

A revision of the genus *Ishania* Chamberlin (Araneae, Zodariidae)

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Summary

The Central American zodariid spider genus *Ishania* Chamberlin is revised. This genus belongs to the Storeninae and is closely related to *Tenedos*. It now contains the type species *I. tentativa* Chamberlin, known only from the male holotype, and *Ishania certa* new species, known from both sexes.

Introduction

As in the Australian fauna, the Neotropical representatives of the Zodariidae were included to a large extent in the genus *Storena* Walckenaer. This is remarkable, because *Storena* was an undefinable genus until recently (Bosmans & Van Hove, 1986; Jocqué, 1991). It was based on the species *Storena cyanea* Walckenaer, for which no types were designated. As pointed out by Jocqué (1991) not a single Australian taxon matches the description of that genus. Yet, Australian taxa belonging to at least eleven different genera were included in *Storena* and identified as such until Jocqué's (1991) generic revision of the family. The situation was similar for the Neotropical zodariids. Of the seven genera now recognized on the South American subcontinent, three were considered as belonging to *Storena*. They are *Antillorena* Jocqué, belonging in the subfamily Lachesaninae, *Platnickia* Jocqué and *Tenedos* O. P.-Cambridge, both representatives of the subfamily Storeninae. Two other Neotropical genera, *Cyrioctea* Simon and *Leprolochus* Simon, were not included in *Storena* because they were considered to be part of a different subfamily. *Cyrioctea* indeed belongs in the Cyriocteinae, but *Leprolochus* is a storenine. *Ishania* Chamberlin and *Cybaeodamus* Mello-Leitão were never included in *Storena* simply because these genera were described long after Simon (1893) had united most of the larger Zodariidae in *Storena*. Moreover, initially they were both erroneously placed in the Agelenidae.

Ishania has been enigmatic ever since it was erected by Chamberlin (1925). Its description was based on a single, half-digested male, found in the stomach of a toad, probably the reason why the type species was called *tentativa* and why it was erroneously assigned to the Agelenidae. Roth (1965) recognized this error and transferred the genus to the Zodariidae, therein followed by Brignoli (1983). Recently, one of us (DU) found more material of a related species. Thanks to these specimens, the genus can be diagnosed unequivocally and a description of both the known species is here provided.

Abbreviations: ALE = anterior lateral eyes; AME = anterior median eyes; AMNH = American Museum of Natural History, New York; AR = anterior eye row; AS = anterior spinnerets; CAS = California Academy of Sciences, San Francisco; CDU = Collection Darrell Ubick; d = dorsal; F = femur; KBIN = Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussels; MCZ = Museum of Comparative Zoology, Cambridge, Mass.; MOQ = median ocular quadrangle; MS = median spinnerets; Mt = metatarsus; MZUCR = Museo de Zoología, Universidad de Costa Rica, San Jose; p = prolateral; P = patella; PLE = posterior lateral eyes; PME = posterior median eyes; PR = posterior eye row; PS = posterior spinnerets; r = retrolateral; RTA = retrolateral tibial apophysis; t = tarsus; T = tibia; v = ventral. All measurements are in mm.

Genus *Ishania* Chamberlin

Ishania Chamberlin, 1925: 223; Jocqué (1991).

Type species: Ishania tentativa Chamberlin, by original designation.

Diagnosis

Ishania can be distinguished from other Storeninae by its unique genitalia: the male palpus has a long, whip-like embolus and a cymbium with an ectobasal fold for receiving the retrolateral tibial apophysis; the epigynum contains elongated fertilization ducts, wound into tight coils.

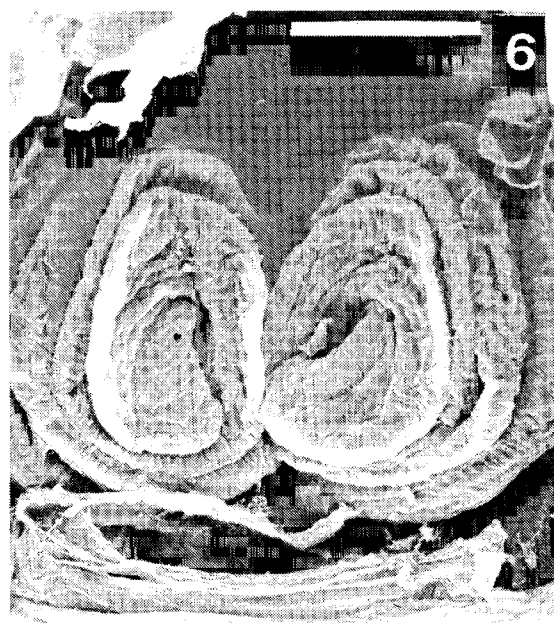
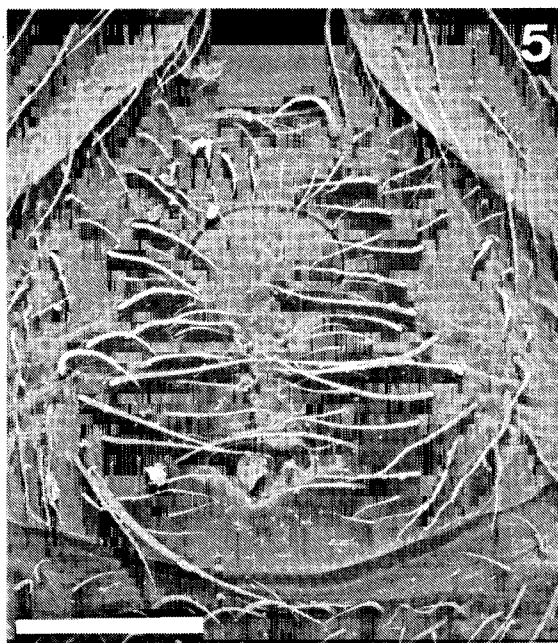
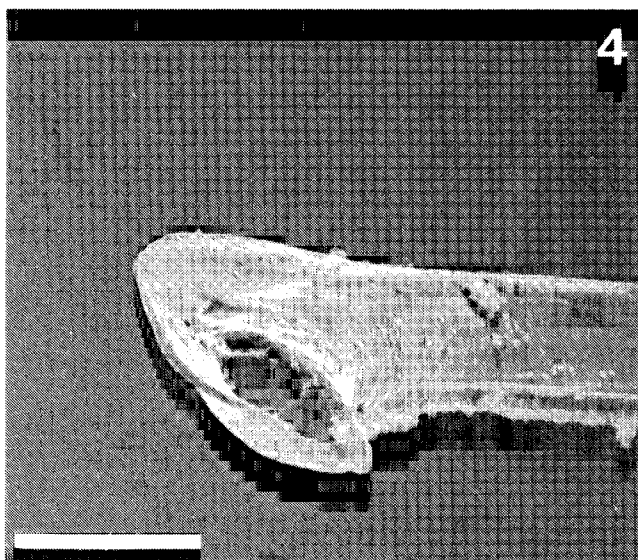
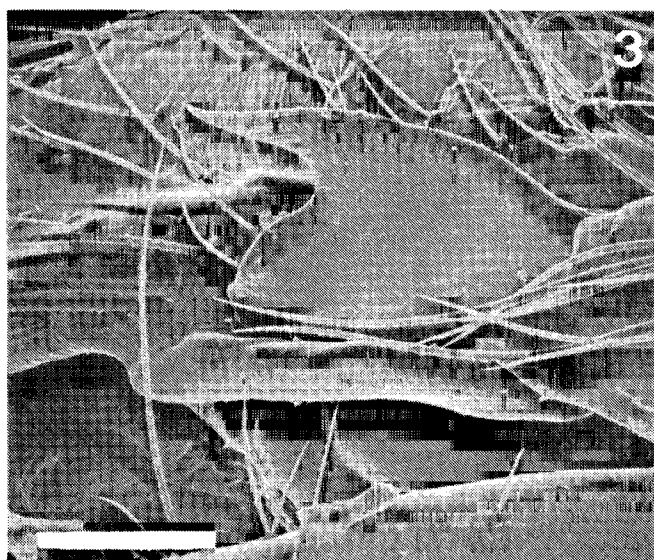
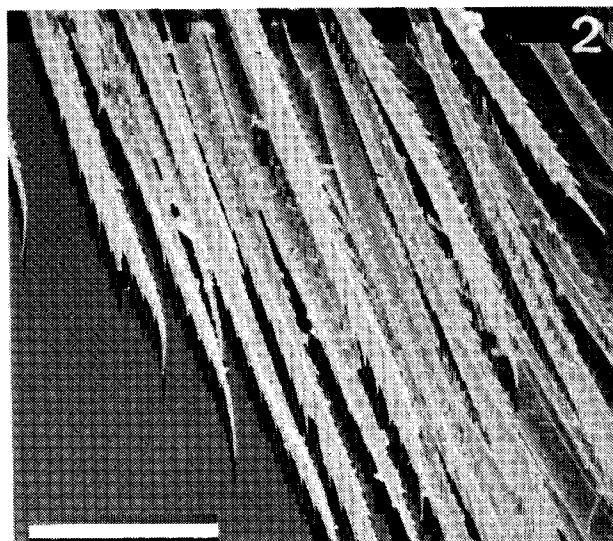
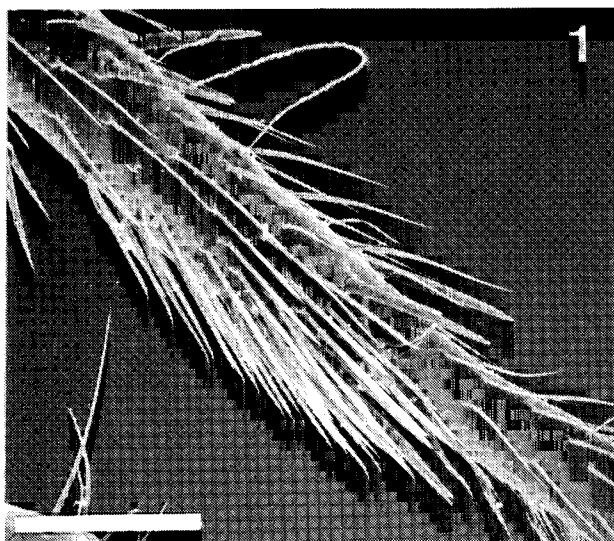
Affinities

Ishania clearly belongs to the Storeninae as its metatarsal tuft is composed of typical chisel-shaped hairs, an autapomorphy of the Storeninae. It is likely to be closely related to *Tenedos* O. P.-Cambridge, and is considered the sister-group of that genus in the cladogram presented by Jocqué (1991). However, no clear synapomorphy uniting these genera has been found so far. The genera have a very similar habitus and the palpal conformation is similar. However, males of *Tenedos* lack the very long, slender embolus of *Ishania*, but have a large tegular apophysis which converges with an equally large apophysis on the subtegulum. The female genitalia are also very different. In *Tenedos* there are long blind tubes in front of the spermathecae, lacking in *Ishania*. The female genitalia of *Ishania* are characterized by long, coiled fertilization ducts.

Description

Small spiders (3-3.5). Carapace pyriform, widest between coxae II and III, cephalic area about 0.6 times maximum width. Eye region narrow (Figs. 9-10), less than 0.3 times maximum width in males, slightly wider in females. Fovea deep. Integument smooth, orange to pale brown in colour. Anterior region with few scattered hairs and longitudinal row of hairs between fovea and eyes.

Eye rows procurved. AR much shorter than PR. AME slightly smaller than others, which are subequal. Anterior eyes equidistant, about 0.5 times diameter of



Figs. 1-6: *Ishania certa*, sp. n. **1** Metatarsal hair tuft (scale line = $150\mu\text{m}$); **2** Chisel-shaped hairs in metatarsal hair tuft (scale line = $30\mu\text{m}$); **3** Lateral apophysis of left male palpal tibia (scale line = $100\mu\text{m}$); **4** Tip of embolus (scale line = $7.5\mu\text{m}$); **5** Epigyne, ventral view (scale line = $150\mu\text{m}$); **6** Epigyne, fertilization ducts, dorsal view (scale line = $100\mu\text{m}$).

AME apart. PME about one diameter apart, 1.5 diameters from PLE. AME dark, others with reflective tapetum. MOQ longer than wide (length = 1.8 times anterior width; posterior width = 1.5 times anterior width), broader posteriorly. Clypeus slightly concave (Fig. 8), about 6 times as high as diameter of ALE.

Chilum broadly triangular, without hairs. Chelicerae relatively slender; basal condyle prolonged into slight lateral ridge (Fig. 8); anterior surface sparsely pubescent with long fringe distomesally; fangs relatively long, sharp; no marginal teeth.

Endites (Fig. 11) roughly triangular, attenuated; with anteromesal scopula; without serrula. Labium triangular, slightly wider than long. Sternum triangular (Fig. 11), exactly as long as wide; anteriorly truncate and with pointed posterior extension between coxae IV; males with short extensions between coxae I & II and II & III.

Leg formula 4123. Coxae I and II proximally swollen, slightly overhanging sternum. Onychium with three claws. Superior tarsal claws with 8-15 teeth, implanted on side facing other claw. Metatarsi II-IV with distal tuft (Fig. 1), composed of chisel-shaped hairs (Fig. 2), best developed in females and juveniles. No tarsal scopula or claw tuft. Spination typical for the subfamily with few spines on anterior legs, more numerous and stronger spines on legs III-IV.

Trichobothria: T with dorsal, prolateral and retrolateral row; Mt and t with dorsal row; tarsal row with four trichobothria which increase in length distally.

Male palpus: T with broad retrolateral apophysis (Figs. 3, 7, 12). Cymbium with retrolateral margin bearing basal pocket (for receiving RTA) and apical fringe of long hairs. Embolus very long, whip-like (Figs. 4, 12, 13). Tegulum with posterior swelling directly behind embolar origin; tegular apophysis large, partially hidden by anterior part of tegulum.

Female palpus: t densely pubescent; with three pro- and two retrolateral spines; apex with four stout spines and large claw with eight teeth.

Abdomen subspherical, without scutum; area in front of epigastric fold lightly sclerotized. Six spinnerets; MS strongly reduced with one segment; others biarticulate; AS contiguous, 1.5 times as long as PS. Colulus represented by two groups of hairs.

Epigynum (Figs. 5, 14) with sclerotized portion about as long as wide; ventrally with central flat plate and posteriorly with one pair of spermathecae and transverse ducts; dorsally with saddle-shaped mass made of tightly coiled fertilization ducts (Fig. 6).

Other species included

Ishania certa, new species.

Ishania tentativa Chamberlin (Fig. 7)

Ishania tentativa Chamberlin, 1925: 224; Jocqué, 1991.

Type material

Holotype male: Costa Rica, from stomach of toad! (MCZ 1289, examined). The specimen is in poor

condition; the carapace is partially crushed, and the single remaining palp lacks the embolus. The specimen is bleached, apparently from the stomach acids of the toad.

Diagnosis

This species is recognized by the distally rounded RTA of the male palpus.

Description

Male: Total length 2.96; carapace length 1.64. Male palpus: Fig. 7. Female unknown.

Ishania certa, new species (Figs. 1-6, 8-14)

Type material

Holotype ♂: Costa Rica, San José, Parque Nacional Braulio Carrillo, 1100m, rainforest, sieved leaf litter, 28-30 April 1983, D. Ubick (CAS). Paratypes: 4♀, 2 juv., same data (CAS).

Diagnosis

This species is recognized by the distally bifurcate RTA of the male palpus.

Etymology

In contrast with the type species of the genus, *I. tentativa*, this species is called *certa* (from Latin *certus* = sure).

Male (Costa Rica)

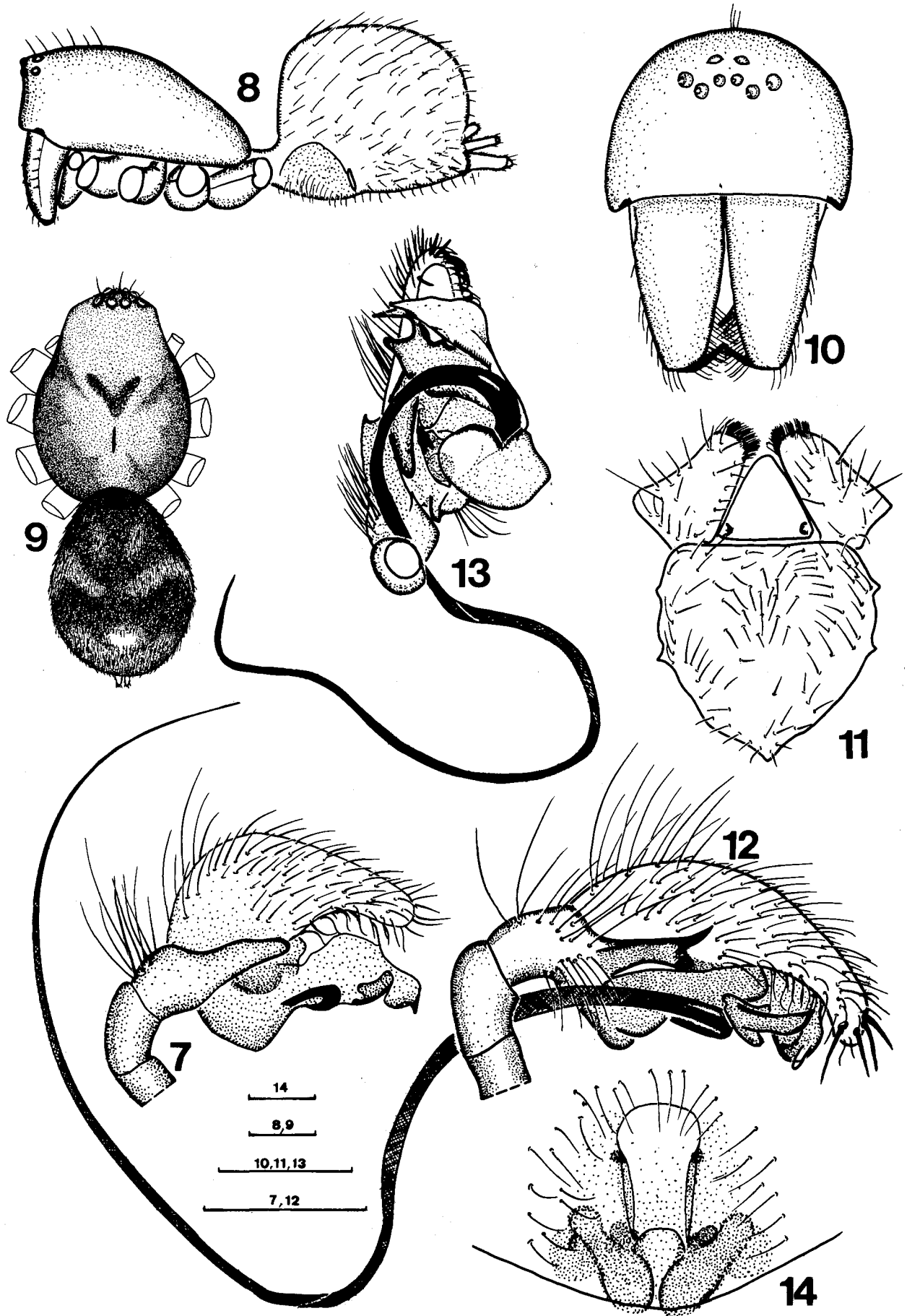
Total length 3.47; carapace 1.80 long, 1.27 wide; ocular area 0.37 wide. Carapace orange with purplish Y-shaped mark in front of fovea; chelicerae orange; sternum, legs and epigastric area yellow; abdomen purplish grey, with dark, metallic grey area behind epigastric furrow. Carapace as in Figs. 8-10. Legs: Spination: F: (I-IV) d:1-1-1 (III-IV) r:1. P: (III-IV) p:1-1, d:1, r:1. T: (I-II) d:1 (II): v:1-1 (III-IV) p:1-1, d:1-1, r:1-1, v:1-1-2. Mt: (I) v:1-1, (II): v:2-2 (III-IV) p:1-1-1, d:1-1-2, r:1-1-1 (III) v:2-2 (IV) v:2-1-2. Measurements:

	F	P	T	Mt	t	Total
I	1.33	0.47	1.30	1.10	0.73	4.93
II	1.10	0.40	0.93	1.07	0.60	4.10
III	1.10	0.37	0.80	1.03	0.60	3.90
IV	1.33	0.47	1.20	1.50	0.80	5.30

Palpus as in Figs. 3-4, 12-13; cymbial tip with four short, stout setae. Extremity of embolus of unusual shape (Fig. 4).

Male (Panama)

Total length 3.34; carapace 1.74 long, 1.24 wide; ocular area 0.36 wide. Carapace and chelicerae uniform orange; sternum yellow; legs yellowish orange except for distal part of T I which is white; abdomen pale grey. Eyes: Diameters: AME 0.04, ALE 0.06, PME and PLE 0.05; distances: AME-AME and AME-ALE 0.02, PME-PME 0.05, PME-PLE 0.07. MOQ: anterior



Figs. 7-14: **7** *Ishania tentativa* Chamberlin. Male palp, lateral view. **8-14** *Ishania certa*, sp. n. **8** ♀ habitus, lateral view; **9** ♂ habitus, dorsal view (specimen from Guapiles); **10** ♀ carapace, frontal view; **11** Sternum, labium and endites; **12** Male palp, lateral view; **13** Male palp, ventral view; **14** Epigyne, ventral view. Scale lines = 0.5mm (7-13), 0.1mm (14).

width = 0.67 posterior width, anterior width = 0.55 times length. Legs: Measurements:

	F	P	T	Mt	t	Total
I	1.30	0.50	1.20	1.06	0.66	4.72
II	1.12	0.26	0.88	0.98	0.62	3.86
III	1.06	0.44	0.70	1.04	0.50	3.74
IV	1.38	0.50	1.06	1.56	0.74	5.24

Female (Costa Rica)

Total length 3.83; carapace 1.60 long, 1.03 wide; ocular area 0.40 wide. Colour as in male from same locality, but Y-shaped mark on carapace broader and less distinct; abdomen with one or two pale spots on either side of heart, venter pale grey. Legs: Measurements:

	F	P	T	Mt	t	Total
I	1.00	0.43	0.83	0.73	0.53	3.52
II	0.87	0.37	0.60	0.66	0.47	2.97
III	0.83	0.33	0.50	0.60	0.47	2.73
IV	1.00	0.37	0.80	1.03	0.63	3.83

Epigynum: See generic description and Figs. 5, 6, 14.

Juvenile

Carapace pale brown; appendages pale yellow.

Variation

The specimens from the low elevation forest (Guapiles) are considerably darker in appearance. The carapace of females is uniformly dark brown and most males have wide, dark bands on the lateral and posterior margins. The abdomen is distinctly patterned in females and most males. The typical pattern consists of an obliquely transverse median white band, two dorsoanterior white spots, and one larger spot above the spinnerets. The abdomen is dark sepia with the venter yellowish white.

Ecological note

The series of specimens from Guapiles was collected together with another zodariid, *Tenedos sp.*, which is very similar to *Ishania* in size and somatic appearance.

Other material examined

Panama, Chiri, Lagunas, 5km SW Hato del Volcan, 1360m, 22-26 May 1977, 1♂, S. Peck (AMNH). Costa Rica, Limon, 5.5km E Guapiles, 200m, rainforest, sifting leaf litter, 9-18 May 1987, 8♂, 14♀, 19 juv., D. Ubick & B. Hiler (CDU, AMNH, KBIN, MZUCR, MCZ).

Distribution

Panama and Costa Rica.

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