Chelicerae, legs and pedipalps orange, slightly darker than prosoma. Sternum pale orange with darker sclerotized margins. Labium and endites pale orange. Opisthosoma cream colored (Fig. 1). Total length 9.4. Prosoma: 4.6 long, 3.9 wide. Opisthosoma: 4.9 long, 3.4 wide. Eyes: diameters: 0.28, 0.22, 0.14, 0.22; interdistances: 0.16, 0.14, 0.34, 0.38, 0.20, 0.12. Legs (2-1-4-3): I: 16.0 (4.5, 2.2, 4.2, 4.2, 0.90); II: 16.5 (4.8, 2.4, 4.2, 4.2, 0.9); III: 13.0 (4.0, 1.9, 3.0, 3.3, 0.8); IV: 15.6 (4.6, 1.7, 3.7, 4.6, 1.0). Leg and palp spination follow the generic pattern, except leg femur IV: r0-1-1. Palp: tibia short with one prolateral spine; PTP long and cylindrical; TBC slightly triangular and distally indented, TBE triangular (Figs 15–17).

Female (AMNH, South Bimini, Bahamas): Coloration pattern as in male, except opisthosoma, dorsally variegated brown and ventrally mottled with brown spots (Fig. 2). Total length 9.7. Prosoma: 4.2 long, 3.6 wide. Opisthosoma: 5.5 long, 3.5 wide. Eyes: diameters: 0.24, 0.24, 0.16, 0.18; interdistances: 0.20, 0.18, 0.36, 0.44, 0.20, 0.14. Legs (4-2/1-3): I: 11.8 (3.4, 2.0, 2.9, 2.7, 0.8); II: 11.8 (3.5, 2.0, 2.8, 2.7, 0.8); III: 9.6 (3.0, 1.7, 2.0, 2.2, 0.7); IV: 11.9 (3.5, 1.6, 2.7, 3.2, 0.9). Leg and palp spination follow the generic pattern. Epigynum: median septum oval, wider than long (Fig. 19). Vulva: blind-ended projection closer to antero-posterior loop than to copulation openings; fertilization ducts curved posteriorly and pointing away from each other (Figs 20–21).

Variation. Coloration in males can be darker, ranging from reddish-brown to brown. Males (n = 10): total length 7.5–10.0; prosoma length 3.6–4.8; femur I length 3.7–5.10. Females (n = 7): total length 6.6–10.2; prosoma length 3.6–4.3; femur I length 3.1–3.4.

Distribution. Known from Central and Southern Florida, United States to Cuba (Fig. 44).

Decaphora kohunlich spec. nov.

Figs 3–4, 22–28, 46

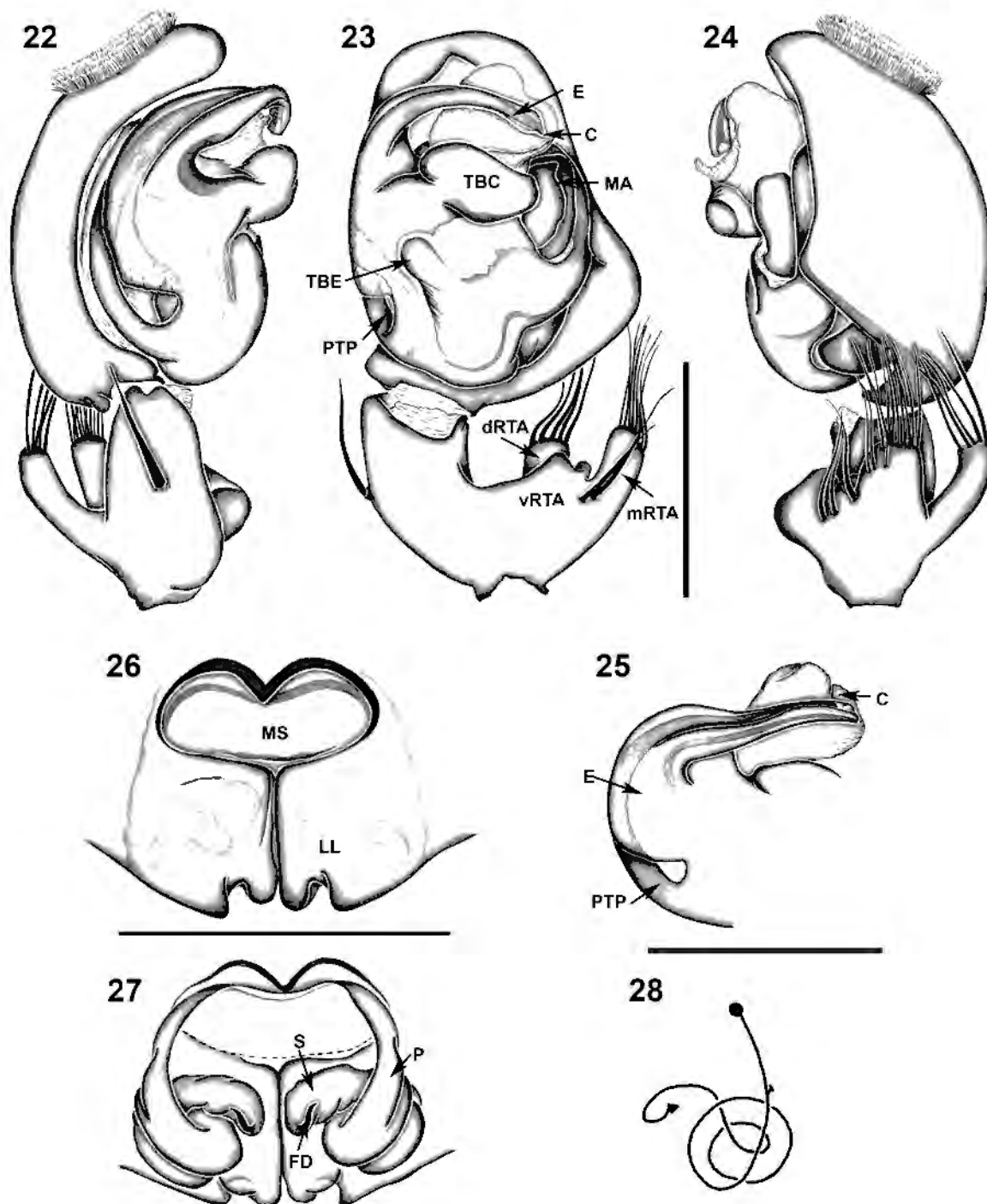
Type material: Holotype: ♂ from 8 km SE Salto de Agua (17°30'45"N, 92°30'40" W), 60 m., Chiapas, Mexico, 14 June 2008, LLAMA Project leg. (MCZ 79977).

Paratypes: 1♀, Playon de la Gloria (16°09'36" N, 90°54'06" W), Chiapas, México, 24 June 2008, LLAMA Project leg. (MCZ 80515); 1♀, Kohunlich ruins, 9 km S Francisco Villa (18°26' N, 88°48' W), Quintana Roo, Mexico, 14–17 July 1983, W Maddison & R.S. Anderson leg. (MCZ 30718); 1♂, 1 juv., 5 km NW Morales (15°30'39"N, 88°51'39" W), 195 m, Izabal, Guatemala, 17 May 2009, LLAMA Project leg. (MCZ 89534); 1♀, 1 juv., Cerro Cahuí (17°00'08" N, 89°42'59" W), 250 m, Petén, Guatemala, 22 May 2009, LLAMA Project leg. (MCZ 89592).

Etymology. The specific name is a noun in apposition taken from the type locality of one of the female paratypes.

Diagnosis. *Decaphora kohunlich* spec. nov. resembles *D. pestai* (Reimoser) by mRTA with many distal spines and dRTA very long and slender in the male palp (Figs 23–24 vs. 30–31) and by lateral lobes of the female epigyne with posterior triangular projections (Figs 26 vs. 34). The males are distinguished by vRTA with short, rounded projection at base, slightly pear-shaped TBC and distally rounded TBE (Fig. 23). The females are distinguished by the atrium at least three times wider than long, anteriorly indented and by the lateral lobes with a posterior excavation (Fig. 26).

Description. Male (MCZ 79977): Prosoma orange brown with faint brown margins and faint brown lines along thoracic striae. Chelicerae, legs and pedipalps orange brown. Sternum pale orange with slightly darker margins. Endites orange, distally cream colored. Labium orange brown, distally orange. Opisthosoma cream colored, dorsally with irregular brown markings on anterior half and laterally and brown pattern of five median, inverted V-shaped marks on posterior half, ventrally with scattered brown spots (Fig. 3). Total length 8.3. Prosoma: 4.2 long, 3.7 wide. Opisthosoma: 4.0 long, 2.5 wide. Eyes: diameters: 0.32, 0.23, 0.18, 0.23; interdistances: 0.20, 0.06, 0.41, 0.32, 0.15, 0.07. Legs (1-2-4-3): I: 15.7 (4.5, 2.2, 4.3, 3.9, 0.8); II: 15.6 (4.6, 2.1, 4.1, 3.9, 0.9); III: 12.5 (3.8, 1.9, 2.8, 3.1, 0.9); IV: 14.7 (4.4, 1.7, 3.4, 4.2, 1.0). Leg and palp spination follow the generic pattern. Palp: tibia short with one prolateral spine; PTP long and cylindrical (Fig. 23); embolus with subdistal, slightly serrated keel (Fig. 25).



FIGURES 22–28. *Decaphora kohunlich* spec. nov. 22–25 Male, left palp (22 prolateral, 23 ventral, 24 retrolateral, 25 detail of embolus); 26–28 Female (26 epigyne, 27 vulva, 28 schematic course of internal duct system). C = conductor; dRTA = dorsal branch of RTA; E = embolus; FD = fertilization duct, LL = lateral lobes; MA = median apophysis; mRTA = median branch of RTA; MS = median septum; P = blind ended projection; PTP = paraembolic tegular projection; S = spermathecae; TBC = tegular projection at base of conductor; TBE = tegular projection at base of embolus; vRTA = ventral branch of RTA. Scale lines: 1 mm.

Female (MCZ 30718): Coloration pattern as in male. Opisthosoma with denser dorsal pattern (Fig. 4). Total length 11.1. Prosoma: 3.8 long, 3.5 wide. Opisthosoma: 6.6 long, 3.6 wide. Eyes: diameters: 0.26, 0.22, 0.14, 0.20, interdistances: 0.20, 0.16, 0.40, 0.40, 0.18, 0.10. Legs (1-2-4-3): I: 12.4 (3.6, 2.0, 3.1, 2.8, 0.9); II: 12.3 (3.6, 2.0, 3.0, 2.8, 0.9); III: 9.3 (3.0, 1.1, 2.1, 2.3, 0.8); IV: 12.1 (3.5, 1.6, 2.6, 3.3, 1.1). Leg and palp spination follow the generic pattern except: femora I IV: p2; tibiae I II: v2-2-2-2-2-2; tibia III: v2-2-1p; tibia IV: d0; metatarsi I II: p1-

1-0; r1-1-0; metatarsus III: p0. Epigyne: Touching part of lateral lobes two times longer than median septum height (Fig. 26). Vulva: blind-ended projection inconspicuous, closer to antero-posterior loop than to copulation openings; fertilization ducts curved anteriorly and pointing away from each other (Figs. 27–28).

Variation. Males (n = 2): total length 8.2–8.3; prosoma length 3.8–4.2; femur I 3.8–4.5. Females (n = 3): total length 8.3–11.1; prosoma length 3.6–4.4; femur I length 3.0–3.8.

Distribution. Known from Mexico and Guatemala (Fig. 46).

Decaphora pestai (Reimoser, 1939) comb. nov.

Figs 5–6, 29–36, 45

Seramba pestai Reimoser, 1939: 366, fig. 12 (holotype male from Waldeck (10°05'N; 83°22'W), Limón, Costa Rica, deposited in NMW, examined).

Thelcticopis pestai: Jäger 2005: 57; Platnick 2014.

Other material examined. **BELIZE:** *Stann Creek District:* 1♂, 1 juv., Sittee Point, Possum Biological Station (16°48'N, 88°24'W), 22–30 April 1987, Spangler & Faitoute leg. (USNM). **NICARAGUA:** *Zelaya:* 1♀, Bluefields (12°00'N, 83°45'W), 11 March 1953, R.B. Swain leg. (AMNH). **COSTA RICA:** *Guanacaste:* 5♂, Parque Nacional Guanacaste, Cacao Biological Station, 1100 m (10°55'N, 85°28'W), 17–18 March 1998, D. Garcia leg. (INBIO 4526, 50915, 73795, 32621); 4♂, Tierras Morenas, Río San Lorenzo (10°33'N, 84°59'W), 8 March - 26 April 1995, G. Rodríguez leg. (INBIO 4524). *Limón:* 3♂, Sector Cocori, 30 km N Cariari (10°38'N, 83°44'W), February 1995, E. Rojas leg. (INBIO); 4♂, 1♀, Sector Cocori, December 1994, E. Rojas leg. (INBIO 4525); 1♂, Reserva Biológica Hitoy-Cerere (09°20'N, 82°20'W), 21 May - 22 July 1993, E. Carballo leg. (INBIO 2412). *Heredia:* 1♀, Puerto Viejo de Sarapiquí, Finca La Selva, 4km SE Puerto Viejo de Sarapiquí (10°27'N, 84°00'W), October 1981, C.E. Griswold leg. (CAS); 1♀, Puerto Viejo de Sarapiquí, Finca La Selva (10°27'N, 84°00'W), 18–21 August 1970, C.E. Valerio leg. (UCR). *Puntarenas:* 2♂, Agujas, Estación Agujas, 375 m (08°34'N, 83°22'W), 27–31 July 1998, C. Viquez, A. Azofeifa, P. Jordan, N. Montoya leg. (INBIO 4526).

Diagnosis. *Decaphora pestai* resembles *D. kohunlich* spec. nov. by mRTA with many distal spines and dRTA very long and slender in the male palps (Figs 23–24 vs. 30–31) and by lateral lobes of the female epigyne with posterior triangular projections (Figs 26 vs. 34). The males are distinguished by the slightly oval TBC and conical TBE (Fig. 30). The females are distinguished by the epigyne with touching part of LL 1.5 times longer than the median septum length (Fig. 34).

Redescription. Male (USNM): Prosoma orange with brown fovea and very faint darker orange thoracic striae. Chelicerae, legs and pedipalps orange. Sternum pale yellow with pale orange margins. Labium and endites pale yellow. Opisthosoma cream colored, mottled with brown spots (Fig. 5). Total length 8.9. Prosoma: 4.4 long, 3.9 wide. Opisthosoma: 4.3 long, 2.6 wide. Eyes: diameters: 0.26, 0.22, 0.16, 0.20; interdistances: 0.20, 0.06, 0.44, 0.36, 0.14, 0.18. Legs (2-1/4-3): I: 16.9 (4.7, 2.3, 4.5, 4.4, 1.0); II: 17.1 (5.0, 2.5, 4.5, 4.2, 0.9); III: 13.6 (4.1, 2.0, 3.1, 3.6, 0.8); IV: 16.9 (4.9, 1.8, 4.0, 5.0, 1.2). Leg and palp spination follow the generic pattern. Palp: tibia short, with no spines (Fig. 29); PTP long and cylindrical (Fig. 30).

Female (CAS): Coloration pattern as in male, except opisthosoma with brown pattern of 8–9 median, inverted V-shaped marks and lateral spots (Fig. 6). Total length 9.6. Prosoma: 4.0 long, 3.6 wide. Opisthosoma: 5.5 long, 3.5 wide. Eyes: diameters: 0.28, 0.22, 0.16, 0.20; interdistances: 0.22, 0.10, 0.42, 0.38, 0.16, 0.14. Legs (2-1-4-3): I: 12.1 (3.4, 2.0, 3.3, 2.7, 0.7); II: 12.3 (3.7, 2.0, 3.2, 2.7, 0.7); III: 10.0 (3.2, 1.6, 2.2, 2.3, 0.7); IV: 12.0 (3.6, 1.5, 2.7, 3.2, 1.0). Leg and palp spination follow the generic pattern. Epigyne: median septum oval, wider than long (Fig. 34). Vulva: fertilization ducts pointing away from each other (Figs. 35–36)

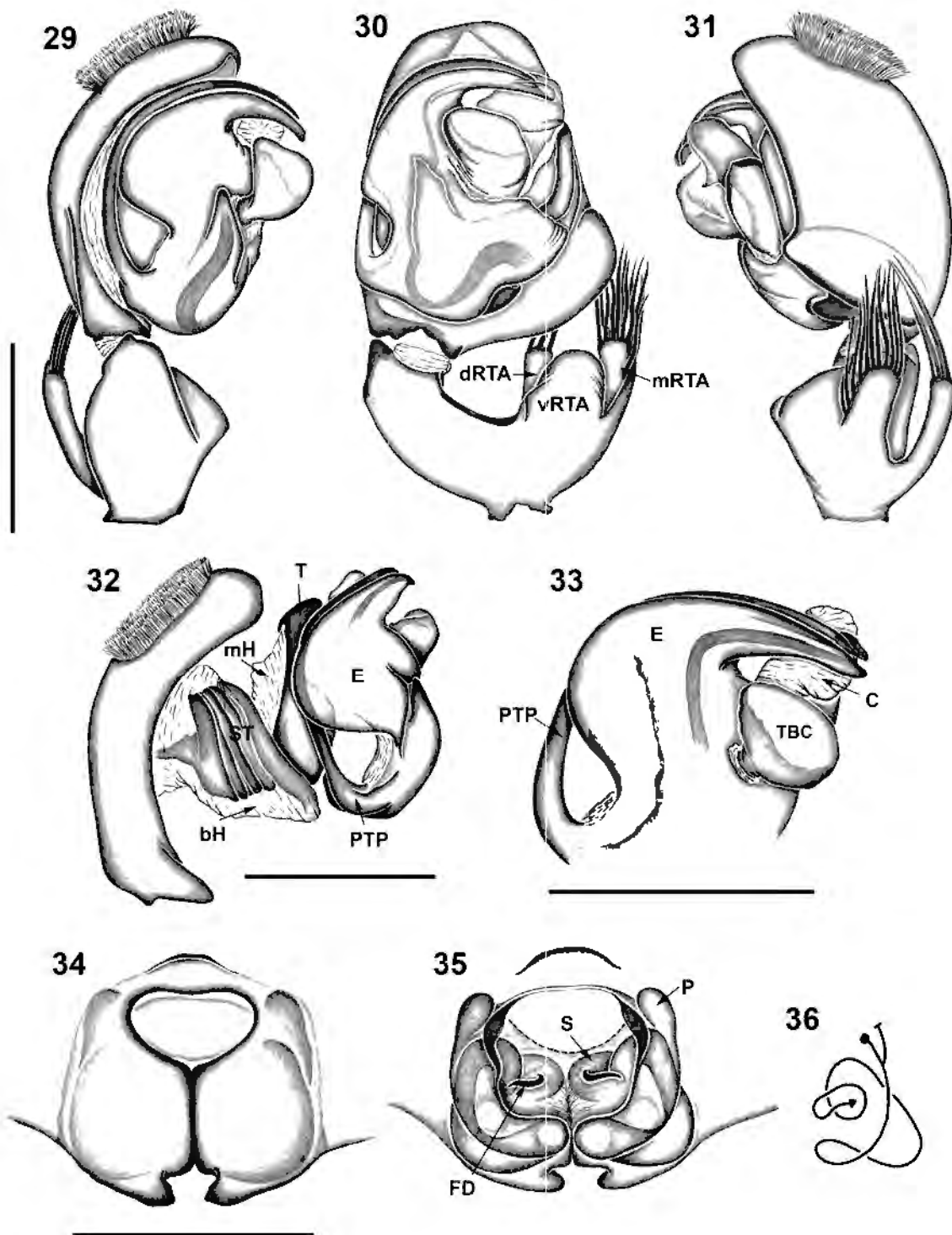
Variation. Males (n = 2): total length 8.3–8.9; prosoma length 4.2–4.4; femur I 4.2–4.7.

Distribution. Known from Central America from Belize to Costa Rica (Fig. 45).

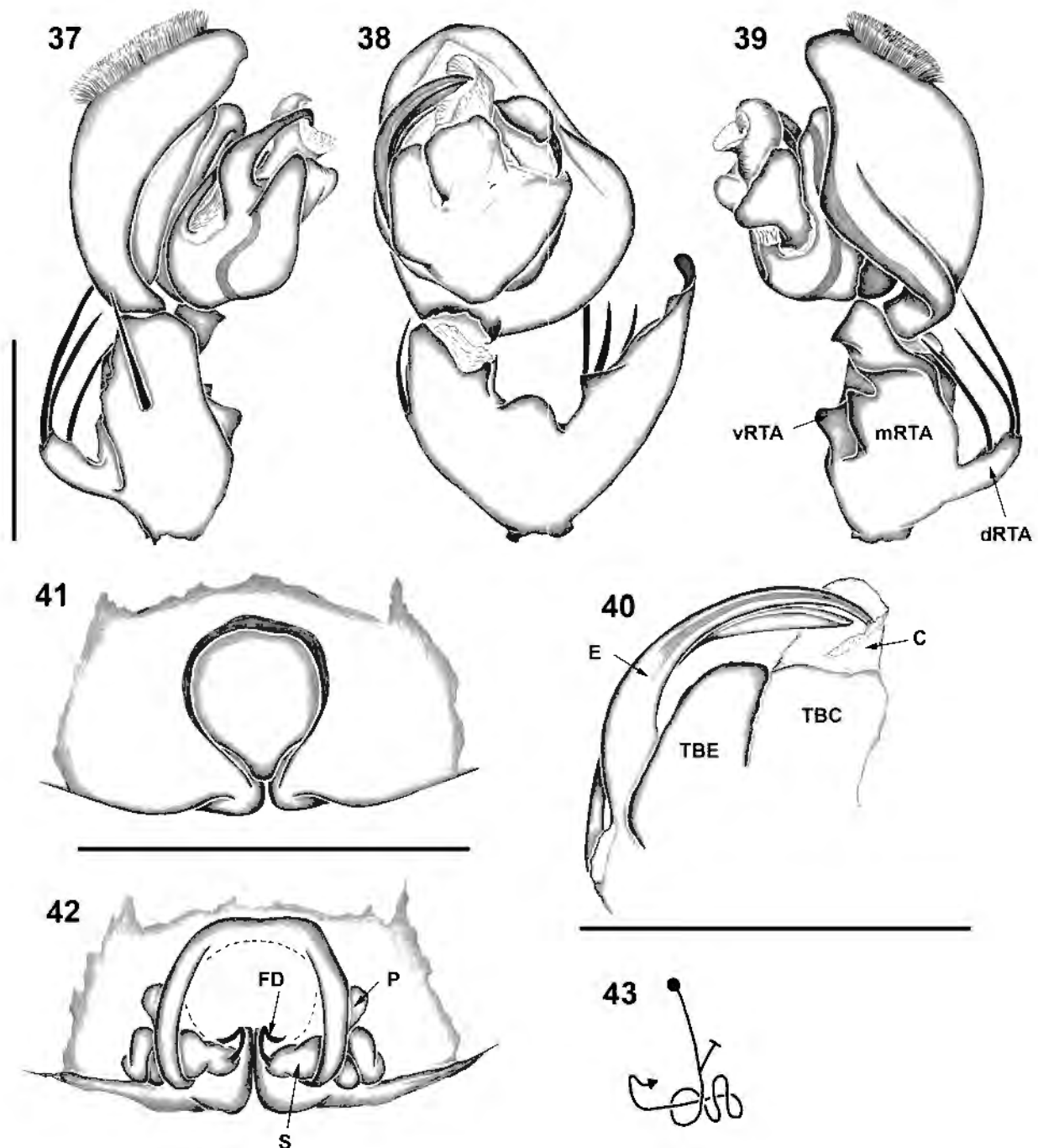
Decaphora variabilis (F.O. Pickard-Cambridge, 1900) comb. nov.

Figs 7–8, 37–43, 46

Pseudosparianthis variabilis F.O. Pickard-Cambridge, 1900: 119, plate 8, fig. 21 (holotype female from Omiltemi (17°30'N, 99°40'W), Guerrero, Mexico, deposited in NHM 1901.3.3.131, examined). Platnick 2014.
Tentabunda variabilis (F.O. Pickard-Cambridge). Fox 1937: 465.



FIGURES 29–36. *Decaphora pestai* (Reimoser) **comb. nov.** 29–31 Male, left palp (29 prolateral, 30 ventral, 31 retrolateral view); 32–33 Male, right palp (32 expanded bulb, 33 detail of embolus); 34–36 Female (34 epigyne, 35 vulva, 36 schematic course of internal duct system). bH = basal haematodochae; C = conductor; dRTA = dorsal branch of RTA; E = embolus; FD = fertilization duct; MA = median apophysis; mH = median haematodochae; mRTA = median branch of RTA; P = blind ended projection; PTP = paraembolic tegular projection; S = spermathecae; ST = subtegulum; T = tegulum; TBC = tegular projection at base of conductor; vRTA = ventral branch of RTA. Scale lines: 1 mm.



FIGURES 37–43. *Decaphora variabilis* (F.O. Pickard-Cambridge) **comb. nov.** 37–40 Male, left palp (37 prolateral, 38 ventral, 39 retrolateral, 40 detail of embolus); 41–43 Female (41 epigyne, 42 vulva, 43 schematic course of internal duct system). C = conductor; dRTA = dorsal branch of RTA; E = embolus; FD = fertilization ducts; mRTA = median branch of RTA; P = blind ended projection; S = spermathecae; TBC = tegular projection at base of conductor; TBE = tegular projection at base of embolus; vRTA = ventral branch of RTA. Scale lines: 1 mm.

Other material examined. MEXICO: *Chiapas:* ♂, 16 km NW Ocozocoautla, Parque Laguna Belgica, (16°45'N, 93°21'W), 14 June 1990, H. Howden leg. (AMNH).

Diagnosis. Distinguished from the remaining species of the genus by the male palp with mRTA large, distally laminar and ventrally slightly curved (Figs 38–39), dRTA with three very long spines and by the T-shaped median apophysis in retrolateral view (Fig. 39). Females resemble *D. cubana* (Banks) **comb. nov.** by the epigyne lacking posterior triangular projections in the lateral lobes (Figs 19 vs. 41) but are distinguished by the median septum pear shaped, longer than wide and by the touching part of the lateral lobes very short (Fig 41).

Description. Male (AMNH): Prosoma orange with slightly darker margins. Chelicerae, legs and pedipalps slightly darker than carapace. Sternum orange with darker sclerotized margins. Labium and endites pale orange, distally cream colored. Opisthosoma cream colored (Fig. 7). Total length 10.2. Prosoma: 4.4 long, 3.7 wide. Opisthosoma: 5.5 long, 2.8 wide. Eyes: diameters: 0.26, 0.22, 0.16, 0.22; interdistances: 0.20, 0.08, 0.34, 0.26, 0.14, 0.14. Legs 2-1-4-3: I: 15.7 (4.3, 2.1, 4.4, 3.9, 1.0); II: 15.9 (4.6, 2.1, 4.4, 3.8, 1.0); III: 12.0 (3.6, 1.7, 2.8, 3.0, 0.9); IV: 14.7 (4.2, 1.6, 3.5, 4.2, 1.2). Leg and palp spination follow the generic pattern. Palp: TBC subsquared; embolus base twice as wide as apex, mostly hidden behind very large TBE in ventral view (Figs 37–40).

Redescription. Female (holotype): Badly preserved specimen. Prosoma, chelicerae, legs and pedipalps brown. Sternum orange with brown margins. Labium and endites brown, distally orange. Opisthosoma greenish yellow with inconspicuous pattern of gray spots scattered laterally and on anterior half and median chevrons on posterior half (Fig. 8). Total length 8.3. Prosoma: 3.3 long, 2.9 wide. Opisthosoma: 4.7 long, 2.8 wide. Eyes: diameters: 0.20, 0.16, 0.14, 0.14; interdistances: 0.20, 0.12, 0.38, 0.30, 0.20, 0.14. Legs (1-2-4-3): I: 9.9 (2.9, 1.7, 2.4, 2.2, 0.7); II: 9.8 (3.0, 1.8, 2.1, 2.2, 0.7); III: 7.3 (1.6, 1.4, 1.8, 1.9, 0.6); IV: 9.6 (2.9, 1.0, 2.2, 2.6, 0.9). Spination follows the generic pattern. Epigyne: epigynal plate at least two times wider than long (Fig. 41). Vulva: blind-ended projection arising midway between copulation openings and antero-posterior loop; fertilization ducts directed anteriorly and curving away from each other (Figs 42–43).

Distribution. Only known from Mexico, states of Guerrero and Chiapas (Fig. 46).

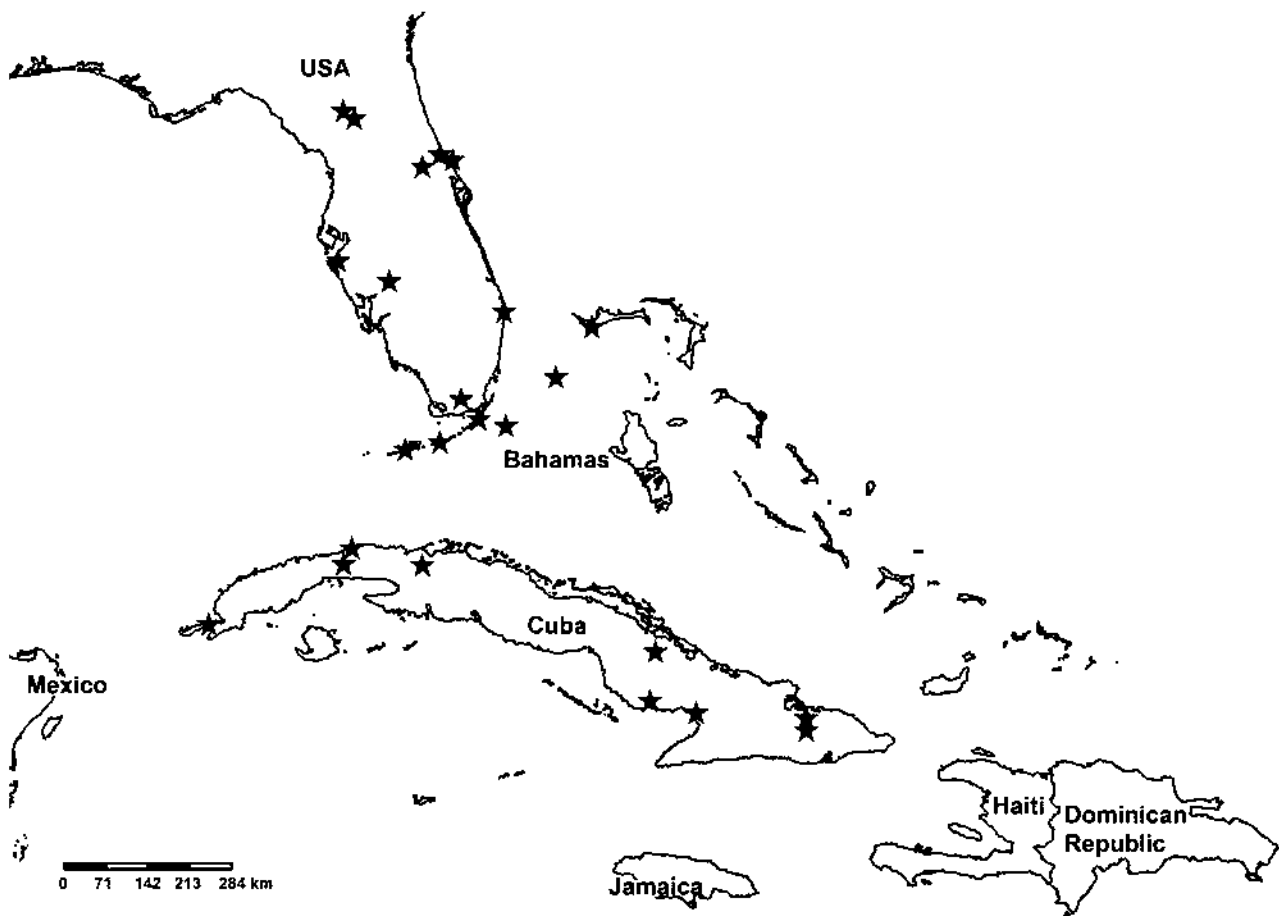


FIGURE 44. Distribution map of *Decaphora cubana* (Banks) **comb. nov.**

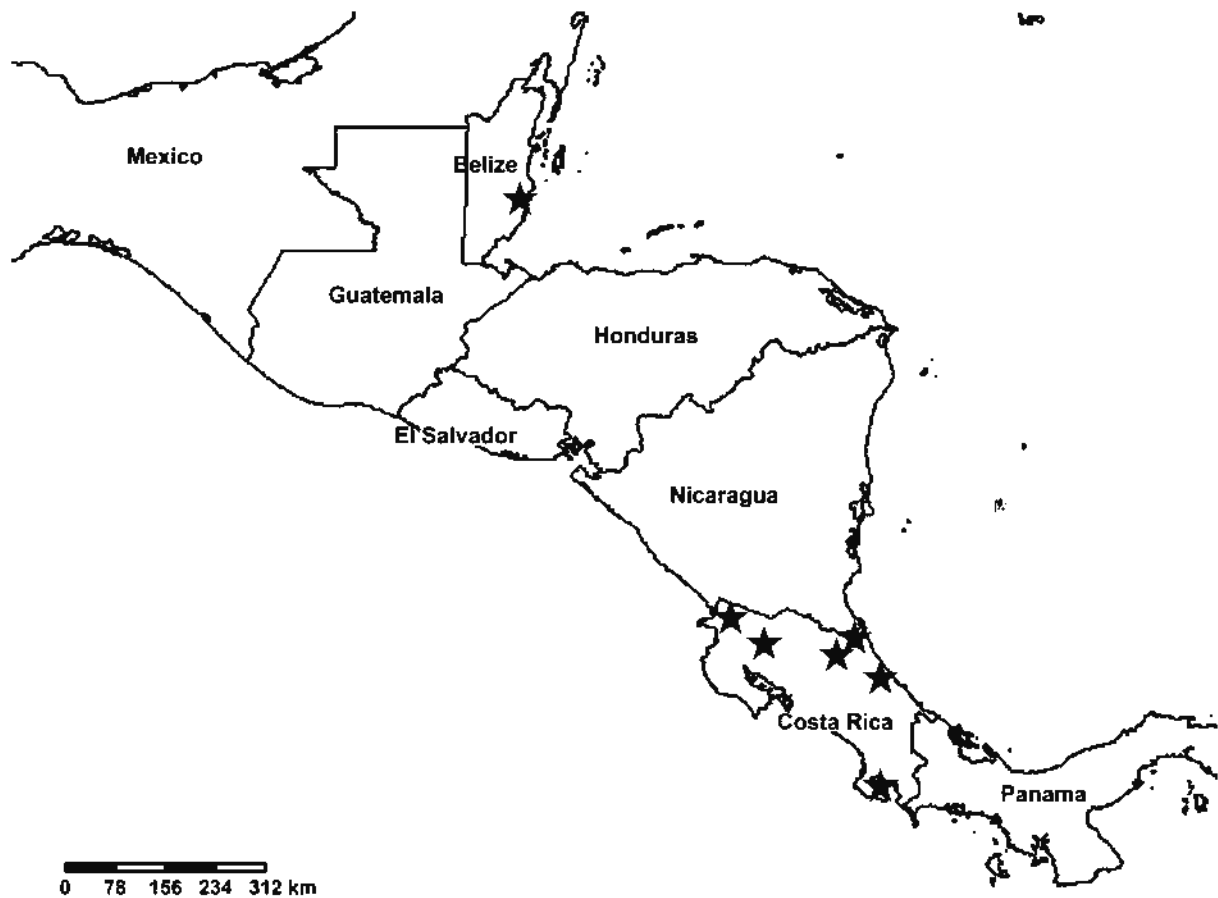


FIGURE 45. Distribution map of *Decaphora pestai* (Reimoser) comb. nov.

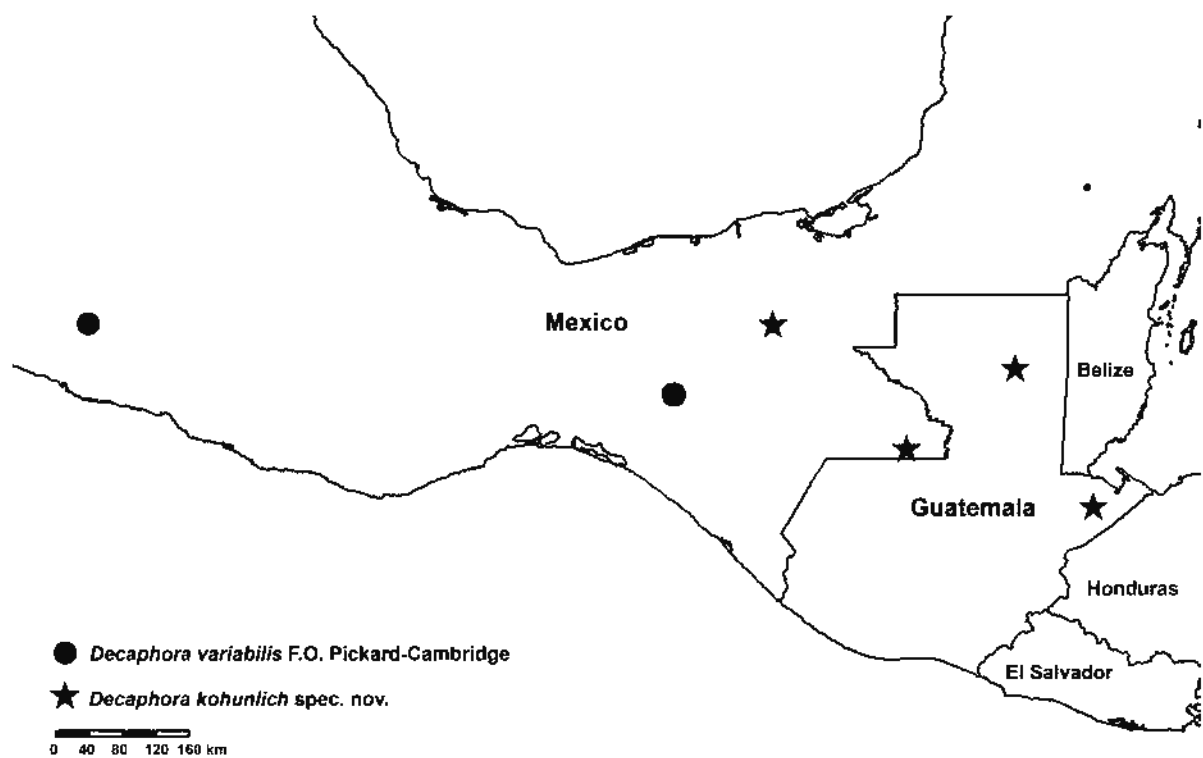


FIGURE 46. Distribution map of *Decaphora kohunlich* spec. nov. and *Decaphora variabilis* (F.O. Pickard-Cambridge) comb. nov.

Acknowledgements

We wish to thank Dr. Peter Jäger (Senckenberg Research Institute and Museum) for critical reading and suggestions to the earlier version of this manuscript; two anonymous reviewers for additional suggestions; Dr. Luis F. Armas (Instituto de Ecología y Sistemática, La Habana, Cuba) for loaning the syntype of *D. trabiformis* Franganillo; Dr. Pedro Kiyohara and Ms. Simone Perche de Toledo (Laboratório de Microscopia Eletrônica, USP) for the scanning electron micrographs; Ricardo Pinto da Rocha (Instituto de Biociências, USP), for loaning his camera to take pictures of the male and female habitus. This study was financed by “Fundação de Amparo à Pesquisa do Estado de São Paulo” (FAPESP grant no. 2011/18694-3 and 2011/50689-0).

References

- Banks, N. (1909) Arachnida of Cuba. *Estación central agronómica de Cuba, Second Report*, II, 150–174.
- Bryant, E.B. (1923) Report on the spiders collected by the Barbados-Antigua Expedition from the University of Iowa in 1918. *University of Iowa Studies in natural History*, 10, 10–16.
- Bryant, E.B. (1940) Cuban spiders in the Museum of Comparative Zoology. *Bulletin of the Museum of Comparative Zoology*, 86, 247–554.
- Fox, I. (1937) The Nearctic spiders of the family Heteropodidae. *Journal of the Washington Academy of Sciences*, 27, 461–474.
- Franganillo, B. (1931) Excursiones arcnológicas, durante el mes de agosto de 1930. *Estudios de "Belen"*, 1931(25), 168–171; (26), 219–224; (27–28), 285–288; (29), 44–49.
- Gertsch, W.J. (1941) Report on some arachnids from Barro Colorado Island, Canal Zone. *American Museum Novitates*, 1146, 1–14.
- Jäger, P. (2005) *Seramba* Thorell 1887 is a synonym of *Theleticopsis* Karsch 1884 (Arachnida, Araneae, Sparassidae, Sparianthinae). *Senckenbergiana biologica*, 85, 57–59.
- Penney, D. (2001) Advances in the taxonomy of spiders in Miocene amber in the Dominican Republic (Arthropoda: Araneae) *Palaeontology*, 44, 987–1009.
<http://dx.doi.org/10.1111/1475-4983.00211>
- Petrunkevitch, A. (1925). Arachnida from Panama. *Transactions of the Connecticut Academy of Arts and Sciences*, 27, 51–248.
- Pickard-Cambridge, F.O. (1900) Arachnida - Araneida and Opiliones. In: *Biologia Centrali-Americana, Zoology*, 2, pp. 89–192.
- Platnick, N.I. (2014) The world spider catalog. Version 14.5. American Museum of Natural History. Available from: <http://research.amnh.org/entomology/spiders/catalog/index.html> (accessed 27 February 2014)
- Reimoser, E. (1939) Wissenschaftliche Ergebnisse der österreichischen biologischen Expedition nach Costa Rica. Die Spinnenfauna. *Annalen des Naturhistorischen Museums in Wien*, 50, 328–386.
- Rheims, C.A. (2007) Revision of the Neotropical spider genus *Macrinus* (Araneae, Sparassidae). *Journal of Arachnology*, 35, 159–170.
<http://dx.doi.org/10.1636/h06-16.1>
- Roewer, C.F. (1955) *Katalog der Araneae von 1758 bis 1940, bzw. 1954*. Institut Royal des Sciences Naturelles de Belgique, Brussels, 2, 1–1751.
- Simon, E. (1887) Espèces et genres nouveaux de la famille des Sparassidae. *Bulletin de la Société zoologique de France*, 12, 466–474.