

Revision of the Neotropical arboreal spider genus *Syntrechalea* (Araneae, Lycosoidea, Trechaleidae)

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Abstract. The spider genus *Syntrechalea* is redefined and revised with a total of seven species recognized. The previously described species *S. tenuis* F.O. Pickard-Cambridge 1902 and *S. reimoseri* Caporiacco 1947 are redefined. *Syntrechalea porschi* Reimoser 1939 is a new junior synonym of *S. tenuis*. *Trechalea syntrechaleoides* Mello-Leitão 1941 is transferred to the genus *Syntrechalea*. The males of *S. tenuis* and *S. syntrechaleoides* are described for the first time. A lectotype is designated for *Syntrechalea reimoseri* (Caporiacco 1947). Three new species, *S. adis*, *S. caporiacco*, and *S. brasilica*, are described from both males and females. The new species *S. caballero* is described from only the female, and *S. napoensis* is described from only the male. The arboreal nature of the genus is emphasized and discussed.

Keywords: New species, Pisauridae, taxonomy

In previous generic revisions and in other publications on genera in the family Trechaleidae the species treated are considered “semi-aquatic,” i.e., they inhabit the margins of streams and lakes, which confirms the prevailing impression regarding the habitat of Trechaleidae [*Trechalea* Thorell 1869 (Carico 1993); *Hesydrus* Simon 1898 (Carico 2005a); *Trechaleoides* Carico 2005 (Carico 2005b); *Paratrechalea* Carico 2005 (Carico 2005b); and *Paradossemus* F.O. Pickard-Cambridge 1903 (Sierwald 1993) as well as three other works in preparation]. In the genus *Syntrechalea* F.O. Pickard-Cambridge 1902, however, it seems that most species are arboreal. In the species descriptions below, statements quoted from the collection labels and personal communications with some of the collectors give good evidence of this arboreal habit. This deviation from what is considered the “characteristic” aquatic habitat of a family by a terrestrial/arboreal subgroup is paralleled in the Pisauridae. In North America, the typical habitat for *Dolomedes* Latreille 1804 (Pisauridae) is aquatic; however, *Dolomedes albineus* Hentz 1845 is the arboreal exception.

Relatively few specimens were available for this study apparently because of the general inaccessibility of these species to collection from the trees in which they reside. By publishing this revision, I hope that future collectors working in this habitat will obtain additional specimens and habitat data that will enhance our knowledge of this interesting group. With further collecting in this habitat, I expect that we will add significantly to the number of species in this genus and determine the extent to which the spiders contribute to the predatory fauna in this varied habitat.

Although the genus possesses typical trechaleid characteristics (Carico 1993), there are relatively unique characters present which may be associated with their arboreal habit. Specifically, the long, slender legs (Fig. 18) in proportion to the body and a flattened profile of the carapace with an elevated cephalic area (Fig. 19) permit the spider to stay perched on a tree trunk while conforming to the physical contours of its substrate. Some species have large numbers of macrosetae pairs on the ventral side of the tibiae and metatarsi

of legs I and II (up to 15), while there are a reduced number for those segments of legs III and IV. Although there are characteristics of the general morphology that unite these species into the genus *Syntrechalea*, there is considerable diversity in the genitalia, particularly of the female.

METHODS

Specimens were loaned from the following museums: Museu Nacional, Rio de Janeiro (MNRJ); American Museum of Natural History, New York (AMNH); Museum of Comparative Zoology, Cambridge, Massachusetts (MCZ); California Academy of Sciences, San Francisco (CAS); Field Museum of Natural History, Chicago (FMNH); Museo Zoologico “La Specola”, Florence (MZUF); Instituto Nacional de Pesquisas Amazônia, Manaus (INPA); U.S. National Museum of Natural History, Washington, DC (USNM); The Natural History Museum, London (BMNH); Universidade de Brasília, Instituto de Ciências Biológicas (DBAI); Costa Rica, Ciudad Universitaria, Universidad de Costa Rica, Museo de Zoología (MZCR). Measurements are in mm. As an index to the size of the body, only the length of the relatively rigid carapace is given because of variability in the condition of the softer abdomen. Abbreviations and additional notes pertaining to the eye group measurements are in Table 1. Abbreviations of structures of genitalia are after Carico (1993) and Sierwald (1993).

TAXONOMY

Family Trechaleidae Simon 1890

Diagnosis.—The spider family Trechaleidae was diagnosed by Silva et al. (2008), as follows: eyes arranged in two rows, presence of a tibial apophysis and a ventrodorsal refolded rim on male palpal tibia; male palpus with a large median apophysis with a dorsal embolic groove extending into the guide; female epigynum generally heavily sclerotized, dark and opaque, the epigynal plate is conspicuous and the anterior field wide and usually distinct from the lateral lobes and the female builds a discoid and flattened egg sac, fixed, and carried on the spinnerets (Carico 1993).

Table 1.—Eye measurements for species of *Syntrechalea*. Measurements are dimensions with outer limits of entities included. AE row = width of anterior eye row, PE row = width of posterior eye row, OQA = width of ocular quadrangle anteriorly or width of anterior median eyes, OQP = width of ocular quadrangle posteriorly or width of posterior median eyes, OQH = height of ocular quadrangle or height of anterior median eye at posterior median eye, PLE = diameter of posterior lateral eye, PME = diameter of posterior median eye, ALE = diameter of anterior lateral eye, AME = diameter of anterior median eye, PLE-PME = inter-distance between posterior lateral eye and posterior median eye, PME-AME = inter-distance between posterior median eyes, ALE-AME = inter-distance between anterior lateral eye and anterior median eye, AME-AME = inter-distance between anterior median eyes.

	<i>S. tenuis</i> , ♂	<i>S. tenuis</i> , ♀	<i>S. retrorsit</i> , ♀	<i>S. adis</i> , ♂	<i>S. adis</i> , ♀	<i>S. syntrechaleoides</i> , ♂	<i>S. syntrechaleoides</i> , ♀	<i>S. capriaco</i> , ♂	<i>S. capriaco</i> , ♀	<i>S. brasilia</i> , ♂	<i>S. brasilia</i> , ♀	<i>S. nipoensis</i> , ♂	<i>S. caballero</i> , ♀
AE row	0.82	0.84	0.77	0.9	0.82	0.94	1.03	0.98	1.04	0.92	1.09	0.92	1.11
PE row	1.6	1.6	1.54	1.67	1.44	1.92	2.13	1.9	2.05	1.78	2.08	1.6	1.95
OQA	0.48	0.47	0.45	0.48	0.46	0.51	0.56	0.55	0.59	0.54	0.64	0.52	0.56
OQP	0.87	0.85	0.83	0.88	0.86	1.03	1.14	1.04	1.1	0.94	1.1	0.95	0.98
OQH	0.74	0.69	0.7	0.74	0.78	0.82	0.95	0.87	0.9	0.84	0.9	0.84	0.84
PLE	0.4	0.38	0.35	0.39	0.34	0.44	0.5	0.48	0.47	0.4	0.45	0.4	0.41
PME	0.38	0.35	0.33	0.34	0.38	0.45	0.49	0.46	0.49	0.41	0.43	0.4	0.35
ALE	0.12	0.13	0.12	0.13	0.12	0.15	0.16	0.15	0.16	0.15	0.16	0.15	0.15
AME	0.2	0.2	0.19	0.21	0.2	0.21	0.23	0.22	0.24	0.24	0.25	0.25	0.24
PLE-PME	0.28	0.26	0.26	0.25	0.26	0.3	0.25	0.3	0.3	0.35	0.36	0.32	0.3
PME-AME	0.2	0.19	0.2	0.16	0.2	0.25	0.27	0.21	0.25	0.22	0.29	0.2	0.31
ALE-AME	0.06	0.06	0.06	0.1	0.1	0.07	0.09	0.06	0.06	0.05	0.06	0.05	0.11
AME-AME	0.11	0.1	0.1	0.12	0.1	0.16	0.17	0.15	0.15	0.11	0.12	0.08	0.15

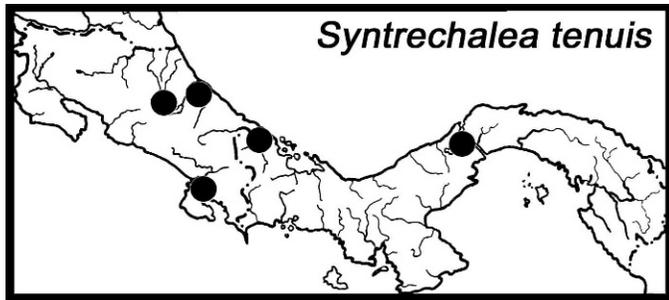


Figure 1.—Distribution of *Syntrechalea tenuis* in Central America.

Genus *Syntrechalea* F.O. Pickard-Cambridge 1902

Syntrechalea F.O. Pickard-Cambridge 1902:313, 314; Roewer 1954:139; Bonnet 1955–1959:4225; Lehtinen 1967:379; Brignoli 1983:461; (Pisauridae). Carico 1986: 305; Sierwald 1990:8; Carico 1993:226; Sierwald 1993:63 (Trechaleidae); Platnick 2007.

Type species.—*Syntrechalea tenuis* F.O. Pickard-Cambridge 1902, by original designation.

Diagnosis.—*Syntrechalea* shares only with the trechaleid genus, *Hesydrus*, the character of both having flexible tarsi and a flexible distal half of the metatarsi, but the former differs from the latter by legs that are also very thin with the leg III femur approximately twice the length of the carapace (femur III length/carapace length: *Syntrechalea* = average 1.84, range 1.37–2.33; *Hesydrus* = average 1.25, range 1.16–1.32). The legs of *Syntrechalea* are also very thin, tend to bend or curl in alcohol, and bear numerous pairs of ventral, tibial macrosetae (average 8.93, range 6–15 pairs on leg I; only 4 in all *Hesydrus* species). The carapace is low with the cephalic region uniquely elevated and the eyes more or less tuberculate. The retrolateral tibial apophysis is bifurcate with the ectal division narrow and the ental division equally prominent and flattened. The cymbium has two or three macrosetae. The cheliceral paturon is not swollen in the male. The epigynum is varied but has the middle field distinct and in a posterior position and surrounded by the anterior field anteriorly and laterally.

Description.—Carapace low with cephalic region elevated and eyes more-or-less tuberculate. AE row straight or nearly so, PE recurved. Black zone around each eye prominent and often coalescing with others. Three promarginal cheliceral teeth with median larger than other two; three retromarginal cheliceral teeth of equal size. Relative leg lengths variable but with leg III always shortest. Legs long, thin, with tarsi flexible, often curved in alcohol; distal half of metatarsi flexible and often bent. Femur III usually more than twice length of carapace. Numerous ventral macrosetae pairs on tibiae I and II ranging from 6 to 15.

Retrolateral tibial apophysis (rta) of male palpus (Figs. 8, 9) with ectal division (ecd) narrow, bilobed ental division (end) usually equal in length but flattened; ventral division (vd) of median apophysis (ma) narrowing to a point distally, guide (g) of dorsal division (dd) acute and directed laterally except in *S. syntrechaleoides*. Epigynal plate (Fig. 10) with conspicuous middle field (mf) distinct from anterior field (af), internal parts (Fig. 11, 13, 17, 23, 27, 31, 35) varied.

Distribution.—In the northern limit of the range of the genus, the best distribution records of *S. tenuis* are in Costa

Rica and Panama; however, there is a record of a female from “Barrancas,” Mexico, which has not yet been precisely located. The genus ranges southward through South America where the southern-most locations of *S. caporiacco* are in the state of Bahia in Brazil.

Syntrechalea tenuis F.O. Pickard-Cambridge

Figs. 1, 8–11

Syntrechalea tenuis F.O. Pickard-Cambridge 1902:314; Roewer 1954:139; Bonnet 1958:4225; Platnick 2007.

Syntrechalea porshi Reimoser 1939:339; Roewer 1954:139; Platnick 2008. **NEW SYNONYMY**

Materia examined.—Holotype of *Syntrechalea tenuis*: female, PANAMA: Chiriquí: Bugaba, 08°29'N, 082°37'W, Champion (BMNH).

Holotype of *Syntrechalea porshi*: male, COSTA RICA: Limon: Hamburg Farm (Rio Reventatou), 1930, E. Reimoser (NHMH).

Other material: COSTA RICA: *Caratago*: 1 ♀, Turrialba, 09°54'N, 083°41'W, 11 March 1967, W.B. Peck (CAS); *Limon*: 1 ♀, Hamburg Farm [location not traced], 27 March 1930, C.R. Dodge (MCZ); *Puntarenas*: 1 ♀, Rincón de Osa, date unknown, C.E.Valerio (UCR). PANAMA: *Bocas del Toro*: 1 ♂, Changuinola, 09°26'N, 082°31'W, date unknown, Swift (AMNH); *Canal Zone*: 2 ♀, Barro Colorado Island, 08°14'36"N, 078°13'22"W, 13–23 July, year unknown, Banks (MCZ); 1 ♂, 2 juveniles, Pipeline Road, 12 July 1976, GGM, Y.L. (abbreviations for unknown collectors) (UV); 2 juveniles, same data except 15 July 1976 (GGM/YL) (UV). MEXICO: 1 ♂, 150 km NE. of Barrancas (not located), 1 August 1958, A.S. Menke (AMNH).

Diagnosis.—*Syntrechalea tenuis* is the only member of the genus known in Central America. The male shares a two-pointed guide of the dorsal division of the median apophysis only with *S. napoensis* but differs from the latter by the shape of the ectal division of the retrolateral tibial apophysis in that *S. tenuis* has two acute points while *S. napoensis* has one acute point and the other rounded.

Description.—*Male* (*Changuinola, Bocas del Toro, Panama*): Carapace length 3.1, width 3.0, pale with indistinct narrow marginal band, black in eye region. Sternum light, unmarked, length 1.86, width 1.84; labium light, length 0.62, width 0.58. Clypeus height 0.27, width 1.44. Anterior eye row straight, eye measurements in Table 1. Chelicerae unmodified; faces light with dark maculae distally; middle of promarginal teeth largest, three marginal teeth sub-equal in size, equidistant, all larger than promarginal teeth. Legs IV-II-I-III, ventral macrosetae pairs on tibiae are I-9, II-9, III-5, IV-1. Color of legs pale, marked only with very faint maculae. Abdomen length 4.2, with distinct, diffuse dorsal pattern. Palpus (Figs. 8, 9) tibia length less than cymbium, bulb tegulum and subtegulum prominent, ventral division of median apophysis acute distally with two points, guide of dorsal division acute, directed laterad, ectal division of retrolateral tibial apophysis prominent, projected somewhat laterally, outer edge with two points.

Female (holotype): Entire specimen blanched. Carapace length 3.0, width 3.0. Sternum length 1.70, width 1.70; labium length 0.58, width 0.60. Clypeus height 0.45, width 1.43. Anterior eye row straight, eye measurements in Table 1.

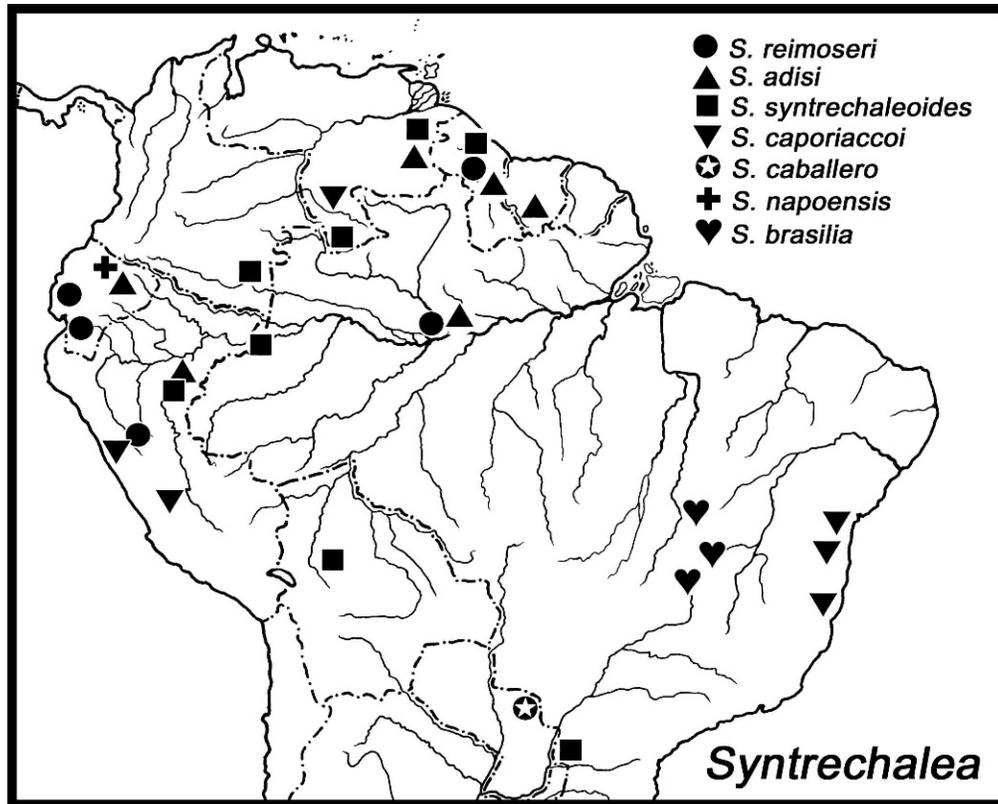


Figure 2.—Distribution of species of *Syntrechalea* in South America.

Cheliceral teeth as for male. Leg formula unavailable because of missing segments, ventral macrosetae pairs on tibiae are I-9, II-10, III-5, IV-0. Abdomen length 3.5. Middle field (*mf*) of epigynum (Figs. 10, 11) triangular, emerges from under a ridge, narrowing posteriorly; internal elements filling most of space inside epigynal plate.

Variation.—Carapace lengths of two males are 3.1 and 3.2 respectively. Average carapace length of females is 3.5 (3.0–4.1, $n = 6$).

Leg dimensions (mm).—*Male (Changuinola, Bocas del Toro, Panama)*: Leg I: femur 7.2, tibia–patella 9.6, metatarsus 7.7, tarsus 4.9; total 29.4. Leg II: femur 7.3, tibia–patella 9.5, metatarsus 8.2, tarsus 4.8; total 29.8. Leg III: femur 6.7, tibia–patella 7.5, metatarsus 8.0, tarsus 5.2; total 27.4. Leg IV: femur 8.1, tibia–patella 9.5, metatarsus 11.5, tarsus 6.9; total 36.0.

Female (holotype): Leg I: femur 6.5, tibia–patella 8.7, metatarsus 6.2, tarsus missing; total -. Leg II: femur 6.8, tibia–patella 8.7, metatarsus 6.6, tarsus missing; total -. Leg III: femur 6.2, tibia–patella 6.8, metatarsus 6.8, tarsus 3.6; total 23.4. Leg IV: femur 7.6, tibia–patella 9.0, metatarsus 10.1, tarsus 5.8; total 32.5.

Natural history.—Collection notations such as “canopy sample,” “tree trunks-open woods night,” and “on dry wood” indicate that this is probably an arboreal species. An unidentified cricket with a female from Rincón de Osa, Costa Rica, may add further evidence that the species is not typically a streamside inhabitant. An opened egg-sac with attached spiderlings from Hamburg Farm collected 27 March 1930 has

typical trechaleid structure as described previously for the family (Carico 1993).

Distribution.—Most specimens are from Costa Rica and Panama. In addition, however, a single male with a locality label “15 kms NE Barrancas,” is impossible to locate in Mexico where there are at least eight localities by that name. This locality is most likely in the southern tropical forested region of Mexico, which would be a similar habitat to that for other *Syntrechalea* species in South America. Therefore, it can be assumed that the distribution of this species is from southern Mexico throughout Central America (Fig. 1) where the appropriate habitat exists.

Syntrechalea reimoseri (Caporiacco)

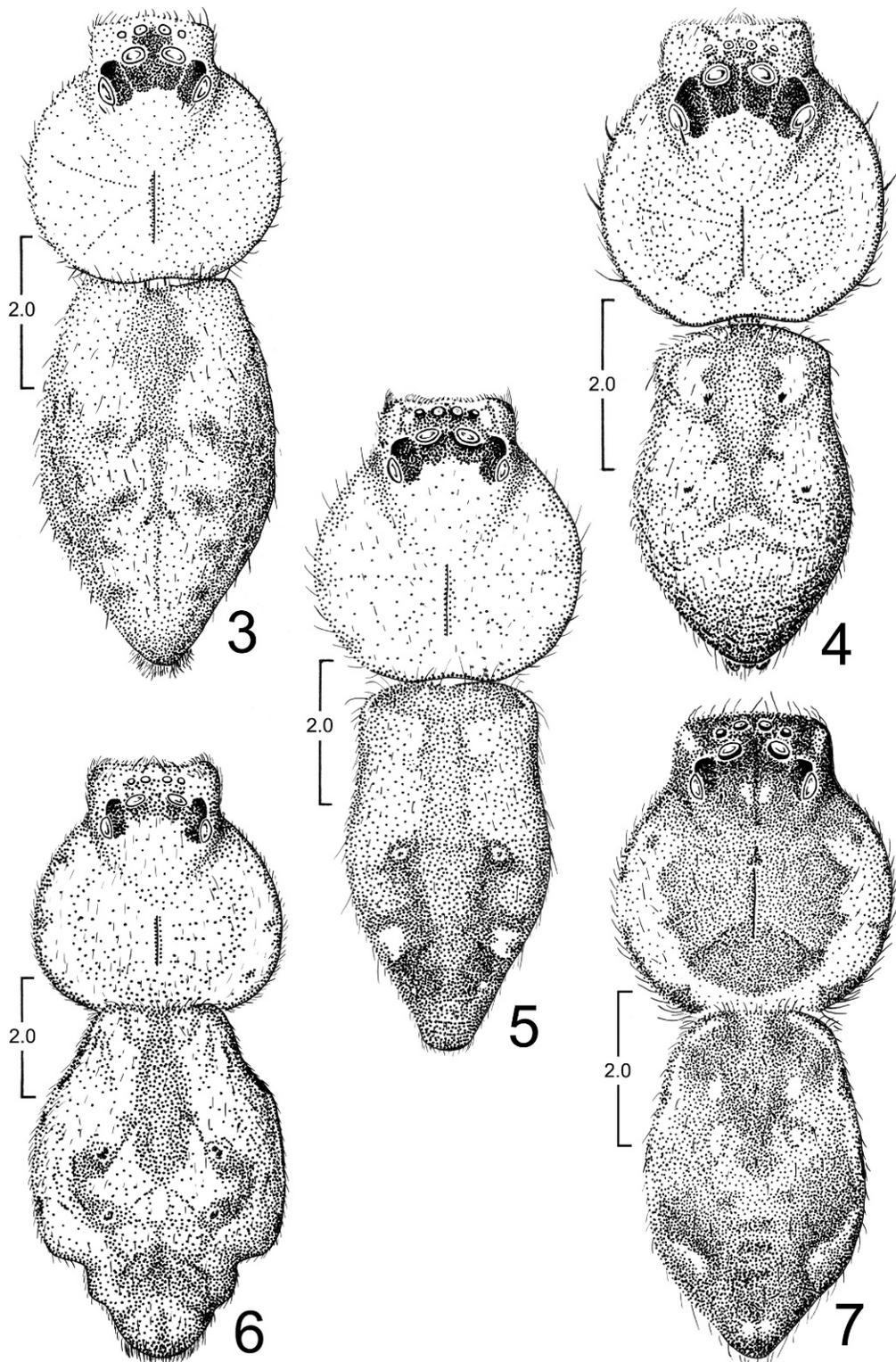
Figs. 2, 3, 12, 13

Trechalea reimoseri Caporiacco 1947:22; Caporiacco 1948:634; Roewer 1954:143; Platnick 2008.

Syntrechalea reimoseri (Caporiacco): Carico 1993:237.

Material examined.—Female lectotype, present designation: GUYANA: *Potero-Siparuni*: Conwarook (Konawaruk), 05°15'N, 059°03'W, 18 March 1946, Romiti (MZUF).

Other material: BRAZIL: *Amazonas*: 1 ♂, Reserva Ducke, 25 km N of Manaus, 03°06'48"S, 060°01'30"W, 24 March 1964, C.E. & E.S. Ross (CAS). ECUADOR: *El Oro*: 1 ♀, Boenavista, 20 km SE of Machala, 03°16'S, 079°58'W, 11 January 1942, E.L. Moore (CAS); *Los Rios*: 1 ♀, Pichilique, 2 February 1955, collector unknown (CAS). PERU: *Huanuco*: 1 ♀, Tingo Maria, 09°18'S, 075°59'W, 21 November 1946, J.C. Pallister (AMNH).

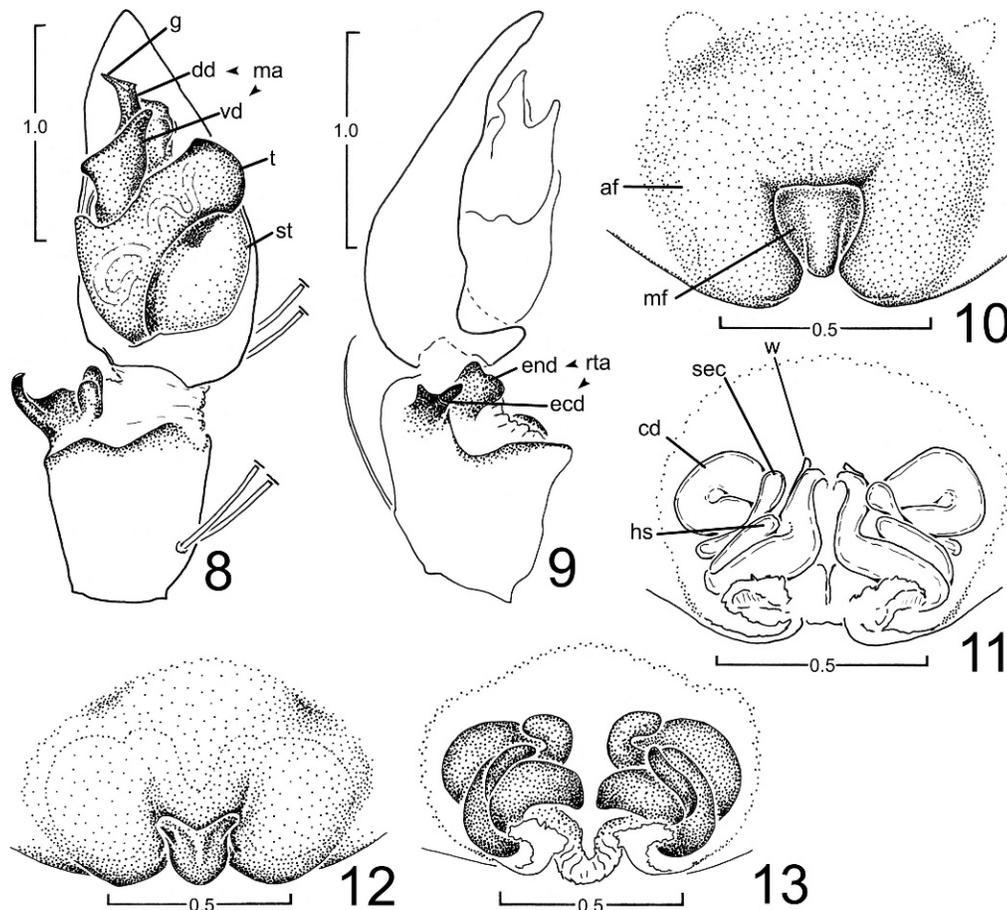


Figures 3-7.—Dorsal patterns of species of *Syntrechalea*: 3. *S. reimoseri*, female; 4. *S. adis*, male; 5. *S. syntrechaleoides*, male; 6. *S. caballero*, female; 7. *S. brasilia*, male.

Diagnosis.—Females of *S. reimoseri* are distinguished from other species in the genus by details of the epigynum. Uniquely, the middle field is rugose ventrally and emerges from under a v-shaped margin of the anterior field. The internal structures are relatively large and occupy a large part

of the area beneath the epigynal plate, a feature shared only with *S. tenuis* and *S. adis*.

Description.—*Female (Reserva Ducke, Amazonas, Brazil):* Carapace (Fig. 3) low, cephalic area elevated, light, unmarked, length 2.8, width 2.8; sternum light, unmarked, length 1.62,



Figures 8–13.—Genitalia of species of *Syntrechalea*. 8–11. *S. tenuis*: 8. Right palp, ventral view; 9. Right palp, retrolateral view; 10. Epigynum, ventral view; 11. Epigynum, dorsal view. 12, 13. *S. reimoseri*: 12. Epigynum, ventral view; 13. Epigynum, dorsal view. Abbreviations: a = anterior field, cd = copulatory duct, dd = dorsal division of median apophysis, ecd = ectal division of retrolateral tibial apophysis, end = ental division of retrolateral tibial apophysis, g = guide of median apophysis, ma = median apophysis, hs = head of true spermatheca, mf = middle field, sec = secondary spermatheca, st = subtegulum, t = tegulum, vd = ventral division of median apophysis, rta = retrolateral tibial apophysis, w = wing of copulatory duct.

width 1.60; labium light, length 0.51, width 0.55. Clypeus height 0.26, width 1.30. Anterior eye row straight, eye measurements in Table 1. Chelicera unmodified; faces light with dark maculae distally; middle of promarginal teeth largest, three marginal teeth sub-equal in size, equidistant, all larger than promarginal teeth. Legs II-I-III (IV missing); tarsi and distal part of metatarsi flexible, ventral macrosetae pairs on tibiae I-13, II-13, III-7; color generally light with distinct maculae on femora and faint dark maculae on other segments. Abdomen length 4.7, generally light with darker areas mainly on cardiac area and laterally in the posterior half, scattered small dark spots on lateral surfaces except for larger dark area near apex, light ventrally with a pair of dark spots centrally, a conspicuous patch of short, dark hairs at apex above anal tubercle.

Epigynum (Figs. 12, 13) with middle field white, acute posteriorly, arising from a v-shaped suture; internal structures large, filling most of the space beneath the epigynal plate.

Male: Unknown.

Leg dimensions (mm).—*Female* (*Reserva Ducke, Amazonas, Brazil*): Leg I: femur 5.7, tibia–patella 7.5, metatarsus 5.6, tarsus 3.6; total 22.4. Leg II: femur 5.8, tibia–patella 7.3, metatarsus 5.9, tarsus 4.0; total 23.0. Leg III: femur 5.3, tibia–patella 6.0, metatarsus 5.8, tarsus 3.8; total 21.0. Leg IV: missing.

Variation.—Average carapace length of females = 3.16 (2.8–3.5, $n = 6$).

Natural history.—A single egg sac from Tingo Maria, Peru, diameter = 7.3, has typical trechaleid features, i.e., flattened with spiderlings clearly visible inside.

Distribution.—This species occurs from Guyana southwestward to Ecuador and south to the State of Amazonas, Brazil (Fig. 2).

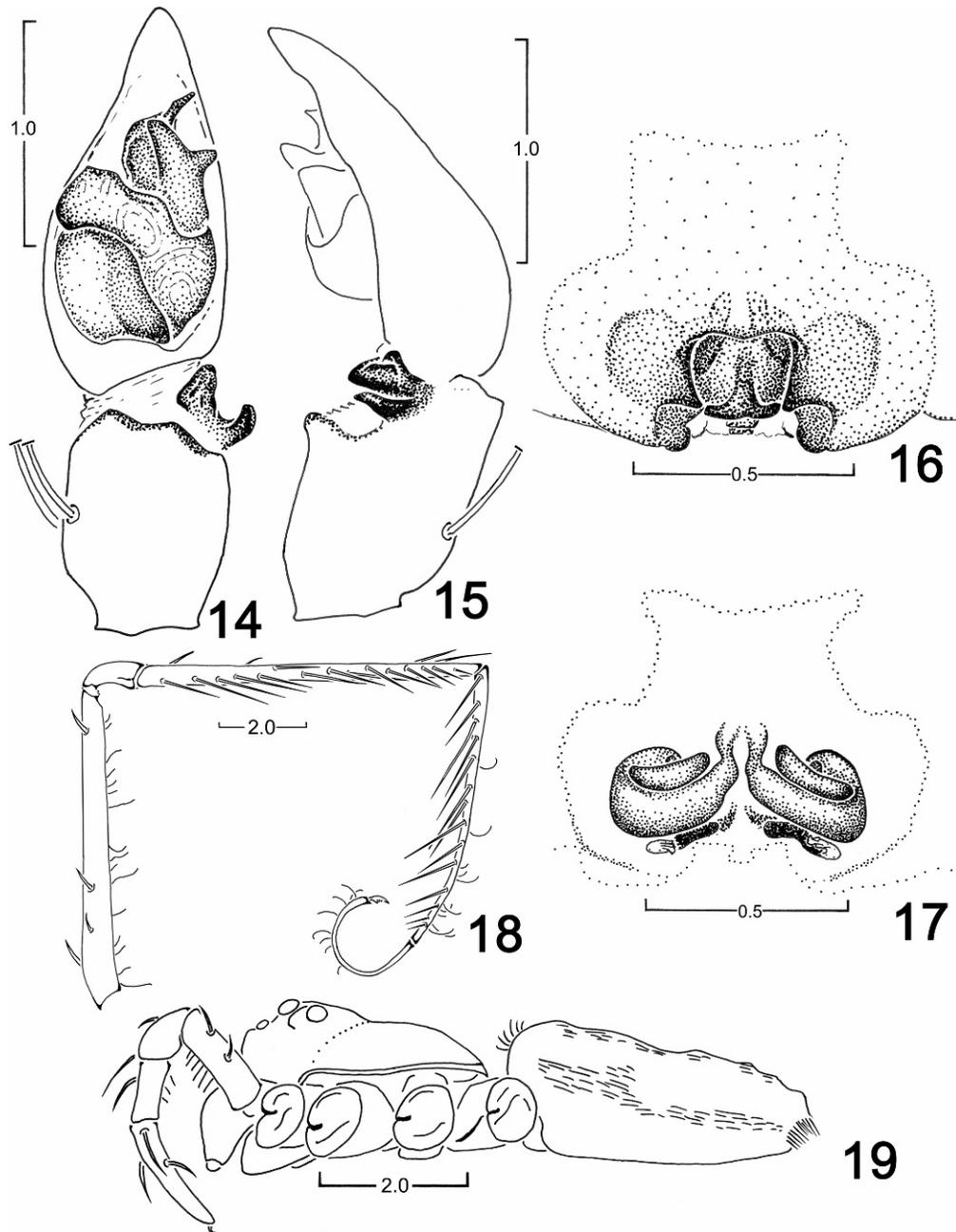
Remarks.—The type collection contained both a male and a female, each belonging to a different species, neither of which was a member of the genus *Trechalea*. The female is designated here as the lectotype of *Trechalea reimoseri* and transferred to the genus *Syntrechalea*, while the male paralectotype, originally believed to belong to a third genus (Carico 1993), is described below as a new species, *Syntrechalea caporiacco*.

Syntrechalea adis new species

Figs. 2, 4, 14–19

Material examined.—Holotype male: BRAZIL: *Amazonas*: Igapó, Rio Tarumã Mirim, 2 March 1983, in trunk trap, J. Adis (INPA).

Other material: BRAZIL: *Amazonas*: 2 ♂, Manaus, 03°06'48"S, 060°01'31"W, Igapó, Rio Tarumã Mirim, 14



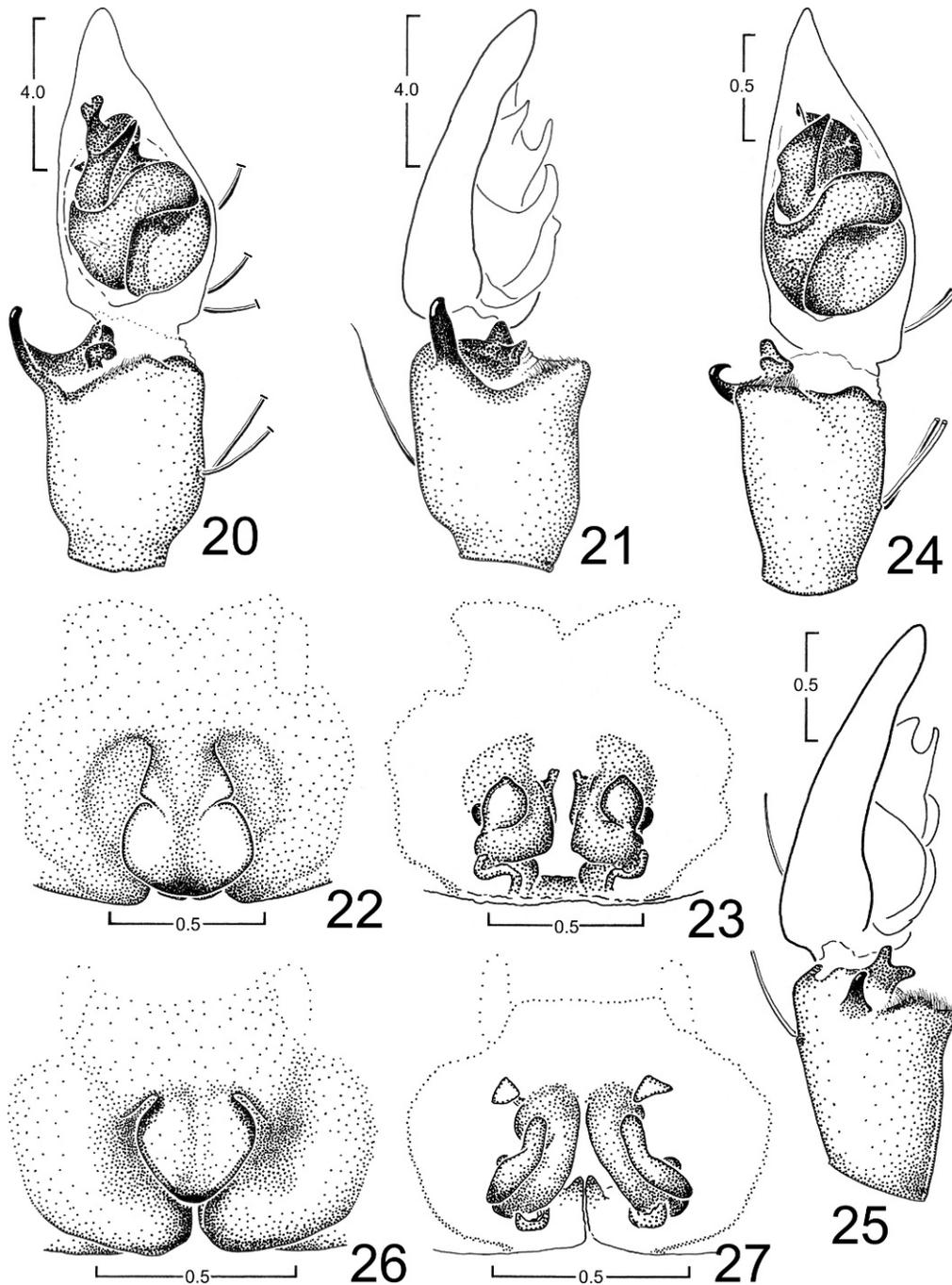
Figures 14-19.—Anatomical features of *S. adis*: 14. Left male palpus, ventral view; 15. Left male palpus, retrolateral view; 16. Epigynum, ventral view; 17. Epigynum, dorsal view; 18. Right leg I, retrolateral view; 19. Body, lateral view left side.

February 1983, J. Adis (INPA); 1 ♀, same data except 13 January 1988, H Höfer (INPA); 1 ♂, Reserva Florestal Adolfo Ducke, 30 July 1971, A.A. Lise (MCN 24980). SURINAM: *Province?*: 1 ♂, Kaiserberg Airstrip, Auid River, elev. 275 m, H.A. Beatty (FMNH). VENEZUELA: *Bolivar*: 1 ♀, Hato la Vergarena, 06°45'N, 063°30'W, elev. 122-152 m, 25 October 1954, J.J. Wurdack & N.G.L. Guppy (AMNH). PERU: *Loreto*: 1 ♀, Pitchechia, 05°11'S, 072°42'W, 5 June 1990, T. Erwin & D. Silva (MUSM).

Etymology.—The name is a noun in apposition after the name of the collector, the late Joachim Adis, and in honor of his work on the ecology of Amazonian inundation forests.

Diagnosis.—The number of ventral macrosetae pairs on femur I is 13 to 15 (Fig. 18) while there are none, or at most, only one, on femur IV. The ectal division of the retrolateral tibial apophysis is relatively small and curved distinctly distad, and the dorsal division of the median apophysis bears only the single-pointed, acute guide. The middle field of the epigynum is truncated distally and bears a t-shaped ridge.

Description.—*Male (holotype)*: Carapace low (Figs 4, 19), elevated in the cephalic area, black area surrounds PE, AME, length 3.3, width 3.3, generally light, narrow dark margins; sternum light, unmarked, length 1.70, width 2.0; labium medium light, lightest on anterior margin, length 0.65, width

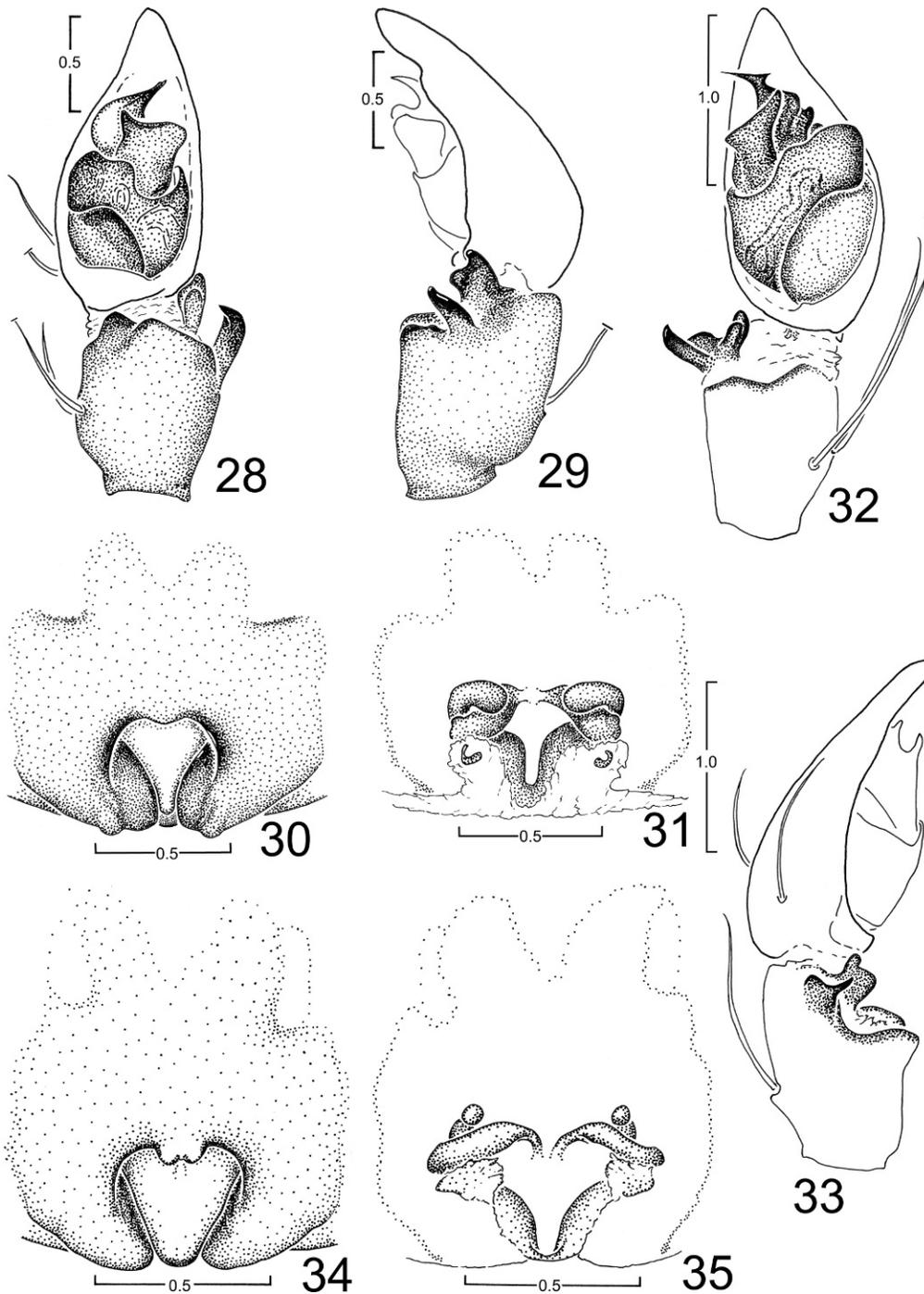


Figures 20–27.—Genitalia of species of *Syntrechalea*. 20–23. *S. syntrechaleoides*: 20. Right palpus, ventral view; 21. Right palpus, retrolateral view; 22. Epigynum, ventral view; 23. Epigynum, dorsal view. 24–27. *S. caporiacco*: 24. Right palpus, ventral view; 25. Right palpus, retrolateral view; 26. Epigynum, ventral view; 27. Epigynum, dorsal view.

0.70. Clypeus height 0.32, width 1.57. Anterior eye row straight, eye measurements in Table 1. Cheliceral face dark at anterior third, three promarginal teeth (middle largest), three retrolateral teeth sub-equal and equidistant. Legs IV-I-II-III, tarsi and distal part of metatarsi flexible, ventral macrosetae pairs on tibiae I-13, II-13, III-6, IV-2; color light with faint maculae dorsally on femora and patella. Abdomen length 4.2, dorsal pattern in Fig. 4, light ventrally and unmarked. Palpus (Figs. 14, 15) ventral division of median apophysis bifurcated,

guide directed laterad; retrolateral tibial apophysis with ectal division a single curved point, ental division thickened, lobular.

Female (Igapó, Rio Tarumã Mirim, Amazonas, Brazil): Carapace shape and color as in male, length 3.0, width 2.8; sternum light, unmarked, length 1.8, width 1.8; labium light, length 0.64, width 0.64. Clypeus height 0.32, width 1.45. Anterior eye row straight, eye measurements in Table 1. Cheliceral face dark at anterior third, three promarginal teeth (middle largest), three retrolateral teeth sub-equal and



Figures 28–35.—Genitalia of species of *Synrechalea*. 28–31. *S. brasilia*: 28. Left palpus, ventral view; 29. Left palpus, retrolateral view; 30. Epigynum, ventral view; 31. Epigynum, dorsal view. 32, 33. *S. napoensis*: 32. Right palpus, ventral view; 33. Right palpus, retrolateral view. 34, 35. *S. caballero*: 34. Epigynum, ventral view; 35. Epigynum, dorsal view.

equidistant. Legs IV-II-I-III, tarsi and distal part of metatarsi flexible, ventral macrosetae pairs on tibiae I-12, II-12, III-6, IV-0; color as in male. Abdomen length 3.5, color as in male. Epigynum (Figs. 16, 17) middle field truncated with t-shaped ridge and recessed in rounded space formed by median edges of anterior field; internal structures heavily sclerotized.

Leg dimensions (mm).—*Male (holotype)*: Leg I: femur 8.7, tibia–patella 11.3, metatarsus 8.4, tarsus 5.7; total 34.1. Leg II:

femur 8.7, tibia–patella 9.3, metatarsus 8.8, tarsus 5.8; total 32.6. Leg III: femur 7.7, tibia–patella 8.8, metatarsus 8.1, tarsus 5.4; total 30.0. Leg IV: femur 9.0, tibia–patella 10.8, metatarsus 12.2, tarsus 7.1; total 39.1.

Female (Igapó, Rio Tarumã Mirim, Amazonas, Brazil): Leg I: femur 6.9, tibia–patella 9.2, metatarsus 6.1, tarsus 4.0; total 26.2. Leg II: femur 7.0, tibia–patella 9.0, metatarsus 6.4, tarsus 4.2; total 26.6. Leg III: femur 6.5, tibia–patella 7.5, metatarsus

6.3, tarsus 4.2; total 24.5. Leg IV: femur 7.9, tibia–patella 9.4, metatarsus 9.1, tarsus 5.5; total 31.9.

Distribution.—Eastern Venezuela southward to the province of Bolívar, Peru and the state of Amazonas, Brazil (Fig. 2).

Remarks.—The specimens, collected by J. Adis and H. Höfer, were taken from arboreal traps probably in the blackwater inundation forest but never on the forest floor where spider collections also occurred (J. Adis, pers. comm.). Based on these observations, the arboreal characteristic of this species is assumed.

Syntrechalea syntrechaleoides (Mello-Leitão), new combination
Figs. 2, 5, 20–23

Trechalea syntrechaleoides Mello-Leitão 1941:246; Platnick 2008.

Material examined.—*Type:* BRAZIL: *Paraná:* Holotype female: Cachoeirinha, Bocaiúva do Sul, Brazil, no date, L. de Morrietes (MNRJ 41476).

Other material.—BOLIVIA: *Beni:* 13 ♂, 22 ♀, Est. Biol. Beni, Zone 1, ca. 04°47'S, 066°15'W, elev. ~225 m, 8–14 November 1989, J. Coddington, S. Larcher, Penaranda, C., Griswold, D. Silva (USNM); 1 ♂, 1 ♀, 1 juvenile, 27 km W of Yucumo, ca. 15°23'S, 066°59'W, elev. ~500 m, 15–19 November 1989, J. Coddington, C. Griswold, D. Silva, S. Larcher, Penaranda (USNM). COLOMBIA: *Amazonas:* 1 ♀, Leticia, February 1956, J. & N. Land (AMNH); 1..., Rio Pira and Apaporis, 00°25'S, 070°15'W, 7–16 February 1989, V. & B. Roth (CAS). GUYANA: *Bartica District:* 1 ♂, Kartabo, 1922 (AMNH). VENEZUELA: *Amazonas:* 1 ♂, Rio Yaciba, 1.5 days above jct. w/ Rio Yatua, 01°29'02"N, 066°31'37"W, elev. 180 m, 6 December 1953 (AMNH); *Bolívar:* 1 ♂, 26 km N of Guasipati, 07°28'N, 061°54'W, 24 November–12 December 1987, S. & J. Peck (AMNH). PERU: *Loreto:* 1 ♂, Pithecia, 05°11'S, 072°42'W, 5 June 1990, T. Erwin & D. Silva (MUSM).

Diagnosis.—Both sexes are distinguished by details of their genitalia. The male has a twisted configuration and a truncated, notched tip to the terminal apophysis. The middle field of the female epigynum is expanded posteriorly, indented on the lateral margins, and not separated from the epigynal plate by an anterior suture.

Description.—*Male (Beni, Est. Biol. Beni, Dpto. Beni, Bolivia):* Carapace (Fig. 5) low, cephalic area elevated, length 3.9, width 3.7, generally light, darker at margins, dark pattern on clypeus, black in the eye region; sternum light, unmarked, length 2.25, width 2.1; labium medium light, lightest on anterior margin, length 0.78, width 0.78. Clypeus height 0.42, width 1.90. Anterior eye row straight, eye measurements in Table 1. Cheliceral face dark, clothed with light hair and a few larger, more erect light bristles medially, longitudinal carina on distal two-fifths of lateral margins; three promarginal teeth (middle largest), three retromarginal teeth equal in size with distal two closer together. Legs IV–(I–II)–III, tarsi and distal part of metatarsi flexible, ventral macrosetae pairs on tibiae are I–7, II–8, III–5, IV–5. Color on femora light ventrally with indistinct markings above, dark annuli on other segments. Abdomen length 5.2, dorsal pattern in Fig. 5, light ventrally. Palpus (Figs. 20, 21). Guide of median apophysis twisted, truncated and notched; retrolateral tibial apophysis with ental division with two lobes and ectal division curved medially at tip.

Female (locality same as male above): Carapace shape and color as in male except dark areas not as distant, length 4.3, width 4.2; sternum light, unmarked, length 2.4, width 2.18; labium light with dark at center of lateral margins, length 0.85, width 0.79. Clypeus height 0.45, width 2.08. Anterior eye row straight, eye measurements in Table 1. Tarsi and distal part of metatarsi flexible, metatarsus slightly curved distally, ventral macrosetae pairs on tibiae I–7, II–7, III–5, IV–5; color as in male. Abdomen length 6.6, color as in male. Epigynum (Figs. 22, 23) with middle field white with a dark median band, adjacent margins of anterior field each with an indentation; internal structures bulbous.

Leg dimensions (mm).—*Male (Beni, Est. Biol. Beni, Dpto. Beni, Bolivia):* Leg I: femur 8.4, tibia–patella 10.9, metatarsus 8.7, tarsus 5.2; total 33.2. Leg II: femur 8.2, tibia–patella 10.4, metatarsus 9.0, tarsus 5.6; total 33.2. Leg III: femur 6.5, tibia–patella 7.3, metatarsus 7.0, tarsus 4.7; total 25.5. Leg IV: femur 8.5, tibia–patella 10.0, metatarsus 11.9, tarsus 6.9; total 37.3.

Female (Beni, Est. Biol. Beni, Dpto. Beni, Bolivia): Leg I: femur 8.1, tibia–patella 10.4, metatarsus 7.5, tarsus 5.1; total 31.1. Leg II: femur 8.2, tibia–patella 9.1, metatarsus 7.7, tarsus 5.3; total 30.3. Leg III: femur 6.9, tibia–patella 7.8, metatarsus 6.8, tarsus 4.9; total 26.4. Leg IV: femur 8.8, tibia–patella 10.1, metatarsus 10.9, tarsus 6.6; total 36.4.

Variation.—Average carapace length of males = 4.18 ($n = 10$) and average carapace length of females = 4.18 ($n = 10$).

Natural history.—One male from Guasipati, Venezuela was taken from a “sandy seasonal humid forest.” Eight egg sacs, presumably of this species, were in the type collection and of typical construction; the average of the undamaged ones was 9.3 (9.2–10.0, $n = 6$) in diameter.

Distribution.—This species occurs from the Western Amazon basin from north central Bolivia northward to Southern Venezuela, and in the Cuyuni River basin of Coastal Guyana and Venezuela (Fig. 2).

Syntrechalea caporiacco new species

Figs. 2, 24–27

Trechalea reimoseri Caporiacco 1948:22 (in part).

Material examined.—Holotype male: VENEZUELA: *Amazonas:* SW. Base Cerro Yapacana 03°45'N, 066°48'W, 23 February 1978, C.W. Myers (AMNH).

Paralectotype of *Trechalea reimoseri*: 1 paralectotype male: GUYANA: *Potaro-Siparuni:* Conwarook (Konawaruk), 05°16'N, 059°00'W, 18 March 1946, Romiti (MZUF).

Other material: BRAZIL: *Bahia:* 1 ♂, Fazenda Almada Uruçuca, 14°35'S, 039°16'W, 26 November 1977, J.S. Santos (MCZ); 1 ♂, same data except 27 November 1977, J.S. Santos (MCN 10340); 1 ♂, Fazenda São Roque, Camacan (Camacandi?, 13°12'S, 039°00'W), 3 December 1977, J.S. Santos (MCN 20223); 1 ♀, Fazenda Arizona, Juçari, 15°12'S, 039°32'W, CEPLEC-CEPLAC (possibly abbreviations of the collectors names) (MCN 25178); 1 ♂, 2 ♀, Fazenda Nossa Senhora das Neves, Itamarajú, no date, J.S. Santos (MCN 10296); 1 ♀, Itamarajú, 17°04'S, 039°32'W, February 1985, collector unknown (MNRJ); 1 ♀, Fazenda Jacarendá, Itamarajú, 17°04'S, 039°32'W, 8 December 1977, J.S. Santos (MCN). PERU: *Huánuco:* 3 ♀, Monzón Valley, Tingo Maria, 09°08'S, 075°00'W, 23 September 1954, E.I. Schlinger & E.S. Ross

(CAS); 1 ♀, same data except 10 November 1954, E.I. Schlinger & E.S. Ross (CAS); *Junin*: 1 ♀, Colonia Perene, 10°53'S, 075°13'W, Rio Perene, 16.8 km NE. of La Merced, 3 January 1955, E.I. Schlinger & E.S. Ross (CAS); *Cashimari*: 1 ♂, no locality, J. Duarez & S. Córdova (MUSM).

Etymology.—The name is a noun in apposition in honor of Lodovico di Caporiacco, who originally included a male of this species as a syntype of *Trechalea reimoseri*.

Diagnosis.—The male is distinguished by the ectal division of the retrolateral tibial apophysis which is directed generally distad and distinctly curved. The middle field of the epigynum is not separated by a suture in its antero-medial junction with the remainder of the epigynal plate.

Description.—*Male (holotype)*: Carapace low, cephalic area elevated, length 4.2, width ~3.6, generally medium, lighter sub-marginally, darker at margins and eye region; sternum light, unmarked, length 2.1, width 1.9; labium dark, light on anterior margin, length 0.80, width 0.70. Clypeus height 0.35, width 0.92. Anterior eye row straight, eye measurements in Table 1. Cheliceral face dark distally, three promarginal teeth (middle largest), three retrolateral teeth equal in size with distal two closer together. Legs IV–II–III (I missing), tarsi and distal part of metatarsi flexible, ventral macrosetae pairs on tibiae are II-6, III-4, IV-5. Color on femora light with scattered darker markings, dark annuli on other segments. Abdomen length 5.0, dorsal pattern with distinct, scattered dark maculae, light ventrally. Palpus (Figs. 24, 25), median apophysis with ventral division acute, guide of dorsal division acute and directed ventrad; retrolateral tibial apophysis ental division with two lobes, ectal division curved apically and directed medially.

Female (paratype, type locality): Carapace shape and color as in male, length 4.1, width 4.0; sternum light, unmarked, length 2.3, width 2.1; labium medium, lighter apically, length 0.80, width 0.78. Clypeus height 0.36, width 2.01. Anterior eye row straight, eye measurements in Table 1. Tarsi and distal part of metatarsi flexible, metatarsis slightly curved distally, ventral macrosetae pairs on tibiae I-6, II-6 (III & IV missing); color as in male, Abdomen length 5.3, color as in male. Epigynum (Figs. 26, 27) with pale middle field continuous and narrowly connected with anterior field; internally as illustrated.

Leg dimensions (mm).—*Male (holotype)*: Leg I: missing. Leg II: femur 7.6, tibia–patella 8.4, metatarsus 9.7, tarsus 5.7; total 31.4. Leg III: femur 6.1, tibia–patella 6.9, metatarsus 6.5, tarsus 5.0; total 24.5. Leg IV: femur 8.9, tibia–patella 9.5, metatarsus 11.1, tarsus 7.2; total 36.7.

Female (Paratype, type locality): Leg I: femur 7.5, tibia–patella 10.2, metatarsus 7.4, tarsus 5.4; total 30.7. Leg II: femur 7.5, tibia–patella 9.6, metatarsus 7.2, tarsus 5.4; total 27.7. Leg III: missing. Leg IV: missing.

Variation.—Carapace lengths of two males are 4.1 and 4.2; average carapace length of females is 4.3 (3.8–4.8, $n = 8$).

Natural history.—A note with the type specimens says: “tree trunks.” Egg sacs of typical trechaleid construction were found; diameters were 7.5 (23 February, Venezuela), 7.2 (3 January, Peru), and 8.2 (10 November, Peru).

Distribution.—The limited material shows an apparent disjunct distribution (Fig. 2) which includes the Eastern slopes in Peru, the Orinoco River basin of Venezuela (holotype),

uplands of Guyana, and the coastal areas of the Brazilian states of Junin and Bahia. This rather peripheral distribution in tropical South America suggests that the species is likely also found in the interior of the continent as well.

Remarks.—The male syntype of Caporiacco's (1948) *Trechalea reimoseri* is a member of this species; however, I reported (Carico 1993) that the male was a different species in an unnamed genus. I have instead determined that this male is a *Syntrechalea caporiacco*.

Syntrechalea brasilia new species

Figs. 2, 7, 28–31

Material examined.—Holotype male: BRAZIL: *Distrito Federal*: Brasilia, cerrado near airport, 15°47'S, 047°55'W, November 2003, M. Prada (UBZ #2992).

Other material: BRAZIL: *Tocantins*: 1 ♂, Dianópolis, 11°42'S, 046°44'W, 25 September 2003, F.S.P. Godói (UBZ #2671); *Goiás*: 1 ♀, Fazenda Trijunção, 14°55'S, 045°56'W, 19 October 2003, Â.S. Zerbini (UBZ #2706).

Etymology.—The name is a noun in apposition taken from the name of the type locality.

Diagnosis.—This species is distinguished by details of the genitalia. The median apophysis of the palpal bulb is broad and roughly square but with the ental corner acute. The epigynum has the median field white and recessed into the anterior field which has the adjacent margins also recessed below the general height of the epigynal plate. The dark, sooty general color also distinguishes this species.

Description.—*Male (holotype)*: Carapace (Fig. 7) very low, cephalic area elevated, length 3.8, width 3.5, generally dark, marginal black narrow band, submarginal light band extends from cephalic area to posterior margin, becoming lighter posteriorly, black in eye region dense black, prostrate, short setae in central dark area; sternum light, unmarked, with long light setae mostly anteriorly, length 2.0, width 2.0; labium dark reddish brown, light distal margin, length 0.70, width 0.72. Clypeus dark with two light spots laterally, height 0.46, width 1.56. Anterior eye row straight, eye measurements in Table 1. Chelicerae dark brown proximally with distal third bracketing a light area with long slender white setae, three promarginal teeth (middle largest), three retrolateral teeth equal in size with distal two closest. Legs IV–(I–II)–III, tarsi and distal one-half of metatarsi flexible, ventral macrosetae pairs on tibia, I-6, II-6, III-4, IV-4. Legs generally light, femora with dark bands prolaterally and lighter one retrolaterally, scattered spots and transverse bands dorsally, unmarked ventrally, other segments medium dark. Abdomen length 4.5, dorsum generally dark, covered with short, dark, prostrate seta mixed with iridescent ones, pair of distinct, circular spots anteriorly and pair of light spots posteriorly, sides with dark band separated from dorsum by light band, venter light and unmarked. Palpus (Figs. 28, 29) with broad, squarish median apophysis with ental corner acute, ventral division is rounded entally becoming acute and directed ectally; ectal division of retrolateral tibial apophysis flattened and somewhat hooked distally.

Female (Goiás, Fazenda Trijunção): Carapace very low, cephalic area elevated, length 4.3, width 4.2, generally dark, marginal black narrow band, submarginal light band extends from cephalic area to posterior margin, becoming lighter

posteriorly, black in eye region dense black, prostrate, short setae in central dark area; sternum light, unmarked, with scattered dark setae mostly medially and light setae at margins, length 2.15, width 2.15; labium dark reddish brown, light distal margin, length 0.75, width 0.80. Clypeus with patches of white setae at anterior-lateral clypeal area, height 0.45, width 2.04. Anterior eye row straight, eye measurements in Table 1. Chelicerae dark brown proximally and distal third bracketing a light area with long slender white setae; three promarginal teeth (middle largest), three retrolateral teeth equal in size and equidistant. Legs IV-(I-II)-III, tarsi and distal one-half of metatarsi flexible, ventral tibial macrosetae pairs on tibiae, I-6, II-6, III-4, IV-3. Legs generally light, femora with dark bands prolaterally and lighter one retrolaterally, scattered spots and transverse bands dorsally, unmarked ventrally, other segments medium dark. Abdomen length 6.7, dorsum covered with short, dark, prostrate seta mixed with iridescent ones, dark cardiac area, three pairs of light spots surrounded by black rings, lateral, longitudinal dark bands wider posteriorly, light and unmarked ventrally. Epigynum (Figs. 30, 31) with a depressed, white, triangular-shaped middle field.

Leg dimensions (mm).—*Male (holotype)*: Leg I: femur 6.3, tibia–patella 8.0, metatarsus 6.4, tarsus 5.4; total 26.1. Leg II: femur 6.2, tibia–patella 7.7, metatarsus 6.6, tarsus 4.1; total 24.6. Leg III: femur 5.5, tibia–patella 6.0, metatarsus 5.7, tarsus 3.6; total 20.8. Leg IV: femur 6.9, tibia–patella 7.9, metatarsus 9.1, tarsus 5.3; total 29.2.

Female (Goiás, Fazenda Trijuçãõ): Leg I: femur 6.5, tibia–patella 7.7, metatarsus 5.8, tarsus 4.1; total 24.1. Leg II: femur 6.5, tibia–patella 7.7, metatarsus 6.0, tarsus 4.0; total 24.2. Leg III: femur 5.9, tibia–patella 6.3, metatarsus 5.5, tarsus 3.9; total 21.6. Leg IV: femur 7.2, tibia–patella 7.9, metatarsus 8.6, tarsus 5.5; total 29.2.

Natural history.—Collection notes (P. Motta, pers. comm.) for this species indicates that it may not be arboreal: “underneath a termite mound” (#2706); “found in pit-fall traps” (#2671). However, the note, “cerrado near airport” (#2992), is ambiguous.

Distribution.—Found only in the Distrito Federal and the adjacent states of Tocantins and Goiás (Fig. 2).

Syntrechalea napoensis new species

Figs. 2, 32, 33

Material examined.—Holotype male: ECUADOR: *Napo*: Alianhui, 20 km E of Puerto Napo (01°00'S, 077°25'W), November 1996, E.S. Ross (CAS).

Etymology.—The name means from Napo, the type locality.

Diagnosis.—This species, along with only *S. tenuis*, has the two-pointed shape of the guide of the dorsal division of the median apophysis but differs from the latter by the shape of the retrolateral apophysis, which has only one acute point.

Description.—*Holotype male*: Carapace very low, cephalic area elevated, length 3.8, width 3.5, pale in color without pattern, conspicuously dark in the eye area with white hairs in the ocular quadrangle: sternum light, unmarked, with light setae mostly in anterior half, length 2.08, width 1.92; labium light except at proximal lateral edges, length 0.68, width 0.68. Clypeus light with dark, sub-median dark mark extending from ocular area to anterior margin, height 0.34, width 1.70.

Anterior eye row straight, eye measurements in Table 1. Chelicerae light in proximal two-thirds with long light hairs and dark in anterior one-third with shorter dark hairs; three promarginal teeth (middle largest), three retrolateral teeth equal in size with distal two closest. Legs IV-(I-II)-III, tarsi and distal half of metatarsi flexible, ventral macrosetae pairs on tibiae, I-10, II-10, III-6, IV-5. Legs light with indistinct and scattered darker areas, bands of light setae on prolateral and retrolateral surfaces of all segments. Abdomen length 4.5, dorsal pattern irregular on dorsum and dorsal area on sides, light on venter with a median brown area anterior to epigastric furrow. Palpus (Figs. 32, 33) femur with several, shortened, ventral macrosetae; median apophysis acute distally and with a small, rounded sub-apical protuberance; retrolateral tibial apophysis acute with a basal, dorsal, rounded protuberance.

Female: Unknown.

Leg dimensions (mm).—*Male (holotype)*: Leg I: femur 8.9, tibia–patella 11.5, metatarsus 9.6, tarsus 6.0; total 36.0. Leg II: femur 9.0, tibia–patella 11.4, metatarsus 10.2, tarsus 5.8; total 36.4. Leg III: femur 8.1, tibia–patella 9.7, metatarsus 10.0, tarsus 5.5; total 33.3. Leg IV: femur 9.7, tibia–patella 11.6, metatarsus 14.8, tarsus 8.0; total 44.1.

Natural History.—Unknown, however it is assumed to be arboreal as indicated by its anatomical features which are similar to those of other species of the genus.

Syntrechalea caballero new species

Figs. 2, 6, 34, 35

Material examined.—Holotype female: PARAGUAY: *Paraguarí*: near Pedro Juan Caballero (22°34'S, 55°37'W), 25–27 November 1956, C.J.D. Brown (MCZ).

Etymology.—The name is a noun in apposition taken from the name of the type locality.

Diagnosis.—This species is distinguished by the unique tufts of erect white hairs on the legs and chelicerae and also by details of the epigynum, which has a median node projecting posteriad from the anterior field over the triangular middle field.

Description.—*Female (holotype)*: Carapace (Fig. 6) very low, cephalic area elevated, length 4.1, width 4.2, generally medium brown, dark margin, irregular submarginal band of white hairs interrupted by brown spots, dark in the eye area with white hairs in the ocular quadrangle: sternum light, unmarked, length 2.3, width 2.3; labium medium light, lightest at anterior margin, length 0.85, width 0.85. Clypeus height 0.47, width 2.17. Anterior eye row straight, eye measurements in Table 1. Chelicerae medium brown proximally, covered with long erect hairs medially and short prostrate hairs laterally, distal half glabrous and dark; three promarginal teeth (middle largest), three retrolateral teeth equal in size with distal two closest. Legs (I-II)-IV (III missing), tarsi and distal one-third of metatarsi flexible, ventral macrosetae pairs on tibiae, I-6, II-6, IV-3. Femora light ventrally, all other surfaces and all other segments with dark annular patterns, tufts of erect white hairs on prolateral and retrolateral surfaces of most segments. Abdomen length 6.0, dorsal pattern in Fig. 6, dark bands laterally and light ventrally. Epigynum (Figs. 34, 35) middle field triangular with a median node projecting posteriorly from the anterior field.

Male: Unknown.

Leg dimensions (mm).—*Female (holotype)*: Leg I: femur 6.9, tibia–patella 8.4, metatarsus 6.2, tarsus 4.1; total 25.6. Leg II: femur 6.9, tibia–patella 8.0, metatarsus 6.5, tarsus 4.2; total 25.6. Leg III: missing. Leg IV: femur 7.5, tibia–patella 7.6, metatarsus 8.7, tarsus 5.2; total 29.0.

Natural history.—Unknown.

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