A review of described *Metacyrba*, the status of *Parkella*, and notes on *Platycryptus* and *Balmaceda*, with a comparison of the genera (Araneae: Salticidae: Marpissinae)

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Abstract: *Parkella* Chickering 1946 = *Metacyrba* F. O. P.-Cambridge 1901, **n. syn.;** *Parkella venusta* Chickering 1946 = *Metacyrba venusta* (Chickering 1946), **n. comb.;** *Parkella fusca* Chickering 1946 and *Dendryphantes franganilloi* Caporiacco 1955 = *Metacyrba venusta* (Chickering 1946), **n. syn**. The six valid described species of *Metacyrba* are diagnosed and re-illustrated to show previously unrecognized genitalic differences. *Metacyrba similis* Banks 1904 is resurrected as a subspecies, becoming *Metacyrba taeniola similis* Banks 1904, **n. status**. The female of *Metacyrba pictipes* Banks 1903 is described for the first time. *Metacyrba arizonensis* Barnes 1958 = *Platycryptus arizonensis* (Barnes 1958), **n. comb.**, and *Marpissa magna* (Peckham & Peckham 1894) = *Platycryptus magnus* (Peckham & Peckham 1894), **n. comb**. *Platycryptus broadwayi* (Peckham & Peckham 1894) = *Platycryptus magnus* (Peckham & Peckham 1894), **n. syn.** [lectotypes and paralectotypes are designated for both names]. *Metacyrba nigrosecta* (Mello-Leitão 1945) = *Balmaceda nigrosecta* Mello-Leitão 1945, **comb. restored**. The genera *Balmaceda* Peckham & Peckham 1894, *Metacyrba,* and *Platycryptus* Hill 1979 are compared morphologically among themselves and to *Breda* Peckham & Peckham 1894 and *Fuentes* Peckham & Peckham 1894. The distributions of *Balmaceda picta* Peckham & Peckham 1894 and *Metacyrba* species are updated. *Marpissa melanura* F.O.P.-Cambridge 1901 is resurrected; it is not a synonym of *Marpissa minor* F.O.P.-Cambridge 1901 nor *Platycryptus californicus* (Peckham & Peckham 1888).

Key Words: Araneae, Salticidae, Marpissinae, *Balmaceda, Breda, Fuentes, Metacyrba, Parkella, Platycryptus*.

Introduction

The species of Marpissinae have been little studied in the New World with the exception of early works by Peckham & Peckham (1894, 1909), and revisions of the Nearctic fauna by Barnes (1955, 1958). Logunov (1999) proposed changes to the Nearctic *Marpissa* C. L. Koch 1846, but some of these changes appear questionable and are in need of further review (to be done elsewhere, as *Marpissa* is not the subject of this paper).

One of the genera revised (north of Mexico) by Barnes (1958) was *Metacyrba* F.O.P.-Cambridge 1901. The genus at the time consisted of larger, hirsute species [*M. undata* (De Geer 1778), *M. arizonensis* Barnes 1958, and *M. californica* (Peckham & Peckham 1888)], primarily gray in color, which have a dorsal cryptic pattern resembling bark; and a group of smaller, relatively glabrous species [*M. taeniola* (Hentz 1846), *M. floridana* Gertsch 1934, and *M. punctata* (Peckham & Peckham 1894)] which have a mostly black body with a simple dorsal abdominal color pattern in two paramedian longitudinal rows. Two of the larger species (*M. undata, M. californica*) were transferred to the new genus *Platycryptus* by Hill (1979). The three putative species of the *taeniola* group were characterized primarily by details of their color patterns and/or by their body proportions. The genitalia of these three species, according to Barnes (1958), were indistinguishable, and he noted that they might constitute a subspecific complex.

Chickering (1946) described the genus *Parkella* in his tome on the Salticidae of Panama. This project was a monumental undertaking, especially considering that the Salticidae is the largest family of spiders and most diverse in the tropics. Over 200 species were reported in 64 genera, of which 14 genera and 81 species were considered new. Unfortunately, he had little previous experience working with salticids [his only previous work on this family was "The Salticidae (Jumping Spiders) of Michigan" (Chickering 1944), hardly helpful to working on tropical members of the family], his understanding of relationships was based on the sometimes erroneous hypotheses of earlier workers, and by modern

standards, the book is lacking in both number and quality of illustrations (all pen and ink line drawings, some with hand stippling, with relatively few of the previously described species being illustrated). He also had a tendency to describe the opposite sexes of one species as two separate species. Nevertheless, some of the groups he defined were fairly compatible with present concepts, and the illustrations are often sufficient at least to place species to genus. Comparison with known relatives then can be made.

An example of Chickering's concepts is his *Marpissa* group, in which he included the genera *Breda* Peckham & Peckham 1894, *Marpissa, Menemerus* Simon 1868, and the new genus *Parkella* [Barnes (1958) also included *Menemerus* in the Marpissinae, but subsequently it was shown to belong to the Heliophaninae (Maddison & Hedin 2003)]. Chickering, although apparently aware of a Banks (1929) specimen of *Balmaceda punctata* Peckham & Peckham 1894 from Panama (Chickering 1946: 44), transferred the species to *Breda* rather than to *Metacyrba* [Barnes (1958) subsequently moved *Breda punctata* to *Metacyrba*]. Then Chickering (1946: 48) described the genus *Parkella*, and included two species in the following order: *P. venusta* (described from a male) and *P. fusca* (described from a female); he did indicate that they might belong together, but described them as two species anyway. The genitalic illustrations provided are similar enough to those of Barnes (1958) for each sex of the allegedly widespread *Metacyrba taeniola* that I expected to find the former species were synonyms of the latter species. Upon examination of the types; however, I found that although they appear to be male and female of the same species, and they do belong in *Metacyrba*, this is a species that is similar in body form to *M. taeniola* but has distinctly different genitalia. To Chickering's credit, his epigynal illustration of *Parkella fusca* does show the main difference between it and *M. taeniola*.

The differences in genitalia between *M. taeniola* and *M. venusta* prompted me to re-examine the other species in the genus to look for genitalic differences. I found that, contrary to Barnes' (1958) assertion, there are slight but consistent differences in shape, size, and/or proportion of the genitalia of each species (see Figures), especially in the male embolus.

Possibly there are ecological differences among species as well. *Metacyrba taeniola* and *M. floridana* are sympatric in Florida (United States) but generally not syntopic; *M. floridana* lives in xeric habitats, and usually *M. taeniola* is found in mesic habitats, even when the habitats are adjacent. However, *M. taeniola* also has been found in xeric habitats, although the species do not appear to co-occur. It is not yet clear what microhabitat preferences might exist, if any, to maintain this separation.

Metacyrba floridana is proportionately more slender than *M. taeniola*, and, among other differences, has most of its leg segments bright reddish orange rather than dark like eastern *M. taeniola*. There is no evidence of hybridization between the two species. Interestingly, populations of *M. taeniola* in other parts of its range also have a variable number of reddish leg segments, depending on the location. Unfortunately, little ecological data exists on most collection labels, so habitat preferences must be inferred from collection localities for most species. This would indicate that the western forms of *M. taeniola* and most of the other described species live primarily in more xeric habitats including desert. Species that live primarily in xeric habitats have mostly yellowish to reddish legs. It is not clear why this should be, but perhaps xeric habitats often have soils in this color range. Neither eastern *M. taeniola* nor *M. venusta* appear to live primarily in xeric habitats, and neither have mostly reddish legs.

Perhaps *M. floridana* was isolated and speciated when Florida was separated from the mainland. The xeric sandhill and scrub habitats of Florida to the present time provide ample evidence of this former isolation (e.g., Deyrup & Franz 1994). However, rather than being isolated from *M. taeniola*, *M. floridana* might have been separated from *M. punctata*, based on genitalic characters such as both having a more narrow embolus and a rounded flange near the embolus tip. The present interpretation of a western form of *M. floridana* may indicate another explanation is necessary.

Another consideration is that due to possible misidentification of these closely similar species, distributions cited in the literature may in part be erroneous, and some species names previously synonymized might need to be resurrected.

Material and Methods

The following abbreviations are used in the text: ALE = anterior lateral eyes; AME = anterior median eyes; BL = body length; CL = carapace length; CPL = convex epigynal central piece length; CW = carapace width; DDL = distal dorsal lobe of the tegulum;

DTP = distal tegular projection; EW = epigynal width; OQ = ocular quadrangle, a dorsal area of the carapace bounded by the ALE and PLE; PER = posterior eye row; PLE = posterior lateral eyes; p = prolateral (in front of macrosetae number = prolateral surface, behind macrosetae number = side toward prolateral surface), r = retrolateral (with options as in prolateral); RTA = retrolateral tibial apophysis; VRT = ventral retromedial tubercle of tegulum. Macrosetae are indicated from proximal to distal ends of segment. In *Metacyrba*, ventral tibial and prolateral femoral macrosetae generally are toward the distal ends of their respective segments.

The atrium is considered to be that region of the epigynum that contains the copulatory openings. It is depressed and/or more lightly sclerotized than the surrounding epigynal integument. It is fairly common to have a narrow median septum dividing the atrium into two sections, but rarely does the atrium have a modified broad raised area, e.g., as found in *Metacyrba*, even though this still might be thought of as a modified septum. Sometimes the copulatory ducts open on the surface of the epigynum without a differentiated area containing the openings; in such cases, no atrium is considered to exist.

Digital images were created using an AutoMontage system (Syncroscopy, Cambridge, UK). Femur I photographs are from prolateral view, tibia I photographs are from retrolateroventral or ventral view. Palpal photographs (standardized on left palp) are from various angles as indicated in the figure captions. Epigynal photographs are from dorsal or ventral view, sometimes cleared, as indicated. All primary types were examined unless otherwise noted. All measurements are in mm. Ranges of measurements are given as: minimum (mean) maximum. Inserted parenthetical comments are enclosed in brackets.

Museum acronyms for reported specimens are listed in the Acknowledgments. When appropriate, Costa Rican records are associated with Arthropods of La Selva (ALAS) collection codes and/or INBio specimen barcodes [ALAS codes are unsorted collections, INBio codes are sorted specimens from ALAS collections or from other collections]. Lists of synonyms follow the format and abbreviations of the World Spider Catalog Online (Platnick 2005).

Metacyrba F. O. P.-Cambridge

Metacyrba F. O. P.-Cambridge 1901: 252

Parkella Chickering 1946: 48, type species: *Parkella venusta* Chickering 1946: 49; new synonymy.

Type species: *Attus taeniolus* Hentz 1846: 353

Diagnosis: Barnes (1958) described many genus characteristics, to which I have added more. General appearance varies little among species except in size, with body lengths ranging from 2.9-7.3 mm, and in a few cases, abdominal markings are distinctive. Carapace characters include the extended postocular area, i.e., the upper thoracic area is an extended flat plateau in the same plane as the ocular quadrangle (OQ) of the cephalon, which extends past the PER about as far as the length of the OQ (with the posterior declivity falling abruptly and no more than 20% of the carapace length); the OQ is densely covered with small iridescent scales, with the thoracic area having fewer and larger iridescent and/or white scales; and the ventral margin of the lateral edges of the carapace is lined with a single row of close-set elongate white scales oriented diagonally, so that this narrow white marginal band is conspicuous. The carapace width is more than 60% but less than 90% its length.

Description: The body color is very dark (usually black), and the abdomen has two narrow, paramedian white or yellow dorsal stripes (or modifications thereof) most of its length. A considerable number of specimens lack the paired abdominal stripes or have only a few spots in the posterior half. This may be due to rubbing, but in some cases is likely a color pattern variant. Considering that each stripe is only a few scales (flattened, adpressed setae) wide, and each spot consists of few scales, and that individuals normally live in cracks and crevices where rubbing of the dorsum could easily occur, deterioration or loss of markings is probably normal. Males generally have an abdominal scutum on the anterior third to half of the dorsum. An unusual character is the horizontal row of broad white setae directly above the anal tubercle in both sexes. Both this character and the lateral marginal band of diagonal scales on the carapace occur in the genus *Breda* (Gustavo Ruiz, personal communication, 2005). The genus *Fuentes* also has both characters (personal observation).

The abdominal venter is black, gray, or pale (creamy white), with or without (usually) paramedian white stripes. There are four paramedian rows of small round maculae which may be black or pale; the two middle rows do not reach the spinnerets.

Noticeable leg characters include the enlarged femur and tibia I that are proportionately larger than either *Balmaceda* or *Platycryptus*; ventral macrosetae on tibia (and metatarsus) I reduced in size (and often number, as a common tibial pattern is 1p-1p, or if 2-2, the ventral retrolateral macrosetae are smaller with sometimes one missing; legs are sometimes asymmetrical in macrosetae number); lack of lateral macrosetae on tibia I; and the leg segments are a varied assortment of black, brown, reddish brown, orangish brown, reddish orange, yellowish orange, or yellow in color (as preserved in alcohol). I have collected *M. t. taeniola, M. t. similis, M. floridana,* and *M. punctata*, and the last three species/subspecies all have a red, orange, or yellow tint to the legs when alive (especially legs II-IV). Generally, femora II-IV have the narrow dorsum the same color as the more distal segments, lighter than either lateral side, which would explain Barnes' (1958) comment that the femoral dorsum appears striped. The distal prolateral surface of femora I often has the macrosetae formula: p 1-2 (or p 1-3, with the third distal macroseta on the prolateroventral margin) in males, and fewer or no prolateral femoral macrosetae in females. Males also have sparse dorsal and denser ventral short black fringes on legs I, primarily on the tibia and patella. Leg I is larger and darker than the other legs in both sexes.

Significant genitalic characteristics in females are the convex epigynal atrium (first described as a "central convex piece" by Cambridge 1901) generally shaped like an inverted water droplet (sometimes more or less truncated anteriorly), usually with a crescent-shaped depressed area anteriorly that may have a narrow, sclerotized, transverse ridge on the anterior edge of the depression; and the posterior, simple, laterally directed copulatory ducts (a state shared with *Balmaceda* and *Platycryptus*). Actually, the prominence of the central convex piece is something of an illusion. Once the epigynum is cleared, it can be seen that the edges of the slit-like copulatory openings (bordered by paler integument the same color as the atrial area) are higher and more extensive (in posteroventral view) than the central convex piece. The epigynum averages about 0.60 mm wide in all species except *M. pictipes* (0.50 mm) and *M. taeniola* (0.74-0.80 mm depending on the subspecies).

In males, notable palpal characters are the bifid RTA, with an extended, triangular, medially concave dorsal prong that has an elongate tip (with the tip much more slender than in *Platycryptus*), and a blunt ventral prong that curves toward the retrolateral side and is roughly parallel with the dorsal prong; the lobed, heavily sclerotized, proximal retrolateral edge of the cymbium (possibly fitting between the retrolateral and ventral prongs of the tibial apophysis); a unique distal projection of the tegulum (the distal dorsal lobe or DDL), curved toward the prolateral side [not the distal tegular projection (DTP) of *Marpissa* (Logunov 1999), which is located in a different place], dorsal to the first large bend of the sperm duct [part of the seminal reservoir]; and lack of a retromedial tubercle on the ventral surface of the tegulum. A possible homolog of the DTP exists in *Metacyrba* near the base of the embolus, but it is located proximally on the tegulum since the embolus begins from a proximal, prolateral position. *Metacyrba* lacks the distinctive sinuate transverse duct in the tegulum found in *Breda*.

Biology: Species of *Metacyrba* are most often found under bark of logs and under rocks. Several records of them found in pitfall or can traps, and records from duff, indicate that they may be active in leaf litter. They are sometimes found on woody plants, and on vertical surfaces such as walls of buildings. Two island species have been collected on rocky beaches. The fact that some species in this and related genera have been found associated with man might indicate a propensity to be dispersed by human activities, such as commerce.

Comments: Many, probably most, higher araneomorph spiders can be separated at the species level by readily distinguishable genitalic characters, but this is not always true, and sometimes dependence on proportional measurements is necessary and/or somatic details may have considerable importance. This is certainly not a problem unique to any one group, and it occurs elsewhere even within the Salticidae, e.g., *Habronattus* F.O.P.-Cambridge 1901 (Griswold 1987) and *Hentzia* Marx 1883 (Richman 1989). Analysis of *Metacyrba* species proved to be a detailed process, and final species determinations were based on, in order, traditional genitalic characters (shape and placement of structures), measurements of external genital structure, and supporting somatic characters.

Composition: The seven species previously placed in *Metacyrba* (Barnes 1958, Galiano 1963, Platnick 2005) with their alleged general distributions are:

M. arizonensis Barnes 1958 western United States [see *Platycryptus*]
M. floridana Gertsch 1934 southeastern United States
M. insularis (Banks 1902) Ecuador (Galapagos Is.)
M. nigrosecta (Mello-Leitão 1945) Argentina [see *Balmaceda*]
M. pictipes Banks 1903 Hispaniola
M. punctata (Peckham & Peckham 1894) United States to Panama
M. taeniola (Hentz 1846) United States to Costa Rica, West Indies

Two of these species are transferred to other genera (see below). Several new species will be described, complete distribution maps of all the species provided, and a phylogenetic analysis of the genus presented in a companion paper on new Caribbean and Mexican *Metacyrba* (Edwards, in prep.). This division of the revision of *Metacyrba* is made in order to expedite the availability of name changes for the Salticidae chapter of the upcoming new spider book: *Spiders of North America, an Identification Manual*.

Metacyrba floridana Gertsch

Figs. 1-12, 34, 98

Metacyrba floridana Gertsch 1934: 19 (Df).
M. floridana, Barnes 1958: 33, f. 52-53 (Tf from *Fuentes* per Roewer, Dm).

Type material: Holotype female in AMNH from **UNITED STATES. Florida.** LEE CO.: Ft. Myers, 30 Mar 1912.

Distribution: Typical form from southern Florida north to Georgia and west to northern Texas, with three records of a western form with a more pronounced color pattern (resembling *M. punctata*) from Arizona and eastern Texas.

Additional Specimens: UNITED STATES. Arizona. PIMA CO.: Arivaca, 30 Nov 1969, 1f (K. Stephan, FSCA); Santa Rita Mts, Santa Rita Exp. Range, 0.5 mi along NF road 62 to Florida Cyn, 30 Jul 1993, 1f (W. Maddison WPM93-106, UBC); **Florida.** ALACHUA CO.: Gainesville, 30 Jul 1973, building, 1f (G.B. Edwards, FSCA); 25 Sep 1974, building, 1f (G.B. Edwards, FSCA); 12 Oct 1975, house, 1f (G.B. Edwards, FSCA); 7 Jul 1976, under bark oak log xeric woods, 1f (G.B. Edwards, FSCA); 30 Jun 1979, wooden fence, 1m (G.B. Edwards, FSCA); 3 Jul 1938, 1m (AMNH); CHARLOTTE CO.: Hwy 776 (3 mi w Stadium Rd), 18 Apr 1989, 1m (L. Maynard, FSCA); Punta Gorda, 1f (N. Banks coll., MCZ); DADE CO.: Biscayne Bay, 1f (Marx coll., NMNH); Homestead, 18 Jun 1973, building, 1f (G.B. Edwards, FSCA); Royal Palm Park, 23-30 Mar 1927, 1f (W.S. Blatchley, MCZ); DESOTO CO.: Mount Efen, 26 Apr 1989, on *Quercus* sp., 1m 1 juv (K. Jenkins, FSCA); HIGHLANDS CO.: Highlands Hammock St. Park, 81.33°W 27.27°N, 20 Dec 1962, 1juv (W. Ivie, AMNH); Sebring, 30 Apr-1 May 1983, fossil dune, 2m (G.B. Edwards, FSCA); LEON CO.: Tall Timbers Res. Sta., 29 Jun 1973, soybean foliage, 1 penult. m (G.B. Edwards, FSCA); MARTIN CO.: Hwy S-76 (17 mi e Port Mayaca), 19 Apr 1977, dead palmetto fronds, 1m (G.B. Edwards, FSCA); Port Salerno, Seabranch St. Park, 9 Dec 2004, fallen palm fronds, 1f 1 juv (K. Hibbard, FSCA); MONROE CO.: Squirrel Key, red mangrove, under bark, 4 Jul 1967, 1 juv, (R. Silberglied, MCZ); ORANGE CO.: Dec 1934, 1f, (K. Boyer, AMNH); PUTNAM CO.: Melrose (3 mi s), 4 Jul 1984, oak scrub, 1m (G.B. Edwards, FSCA); ST. LUCIE CO.: near Ft. Pierce, 26 May 1983, on *Casuarina* sp., 1m (K. Hibbard, FSCA); SUWANNEE CO.: Suwannee River St. Park, 18 Aug 2004, sandhill habitat, 1f (D. Serrano, FSCA). **Georgia.** BAKER CO.: 28 Jun 1950, house, 1 penult. m (A. Branon, FSCA); 22 Aug 1950, on outdoor building steps with prey (cockroach, *Euthlastoblatta gemma* Hebard), 1f (R.E.B., FSCA); CANDLER CO.: Metter (6 mi w), 13 Oct 1984, sandhill woodland, 1f (G.B. Edwards, L.S. Vincent, FSCA); LEVI CO.: Okefenokee Swamp, 7 Jul 1961, 1 juv (J.E. Carico, NMNH); **Louisiana.** JEFFERSON PAR., Lafitte (nr Jean Lafitte Nat. Hist. Park), 24 Jun 1984, 1f (W. Maddison, MCZ); **Mississippi.** FOREST CO.: Hattiesburg, 10 Jul 1943, 1m (M. Michener, AMNH). **Texas.** DALLAS CO.: White Rock Lake (n shore), 1 Aug 1941, 1m (S. & D. Mulaik, AMNH); NACOGDOCHES CO.: Garrison (4.5 mi s on hwy 59), 23 Jun 1993 (matured 23 Jul 1993), 1m (H. Guarisco, FSCA).

Comments: Barnes (1958) reported that the width of the carapace is 60% of the length (vs. 70% for *M. taeniola*). My measurements of the length do not include the AME (Barnes must have included them to get a ratio near 60%).

The only way I have found to consistently distinguish genitalically between the males of *M. floridana* and *M. punctata* is by the size of the embolic flange, which in *M. punctata* is about twice the length but not as wide as in *M. floridana*. In the

females, the epigynal copulatory duct heads are much shorter than in *M. punctata*. There are also differences in carapace proportions and leg I color, with *M. floridana* having a more narrow carapace and reddish femora I. Using these character states as a guideline, I have to conclude that the specimens from Arizona and Texas that appear to have a color pattern approaching that of *M. punctata* actually belong to *M. floridana*. One possible implication of the western color pattern would be an indication that *M. floridana* should be considered a subspecies of *M. punctata*, but the genitalic differences seem sufficient to give each specific status. Another possibility is that the western specimens are a separate species altogether, although these specimens appear to have both the narrow carapace proportions and shorter embolic flange (in the case of the male) as in typical *M. floridana*. A third option would be to recognize the western specimens as a different subspecies of *M. floridana*, however, the western color pattern seems to be only an exaggerated version of the eastern *M. floridana*. Western *M. floridana* have more orange-brown legs rather than the mostly reddish color of more eastern specimens, which would tend to support the latter two options (but this is also true for the Texas male from Dallas County that has the typical eastern pattern). To further complicate matters, some otherwise typical *M. punctata* have remnants of a pair of lineate markings at the anterior end of the abdomen. For the time being, based on the noted differences, *M. floridana* is considered to be a valid species sister to *M. punctata*.

Diagnosis: The embolus is narrower than *M. taeniola*, and the embolic flange is much smaller and does not come to a point distally as in *M. taeniola*. Like *M. punctata*, the flange is rounded off, but it is only about half the length of (although wider than) the flange of *M. punctata*. The flange is also truncate along its distal edge, perhaps a precursor to developing a distal projection like *M. taeniola*. The ventral prong of the RTA is fairly long (a little more than half the length of the dorsal prong of the RTA), curved at about its midpoint (but not bent), and the distal part is narrowed in ventral view due to this part being laterally flattened. The epigynum is not as wide as *M. taeniola*, and is very similar to *M. punctata*, but the copulatory duct heads are much shorter, possibly corresponding to the size of the embolic flange.

Description: Female (n=12): BL 4.14 (4.93) 5.43, CL 1.88 (2.12) 2.56, CW 1.27 (1.41) 1.64, CW/CL 0.64 (0.67) 0.72, CPL 0.17 (0.20) 0.23, EW 0.55 (0.60) 0.64; Male (n=10): BL 3.89 (4.42) 4.94, CL 1.88 (2.03) 2.22, CW 1.23 (1.37) 1.54, CW/CL 0.63 (0.68) 0.69. The entire body is more slender than other species, the dorsal abdominal stripes are very slender and nearly entire (there is almost always a short break in the stripes about 2/3 the distance toward the posterior end, followed by a short line or two pair of small spots; or in the western form, the anterior stripes intersect the first pair of two or three somewhat larger pair of spots). The legs are entirely reddish orange (fading to orangish yellow after preservation) except for black (brown after preservation) patella and tibia I (and sometimes coxa I), and tibia I has two to four small ventral distal macrosetae (usually 1p-1p, rarely 2-1p or 2-2). The abdominal venter is gray, sometimes with a pair of paramedian or lateral white stripes. The epigynum and palp embolus are narrower than *M. taeniola*, and the embolus also has a small flange on the inner side toward the tip.

Biology: Specimens for which the habitat is known have generally been taken under bark in xeric sandhill habitats.

***Metacyrba insularis* (Banks)**
Figs. 13-24, 100

Cyrba insularis Banks 1902: 66 (Df).
M. insularis, Banks 1930: 278, pl. 1, f. 1-2 (Dm).

Type Material: Holotype female in AMNH from **ECUADOR. Galapagos Islands.** Albemarle, Tagus Cove, Jan 1899. Albemarle is now known as Isla Isabela.

Distribution: Restricted to the Galapagos Islands.

Additional Specimens: ECUADOR. Galapagos Islands. Isla Ida, Floreana, 1m (Norge Exped., MCZ); Isla Fernandina (w side), 5 Feb 1964, 1f (D.Q. Cavag-naro, CAS); Isla Santa Cruz, Academy Bay, Darwin Res. Sta., beach, coastal rock, 28 Jan 1964, 1f (R.O. Schuster, CAS); Santa Fé Is., 6 Jun 1983, 1f (Y. Lubin, MCZ); Santa Fé Is. (s coast), 30 Jan 1983, 1m (Y. Lubin, MCZ).

Comments: The few female specimens known show minor epigynal differences which seem to be intraspecific variation from island to island.

Diagnosis: The embolus is broad like *M. taeniola*, but has only a tiny flange on the prolateral distal edge. The ventral prong of the RTA is long and broad, with a distinct bend closer to its base. The atrial central piece is somewhat shield-shaped or parallel-sided, unlike the other species in which the central piece is shaped like an inverted water droplet. Males have a narrow, transverse, white patch of scales behind each PLE.

Description: Female (n=5): BL 5.31 (5.75) 6.64, CL 2.41 (2.52) 2.59, CW 1.73 (1.82) 1.98, CW/CL 0.70 (0.72) 0.76, CPL 0.19 (0.22) 0.24, EW 0.53 (0.58) 0.66; Male (n=2): BL 4.20 (4.31) 4.41, CL 2.13 (2.15) 2.16, CW 1.64 (1.65) 1.67, CW/CL 0.77. Typical in appearance. Two narrow, straight, complete, white dorsal abdominal stripes, bowed out slightly at posterior end (irregular gaps from rubbing), or two narrow anterior lines followed by three pair of small spots. Tibia I with ventral macrosetae 1p-1p in both sexes. Legs I yellowish orange to brownish orange, tarsi and sometimes metatarsi orangish yellow to brownish yellow. Legs II-IV orangish yellow to brownish yellow. Abdominal venter occasionally with lateral white stripes.

Biology: A few specimens have been noted as being collected under rocks along the coast.

Metacyrba pictipes Banks
Figs. 25-33, 101

Metacyrba pictipes Banks 1903: 343, pl. 15, f. 7 (Dm).
M. pictipes, Bryant 1943: 489, pl. 5, f. 49 (m).

Type Data: Holotype male in MCZ from **HAITI.** Port-au-Prince, Spring 1899, R. J. Crews.

Distribution: Known only from the island of Hispaniola.

Additional Specimens: DOMINICAN REPUBLIC. Sta. Domingo, rocky beach, 17-19 Mar 1984, 1m (MCZ); **HAITI.** Minigoane, 2 Nov 1934, 1f (P.J. Darlington, MCZ).

Comments: The central piece of the epigynum fills the entire atrium, which may indicate a relationship of this species to *M. venusta*. The fifth tibia I ventral macroseta of the holotype may support this indication. Alternatively, the presence of five or six ventral tibial macrosetae and having a central piece filling the entire atrium may be plesiomorphic character states.

Since only one female is known, I did not dissect the epigynum from the body, therefore no dorsal view is provided. The ventral character states are diagnostic, and much of the internal structure can be seen through the integument.

Diagnosis: The embolus looks very similar to *M. venusta*, but the very tip extends more along the proximal edge, whereas in *M. venusta*, the very tip extends slightly more along the distal edge. The ventral prong of the RTA is stout but relatively short compared to other species (as also is *M. venusta*). The distinctly lighter colored patella I in males appears unique, but only two males are known. The spermathecae are placed further back and reach the posterior edge of the epigynum. The atrium and central convex piece are the smallest in the genus (about half the length of other species), as is the overall size of the epigynum, and the central convex piece completely fills the atrium.

Description: Female (n=1): BL 5.19, CL 2.28, CW 1.79, CW/CL 0.75, CPL 0.11, EW 0.50; Male (n=2): BL 2.90 (3.30) 3.70, CL 1.60 (1.70) 1.79, CW/CL 0.81 (0.82) 0.83. Generally smaller than other species in the genus. Male abdomen pale dorsally with two narrow white stripes (having narrow gray borders) that are broken into spots posteriorly. Legs orangish brown to reddish brown with yellowish orange patellae and tarsi I (in males) or all distal segments (distal to femur) except tarsi brownish orange (female). Tarsi II-IV yellow, each with a light brown ventral stripe. The three specimens known have tibia I ventral macrosetae formulas of 1p-2-2 (holotype), 2-2, or 2-1p. Abdominal venter with two or four white stripes.

Biology: Like *M. insularis*, this species has been recorded from a rocky coastal area.

Metacyrba punctata (Peckham & Peckham)
Figs. 35-46, 97

Balmaceda punctata Peckham & Peckham 1894: 102, pl. 8, f. 8 (Dmf).
Balmaceda punctata, F. O. P.-Cambridge 1901: 297, pl. 29, f. 2-3 (mf).
Fuentes punctatus, Banks 1929: 63.
Breda punctata, Chickering 1946: 44.
Metacyrba punctata, Barnes 1958: 35, f. 54 (Tmf from *Breda*).

Type data: Male and female syntypes in MCZ from "Central America" with no other data. Lectotype male and paralectotype female designated.

Distribution: Southern Texas (United States) to coastal Ecuador.

Additional Specimens: **COSTA RICA. Guanacaste.** Estación Palo Verde, 10m, Malaise trap, 12-23 Nov 1991, 2m 2f (R.U. Chavarria, D. Acevedo, INBIO CR1002405515); Estación Santa Rosa, on building, 20 Apr 2004, 1f 1 juv (G.B. Edwards, FSCA); **ECUADOR. Manabi.** Manta, 5 Jun 1942, 1f (H.E. Frizzell, FSCA); **MEXICO. Colima.** Colima (11.3 mi s), 26-27 Jun 1983, 1f (B.K. Dozier, FSCA); Menzanillo, on building, Apr 1975, 1m (C. Fletcher, MCZ); **Morelos.** Tehuixtla, 25 Jan 1945, 1f (N.L.H. Krauss, AMNH); **Nayarit.** Tepic (17 mi nw), 23 Nov 1948, 1m (E.S. Ross, CAS); **Quintana Roo.** Ascencion Bay, Allen Point, Sta. 15, 13 Apr 1960, 1f (J.F.G. Clarke, NMNH); Francisco Villa (9 km s), Kohunlich Ruins, 88°48'W 18°26'N, cohune palm forest, dead wood, 14-17 Jul 1983, 1f (W. Maddison, R.S. Anderson, MCZ); Coba Ruins, 87°42'W 20°30'N, stone temple, 18 Jul 1983, 1m (W. Maddison, MCZ); **San Luis Potosi.** Tamazunchale (16 km sw on hwy 85), Taman, 98°53'W 21°11'N, 1000', 11 Jun 1983, 1m 1f (W. Maddison, R.S. Anderson, MCZ); **Tamaulipas.** nr Gomez Farias, Naciemente del Rio Frio, 99.1°W 23.1°N, hollow stem on ground, 6-7 Jun 1983, 1f (W. Maddison, MCZ); Cd. Victoria (28 mi s), 25 Nov 1946, 1f (E.S. Ross, CAS); **Veracruz.** Alvarado (12 km nw on hwy 180), 95°51'W 18°50'N, bush in dune veg., 28 Jun 1983, 1m 1f (W. Maddison, R.S. Anderson, MCZ); Lake Catemaco, 1000', 26 Jul 1955, 1f (C. & P. Vaurie, AMNH); Mocambo (s Veracruz), banana plant, 21 Jun 1983, 1m (W. Maddison, MCZ); **Yucatan.** Chichén Itzá, Jul 1981, 1f (C. Gold, CAS); **PANAMA. Coclé.** Las Sabanas, 7 Jul 1924, 1f (N. Banks, MCZ); **UNITED STATES. Florida.** LEE CO.: Ft. Myers, 22 Jun 2005, on calamondin tree, 1f (D. Renz, FSCA); MANATEE CO.: Rye Wilderness Park, 10 mi e Bradenton, 2 mi n hwy SR 64, on small oak, 26 Nov 2005, 1 juv; on pine tree branch, 7 Dec 2005, 1 penult. m (both P. Carmichael, FSCA); SARASOTA CO.: Sarasota, on sign in parking lot, Oct 2005, 1 penult. m (photograph by P. Carmichael); **Texas.** CAMERON CO.: Dec 1934, 1f (L.I. Davis, AMNH).

Comments: The specimen from southern Texas that Barnes (1958) reported as *M. punctata* appears correctly determined, as it has a broader carapace and remnants of short anterior stripes as in some Mexican specimens (see *M. floridana* for comments on variation). I cannot explain Barnes (1958) indication that the carapace of *M. punctata* is about the same as that of *M. floridana*, as nearly all specimens of *M. punctata* I have measured had the width greater than 70% of the length (whereas all but one specimen of *M. floridana* had the carapace width less than 70% of the length).

Recently, an adult female was collected in southwest Florida, confirming the introduction and establishment of this species in the state. A couple of immatures with the appropriate color pattern had previously been collected in the state and suspected to be this species. More recently, additional specimens have been seen, and two immatures collected that are being reared. This extends a recent trend of introductions of exotic/ neotropical salticids into the southern part of the state, specifically *Sassacus vitis* (Cockerell) [Edwards in Coile *et al.* 1996], and an unidentified member of the *Freya perelegans* Simon group [Edwards in Coile *et al.* 1999]. These join the long-established pantropical *Menemerus bivittatus* (Dufour) and *Plexippus paykulli* (Audouin), both originally of Old World origin (Edwards 1979), although these two species are primarily synanthropic. The newer introductions appear to be primarily feral in habitat preference, although some of the new observations of *M. punctata* have been on man-made structures.

Diagnosis: Although very similar overall to *M. floridana*, the color pattern of the abdomen and color of legs I, difference in carapace proportions (*M. punctata* has a slightly wider carapace), and details of the embolus tip separate the two species. Generally the three pair of large spots on the abdominal dorsum of both sexes will distinguish this species. Unlike *M. floridana*, femur I is usually dark. The embolus tip has the flange much more narrow than in *M. floridana*, but it extends about twice as far as in the latter species. It has a small inner flange near the tip which is also more narrow than that of *M. floridana*. The ventral prong of the RTA is curved, shorter than *M. floridana*, but longer than *M. pictipes*. The epigynum is very similar to *M. floridana* and *M. taeniola*, but has the copulatory duct heads much longer than in the former species (possibly corresponding to the embolic flange length), and the epigynum is not as wide as in the latter species.

Description: Female (n=15): BL 4.72 (5.29) 5.74, CL 1.94 (2.19) 2.47, CW 1.39 (1.59) 1.85, CW/CL 0.69

(0.73) 0.76, CPL 0.18 (0.20) 0.24, EW 0.55 (0.61) 0.72; Male (n=7): BL 3.77 (4.20) 4.75, CL 1.70 (1.92) 2.04, CW/CL 0.70 (0.75) 0.79. Legs I are yellowish brown, orangish brown, or brown, with tarsi and sometimes distal half or all of metatarsi yellow to orange. Legs II-IV all yellow to yellowish orange. All specimens examined have a tibia I ventral macrosetae pattern of 1p-1p, except one specimen that was 2-1p (the single retrolateral macroseta is very small). Dorsum of abdomen with three pairs of enlarged white spots. Often the background color is dark gray, turning black posterior to the hindmost spot pair. Some specimens have the second and third spot pairs extended laterally, and a few have the third spot pair connected to form a transverse line (similar to some *Breda*). Another variation is having partial longitudinal stripes at the anterior end which fade out before intersecting the paired spots (unlike a similar variant in *M. floridana*). Abdominal venter pale to gray, with or without lateral white stripes, occasionally with the four rows of maculae highlighted but without complete stripes.

Biology: Records tend to indicate that specimens were collected in xeric habitats, or the locations where they were collected occur in xeric areas.

Metacyrba taeniola similis Banks, new status

Figs. 47-67

Metacyrba similis Banks 1904: 360, pl. 38, f. 9 (Dm). Previously synonymized with *M. taeniola* (Hentz 1846).

Type data: Male holotype in MCZ from **UNITED STATES. California.** Los Angeles, Hutchinson coll.

Distribution: Western United States (California, Nevada, Utah, Colorado) east to western Oklahoma and Texas, and south to Baja, Durango, and Coahuila in northwestern Mexico.

Additional Specimens: MEXICO. Baja Cal. Norte. Santo Thomas (15.6 mi s), 13 Jul 1962, 1m (C. Parrish, AMNH); Georges Is., 26 Apr 1921, 1f (J.C. Chamberlin, MCZ); Sta. 68, 20 Apr 1921, 1f (J.C. Chamberlin, MCZ); Sta. 69, 26 Apr 1921, 1f (J.C. Chamberlin, CAS); San Luis Is., Sta. 73, 28 Apr 1921, 1f (J.C. Chamberlin, CAS); Ensenada: Sta. 1, 7 Apr 1921, 1f (J.C. Chamberlin, CAS); 7 Apr 1921, 1f (J.C. Chamberlin, MCZ); Ensenada (2 mi n), 15 Jul 1969, 1f (S.C. Williams, V.F. Lee, CAS); Hwy 1: (2.5 mi s Halfway House), 21 Nov 1962, 1f (P.R. Craig, D. Dailey, CAS); (3.8 mi s Santa Maria Sky Ranch), 25 Nov 1962, 1f (P.R. Craig, D.L. Dailey, CAS); Isla San Martin, 10 Apr 1981, 1f (S.C. Williams, CAS); Tijuana (21.4 mi s), nr Halfway House, 20 Nov 1962, 1f (P.R. Craig, D. Dailey, CAS); Isla Raza, 21 Apr 1921, 1f (J.C. Chamberlin, MCZ); Isla Raza, Sta. 51, 21 Apr 1921, 1m (J.C. Chamberlin, CAS); Maneandero (12 mi se), 19 Apr 1965, 3f (CAS); Punta Banda, 4 Apr 1969, 1f (S.C. Williams, CAS); Rosarito, 25', 15 May 1952, 1m (Creighton, AMNH); San Vicente (27 mi s), 300', 12 Jul 1969, 1f (S.C. Williams, V.F. Lee, CAS); Sierra Juarez, Tajo-Cantil Cyn, 14-18 Apr 1973, 1m (S.C. Williams, CAS); **Baja Cal. Sur.** Cabo San Lucas (25 km e), 16 Dec 1977, 1f (C. Griswold, L. Vincent, CAS); El Coyote (2 mi e; ne La Paz), 30 Dec 1958, 1f (H.B.Leech, CAS); Espiritu Santo Is., San Gabriel Bay, 1f (J.C. Chamberlin, MCZ); Las Galeras Is., Sta. 176, 14 Jun 1921, 1m (E.P. Van Duzee, CAS); Mulege, Sta. 171, 1f (E.P. Van Duzee, CAS); Pescadero (5.6 km s), 25 Jul 1974, 1f (R.M. Haradon, W.E. Savary, V.F. Lee, CAS); Punta Trinidad, 25', flat top volcanic hill, 20 Mar 1971, 1f (V. Lee, CAS); Santa Inez Is.: 13 May 1921, 1f (J.C. Chamberlin, MCZ); Sta. 109, 13 May 1921, 1m (J.C. Chamberlin, CAS); Todos Santos (2.8 mi sse), beat leaves of living *Yucca valida*, 25 Dec 1958, 1f (H.B. Leech, CAS); **Chihuahua.** Huejotitlan, 20 Jul 1947, 1f (W.J. Gertsch, AMNH); Parral (22 mi n), 17 Jul 1956, 1f (V. Roth, W.J. Gertsch, AMNH); Santa Barbara, 18 Jul 1947, 3f (W.J. Gertsch, AMNH); **Coahuila.** Saltillo, 22 Aug 1947, 1f (W.J. Gertsch, AMNH); **Durango.** Ojo de los Encinos, 4-5 Jun 1947, 1f (G.M. Bradt, AMNH); **Sonora.** Guaymas, Sta. 19, 9 Apr 1921, 1f (E.P. Van Duzee, MCZ); Isla Pelicano, Mar de Cortés, 30 Apr 1944, 1m 1f (B. Osorio, Tafall, AMNH); Kino Bay, May 1996, 2m 1f (W. Maddison, UBC); Kino Nuevo, 12 May 1995, 1m (M.J. Green, UBC); San Pedro Nolasco Is, Sta. 31, 17 Apr 1921, 1m 2f (J.C. Chamberlin, E.P. Van Duzee, MCZ); Sonoita (20 mi sw), 13 Jun 1952, 1f (W.J. Gertsch, AMNH); San Carlos Bay, 1m 3f (MCZ); **UNITED STATES. Arizona.** COCHISE CO.: Chiricahua Mts.: Miller Cyn, 6 Aug 1972, 1f (D.B. Richman, FSCA); Paradise, cantrap, 1-12 Nov 1984, 1f (V. Roth, CAS); Paradise (3 mi w), 9 Sep 1950, 3f (W.J. Gertsch, AMNH); Portal: 5300', under rock, 7 Sep 1983, 1f (D.B. Richman, NMSU); 15 Jul 1974, 1f (M. & T.M. Favreau, AMNH); 7 Jul 1991, 1m (W. Maddison, WPM91-025, UAZ); in house, 17 Jul 1993, 1m (V. Roth, CAS); Portal (2 mi w), 26 Jun 1965, 1m (W.J. Gertsch, AMNH); Portal (7 mi

w), 4 Aug 1955, 3f (W.J. Gertsch, AMNH); Southwestern Res. Sta. (5 mi w Portal), 5400': Jun 1963, 1m (V. Roth, AMNH); 6-20 Jul 1955, 1f (W.J. Gertsch, AMNH); Jul 1960, 1f (Zweifel *et al.*, AMNH); Jun 1962, 1m (C. Parrish, AMNH); 5-15 Aug 1955, 1m 10f (W.J. Gertsch, AMNH); 26 Jun 1955, 3f (M. Statham, AMNH); 31 Jul 1956, 3f (E. Croway, AMNH); 15 Jul 1979, 1f (V. Roth, CAS); cantrap, 12 Sep 1971, 1f (A. Jung, FSCA); South Fork Cave Creek Cyn: 24 Apr 1970, 1f (D.B. Richman, FSCA); 5100-5300', 19 May 1982, 4f (V. Roth, CAS); under rock, 6 Sep 1983, 1f (D.B. Richman, NMSU); Skeleton Cyn, 20 Jul 1982, 1f (V. Roth, CAS); E. Turkey Creek, 19 Jun 1971, 1m (K. Hom, A. Jung, FSCA); Upper Cave Creek, 10 Jul 1970, 1m (V. Roth, FSCA); Huachuca Mts.: 20 Sep 1940, 1f (R.H. Crandall, AMNH); Garden Canyon: 11 Jul 1950, 1m (W.S. Creighton, AMNH); sweep roadside, 19 Aug 1992, 1f (G.B. Edwards, M. MacMahon, P. Gerba, FSCA); COCONINO CO.: House Rock, 112°3'W 36°44'N, 15 Jun 1934, 3m 1f (W. Ivie, AMNH); GILA CO.: Globe (17 mi nw), 11 Sep 1962, 1f (V. Roth, AMNH); GRAHAM CO.: Pinaleño Mts, Wet Cyn Picnic area on hwy 366, 6300', 7 Sep 1992, 1f (W. Maddison WPM92-061, UAZ); MARICOPA CO.: Agua Caliente, 5 Jan 1941, 1f (S. & D. Mulaik, AMNH); Cave Creek (6 mi ne), Aug 1966, 1m 1f (W. Eberhard, MCZ); Mesa, 16 Jul 1940, 2f (Stahnke & Gertsch, AMNH); Phoenix, desert, Aug 1964, 1f (W. Eberhard, MCZ); 20-28 Jul 1965, 1f (W. Eberhard, MCZ); Aug 1966, 2f (W. Eberhard, MCZ); 20-28 Jul 1965, 2m (W. Eberhard, MCZ); Tempe, 1m 1f (R.V. Chamberlin coll., MCZ); PIMA CO.: 15 Mar 1940, 1f (Bryant, AMNH); Cienega Wash (30 mi e Tucson), 110.30°W 31.58°N, 11 Sep 1964, 1m 1f (J. & W. Ivie, AMNH); Pima Cyn, 20 Aug 1992, 1m (G.B. Edwards, W. & D. Maddison, FSCA); Tucson: 20 May 1941, 1m (R.H. Crandall, AMNH); 28 Aug 1978, 1f (R.H. Russell, FSCA); 5 Jul 1991, 1m (W. Maddison, UAZ); 19-20 Aug 1992, 1m (G.B. Edwards, FSCA); 1992, 1m (UAZ); Tucson Mts, 3500', 1 Jan 1936, 1f (O. Bryant, AMNH); SANTA CRUZ CO.: Santa Rita Mts: 1m (NMNH); Madera Cyn: 16 Jul 1940, 2f (Gertsch & Hook, AMNH); 26 Jul 1970, 1f (K. Stephan, FSCA); nr Nogales, Pena Blanca Lk. (1 mi s), 1000', oak savannah, 13 Aug 1983, 1m (W. Maddison, MCZ); YUMA CO.: Gila Valley, poplar duff, 23 Jul 1958, 7m 6f (V. Roth, MCZ); Yuma: 1f, (H. Brown, NMNH); 7 Oct 1956, 1m (V. Roth, AMNH); 21 Aug 1961, 1f (C.L. Arrizo, AMNH); 28 Sep 1961, 1m; 28 Nov 1961, 1f; 4 May 1965, 1f; 13 Jul 1965, 1f; 10 Mar 1966, 1f (all D.B. Richman, FSCA); in house, 5 May 1966, 1m (D.B. Richman, FSCA); in garden, 30 Jun 1957, 1m 1f (V. Roth, CAS); Yuma Valley, under paper, 2 Jul 1966, 1f (D.B. Richman, FSCA); **California.** FRESNO CO.: Temp. Flat, 21 Oct 1984, 1f (D.J. Burdick, CAS); Tollhouse, 23 Mar 1941, 1f (S. & D. Mulaik, AMNH); INYO CO.: Big Pine (3 mi e on Salina Valley Rd), 5000', 11 Jun 1967, 1f (Gertsch & Hastings, AMNH); Inyo Mts, 6000-6500', Lead Cyn, pitfall, Dec 1981 - Aug 82, 1m (D. Giuliani, CAS); Sierra Nevada Mts, 5100', Big Pine (2.5 mi sw), pitfall, 16 Apr - 6 Oct 1985, 1m (D. Giuliani, CAS); LOS ANGELES CO.: 118°W 34°N, 33Na, 1f (AMNH); 34Ff, 1f (AMNH); Castaic (13 mi n), 1000m, Chamise chaparral, 14 Nov 1964, 1m 1f (L. Pinter, MCZ); Claremont, 2f (N. Banks coll., MCZ); Los Angeles: 10 Jun 1956, 1f (J.D. Soule, AMNH); Jun-Aug 1931, 1f (Sternitzky, AMNH); San Gabriel Cyn, Coldbrook Rngr Sta, 1000m, Manzanita chaparral, 26 Apr 1964, 2f (L. Pinter, NMNH); San Pedro Bay, Sta. 208, 7 Jul 1921, 1f (J.C. Chamberlin, CAS); Santa Monica (3 mi w), 118.34°W, 17 Mar 1941, 1f (W. Ivie, AMNH); MADERA CO.: North Fork, 8-14 Jun 1992, 1m (B. Spicci, CAS); MONTEREY CO.: Hastings Natur. Hist. Res.: 2 Oct 1938, 2f (W.M. Pearce, AMNH); 8 Apr 1940, 1f; 4 May 1940, 1m 2f; 8 Apr 1941, 1f (all J.M. Linsdale, CAS); 29 Jul 1942, 1f (Linsdale coll., Q. Tomich, AMNH); 3 Feb 1951, 1f (AMNH); 27 Aug 1953, 1f (D. Linsdale, AMNH); Red Hill: 121°33'W 36°22'N, 28 Mar 1946, 1m 2f; under rock: 21 Mar 1945, 1f (both J.M. Linsdale, CAS); 19 Jan 1946, 1m 1f; 6 May 1950, 1m 5f (both Linsdale coll., AMNH); 3 Feb 1951, 2m 2f; 6 Feb 1951, 1f (both AMNH); Robles del Rio, 1f (Linsdale coll., AMNH); ORANGE CO.: Laguna Beach, 117°47'W 33°33'N: 24 Jun 1931, 1m 2f (W. Ivie, AMNH); 22 Jul 1931, 3f (W. Ivie 31Da, AMNH); 28 Dec 1932, 1m 1f (W. Ivie 32Ja, AMNH); Santa Catalina Is., Sta. 169, 12 Jun 1921, 1f (J.C. Chamberlin, CAS); RIVERSIDE CO.?: Fish Springs, Salton Sea, 116.33°W, 12 Mar 1941, 3f (A. & W. Ivie, AMNH); SAN DIEGO CO.: Alpine, 9 May 1945, 2f (W.M. Pearce, AMNH); Del Mar, 15 Apr - 30 May 1957, 1m (J.A. Comstock, AMNH); Guatay, 9 Jul 1953, 1m (W.J. & J.W. Gertsch, AMNH); San Clemente Is., Jun 1938, 1f (J.T. Scott, AMNH); San Diego: 1m 4f (N. Banks coll., MCZ); 27 Feb 1970, 1m (H.A. Moore, NMNH); pit trap: Mar 1970, 1f; Apr 1970, 1m; Jul 1970, 1f; Sep 1970, 1f; Oct 1970, 1m; Apr 1971, 1m (all B.J. Kaston, NMNH); Sycamore Cyn, 1 May 1947, 1f (W.M. Pearce, AMNH); SAN MATEO CO.: Edgewood Park, 210m, Serpentine Trail, 2 Jan 1987, 1m (T.S. Briggs, V.F. Lee, D. Ubick, CAS); Searsville, 2 Sep 1931, 6f (Sternitzky, AMNH); SAN OBISPO CO.: Cayucos (2.6 mi n hwy 1), 60m, Thunder Cyn Rd, 14 Feb 1987, 1f (T.S.

Briggs, V.F. Lee, CAS); SANTA BARBARA CO.: Lake Cachuma (18 mi ne Santa Barbara), 1 Apr 1960, 1f (Gertsch, Ivie & Schrammel, AMNH); Santa Barbara, 1913, 1m (R.V. Chamberlin coll., MCZ); SANTA CLARA CO.: Alum Rock Park, 500', dry oak woodland, 7 Jul 1993, 1m (M.C. Hedin, WPM93-085, UBC); STANISLAUS CO.: La Grange, 30 May 1946, 1m (W.M. Pearce, AMNH); TULARE CO.: Ash Mtn, Kwh Pwr Sta, 24 Apr 1993, 1m (D.J. Burdick, CAS); Hammond (10 mi e), 3500', 20 Mar 1941, 1f (S. & D. Mulaik, AMNH); Visalia, in house, 27 Sep 1978, 1f (D. Carroll, NMNH); TUOLUMNE CO.: Marshes Flat Rd, 4 Apr 1977, 1f (P.R. Craig & C. Kirsch, CAS); VENTURA CO.: Santa Cruz Is., La Playa Cyn, 1f (MCZ); **Colorado.** SAN MIGUEL CO.?, 109°W 38°N, 1f (33Bc, AMNH); **Nevada.** COUNTY?: 6 Jul 1963, 1f (AMNH); NYE CO.: Mercury, 4 May 1961, 1f (AMNH); WASHOE CO.: n Reno, sage brush, Aug 1965, 1f (B.T. Gardner, MCZ); **New Mexico.** DOÑA ANA CO.: Aguirre Spring Rd, 5000', under rock, 17 Mar, 1983, 1f (D.B. Richman, NMSU); Box Cyn, 23 Aug 1992, 1f (G.B. Edwards, D.B. Richman, FSCA); Mesilla Park, 3900': in house in sink, 28 May 1985, 1m (J. Richman, FSCA); in bathtub, 13-15 Jul 1975, 1m 1f (D.B. Richman, NMSU); San Augustin Pass (23 mi ne Las Cruces), under rock, 30 Jun 1988, 1m (G.B. Edwards, FSCA); EDDY CO.: Carlsbad (42 mi sw), 4800', Sitting Bull Falls Camp, 27 Jun 1964, 1m (F., P. & M. Rindge, AMNH); GRANT CO.: Burro Mts., 1 Aug 1973, 1m (M.H. Muma, FSCA); HIDALGO CO.: Clanton Draw (3.4 mi e AZ line), under rock, 8 Aug 1991, 1f; Clanton Draw (9.5 mi w SR 338), under rock, 28 Aug 1992, 1f (both D.B. Richman, NMSU); OTERO CO.: High Rolls Mtn Park, 4 Apr 1966, 1f (L. Pinter, MCZ); SOCORRO CO.: Sevilleta NWR, LTER Site 5013619(9), 1m (NMSU); **Oklahoma.** COMANCHE CO.: Lawton (20 mi wnw), Wichita Mts Wildlife Ref., on house, 26 Jun 2004, 1m (B. Cutler coll., FSCA); **Texas.** BREWSTER CO.: Chisos Mts, Big Bend Nat Park: 14 Dec 1954, 1f (K.W. Haller, AMNH); The Basin, 28 Sep 1950, 2f (W.J. Gertsch, AMNH); JEFF DAVIS CO.: Davis Mts, Limpia Creek Cyn, 8 Sep 1952, 1f (B. Malkin, AMNH); Ft. Davis, Jul 1934, 1m (Mulaik, AMNH); EL PASO CO.: El Paso (40 mi e, 40 Mile Hill), 10 Sep 1952, 1f (B. Malkin, AMNH); LUBBOCK CO.: Lubbock, window of house, 11 Jul 1987, 1m (J.C. Cokendolpher, FSCA); WICHITA CO.: Burkburnett, 24 Aug 1979, 1f (J.C. & J.E. Cokendolpher, FSCA); **Utah.** SALT LAKE CO.: Salt Lake City, 111°W 40°N: 11 Nov 1930, 1f (W. Ivie 30Ai, AMNH); 1f (AMNH); in building, 19 Jul 1930, 1m (W.J. Gertsch, AMNH); Salt Lake, 1f (Marx coll., NMNH); SAN JUAN CO.?, La Salle Mts., Park Creek Rd, 13 Jun 1946, 1m (AMNH); SEVIER CO.: Fish Lake, 22 Jun 1930, 1m (W.J. Gertsch, AMNH); Richfield, 25 May 1930, 1f (W.J. Gertsch, AMNH); WASHINGTON CO.: Pintura, 113°W 37°N, 15 Apr 1932, 1f (W. Ivie 32Cc, AMNH).

Comments: Spiders are uncommonly divided into subspecies, but the widespread occurrence of different leg color forms of *M. taeniola* with an essentially parapatric distribution seems to warrant division in this instance. Another reason to recognize this subspecies is the apparent difference in habitat between eastern and western *M. taeniola*. But perhaps the microhabitat substrates in which they are found, such as under the bark of logs and under rocks, are more important factors than the habitat in which they occur. The ecology of the species in different regions of the country deserves further study.

The presence of reddish orange femur IV readily separates this subspecies from the nominate subspecies. Leg IV is entirely this color. There appears to be a sudden change in femur IV color, without any transition from the eastern form (except see below). This contrasts with the gradual change in color of femora II and III (and the more distal segments), becoming lighter and more reddish from east to west. Specimens from western Oklahoma and Texas and from New Mexico have dark femora II and III like *M. t. taeniola*, but the more distal segments are reddish orange. Farther west, femora II and III become lighter in color, in Arizona more dusky in appearance (as if intermediate between the eastern and most western forms), and in coastal California are often entirely reddish orange like femur IV, as are the entire legs II-IV (in females). Males usually retain dusky or dark femora II and III, and have darker legs I. Some specimens, mostly from southern California and the Baja peninsula, have legs II-IV entirely dusky or reddish dusky in color, sometimes with intermediates (dusky femora II and III, reddish orange femur IV), but the abdominal patterns are the same as typical variants of *M. t. similis* (generally these latter specimens are poorly preserved and apparent leg coloration may be unreliable). See also Comments and Diagnosis of *M. t. taeniola*. I have not been able to find what I would consider to be significant genitalic differences between *M. t. similis* and *M. t. taeniola*.

The transition from *M. t. taeniola* to *M. t. similis* may be more subtle than simply changing the color of femur IV. There is a male specimen from Sutton

County, Texas, that has all four femora dark and the distal segments of legs II and III reddish brown like the typical eastern Texas form of *M. t. taeniola*, but the distal segments of leg IV are light reddish orange in color. This location is essentially right along the border between the two subspecies. It might indicate that the distal segments of leg IV changed color prior to femur IV changing color (which would be consistent with the general trend from east to west as described above), or perhaps the specimen is simply a hybrid between the two subspecies.

Diagnosis: Reddish orange femur IV, and to some extent the abdominal color pattern variations, separates this subspecies from *M. t. taeniola.* See the latter for separation from other species.

Description: Female (n=10): BL 4.88 (5.77) 7.25, CL 2.28 (2.45) 2.62, CW 1.79 (1.92) 2.07, CW/CL 0.77 (0.78) 0.80, CPL 0.24 (0.27) 0.30, EW 0.64 (0.74) 0.78; Male (n=7): BL 3.70 (4.45) 4.94, CL 1.91 (2.09) 2.28, CW/CL 0.78 (0.83) 0.87. There are at least four common variants in abdominal color pattern of *M. t. similis*, but I cannot find other distinctions among them. These are: (1) relatively broader straight white complete stripes (*similis* form), (2) narrow complete stripes becoming sinuate in posterior fourth, (3) like previous variant but sinuate area broken into series of small spots, (4) like previous but lines broken in anterior end. These variants are mostly found intermixed within populations, and they tend to intergrade. The *similis* form is the least common of the variants, with most records from Monterrey County, California, where it intermixes with variant (4).

Biology: Records from desert habitats tend to be from under rocks. Records from higher elevation are mostly from dry woodland, without much indication of microhabitat.

Metacyrba taeniola taeniola (Hentz)

Figs. 68-78, 99

Attus taeniolus Hentz 1846: 353, pl. 21, f. 5 (Df).
Attus taeniola, Hasselt 1887: 242 (Dm).
Cyrba taeniola, Peckham & Peckham 1888: 75, pl. 5, f. 56, pl. 6, f. 56 (mf).
Metacyrba taeniola, F. O. P.-Cambridge 1901: 252, pl. 22, f. 9-10 (mf); probable misidentification.
C. taeniola, Emerton 1902: 63, f. 159-160 (f).
Fuentes taeniola, Simon 1903: 846, f. 1000 (m).
M. similis Banks 1904: 360, pl. 38, f. 9 (Dm); not *M. t. taeniola*, see above.
M. taeniola, Peckham & Peckham 1909: 486, pl. 39, f. 5, pl. 40, f. 4 (mf).
M. taeniola, Levi & Field 1954: 462, f. 96, 98 (mf).
M. taeniola, Barnes 1958: 30, f. 47-51 (Tmf from *Fuentes*).

Type Data: Syntype series deposited with the Boston Society of Natural History, from **UNITED STATES. Alabama** and **North Carolina**, destroyed.

Distribution: Eastern United States to midwestern states and northeast Mexico. Reported records from the West Indies and Central America appear to be the result of misidentifications of other closely similar species. I have not seen any specimens of *M. taeniola* south of northern Mexico or from the Caribbean islands.

Additional Specimens: MEXICO. Coahuila. Cuatro Cienega (9 mi sw), 29 May 1981, 1m 1f (J. Doyen, CAS); **San Luis Potosi.** Charcas, hillside: Jul 1934, 1f; 7 Jul 1934, 1f (both A.M.C. [Chickering?], MCZ); **Tamaulipas.** San Pedro, May 1936, 1m (B. Rutherford, AMNH); Sisal (15 mi s Victoria), 99.12°W 23.38°N, 22 Jul 1966, 1f (J. & W. Ivie, AMNH); Victoria (6 mi s), 99.05°W 23.39°N, 16 Apr 1963, 1f (W.J. Gertsch, W. Ivie, AMNH); **UNITED STATES. Alabama.** BALDWIN CO.: Silver Hill, Apr-May 1945, 1f (G. Nelson, MCZ); LEE CO.: Auburn, 2m 1f (N. Banks coll., MCZ); **Arizona.** COCHISE CO.: Chiricahua Mts., South Fork Cave Creek, 109.12°W 31.51°N, 24 May 1963, 3f (W.J. Gertsch, W. Ivie, AMNH); **Arkansas.** LINCOLN CO.: 94.36°W, 24 Aug 1939, 1f (R.V. Chamberlin, AMNH); WASHINGTON CO.: Fayetteville, Jul 1957, 1m 1f (M. Hite, MCZ); Boston Mts, Cove Creek Valley, 1000', Prairie Grove (15 mi w): 1m; Jun 1956, 1f; May 1956, 1m (all M. Hite, MCZ); **Delaware.** KENT CO.: Felton: 3 Jul 1972, 1f; 15 Jul 1972, 1m 1f (both H.K. Wallace, FSCA); NEW CASTLE CO.: Wilmington, 30 May 1941, 1m (A.L. Bacon, AMNH); **Washington, D.C..** 1f (J.F. Leech, NMNH); **Florida.** COUNTY?: 9 Nov 1932, 1f 1 juv (H.K. Wallace 34, FSCA); 6 Apr 1935, 1m 1f (H.K. Wallace 380B, FSCA); 5 Oct 1948, 1f (H.K. Wallace 1287, FSCA); 15 Nov 1949, 1f (H.K. Wallace, FSCA); Lakebury, 2m (Peckham coll, MCZ); ALACHUA CO.: 9 Nov 1958, 1f (J. McCrone, MCZ); 30 Sep 1948, 1m 1f (H.K. Wallace 1286B, FSCA); Paradise, 24 Mar 1949, 1f (B.W.C. MC-21, FSCA); BAKER CO.: 1 May 1949, 1m 1f (H.K. Wallace GR 67, FSCA); CHARLOTTE

CO.: Punta Gorda, 1m (N. Banks coll., MCZ); COLLIER CO.?: 81°W 26°N, 1f (369, AMNH); DUVAL CO.: 16 Jan 1949, 1f (H.K. Wallace GR 49, FSCA); 24 Apr 1949, 1f (H.K. Wallace GR 62, FSCA); 7 May 1949, 3f (H.K. Wallace GR 68, FSCA); FRANKLIN CO.: St. George Is., pitfall trap, 5-20 Aug 1972, 1f (W.W. Baker, FSCA); GADSDEN CO.: 5 Jun 1952, 1f (H.K. Wallace 1633, FSCA); HIGHLANDS CO.: Lake Clay, banana farm, 5 Oct 1962, 1f (A.M. Nadler, AMNH); Sebring, fossil dunes, 1 May 1983, 1m (G.B. Edwards, FSCA); HILLSBOROUGH CO.: 14 Apr 1949, 2m 1f (H.K. Wallace 1301B, FSCA); INDIAN RIVER CO.: Sebastian, Mar 1944, 1f (G. Nelson, MCZ); Vero Beach, on ground, 3 May 1975, 1m (J. Balciunas, D.B. Richman, FSCA); JACKSON CO.: 3 Apr 1953, 1m (H.K. Wallace, FSCA); 3 Apr 1953, 1m (H.K. Wallace 1653, FSCA); LEE CO.: Fort Myers Beach, 81°56'W 26°26'N, 17 Mar 1934, 1m (W. Ivie, AMNH); LEVY CO.: 15 Nov 1949, 1m 1f (H.K. Wallace 1351B, FSCA); Hwy 24, under dead turkey oak bark, 26 Feb 1976, 1m (G.B. Edwards, FSCA); Williston, in house, 15 Jun 1980, 1m (L. O'Berry, FSCA); LIBERTY CO.: Torreya St. Park., under pine bark, 14 May 1964, 1f (M.H. Muma, FSCA); MARION CO.: 27 Aug 1957, 1m (H.K. Wallace 1902, FSCA); Rainbow Springs, 4 Jul 1982, 1f (M.C. Thomas, FSCA); MONROE CO.: Rattlesnake Humps #1, red mangrove, 3 Jul 1967, 1m; Squirrel Key, red mangrove, under bark, 4 Jul 1967, 1f (both R. Silberglied, MCZ); ORANGE CO.: Apopka: *Opuntia* sp., 31 Dec 1990, 1f (A. Capitano, FSCA); *Dracaena surculosa*, 8 Apr 1991, 1f (C. Murphy, FSCA); Orlando, UCF campus, May 1983, 1f (D.T. Corey DTC0281, NMNH); Runnymede, 1f (N. Banks coll., MCZ); PALM BEACH CO.: Delray Beach, *Phoenix dactylifera*, 25 Nov 1992, 1f (E. Manzo, FSCA); PINELLAS CO.: Dunedin, Mar 1927, 1m (W.S. Blatchley, MCZ); Largo, 28 Mar 1964, 1m 1f (H. Levi, MCZ); POLK CO.: Lake Alfred, pine flatwoods cantrap: 28 Apr 1969, 1f; 12 May 1969, 2f; 9 Jun 1969, 1f; 23 Jun 1969, 1f; 8 Jul 1969, 1f (all K.J. Stone, FSCA); n Lake Alfred, pine flatwoods cantrap: 19 Aug 1969, 1f; 16 Sep 1969, 1m 3f; 2 Oct 1969, 1m; 26 Nov 1969, 1f; 16 Apr 1970, 1f; 27 May 1970, 1f; 2 Sep 1970, 1m (all M.H. Muma, H.L. Greene, FSCA); Winter Haven, sand pine cantrap: 17 Oct 1967, 1f; 26 Aug 1968, 2f; 9 Sep 1968, 2f; 23 Sep 1968, 1f; 7 Oct 1968, 1f; 21 Oct 1968, 1f; 2 Dec 1968, 1f; 19 Aug 1969, 1f; 14 Apr 1970, 1f; 5 Aug 1970, 1f; 16 Sep 1970, 1m; 16 Sep 1970, 1m 2f (all M.H. Muma, H.L. Greene, FSCA); 8 Jul 1969, 1f (K.J. Stone, FSCA); under board on ground, 13 Apr 1952, 1f (M.H. Muma, FSCA); ST. LUCIE CO.: Ft. Pierce, driftwood on beach dune, 29 Jan 2001, 1m (K.Hibbard, FSCA); **Georgia.** COUNTY?: 1m 1f (G. Peckham, J.H. Emerton coll., MCZ); HALL CO.: Gainesville, Nov 1938, 1 penult. m (B.J. Kaston, NMNH); LIBERTY CO.: St. Catherine's Is., 23-29 Apr 1982, 1f (Rozen, Favreau, AMNH); MORGAN CO.: Rutledge, Aug 1942, 1f (R. Wallace, NMNH); THOMAS CO.: Thomasville, under dead pine bark, 28 Apr 1973, 1m 1f (G.B. Edwards, FSCA); UNION CO.?, Chattahoochee Nat. For., 84°W 35°N, 4f (33Hl, 419, AMNH); 1f (432, AMNH); **Kansas.** MONTGOMERY CO.: Elk City (6 mi sse), under rock on limestone outcrop, 27 Apr 1991, 1f (B. Cutler, FSCA); **Louisiana.** BATON ROUGE PAR.: Baton Rouge, 1f (R.V. Chamberlin coll., MCZ); CADDO PAR., Shreveport, 1m 1f (N. Banks coll., MCZ); ST. TAMMANY PAR.: Bayou Lacombe at LA 36, 29 Apr 1981, 1f (D.A. Rossman, FSCA); **Maryland.** HOWARD CO.: Columbia, in home, 3 Jun 2003, 1f (E. Cohen, NMNH); MONTGOMERY CO.: Bethesda, 5 Oct 1944, 1 juv (J.M. Davis 2354, AMNH); Kensington, 5 Jul 1945, 1m (J.M. Davis 2404, AMNH); PRINCE GEORGE'S CO.: Adelphi, 19 Sep 1986, 1 penult. m (E.R.S. Hodges, NMNH); Hyattsville, in house, 12 Jun 1974, 1f (S. Edwards, FSCA); **Mississippi.** JACKSON CO.: Ocean Springs, 10 May 1931, 1f; 18 Jun 1930, 1f (both H. Dietrich, AMNH); WILKINSON CO.: Centreville, Jan-Jul 1944, 1f (A.F. Archer, AMNH); **New Mexico.** GRANT CO.: Penos Altos (6 mi n), 16 Dec 1954, 1f (K.W. Haller, AMNH); HIDALGO CO.: Animas Peak, 22 Jul 1963, 1m 1f (V. Roth, AMNH); **North Carolina.** CARTERET CO.: Beaufort, Piret Is., 3 Aug 1961, 2f (R.D. Barnes, MCZ); CHEROKEE CO.: Murphy, 25 Jul 1903, 1f (J.H. Emerton coll., MCZ); CUMBERLAND CO.?, 35°N 79°W, 1f (33Jg., AMNH); ORANGE CO.: Chapel Hill, 1m (Marx coll., NMNH); UNION CO.: Monroe, Jun 1942, 1m (Mrs. E.L.Bell,Jr., AMNH); Jun 1942, 2f (Mrs. Alice C. Bell, AMNH); **Oklahoma.** CLEVELAND CO.: Norman, in house, 23 Jun 2004, 1f (N. Rizzo, FSCA); **Pennsylvania.** BUCKS CO.: ne Jamison (Horseshoe Bend, Nashaminy Cr.), Jun 1954, 1m 1f; Jul 1956, 1f (both W. Ivie, AMNH); **Tennessee.** COUNTY?: 7 Jun 1951, 1f (H.K. Wallace, FSCA); BEDFORD CO.: Shelbyville (3 mi s, Stow's River), Jul 1943, 1f (A.F. Archer, AMNH); DAVIDSON CO.: Nashville, 7 Aug 1955, 1f (A.R. Lawkey, AMNH); **Texas.** COUNTY?: 2f (N. Banks coll., MCZ); 2f (R. Scott, AMNH); Pa [?], 1m 1f (Peckham coll, MCZ); BASTROP CO.: Bastrop, 14 Aug 1938, 1f (Davis, AMNH); BELL CO.: Belton (2 mi e), 24 Dec 1941, 1f (AMNH); BEXAR CO.: San Antonio: 1f (R.V. Chamberlin coll., MCZ); Aug 1940, 1m (W. Keller, AMNH); Somerset, 17 Mar 1937, 1f

(A.J. Kirn, AMNH); BOSQUE CO.: Boggy Creek, 8 Jun 1940, 1f (Z.E. Murray, AMNH); BRAZOS CO.: 1m (N. Banks coll., MCZ); BREWSTER CO.: w Alpine, 103°42'W 30°25'N, 5 Nov 1939, 2f (D. & S. Mulaik, AMNH); CALDWELL CO.: Taylorsville, San Solomon Sprg, 6 Jul 1934, 1m (Mulaik, AMNH); CAMERON CO.: Harlingen, 17 Nov 1934, 3f (S. Mulaik, AMNH); Leguna Atascosa Wild. Ref., Cayo Atascosa (e shore), 29 Jan 1959, 1f (BAB 2164, AMNH); Los Fresnos, 30 May 1939, 1f (S. Mulaik, AMNH); CLAY CO.: Apr 1952, 1f (S.V. Olsen, FSCA); CROCKETT CO.: Sheffield (20 mi e), 30 Sep 1950, 1f (W.J. Gertsch, AMNH); DALLAS CO.: Abrams Rd., woods, in log, 26 May 1940, 1m (MCZ); Dallas: 1f (C. Fletcher, MCZ); home, 14 Jun 1935, 1f (S. Jones, MCZ); under bark, 20 Apr 1940, 1f (MCZ); forest, 14 Jul 1940, 1m (H. Knutsen, MCZ); HIDALGO CO.: Edinburg, 1f (AMNH); 1m (AMNH); 11 Jan 1950, 1f (AMNH); 15 Oct 1935, 1m (Schulle, AMNH); 3 Jun 1936, 1f (S. Mulaik, AMNH); 5 May 1938, 1f (S. Mulaik, AMNH); 24 Sep 1938, 2f (O. Mulaik, AMNH); 7 Jan 1939, 2m 1f 5juv (S. Mulaik, AMNH); 21 May 1939, 1m 1f (S. & D. Mulaik, AMNH); Dec 1939, 1m (D. & S. Mulaik, AMNH); 10 Sep 1940, 2f (S. & D. Mulaik, AMNH); Edinburg (10 mi NW), 24 Dec 1949, 1f (AMNH); Edinburg (30 mi w), 24 Nov 1934, 1f (Mulaik, AMNH); McAllen, 13 May 1952, 1f (M. Cazier, W. Gertsch, R. Schrammel, AMNH); McCook, 29 Jan 1939, 1f (D. & S. Mulaik, AMNH); n McCook, 28 Nov 1937, 1f (D. Mulaik, AMNH); KENEDY CO.: Sarita (19 mi s on hwy 77 nr Armstrong Ranch), 97.793°W 26.970°N, 26 Apr 1997, 1f (Maddison, Hedin, Hebets, WPM97-012, UBC); KERR CO.: Kerrville, 9-30 Sep 1955, 1f (L.J. Bottimer, AMNH); Raven Ranch, Jun 1941, 1m (S. & D. Mulaik, AMNH); NACOGDOCHES CO.: Garrison (4.5 mi s on hwy 59), in nest on shelter, 23 Jun 1993, 1f (H. Guarisco, FSCA); SAN PATRICIO CO.: Sinton (8 mi ne): 97°26'W 28°10'N, 18 Sep 1959, 1m (H.E. Laughlin, AMNH); 97°26'W 28°08'N, 12 Aug 1964, 1m 1f (J. & W. Ivie, AMNH); STARR CO.: Falcon Lake St Park, 99.152°W 26.591°N, 25 Apr 1997, 1m (Maddison, Hedin, Hebets WPM97-007, UBC); Rio Grande, Lormita Ranch, 1m (S. Henshaw, MCZ); Rio Grande City (5 mi e), 21 Jan 1939: 1f (D. Mulaik, AMNH); 1f (S. Mulaik, AMNH); SUTTON CO.: Sonora, under rock (oak/lupin), 2 Apr 1981, 1m (D.B. Richman, NMSU); TRAVIS CO.: Austin: 17 Oct 1967, 1f; 30 May 1968, 1f; 25 Jun 1968, 1f (all D. Simon, FSCA); Aug 1936, 1f (Davis, AMNH); weed pile, 5 Apr 1937, 1f (A. Emerson, AMNH); Austin (5 mi e), Jun-Jul 1957, 1f (W. McAlister, AMNH); Indian Cove (8 mi w Austin): 28-30 Apr 1967, 1m (D. & W. Simon, FSCA); 19-25 Jun 1967, 2f (D. Simon, FSCA); UVALDE CO.: 2 mi n junc S-334 & hwy 55, under rock in grassland, 23 Sep 1971, 1f (A. Jung, FSCA); 20 May 1938, 1m (Robinson, AMNH); VAL VERDE CO.: Del Rio, 26 Mar 1946, 1f (C.D. Michener, AMNH); WALLER CO.: Hempstead, 30°7'W 96°5'N, 31 Aug 1933, 1f (W. Ivie, AMNH); WEBB CO.: Laredo (32 mi se), 10 Apr 1936, 1m (Haynes, AMNH); **Virginia.** PORTSMOUTH CO.: Portsmouth: in house, Jun 1967, 1m (MCZ); Jun 1968, 1m (E. Sabath, MCZ).

Comments: Barnes (1958) stated there is a record of *M. taeniola* from Wisconsin reported by Levi & Field (1954). However, the latter paper merely refers to Peckham & Peckham (1909), who, among other states, list New York and Wisconsin records for this species. I have not seen specimens from either state, but it seems likely that the southern parts of both states fall within the range of this species.

Cambridge's (1901) record of *M. (sub Cyrba) taeniola* from Guerrero, Mexico, is probably erroneus. As noted above, I have not seen any specimens of *M. taeniola* this far south, and there is an undescribed species in southwest Mexico. Also, his description of a female of *M. taeniola* has a few details that are inconsistent with this species, e.g., "tibia i without any spines, or at most with three on the outer side only." The Peckhams (1909) noted they had not seen these variations; neither of these conditions normally occurs in *M. taeniola*. Cambridge further notes, "One may not, however, have correctly identified Peckham's *C. taeniola* (Hentz)."

The three collection records from southeast Arizona and southwest New Mexico of this subspecies are clearly records of specimens with dark femora IV, despite their disjunct distribution from *M. t. taeniola* and overlap with the distribution of *M. t. similis*. The records are from higher elevation, and two of the records consist of more than one specimen, so it is unclear how to account for this distribution. Possibly there is or was a biological conduit from the eastern U.S. into the southern southwest (perhaps the Rio Grande River in part), which would account for the presence of some other eastern salticids [e.g, *Sarinda hentzi* (Banks)] in isolated areas of southern Arizona. Other speculations include the possibility that the specimens are mislabelled.

Diagnosis: This subspecies can be distinguished from *M. t. similis* by having femur IV as dark as the

other femora. It also averages slightly larger than *M. t. similis*. The embolus is wider than in *M. floridana* and *M. punctata*, and has the largest embolic flange. It is the only species in which the flange is extended to a point distally. The ventral prong of the RTA is weakly curved, moderately stout, and of moderate length, a little less than half the length of the dorsal prong of the RTA. With the exception of two unusually small females (one of each subspecies), the epigynum of every female of *M. taeniola* measured was wider than the epigynum of every other specimen measured of every other described species. The dorsal color pattern and body proportions will distinguish this species from *M. floridana* and *M. punctata* if there is any question about the epigynum.

Description: Female (n=13): BL 5.12 (5.86) 7.35, CL 2.13 (2.50) 2.81, CW 1.60 (1.91) 2.19, CW/CL 0.74 (0.76) 0.79, CPL 0.23 (0.28) 0.32, EW 0.70 (0.80) 0.84; Male (n=8): BL 4.01 (4.75) 5.62, CL 1.94 (2.15) 2.47, CW 1.60 (1.72) 1.88, CW/CL 0.76 (0.80) 0.84. The legs I are always darkest, with usually the metatarsus and tarsus (sometimes only the latter) lighter in color than the other segments. Legs II-IV generally have the femur and more proximal segments black (dark brown in alcohol), with the more distal segments lighter in color. In the far eastern part of the range, the color change is slight, with the distal segments black or brown. Mideast areas have the distal segments lighter brown to tan. In the midwest and into northeast Mexico is a form with the distal segments light reddish brown. These variants always have all four sets of femora dark. The tibia I ventral macrosetae pattern is usually 2-2, less commonly 2-1p.

The main variations in dorsal abdominal color pattern of *M. t. taeniola* are two rows of small dashes or dots, dashes anteriorly and dots posteriorly, or rarely, complete narrow lines.

Biology: This is a typical inhabitant of eastern deciduous forest, where it is found under bark of logs. Its distribution across the southern Great Plains tends to follow wooded areas where available, but also appears to transition to living under rocks in grassland areas.

Metacyrba venusta (Chickering), new combination

Figs. 79-96, 102

Parkella venusta Chickering 1946: 49, f. 27-30 (Dm)

Parkella fusca Chickering 1946: 51, f. 31-32 (Df), NEW SYNONYMY

Dendryphantes franganilloi Caporiacco 1955: 441, f. 79 (Df); NEW SYNONYMY

Metacyrba franganilloi, Ruiz & Brescovit 2005: 754, f. 5-6 (Df)

Type Data: Holotype male of *P. venusta* in MCZ from **PANAMA. Canal Zone.** Ft. Sherman, Aug 1939. Holotype female of *P. fusca* in MCZ from **PANAMA. Canal Zone.** Canal Zone Biological Area, Jul 1934. Holotype female (#XII-739) of *D. franganilloi* (not examined) in MUCV (Museo de la Universidad Central de Venezuela) from **VENEZUELA. Falcón.** Pueblo Nuevo, Oct 1948, Marcuzzi leg.

Distribution: Previously only known from Panama (Chickering 1946) and Venezuela (Caporiacco 1955). Now recorded from Costa Rica and southern Mexico.

Additional Specimens: COSTA RICA. Guanacaste. Murciélago (8 km s Cuajiniquil), Parque Nacional de Santa Rosa, 100m, Malaise trap, 23 May-23 Jun 1994, 1m (F.A. Quesada, C. Cano, INBIO CR1002405429); **MEXICO. Chiapas.** Chiapa de Corzo, food ball of *Streptoprocne zonaris* [Aves], 5 Jun 1985, 1f (D.F. Whitacre, NMNH); **Oaxaca.** Monte Alban: 25 Jul 1947, 1f (C.J. Goodnight, AMNH); 26 Jul 1947, 1m 1f (C. & M. Goodnight, AMNH); Nochixtlan (9 mi se), 97.12°W 17.20°N, 1 May 1963, 1f (W.J. Gertsch, W. Ivie, AMNH); Oaxaca, 7 Jul 1947, 1f (B. Malkin, AMNH); **PANAMA. Canal Zone.** Forest Reserve, 28 Jul 1954, 1f (A.M. Chickering, MCZ). Caporiacco (1955) lists two other females (of *D. franganilloi*) from Caracas, Venezuela, collected 4 May 1949. These specimens were not available for examination.

Comments: Gustavo Ruiz (personal communication, 2004) suggested to me after he examined the type that *D. franganilloi* might be a synonym of *M. venusta*. I have been unable to examine the type of *D. franganilloi* (requests for a loan of the type were unanswered), but based on the recent description and illustrations of the type specimen of this species (Ruiz & Brescovit 2005), he appears to be correct.

Diagnosis: Unlike the other species, *M. venusta* usually has the tibia I ventral macrosetae 2-2-2. This species and *M. pictipes* have the proportionately widest convex central piece in the epigynal atrium of any described species of *Metacyrba*. Also like *M. pictipes*,

the entire atrium is filled with the central piece, unlike the other species in which the central piece does not entirely fill the atrium anteriorly, leaving a crescent-shaped depressed area (which will help distinguish this species from other mainland species, especially *M. taeniola*, which may have a wide central piece). However, the central piece of *M. venusta* is about the same size as the other species, which is twice or more the length of the central piece of *M. pictipes*. The spermathecae are placed more posteriorly, again similar to *M. pictipes*. The embolus is relatively narrow, but maintains its width the entire length, like *M. pictipes*. The outer edge of the embolus tip is turned toward the venter. As a result, the embolus tip looks wider from a retroventroposterior view than from ventral view. The ventral prong of the RTA is very broad at the base, angled toward the retrolateral side, and short.

Description: Female (n=8): BL 4.44 (5.39) 6.11, CL 1.91 (2.28) 2.62, CW 1.48 (1.76) 2.01, CW/CL 0.75 (0.77) 0.79, CPL 0.20 (0.23) 0.25, EW 0.48 (0.61) 0.69; Male (n=3): BL 3.70 (4.14) 4.72, CL 1.85 (1.98) 2.22, CW 1.42 (1.54) 1.76, CW/CL 0.77 (0.78) 0.79. The male (*P. venusta*) type lacks a dorsal color pattern. The female (*P. fusca*) type has a dorsal color pattern identical to a female specimen of *M. taeniola* from Florida in having a pair of longitudinal rows of small, narrow, yellow spots (dashes) which posteriorly are joined by faint, narrow chevrons. The other Panama female has four pairs of small white spots in the posterior half of the abdomen, beginning in the middle. The Costa Rica male has faint narrow stripes in the posterior half of the abdomen, joined by even fainter narrow chevrons. Specimens from southern Mexico have narrow, complete abdominal stripes that bow out slightly at the posterior end (some of them are rubbed and only the posterior half of the stripes are apparent). The Mexican specimens all have completely reddish brown legs. Other specimens have yellowish orange to brown femora, with distal segments slightly lighter in color, and tarsi yellow. Usually the tibia I ventral macrosetae pattern is 2-2-2, except type of *D. franganilloi* is 2-2, and two Mexican specimens are missing one retrolateral macroseta [the proximal in one (1p-2-2), the distal in the other (2-2-1p)]. The Mexican specimens are noticeably larger than the more southern specimens, but the genital structures (also larger in the Mexican specimens) appear to have the same shape as the southern specimens.

Biology: Nothing is known of the biology of this species.

Phylogeny of *Metacyrba*

Although this will be addressed in more detail when the undescribed species are added in a subsequent paper, a preliminary hypothesis can be made here. Clearly *M. pictipes* and *M. venusta* seem related based on the embolus shape (broad tip), short ventral prong of the RTA, spermathecae moved to a more posterior position, and epigynal central piece that takes up the full length of the atrium. The other four species may be related based on the narrow tip of the embolus. Three species (*M. floridana, M. punctata, M. taeniola*) appear related by the presence of an extensive outer flange on the embolus. Probably *M. floridana* and *M. punctata* are related based on the overall shape of the outer flange (rounded without a pointed tip), the presence of a second smaller inner flange, and a more narrow embolus overall than *M. insularis* and *M. taeniola*. This would create a phylogenetic tree with the formula: ((*M. pictipes*, *M. venusta*) ((*M. insularis* (*M. taeniola* (*M. floridana, M. punctata*))))).

Platycryptus Hill

Platycryptus Hill 1979: 215

Type Species: *Metacyrba undata* (De Geer 1778).

Comments: Hill (1979) described the genus *Platycryptus* based on differences in the structure of the body scales between it and *Metacyrba*. He also transferred *M. californica* (Peckham & Peckham 1888) to this genus. He apparently overlooked the third species in the group known from north of Mexico, *M. arizonensis* Barnes 1958. Another misplaced species, *Marpissa magna* (Peckham & Peckham 1894), also needs transferring to *Platycryptus*.

More detailed morphology and diagnoses plus updated distributions for the species listed here will be given in a companion paper that also describes new species of *Platycryptus*. Figures given here are only those sufficient to demonstrate the character states for generic placement.

Diagnosis: *Platycryptus* differs from *Metacyrba* by lacking a postocular extension to the carapace (the thoracic area is always lower in height than the cephalic area); having a more hirsute body; not having segments of the legs I exceptionally enlarged; having 7 or 8 (vs. 6 or less) tibia I macrosetae that are normal in size; having a cryptic gray and brown color pattern; having a ventral palpal femoral tubercle; not having

the epigynal atrial area narrow and convex; lacking strong oblique epigynal slits; having a ventral retromedial tegular tubercle, and by being noticeably larger and more robust. *Platycryptus* differs from *Balmaceda* by the last three characters and by lacking the transverse median abdominal band often present in the latter genus. The more dorsal prong of the RTA by itself is useful in separating the three genera: *Metacyrba* has a more median, elongate, straight, very thin tip; *Platycryptus* has the tip extended from the ventral edge of the apophysis and recurved dorsally; and *Balmaceda* has the tip nearly straight like *Metacyrba* or curved ventrally, but less thin and less elongate, similar to *Platycryptus*. Also, the RTA has a small ventral prong in *Balmaceda*, the prong is present or absent in *Platycryptus*, and in *Metacyrba* the prong is larger and has moved to a somewhat more ventral position on the tibia (almost appearing to be a separate ventral apophysis except for the continuous curving edge of the integument connecting it with the longer part of the RTA). *Platycryptus* also appears to have a possible DTP homolog in a proximal prolateral position (most evident in *P. magna*) like *Metacyrba*. Plus it has a thickened, sclerotized, proximal retrolateral edge to the cymbium (although less developed) that is similar to *Metacyrba*.

While *Platycryptus* typically has been thought of as having 7 ventral macrosetae on tibia I (4 proventrolateral and 3 retroventrolateral), probably because the common type species (*P. undatus*) has this formula, oddly Barnes (1958) reported both *P. arizonensis* and *P. californicus* as having 6 ventral tibia I macrosetae. Specimens I have examined of both species have females with 7 ventral macrosetae as in *P. undatus*, and 8 tibia I macrosetae in males, with a smaller retrolateroventral macroseta present. This smaller macroseta is not especially near the ventral macrosetae, but rather is closer to a more normal median retrolateral position.

Biology: *Platycryptus* live on or under bark of a variety of vertical trees, both living and dead. They are also found on fence posts and buildings, and can be abundant on wooden structures.

Platycryptus arizonensis (Barnes), new combination

Figs. 103-104

Metacyrba arizonensis Barnes 1958: 42, f. 59-60, 63 (Dmf)

Type Data: Holotype male and female allotype supposed to be in AMNH from **UNITED STATES. Arizona.** PIMA CO.: Tucson, Jul-Aug 1935, P. Steckler [types of this species could not be found].

Distribution: UNITED STATES: Arizona, California, New Mexico, Utah (Barnes 1958).

Comments: Barnes' illustrations clearly show that *M. arizonensis* belongs with *P. undatus* and *P. californicus*. These three species appear to form a species group within the genus characterized by having the prolateral edge of the embolus with a long, narrow flange, similar to variation seen in *Metacyrba*. Another synapomorphy of these three species appears to be the loss of the ventral prong of the RTA (see *P. magnus*). *Platycryptus arizonensis* is smaller than the other species of *Platycryptus*, more in the size range of *Balmaceda* and *Metacyrba*.

Platycryptus californicus (Peckham & Peckham)

Figs. 105-106

Marptusa californica Peckham & Peckham 1888: 81, pl. 1, f. 61, pl. 5, f. 61, pl. 6, f. 61 (Dmf).
Marpissa minor F. O. P.-Cambridge 1901: 250, pl. 22, f. 5-6 (Dmf); incorrect synonymy.
Marpissa melanura F. O. P.-Cambridge 1901: 251, pl. 22, f. 7 (Df); incorrect synonymy.
Marpissa californica Peckham & Peckham 1909: 482, pl. 39, f. 2, pl. 40, f. 2 (mf) [the Peckhams mistakenly synonymized the two Cambridge species].
Metacyrba californica Barnes 1958: 39, f. 57-58, 61, 64, 68 (Tmf from *Marpissa*).
P. californica Hill 1979: 215 (Tmf from *Metacyrba*).

Distribution: CANADA: British Columbia. UNITED STATES: Arizona, California, Colorado, Idaho, Montana, Oregon, Utah, Washington, Wyoming (Barnes 1958).

Comments: It is not clear why Peckham & Peckham (1909) synonymized the two Cambridge species with *P. californicus*. Neither Cambridge's illustrations nor actual specimens are sufficiently similar to mistake either species with the latter species. It seems likely that the Peckhams did not actually compare specimens of *M. melanura* or *M. minor* with *P. californicus* [I have examined the types of both *Marpissa* species]. Kraus (1955) resurrected *M. minor* but inexplicably synonymized *M. melanura* with it [Platnick (2005) still has *M. melanura* listed as a synonym of *P. californicus*]. The two

species of *Marpissa* will be redescribed in a separate paper. For now, *Marpissa melanura* F.O.P.-Cambridge 1901, is resurrected.

Platycryptus magnus (Peckham & Peckham), new combination

Figs. 109-114

Marptusa magna Peckham & Peckham 1894: 87, pl. 8, f. 3 (Df)
Marptusa broadwayi Peckham & Peckham 1894: 89, pl. 8, f. 5 (Dmf); **new synonymy**
Marpissa magna, F. O. P.-Cambridge 1901: 250, pl. 22, f. 3-4 (f).
M. broadwayi, Simon 1901a: 603.
Menemerus delus Chamberlin & Ivie 1936: 30, pl. 8, f. 63 (Df).
Naubolus aureocomosus Mello-Leitão 1943b: 264 (Df).
Marpissa magna, Chickering 1946: 44, f. 23-26 (f, Dm).
M. broadwayi, Galiano 1981a: 11 (S).
Platycryptus broadwayi, Edwards *et al.* 2005 (T from *Marpissa*).

Type Data: Two syntypes in MCZ from "Central America" with no other data; an adult female and a penultimate male with a detached abdomen. I designate the adult female as the **lectotype**, the subadult male as a **paralectotype**. I have also designated a female **lectotype** (in good condition) for *M. broadwayi*, with the remaining three syntypes (one male, two females, all in poor condition) becoming **paralectotypes**.

Distribution: MEXICO to BRAZIL (Platnick 2005).

Comments: Edwards *et al.* (2005) transferred *Marpissa broadwayi* to *Platycryptus*, but did not have an opportunity to compare this species to *M. magna*. I have subsequently done so and found that they represent the same species.

This species is large and hirsute, and is mostly gray dorsally. It usually has 8 macrosetae on tibia I; the same 7 possessed by other species in the genus (6 ventral, 1 prolateroventral), plus a corresponding retrolateroventral (as in males of *P. arizonensis* and *P. californicus* except not reduced in size nor moved to a more normal position). One (a female) of the four syntypes (one male, three females) examined of *P. broadwayi* is missing the tibial retrolateroventral macroseta [therefore has only the 7 possessed by females of other species in the genus]. The illustrations of the Peckhams (1894), Cambridge (1901), and Chickering (1946) were all indicative of a species of *Platycryptus*.

One difference this species has from the more northern species of *Platycryptus* is the presence of a moderate ventral prong on the RTA, like the species of *Balmaceda* but larger. Another difference from the northern *Platycryptus* is that the embolic flange is truncated, resulting in a much longer, more slender embolus tip than the other species. The ventral retromedial tegular tubercle is present in *P. magnus* as in other *Platycryptus* species.

Platycryptus undatus (De Geer)

Figs. 107-108

Aranea undata De Geer 1778: 320, pl. 39, f. 8 (D).
P. undata, Hill 1979: 215 (Tmf from *Metacyrba*).
Metacyrba undata, Oehler 1980: 8, f. 54-59 (mf).
P. undatus, Paquin & Dupérré 2003: 200, f. 2239-2241 (mf). See Platnick (2005) for complete list of citations.

Distribution: CANADA: Nova Scotia, Ontario. UNITED STATES: Massachusetts west to southern Minnesota and Nebraska, and south to Florida and Texas (Barnes 1958).

Comments: Although Platnick (2005) lists the distribution of this species as North and Central America, its presence in Central America is doubtful. Cambridge (1901) gives a Mexican record from Minatitlán. A gazetteer gives two possibilities for this location, one in Colima, but the more likely one in southern Veracruz. I suspect that this record and any Central American records for this species may be *P. magnus* instead, or possibly related similar marpissines that have yet to be revised.

Balmaceda Peckham & Peckham

Balmaceda Peckham & Peckham 1894: 101

Type Species: *B. picta* Peckham & Peckham 1894

Comments: Only the type species, *B. picta* from Central America, is moderately well known (although eight species are presently placed in the genus, the other species occurring in South America).

Diagnosis: *Balmaceda* differs from *Metacyrba* in many of the same ways that *Platycryptus* differs. See *Platycryptus* diagnosis for details and some ways *Balmaceda* differs from *Platycryptus*. The species in this genus generally are smaller and less

hirsute than species of *Platycryptus*, paler and more hirsute than *Metacyrba*, and have a different abdominal color pattern than either of the other two genera (although more similar to *Platycryptus*), i.e., the posterior half of the dorsum of the abdomen has a series of lateral dark incursions, of which the most anterior and/or largest (in the middle of the abdomen) may be connected medially. The overall genital structure of the three genera is similar, but there are several differences between *Metacyrba* and *Platycryptus* (listed above). *Balmaceda* shares some character states of both of the other two. *Balmaceda*, like *Metacyrba*, lacks a ventral retromedial tegular tubercle (a plesiomorphic condition), although *Balmaceda* may have a rudimentary more proximal tubercle. The copulatory duct openings are submedian, oblique slits as in *Metacyrba*, although they subtend a much wider angle than in *Metacyrba*. It lacks a well-defined epigynal central piece and has a pale unmodified atrium most like *Platycryptus magnus*. *Balmaceda* has a short, isolated, retroventral prong of the RTA rather than the larger, more ventral prong of *Metacyrba*. It lacks the embolic flange present in *Platycryptus* and several *Metacyrba*. The main part of the tegulum is extended distally somewhat more than the other two genera, and the embolus is more separated from the distal part of the tegulum and more firmly attached to the lateral part of the tegulum. The genitalia are also proportionately smaller that in *Metacyrba* or *Platycryptus*. Most other characters are similar to *Platycryptus*.

Biology: *Balmaceda picta*, like the species of *Platycryptus*, appears to prefer vertical surfaces and is usually found on bark. Some specimens have been taken from buildings and bridges. Nothing is known about the biology of other species in the genus.

Balmaceda picta Peckham & Peckham
Figs. 115-122

Balmaceda picta Peckham & Peckham 1894: 101, pl. 10, f. 1 (Dmf).
B. picta, F. O. P.-Cambridge 1901: 297, pl. 28, f. 18-19 (mf).
B. picta, Chickering 1946: 61, f. 42-44 (f).

Type Data: Syntypes (2 males, 1 female) in MCZ from **GUATEMALA** (east coast), no other data.

Distribution: Guatemala and Panama (Platnick 2005).

Additional Specimens: COSTA RICA. Herédia. La Selva OTS Station: fogging, 25 Jun 1993, 1m (FVK/01/02, INBio IB1222453); Rio Sarapiqui bridge, 8 Sep 1996, 1f (G.B. Edwards AGBE96-09, INBio IB2735042); beat in clearing, 9 Sep 1996, 1f (R. Vargas C. ASCRVCGO02, INBio IB2734225); 14 Sep 1996, 1m (G.S. Bodner AGSB96-02, INBio IB2735576); 26 Sep 1996, 1f (G.S. Bodner AGSB96-01, INBIO IB2735593); sweep forest edge, 4 Oct 1996, 1f (R. Vargas C. APBRVCRE04, INBio IB2735853); 4 Apr 2005, 1m (K. Nishida, FSCA).

Comments: The RTA is less curved toward the venter than *B. nigrosecta*, apparently because in *B. picta* the entire length of the larger prong has the ventral edge rotated outward, whereas in *B. nigrosecta*, the distal part is twisted toward the venter. Essentially the same can be said about the embolus, as *B. picta* has the entire dorsal surface slightly concave, but *B. nigrosecta* has the outer edge twisted inward, so that the ventral surface is concave. There is only a hint of the proximal tegular tubercle present in *B. nigrosecta*.

Balmaceda nigrosecta Mello-Leitão 1945, combination restored
Figs. 123-126

Balmaceda nigrosecta Mello-Leitão 1945: 277 (Dm).
Metacyrba nigrosecta, Galiano 1980: 35

Type data: Male holotype in MLP (#16710) from **ARGENTINA. Misiones.** Puerto Victoria, Jun 1943, Zenzes col.

Comments: Galiano (1980) transferred *Balmaceda nigrosecta* to *Metacyrba*. Apparently she followed Barnes (1958) for her generic placement, possibly considering this species to belong to the *undata* group (now *Platycryptus*). The carapace is proportionately a little wider than in *B. picta*, more similar to *Platycryptus*, which may have led Galiano to make her transfer (carapace width is variable in *Metacyrba* as well). My examination of the type reveals that it lacks the character states that would put it in either *Metacyrba* or *Platycryptus*, therefore I restore it to its original combination.

Diagnosis: *Balmaceda nigrosecta* lacks the retromedial tubercle on the tegulum characteristic of *Platycryptus*, and the general shape of the tibial apophysis (although larger) is similar to *B. picta*. It does have a smaller, more proximal tegular tubercle

Table 1. Comparison of some characters of six genera of Marpissinae. See text for explanation of characters.

Genera:	*B. flavostriata*	*Fuentes*	*Metacyrba*	*Breda*	*Balmaceda*	*Platycryptus*
Characters						
Abdominal color pattern	multistriped no spots no band	1 pair stripes no spots no band	1 pair stripes or paired spots or posterior band	cryptic or paired spots or posterior band	cryptic no spots no band or median band	cryptic no spots no band
White anal setae	absent	present	present	present	absent	absent
Tibia I macrosetae	short <6	short <6	short 6 or <6	short >6	normal >6	normal >6
Palp ventral femur	not excavate	excavate no tubercle	excavate no tubercle	not excavate	excavate w/ tubercle	excavate w/ tubercle
Tibial apophysis	2 separate (1 dorsal)	bifid, smaller prong ventral	bifid, smaller prong ventral	simple	bifid, smaller prong ventral	bifid, smaller prong ventral, or simple
Cymbium	normal	thick edge	thick edge	normal	normal	thick edge
DTP	absent	present	present	absent	absent	present
DDL	absent	present	present	absent	absent	absent
Tegulum VRT	absent	absent	absent	absent	absent	present
Embolus	elongate broad spiral	elongate broad spiral	broad not spiral	narrow	broad not spiral	broad not spiral
Embolus base	narrow	broad	broad	narrow	broad	broad
Epigynum central piece	absent	absent	present	absent	absent	absent
Epigynal openings	lateral, oval	posterior atrium sides	paramedial oblique slits	posterior corners of oval atrium	paramedial oblique slits	posterior corners of oval atrium
Epigynal ducts	C-shaped	C-shaped	posterolateral	extended anteriorly	posterolateral	posterolateral

that is directed toward the retrolateral side, rather than pointing ventrally as in *Platycryptus*. Its color pattern has a transverse median brown band on the abdominal dorsum in the shape of a broken chevron, and its overall size is similar to *B. picta*. It has a broader carapace and longer embolus than *B. picta*, but no obvious characters (at the present level of knowledge of this group of genera) which would indicate it is not congeneric with the latter species.

Discussion

It is possible that the genitalic differences among *Balmaceda, Metacyrba,* and *Platycryptus* could be considered minor enough that the differences in body form only reflect different species groups in one genus. There are even some somatic and genitalic characters shared among the three genera, for example, an excavate venter on the male palpal femur, and having posteriorly placed, transversely oriented, copulatory ducts in the epigynum. Another marpissine genus, *Marpissa*, has several species groups with different body forms and color patterns but similar genitalia (Logunov 1999). *Marpissa* differs from the other genera discussed here by having the proximal part of the tegulum of the male palp extended ventrally as a cone-like lobe, and the epigynum has the paired copulatory openings in a posterior position (or sometimes with the openings encompassed in a partially fused common atrium) with the copulatory ducts consisting of several loops. The genera *Balmaceda*, *Metacyrba*, and *Platycryptus* have an anterior atrium, the copulatory openings in a medial position (often in oblique slits), simple posterior ducts with a right angle bend leading to the posterolateral spermathecae, and the tegulum lacks such a lobe (although *Platycryptus* in particular has other types of projections from the tegulum, and the proximal end of the tegulum is generally swollen).

Five arguments against combining at least *Metacyrba* with the other two genera are the very different shape of the carapace (with an extended postocular area), the enlarged femur and tibia of leg I, the

reduced number and size of macrosetae on tibia I, the convex central piece in the epigynum, and the distal dorsal lobe (DDL) of the tegulum. Based on the distribution of character states among the genera, it seems likely that *Balmaceda* and *Platycryptus* are more closely related and possibly sister genera, and *Metacyrba* is more distantly related to them.

The above three genera have much in common with three other marpissine genera: *Breda*, *Fuentes*, and *Breda flavostriata* Simon 1901b (not a true *Breda*: Edwards *et al*. 2005; therefore, without a genus name). Comparison of some characters of the six marpissine genera is shown in Table 1. One strong character for separating *Metacyrba* from *Balmaceda* and *Platycryptus* is the presence of the DDL. *Fuentes* also has a DDL, but it seems to be highly modified to serve as a secondary conductor for the greatly elongated embolus. *Metacyrba* shares the reduced size of ventral leg I macrosetae with *Fuentes*, *B. flavostriata*, and true *Breda*. *Fuentes* also shares a pair of elongate, narrow abdominal stripes with *Metacyrba*, and both genera share the row of white setae above the anal tubercle and white narrow lateral carapace marginal band with *Breda*. *Fuentes* and *Metacyrba* both have a thickened retrolateral edge of the cymbium, as does *Platycryptus* to a lesser extent. *Fuentes* and *B. flavostriata* are similar to each other in the shape of the copulatory ducts and in having a heavily spiraled embolus (although *Fuentes* has the possible DTP homolog on the tegulum, but *B. flavostriata* apparently does not), whereas *Balmaceda* and *Metacyrba* share paramedian, oblique epigynal slits. *Balmaceda, Metacyrba*, and *Platycryptus* share excavate male ventral palpal femora and female epigyna with posterolateral spermathecae with transverse ducts. *Balmaceda* and *Platycryptus* share a cryptic color pattern, at least 7 normal ventral tibia I macrosetae (shared with other marpissine genera and probably plesiomorphic), and a ventral palpal femoral tubercle. *Platycryptus* is unique in having a ventral retromedial tegular tubercle, but it also has the possible DTP homolog on the tegulum and the thickened cymbial edge like *Fuentes* and *Metacyrba*. *Breda milvina* (C.L.Koch) has a cryptic pattern similar to *Balmaceda* and *Platycryptus* (although brightly colored instead of gray), a unique sinuate sperm duct (across the proximal face of the tegulum), and an external epigynum in general like *Platycryptus magnus*. Other *Breda* species are similar but may have a color pattern like the fused spot variant (creating a posterior transverse line) of *M. punctata*. The epigynal ducts of *Breda* are like an exaggerated version of *Metacyrba* with the ends of the ducts extending anteriorly and coming from a lateral position to the anterior median spermathecae. There is, of course, also the matter of the body scale differences (Hill 1979), which is becoming increasingly noticed as a useful character set in salticids (e.g., Benjamin 2004).

Among other marpissines, *Maevia* C. L. Koch 1846 and *Paramaevia* Barnes 1955 also have an anteromedial epigynal atrium (although it is small in *Maevia*). It resembles the corresponding structure in *Breda* and *Platycryptus*. *Paramaevia*, like species in the *Metacyrba* group of genera, also has a broad embolus. Two main types of emboli exist in the marpissines: a long filamentous embolus that originates from a short, broad base (typical of *Breda, Marpissa,* and *Maevia*); and an embolus that remains broad throughout most of its length (*Balmaceda, Breda flavostriata, Fuentes, Metacyrba, Paramaevia, Platycryptus,* and *Psecas* C. L. Koch 1850), often with a more narrow tip. *Mendoza* has a somewhat intermediate condition, with a broad base that more gradually becomes narrow (but rarely filamentous), and sometimes having a membranous middle section at the tip, similar to *Paramaevia* (see illustrations in Logunov 1999). Interestingly, *Itata* Peckham & Peckham 1894, presently placed in its own subfamily, the Itatinae (Simon 1901a, as Itateae), has an embolus very similar to *Marpissa*.

A thorough analysis of the marpissines is needed to clarify relationships among the genera. I have pointed out some characters here which may prove useful in this regard. Previously, no morphological synapomorphies were identified that united all the genera of this subfamily. Only the molecular analysis of Maddison and Hedin (2003) gave good evidence that the subfamily as presently understood is valid.

One possible morphological synapomorphy of the Marpissinae is the shifting of the prolateral and retrolateral (if present) macrosetae on tibia I to a ventral position [the reduction in size and number of macrosetae in the genera related to *Metacyrba* would be a subsequent synapomorphy]. Rather than the typical 2-2-2 ventral tibia I macrosetae arrangement common to many salticids, most marpissines have a 2-2-1p-2 or 2-2-2-2 arrangement. Another way of looking at this is that the ventral surface has four macrosetae in a linear arrangement toward the prolateral side, and three or four macrosetae toward the retrolateral side in a similar arrangement. *Itata* is the only other described marpissoid genus of

which I am aware that has this tibia I macrosetae arrangement (in this case, it is 2-2-1p-2). This macrosetae arrangement may indicate that it is a basal marpissine, or perhaps it is the immediate sister group to the marpissines. If the latter is the case, the tibia I ventral macrosetae arrangement would encompass both subfamilies, and further definition of each subfamily would be required.

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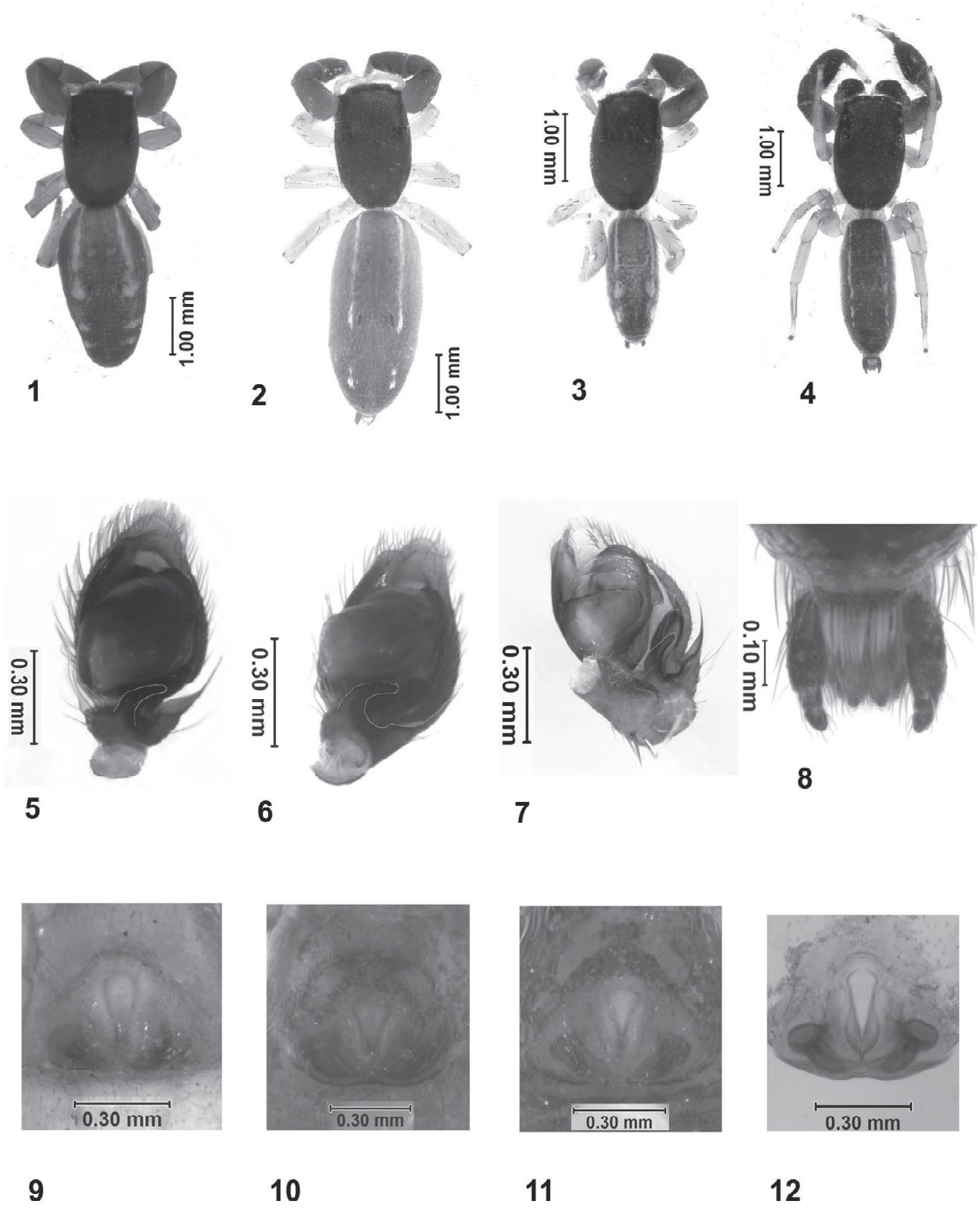
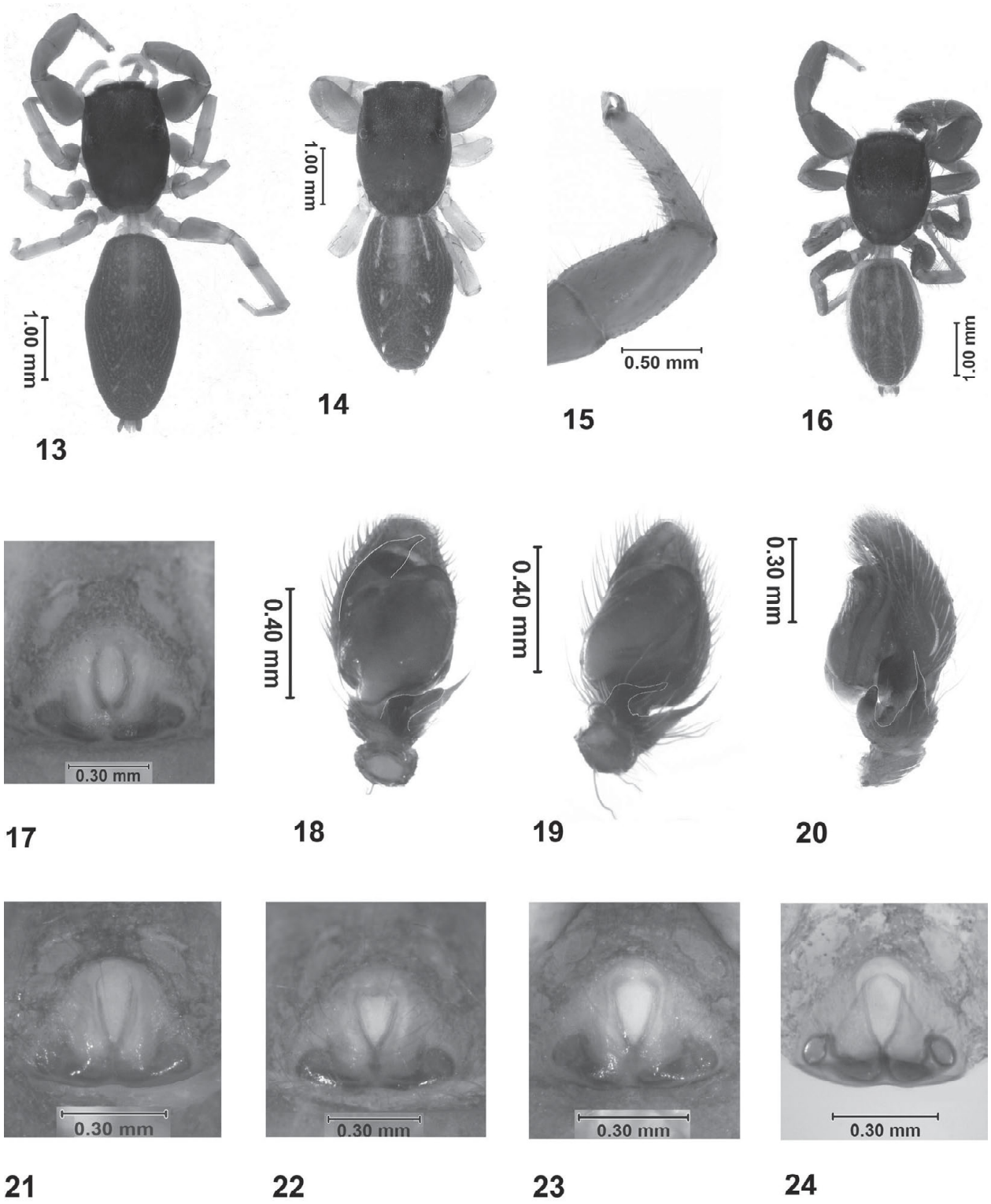


Figures. 1-12. ***Metacyrba floridana*** **Gertsch. 1)** Arizona female dorsal habitus; **2)** Georgia female dorsal habitus; **3)** Texas male dorsal habitus; **4)** Florida male dorsal habitus; **5)** Florida male palp ventral view; **6)** Florida male palp retroventroposterior view; **7)** Texas male palp, retroventral, less posterior view; **8)** Male spinnerets, showing row of broad white setae just dorsal to median spinnerets; **9)** Arizona female epigynum ventral view; **10-11)** Florida female epigyna ventral view; **12)** Florida female epigynum dorsal view cleared. Note small duct heads just below light-colored central atrium.



Figures. 13-24. ***Metacyrba insularis*** **(Banks). 13)** Isla Isabela female dorsal habitus (holotype); **14)** Isla Santa Cruz female dorsal habitus; **15)** Distal leg I (holotype); **16)** Isla Ida male dorsal habitus; **17)** Holotype epigynum ventral view; **18)** Male palp ventral view; **19)** Male palp retroventroposterior view; **20)** Male palp retrolateral view; **21)** Isla Santa Fé female epigynum ventral view; **22)** Isla Fernandina female epigynum ventral view **23)** Isla Santa Cruz female epigynum ventral view; **24)** Isla Santa Cruz female epigynum dorsal view cleared (same specimen as 23).

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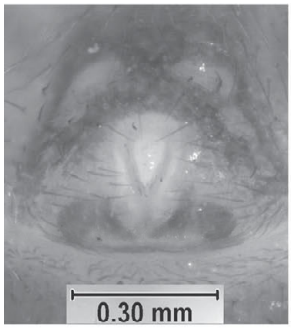

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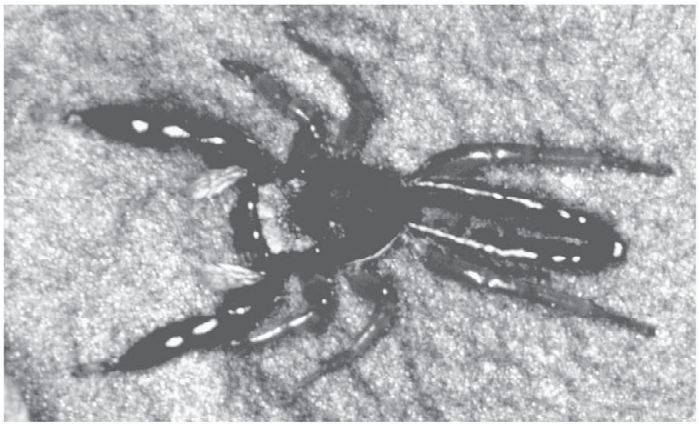

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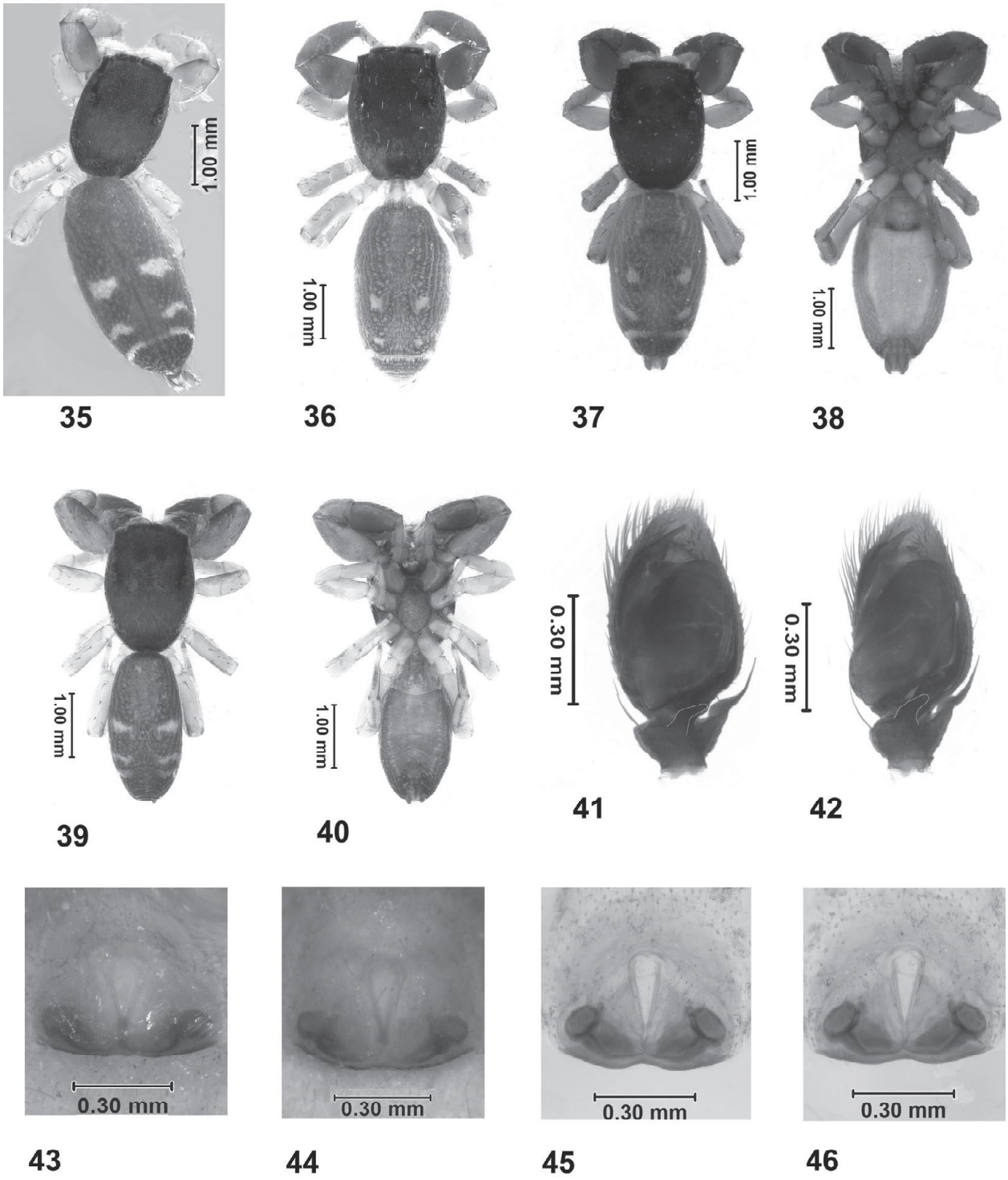
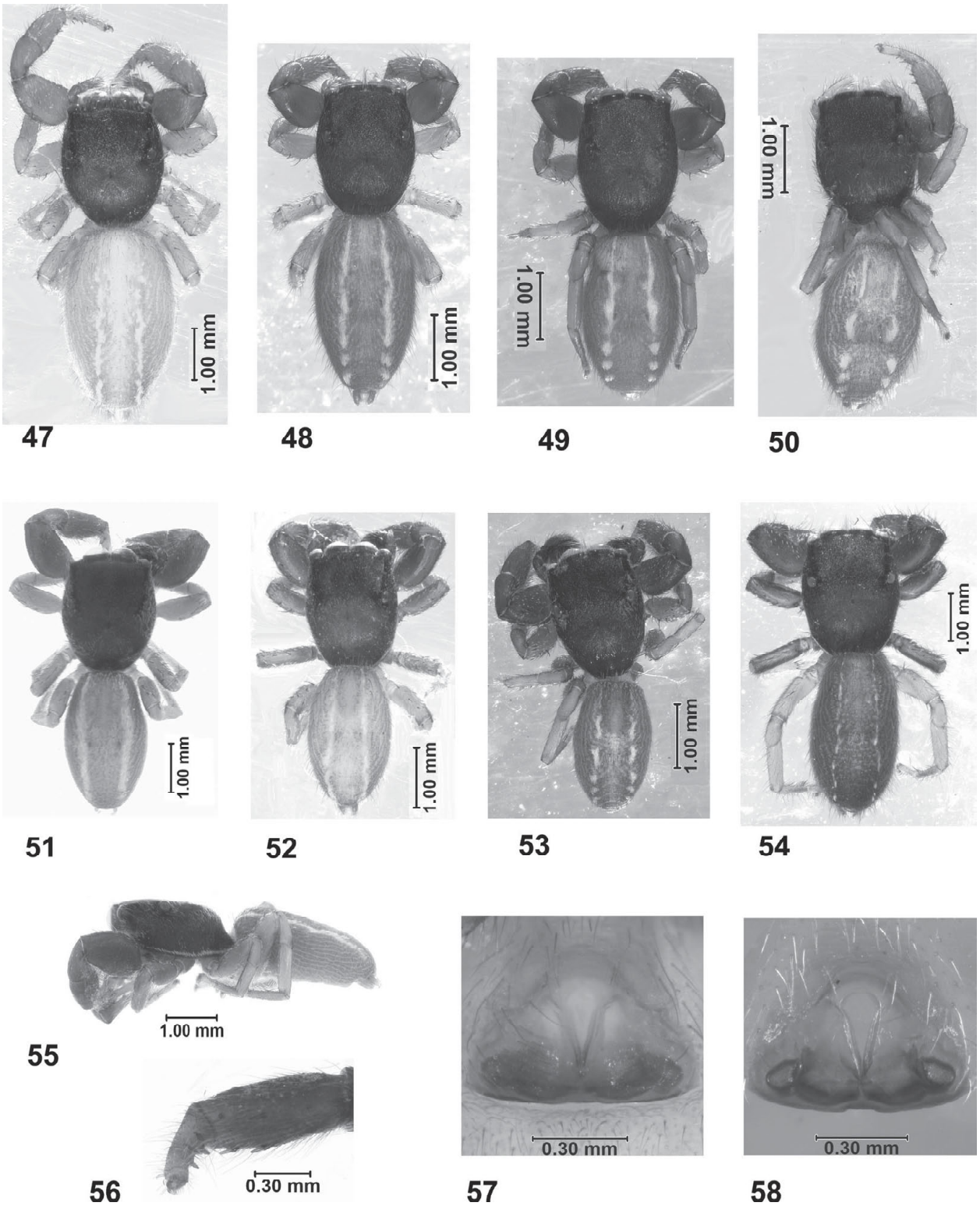
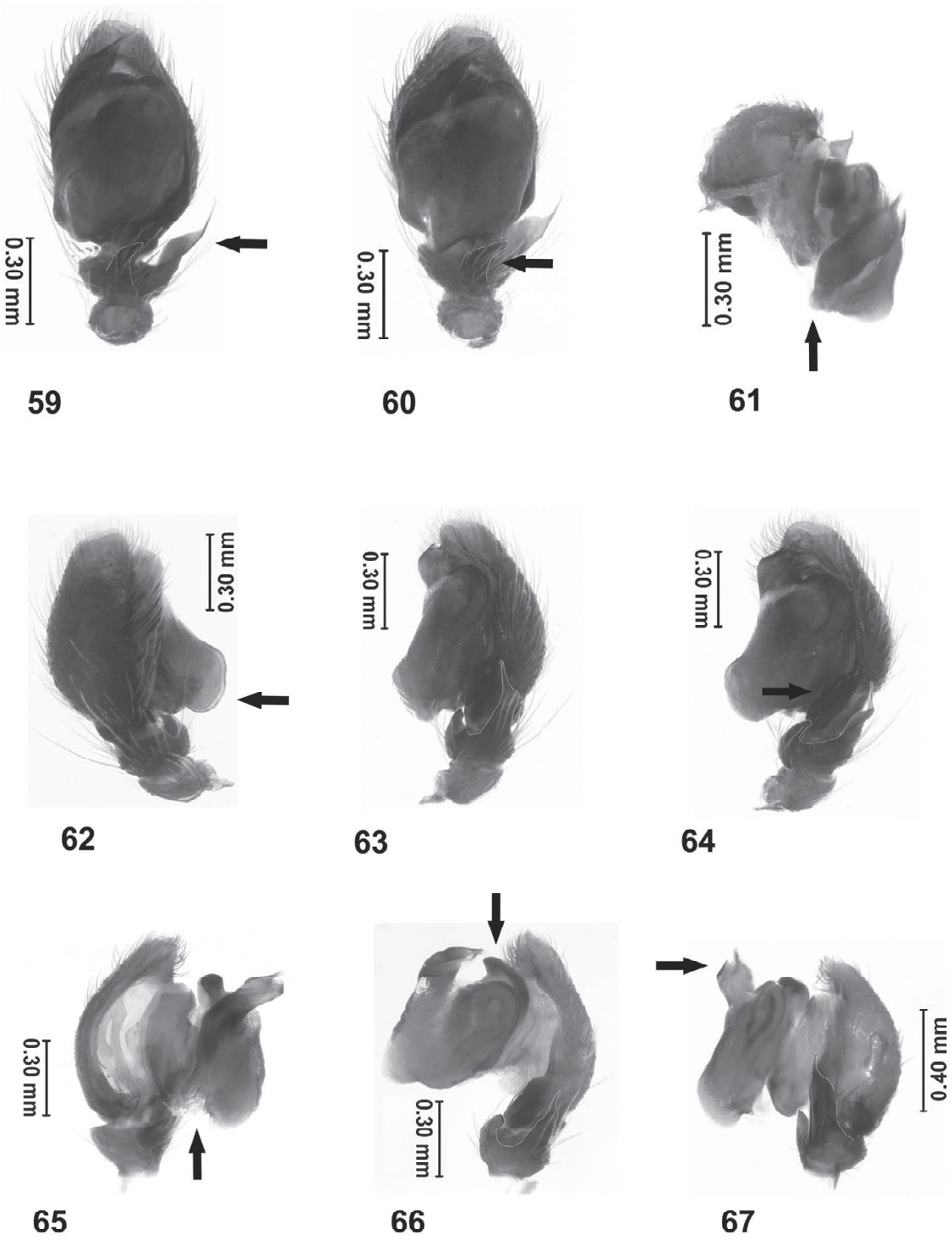
Figures. 25-33. ***Metacyrba pictipes*** **Banks. 25)** Female dorsal habitus; **26)** Female ventral habitus; **27)** Male dorsal habitus; **28)** Male ventral habitus; **29)** Female epigynum ventral view; **30)** Male palp ventral view; **31)** Male palp ventral, somewhat retrolateral view; **32)** Male palp ventral, somewhat retrolateral, and slightly posterior view; **33)** Holotype male leg I. **Figure. 34.** ***Metacyrba floridana*** **Gertsch.** Florida live female.



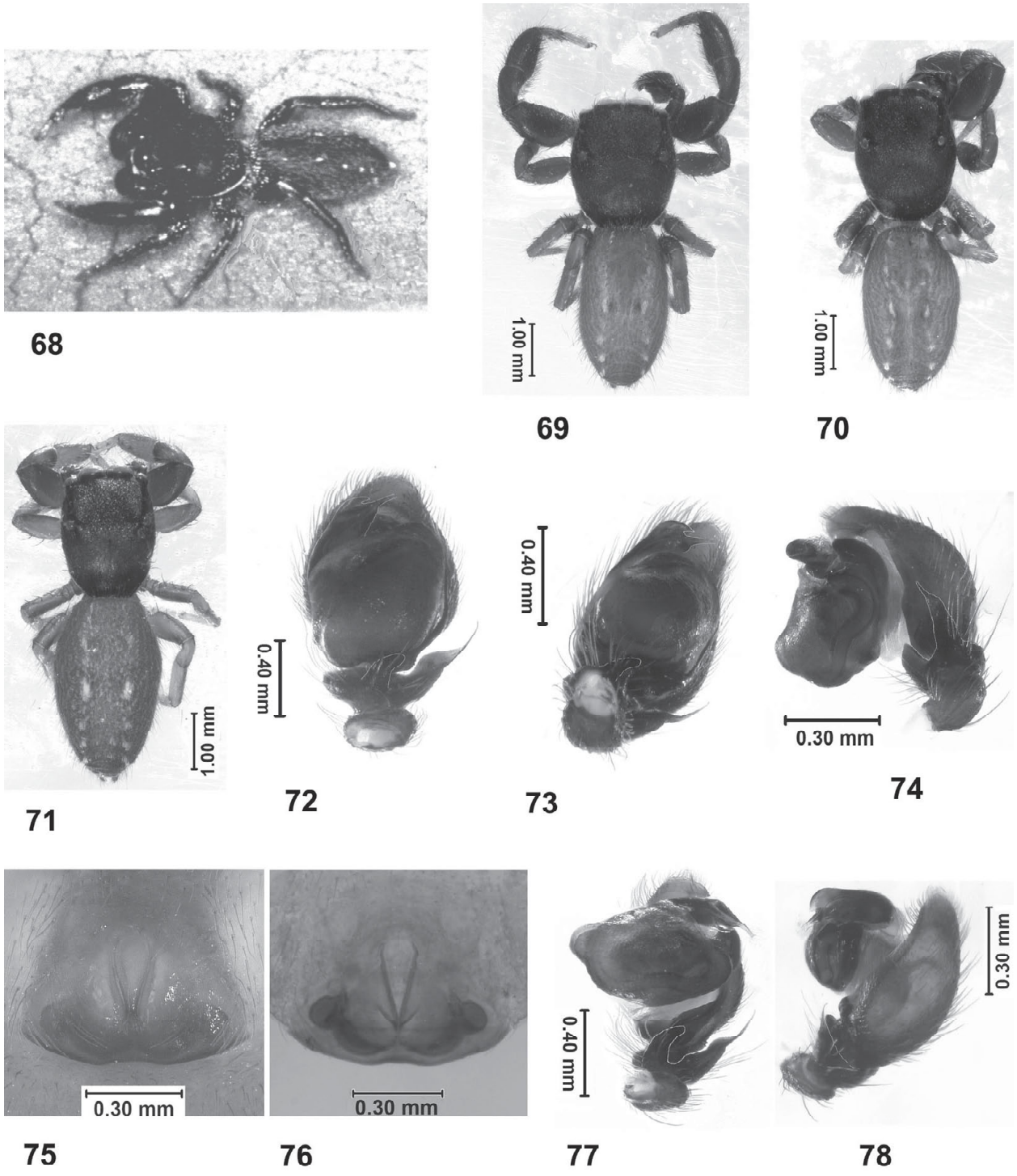
Figures. 35-46. ***Metacyrba punctata*** **(Peckham & Peckham). 35)** Costa Rica (Palo Verde) female dorsal habitus; **36)** Mexico (Morelos) female dorsal habitus; **37)** Mexico (Veracruz) female dorsal habitus; **38)** Mexico (Veracruz) female ventral habitus (same specimen as 37); **39)** Male dorsal habitus; **40)** Male ventral habitus (same specimen as 39); **41)** Male palp ventral view; **42)** Male palp retroventroposterior view; **43)** Mexico (Morelos) female epigynum ventral view; **44)** Mexico (Veracruz) female epigynum ventral view; **45)** Mexico (Veracruz) female epigynum ventral view cleared; **46)** Mexico (Veracruz) female epigynum dorsal view cleared (same specimen as 45).



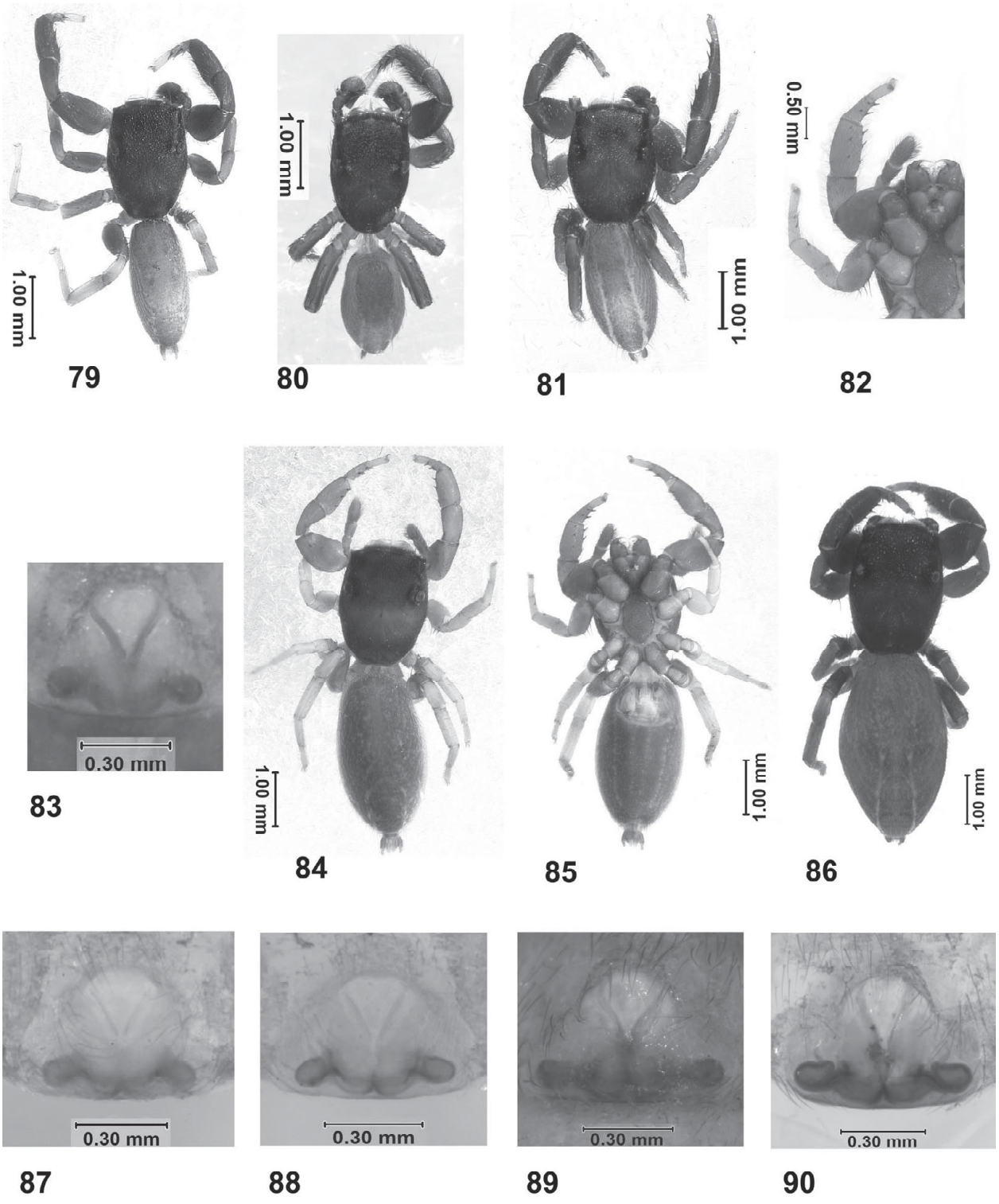
Figures. 47-58. ***Metacyrba taeniola similis* Banks. 47)** Arizona (Yuma Co.) female dorsal habitus variation (2) [see text]; **48)** California (Monterrey Co.) female dorsal habitus variation (3); **49)** California (Monterrey Co.) female dorsal habitus variation (3-4 intermediate); **50)** California (San Clemente Is.) female dorsal habitus variation (4); **51)** California (Monterrey Co.) holotype male dorsal habitus variation (1); **52)** Arizona (Yuma Co.) male dorsal habitus variation (2); **53)** California (Stanislaus Co.) male dorsal habitus variation (4); **54)** New Mexico female dorsal habitus; **55)** Holotype male lateral habitus, **56)** Holotype male distal leg I; **57)** Female epigynum ventral view; **58)** Female epigynum dorsal view cleared.



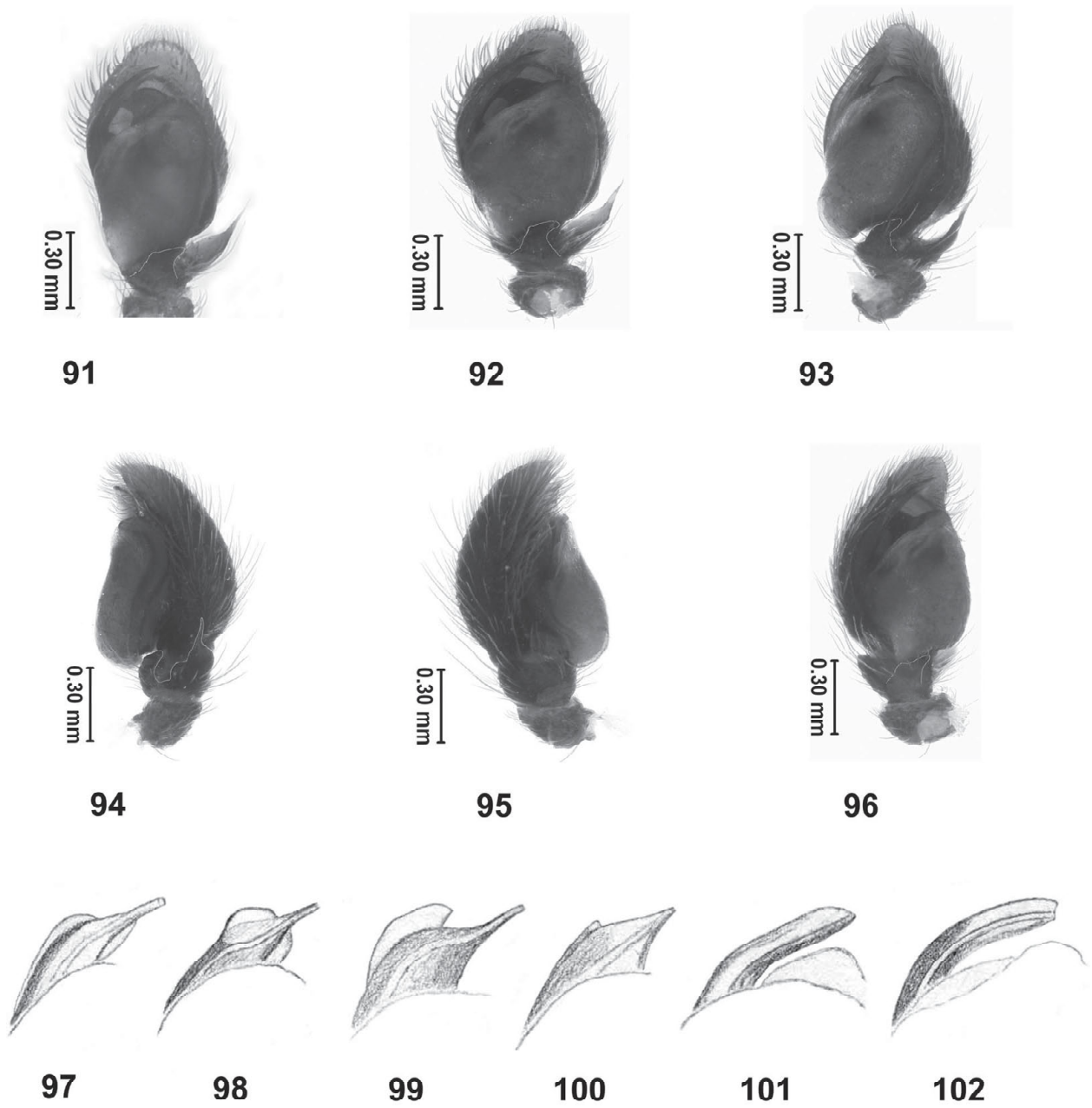
Figures. 59-67. ***Metacyrba taeniola similis* Banks**, male palp views: **59)** Ventral, arrow = dorsal prong of RTA; **60)** Ventral, slightly posterior, arrow = ventral prong of RTA; **61)** Expanded apical, arrow = membranous attachment of embolus; **62)** Prolateral, arrow = possible DTP homolog; **63)** Retrolateral; **64)** Retroventral, arrow = thickened cymbial edge (see also 66); **65)** Expanded proventral, arrow = membranous attachment of embolus; **66)** Expanded retroventral, arrow = DDL; **67)** Expanded retrolateral, arrow = embolic flange on tip of embolus.



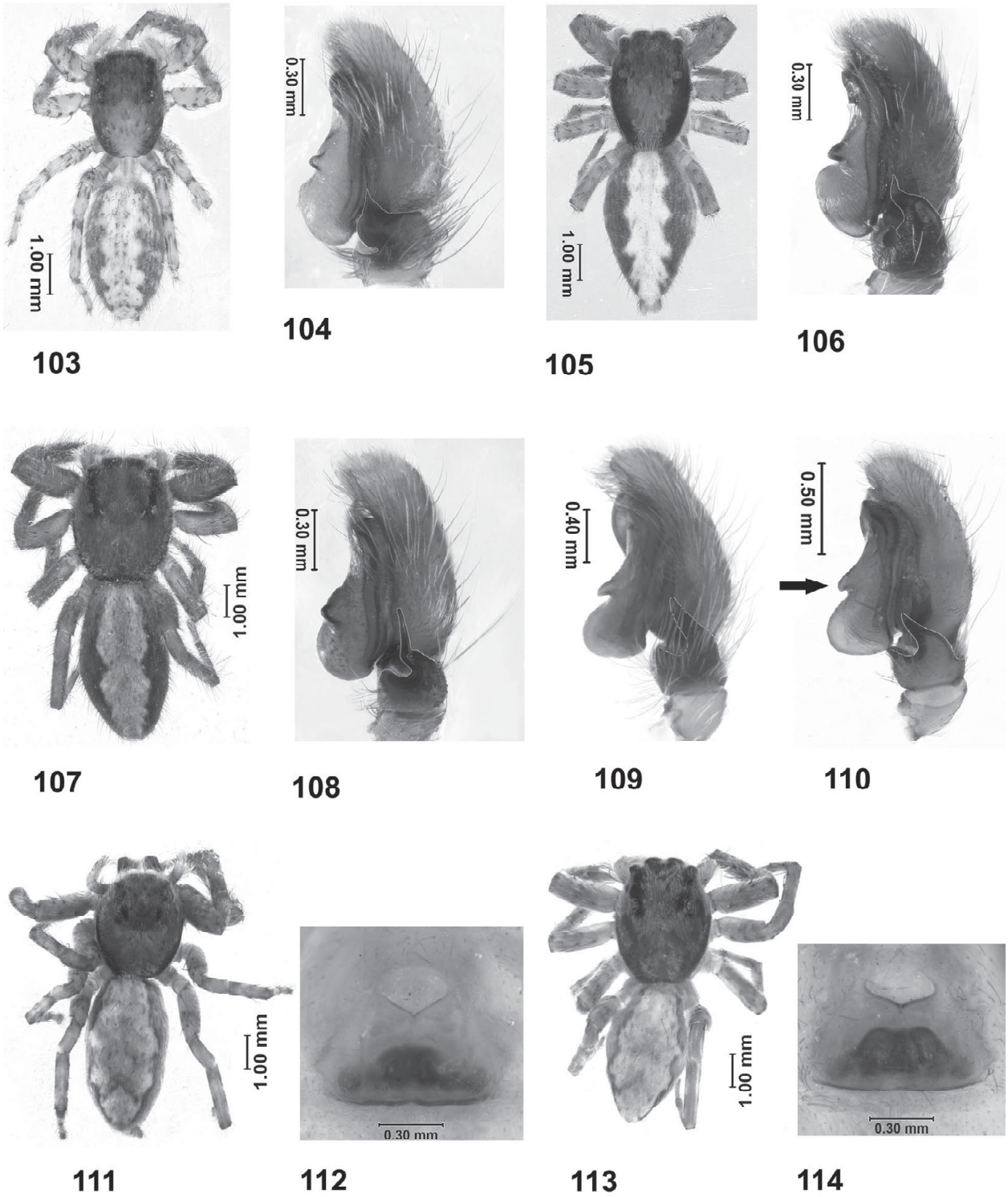
Figures. 68-78. ***Metacyrba taeniola taeniola* (Hentz). 68)** Eastern Oklahoma live penultimate male; **69)** Pennsylvania male dorsal habitus; **70)** Delaware male dorsal habitus; **71)** Female dorsal habitus; **72)** Male palp ventral view; **73)** Male palp retroventroposterior view; **74)** Male palp expanded retrolateral view; **75)** Female epigynum ventral view; **76)** Female epigynum dorsal view cleared; **77)** Male palp expanded retroventral view; **78)** Male palp expanded retrolateral view.



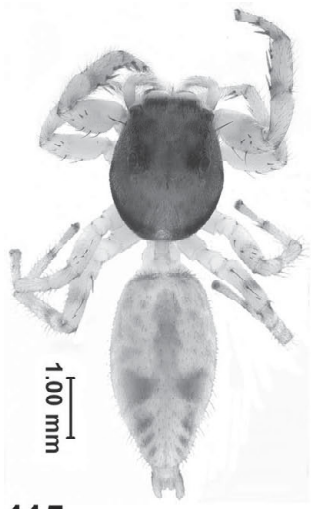
Figures. 79-90. ***Metacyrba venusta*** **(Chickering). 79)** Panama (*P. venusta*) holotype male dorsal habitus; **80)** Costa Rica (Guanacaste) male dorsal habitus; **81)** Mexico (Oaxaca) male dorsal habitus; **82)** Panama (holotype *P. fusca*) female prosoma ventral view; **83)** Panama (holotype *P. fusca*) female epigynum ventral view; **84)** Panama (holotype *P. fusca*) female dorsal habitus; **85)** Panama (holotype *P. fusca*) female ventral habitus; **86)** Mexico (Oaxaca) female dorsal habitus; **87)** Panama (non-type) female epigynum ventral view; **88)** Panama (non-type) female epigynum dorsal view cleared; **89)** Mexico (Oaxaca) female epigynum ventral view; **90)** Mexico (Oaxaca) female epigynum dorsal view cleared.



Figures. 91-96. ***Metacyrba venusta*** **(Chickering)**, male palp views: **91)** Ventral; **92)** Ventral, slightly posterior; **93)** Retroventroposterior; **94)** Retrolateral; **95)** Prolateral; **96)** Proventral. **Figures. 97-101**. Embolus tips, retroventroposterior view: **97)** *M. punctata*; **98)** *M. floridana;* **99)** *M. taeniola*; **100)** *M. insularis*; **101)** *M. pictipes*; **102)** *M. venusta.*



Figures. 103-114. ***Platycryptus* species. *P. arizonensis* (Barnes): 103)** Female dorsal habitus; **104)** Male palp retrolateral view; ***P. californicus* (Peckham & Peckham): 105)** Female dorsal habitus; **106)** Male palp retrolateral view; ***P. undatus* (De Geer): 107)** Female dorsal habitus; **108)** Male palp retrolateral view; ***P. magnus* (Peckham & Peckham): 109)** Male palp retrolateral view; **110)** Male palp retrolateral view, arrow = VRT [syntype of *P. broadwayi*]; **111)** Female dorsal habitus; **112)** Epigynum ventral view; **113)** Female dorsal habitus [syntype of *P. broadwayi*]; **114)** Epigynum ventral view [syntype of *P. broadwayi*].



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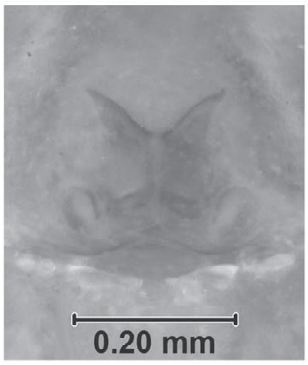

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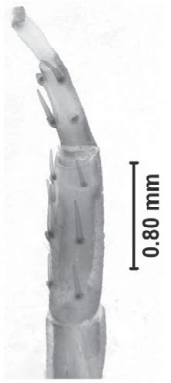

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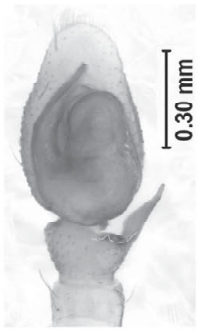

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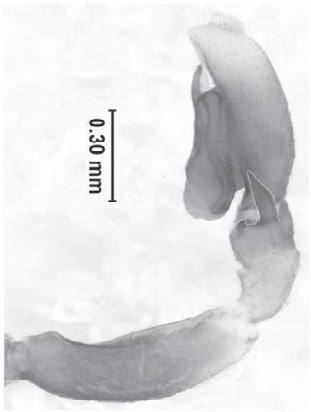

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Figures. 115-126. ***Balmaceda*** **species. *B. picta* Peckham & Peckham: 115)** Female dorsal habitus; **116)** Female epigynum ventral view; **117)** Female epigynum dorsal view cleared; **118)** Male dorsal habitus; **119)** Male syntype distal leg I; **120)** Male palp prolateral view; **121)** Male palp ventral view; **122)** Male palp retrolateral view; ***B. nigrosecta*** **Mello-Leitão: 123)** Male dorsal habitus; **124)** Male lateral habitus; **125)** Male palp ventral view; **126)** Male palp retrolateral view.