

## A REVISION OF THE GENUS *HENTZIA* (ARANEAE, SALTICIDAE)

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### ABSTRACT

The genus *Hentzia* belongs in the subfamily Dendryphantinae of the family Salticidae. It appears to be closely related to "*Beata*" *wickhami* and the genus *Anicius*. Twenty species are recognized in this revision, occurring from Nova Scotia and Quebec in the north to northern South America in the south. The genus ranges along the coastal areas of Mexico on both sides of the continent north to Arizona in the west and through central Texas to Minnesota. Six new species are described. These are *H. calypso* from Jamaica, *H. chekika* from Florida, the Bahamas and Cuba, *H. cubana* from Cuba, *H. pima* from Arizona, *H. whitcombi* from Guadeloupe, Puerto Rico and a few other Caribbean islands, and *H. zombia* from Hispaniola. The genera *Parahentzia* Bryant 1943, and *Maeviobeata* Caporiacco 1947, are here made junior synonyms of *Hentzia*. *Parahentzia insignita* Chickering 1946, is made a junior synonym of *Anoka parallela* Peckham and Peckham 1894. *Anoka peckhami* Cockerell 1893, and *Wala albovittata* Keyserling 1885, become junior synonyms of *Icius vittatus* Keyserling 1885. All of these are placed in the genus *Hentzia*. *Balmaceda peckhami* Bryant 1940 is found to be the female of *H. tibialis* Bryant 1940. The female paratype of *Hentzia tibialis* Bryant 1940, is found to be the female of *Hentzia chekika* n. sp. Finally *Wala noda* Chamberlin 1916, is transferred from *Hentzia* to *Corythalia*.

### INTRODUCTION

The genus *Hentzia* is composed of somewhat elongate jumping spiders with a primarily circum-Caribbean distribution. The genus was erected by Marx (1883), with *Epiblemum palmarum* Hentz 1832 as the type species. *H. mitrata* was described by Hentz as an *Attus* in 1846, the Peckhams erected the genus *Anoka* for *H. vernalis* in 1893 and Cockerell described *Anoka peckhami* from Jamaica in the same year. Roewer (1954) listed 14 species in the genus, including *antillana* Bryant, *audax* Bryant, *fimbriata* (F. O. Pickard-Cambridge), *footei* (Petrunkevitch), *grenada* (Peckham and Peckham), *noda* (Chamberlin), *parallela* (Peckham and Peckham), *peckhami* (Cockerell), *poenitens* (Chamberlin), *squamata* (Petrunkevitch), *tibialis* Bryant, *vernalis* (Peckham and Peckham), *mitrata* (Hentz), and *palmarum* (Hentz). Of these, "*Hentzia*" *noda* was found during the current study not to belong to the genus at all, belonging instead to the genus *Corythalia*, and *H. peckhami* was discovered to be a junior synonym of *Icius vittatus* Keyserling (now *Hentzia vittata*). Examination of material in the collections of the Museum of Comparative Zoology, the American Museum of Natural History, the Florida State Collection of Arthropods, and the United States National Museum of Natural History, has produced a total of six undescribed species, four represented by both sexes and two only by the female. In addition, the two species of

*Parahentzia* were added to *Hentzia*, with *P. insignita* Chickering made a junior synonym of *Hentzia parallela*. This brings the total number of species to 20.

The affinities of the genus *Hentzia* are somewhat difficult to determine. The genus appears to be a member of the subfamily Dendryphantinae and resembles "*Beata*" *wickhami* (Peckham and Peckham) and *Anicius dolius* Chamberlin in genitalic structure. The former species probably does not belong to the genus *Beata*, where it was placed by Edwards (1980) or to *Icius*, in which it was originally placed (Peckham and Peckham 1894). Its proper placement will have to wait for future studies. The latter species is the type species for the genus *Anicius*. Assigning a sister genus for *Hentzia* is problematic, but "*Beata*" *wickhami* and *Anicius dolius* are reasonable approximations (see section on relationships of *Hentzia* for a more complete discussion). The most extreme member of the genus, *H. vernalis*, was at first thought to belong to a sister genus - *Anoka* (it is the type for this genus), but further analysis seems to lead to the conclusion that it was probably derived from *Hentzia footei* and is thus a valid member of *Hentzia*. The so-called *Parahentzia*, *H. mandibularis*, *H. parallela* and *H. vittata*, are at another extreme for the genus.

The distribution of species in the Caribbean is probably the result of island speciation, some active dispersal and recent accidental transport by man. The genus is probably relatively recent in origin and the ease with which the spiders are transported probably explains the present wide distributions of such species as *H. antillana* and *H. vittata* more than any other factor. Other species, such as *H. audax* and *H. squamata* are more localized and are probably endemic island productions.

The species in this genus are commonly found on shrubs or trees, such as willows, oaks, palmettoes, palms, and mangroves, and on commercial crops such as citrus, soybeans and cotton (personal observation and Whitcomb et al. 1963). Populations can be relatively dense, as they were on black mangroves near Cedar Key (Way Key), Levy Co., Florida, in 1975 (Richman 1977, 1982). Most species have adults present throughout the year, although this is not true in the northern part of the ranges of *H. palmarum* and *H. mitrata*.

Egg sacs are produced during much of the year in the tropical and subtropical parts of the distribution of the genus. In Florida egg sac records from captive specimens ranged from March to October (Richman 1977). The eggs are laid in a silken sac, within a resting sac of silk constructed by the female. Records for *H. palmarum* indicate that the average egg clutch size for this species is around 15 (specimens from near Cedar Key, Levy County, Florida).

## METHODS

In the following species accounts, most are represented by 10 measurements for each sex. The following measurements were found to be of use: total length, carapace length, width and height, width of ocular region anteriorly and posteriorly, and length of ocular region from bases of anterior median eyes (AME) to posterior edges of posterior lateral eyes (PLE), and length and width of chelicerae. All measurements are in mm. The leg formula refers to the comparative length of each of the four pairs of walking legs. Thus a formula of 1234 indicates that the legs are ranked exactly in the order of anterior to

posterior placement, whereas 2134 would indicate that the second pair was the longest, followed by the first, third and fourth. The placement of the posterior median eyes (PME) in relation to the anterior lateral eyes (ALE) and the PLE is also noted in the descriptions.

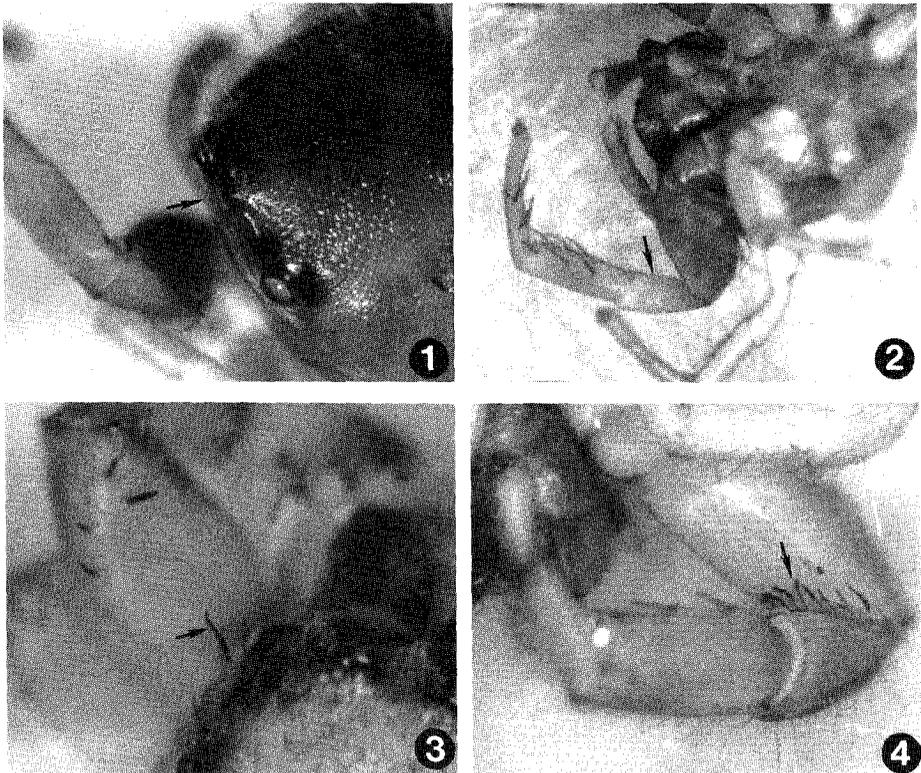
Sources for specimens examined are indicated by the following: Academy of Natural Sciences of Philadelphia (ANSP), American Museum of Natural History (AMNH), British Museum (Natural History) (BMNH), Bruce Cutler Collection (BC), Canadian National Collection (CNC), David B. Richman Collection (DBR), Exline-Peck Collection (now at the California Academy of Sciences) (EPC), Florida State Collection of Arthropods (FSCA), Museum of Comparative Zoology (MCZ), Texas A. & M. University (TAM), United States National Museum of Natural History (Smithsonian Institution) (USNMNH), University of California, Berkeley (UCB), and Universidad de Costa Rica (UCR).

The maps show the ranges of the twenty species, based on locality records that could be found on current maps. Some records were found that I could not place on the maps. This is especially true of records from Cuba and the Bahamas. For example, in a recent atlas of Cuba (Atlas Nacional de Cuba 1970) at least three listings are found for "Soledad", none of which match the locality for the specimens labeled "Soledad, Cuba." This locality is really part of the modern city of Cienfuegos. Other localities are more obscure. Many of the smaller Bahama Islands are also difficult to find on a map. I have, however, listed all locality records in the descriptive section, whether I could locate them on a map or not.

#### RELATIONSHIPS OF *HENTZIA*

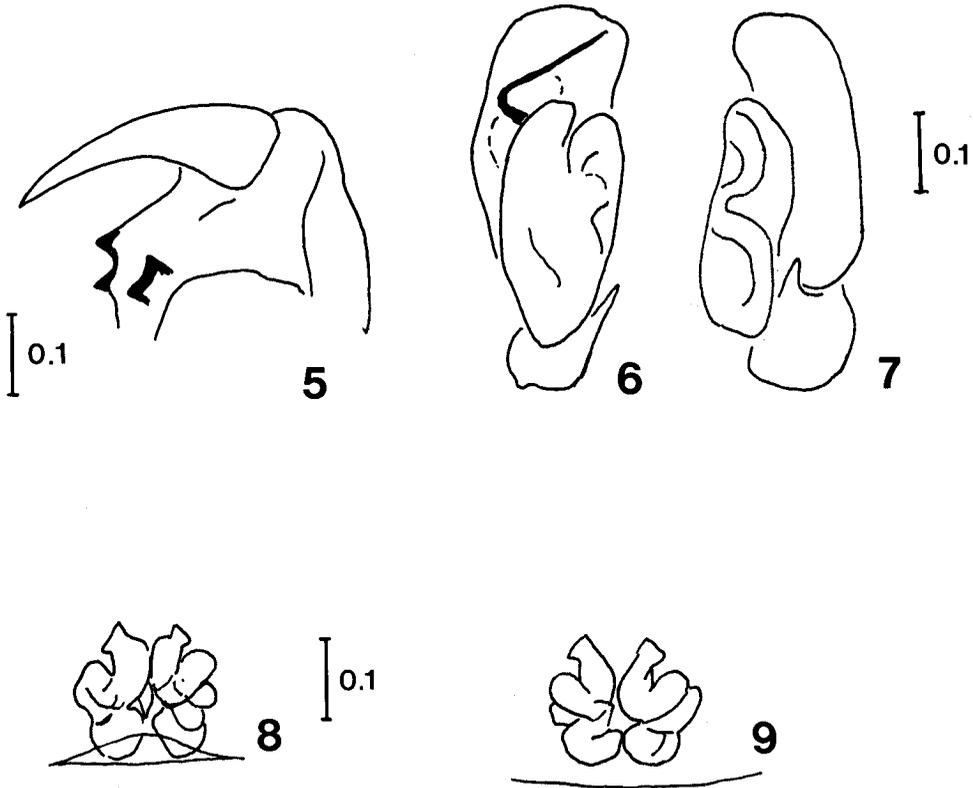
The genus *Hentzia* is here defined by the presence of *both* pencils of hair below the posterior median eyes and spatulate hairs on the ventral retromargin of the first patella and distal femur (Figs. 3, 4). These characteristics are most pronounced in the female, especially in regard to the hair pencils. Males often have elongated chelicerae and somewhat elongate bodies. The male palpi of most species exhibit a two-lobed bulb and a thin, curved embolus. This characteristic is shared with "*Beata*" *wickhami*. Males of *Hentzia* usually have simple or truncated retromarginal cheliceral teeth, whereas females have bicuspid retromarginal teeth.

As noted earlier, the genus *Hentzia* appears to be most closely related to "*Beata*" *wickhami* and *Anicius dolius*. Both species lack the hair pencils and spatulate hairs found in the females of *Hentzia* (Figs. 1-4) and also differ in the males having bicuspid (or bifurcate) retromarginal teeth (Figs. 5, 10). The retromarginal tooth of the male of *A. dolius* is barely bicuspid, however (Fig. 10). It is doubtful that *B. wickhami*, which was described in the catch-all genus *Icius*, really belongs in *Beata*. Its similarity to *Hentzia* in the structure of the palpus (Figs. 6, 7) is very striking. The female epigynum (Figs. 8, 9) is also quite similar. The male of *Anicius dolius* has a palpus that is different from that of *Hentzia*, but still the embolus is long and thin and generally similar to at least some of the *Hentzia* species (Figs. 11, 12). The female genitalia (Figs. 13, 14) also resemble that of some *Hentzia* species. Both sexes of *A. dolius* are close to *Hentzia* in general appearance. "*Beata*" *wickhami* is known from southern Florida, Cuba and the Bahamas. *Anicius dolius* and an apparent undescribed species of the same genus are from southern Mexico.



Figures 1-4.—Anatomical structures of *Anicius dolius* and *Hentzia*: 1, carapace of female *A. dolius*, showing lack of hair pencils; 2, ventral view of female *A. dolius*, showing lack of spatulate hairs on posterior ventral edge of femur and patella I; 3, carapace of *Hentzia antillana*, showing hair pencils below posterior median eyes; 4, ventral view of first leg of *Hentzia antillana*, showing spatulate hairs on femur and patella.

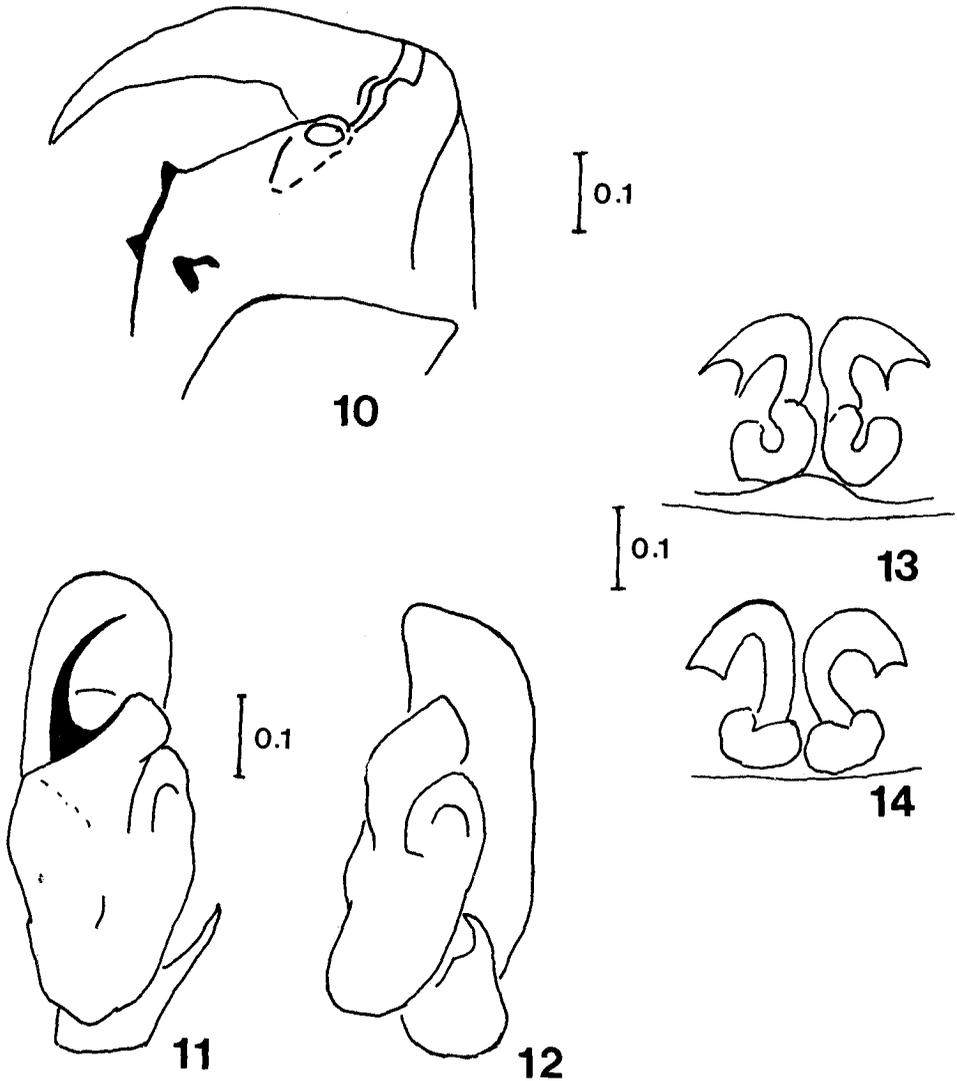
A cladogram (Fig. 15) shows the apparent relationships of "*B.*" *wickhami* and *A. dolius*, taken as a group, and the species groups of the genus *Hentzia*. Resolutions of species relationships within a group are based on characters not shown on the cladogram but are discussed in the text. For example, the two species *H. chekika* and *H. poenitans* have very similar epigynal structure, with the j-shaped tubes much shorter than in the next closest species *H. grenada*. They also lack the sperm tube loop found on the bulb of *H. grenada* male palpi. They are thus placed closer to each other than to *H. grenada* on the cladogram. Similarly, *H. audax* and *H. cubana* appear to be more closely related to each other than to the other members of the *palmarum* species group because the male chelicerae are nearly identical in location of teeth and both have male palpi with a hooked tibial apophysis. The males of this species are so similar, except in size, that for a long time I considered them to be just size variants of the same taxon. The females are, however, quite different in their epigynal structure. On the other hand, the relationships of the *vittata* group are not resolved, and many of the relationships within the *palmarum* group remains uncertain. I thus thought it best not to use more than the seven characters to separate the species groups for the cladistic analysis.



Figures 5-9.—*Beata wickhami* (Peckham and Peckham): 5-7, male from Habana, Cuba; 5, left chelicera, ventral view, showing bicuspid retromarginal tooth; 6, 7, palp; 6, ventral view; 7, retrolateral view; 8, 9, epigynum of female from Bahamas, 8, ventral view; 9, dorsal view.

The characters used in the cladogram are: 1) presence or absence of female hair pencils, 2) presence or absence of female spatulate hairs, 3) male retromarginal tooth type (bifurcate or bicuspid, simple, truncate [it should be noted that *H. footei* occasionally exhibits a bifurcate retromarginal tooth, but as the tooth is usually just truncate, the latter character was used in the analysis]), 4) male bulb shape (lobes equal, prolateral reduced), 5) female epigynum (with central cone-like structure, without central cone-like structure), 6) male promarginal teeth (equal, not equal), 7) female epigynal tubes (j-shaped, other). The weights and consistency index (c.i.) are represented on the legend of the cladogram. There are apparently four species groups in *Hentzia*, based on this analysis. These are: the *palmarum* group, the *grenada* group, the *vernalis* group and the *vittata* group. The *grenada* group and the *palmarum* group are perhaps the most closely related, based on the structure of the male palpi and chelicerae, but differ strongly in the structure of the female epigynum.

It should be noted that as this is a first attempt to construct a cladogram for *Hentzia*, the relationships should not be considered as proven. Because of the uncertainty involved in this cladogram and the lack of separation between species, there is no doubt in my mind that a better one can be, and probably will be, produced in the future. This can be considered as only a preliminary attempt.

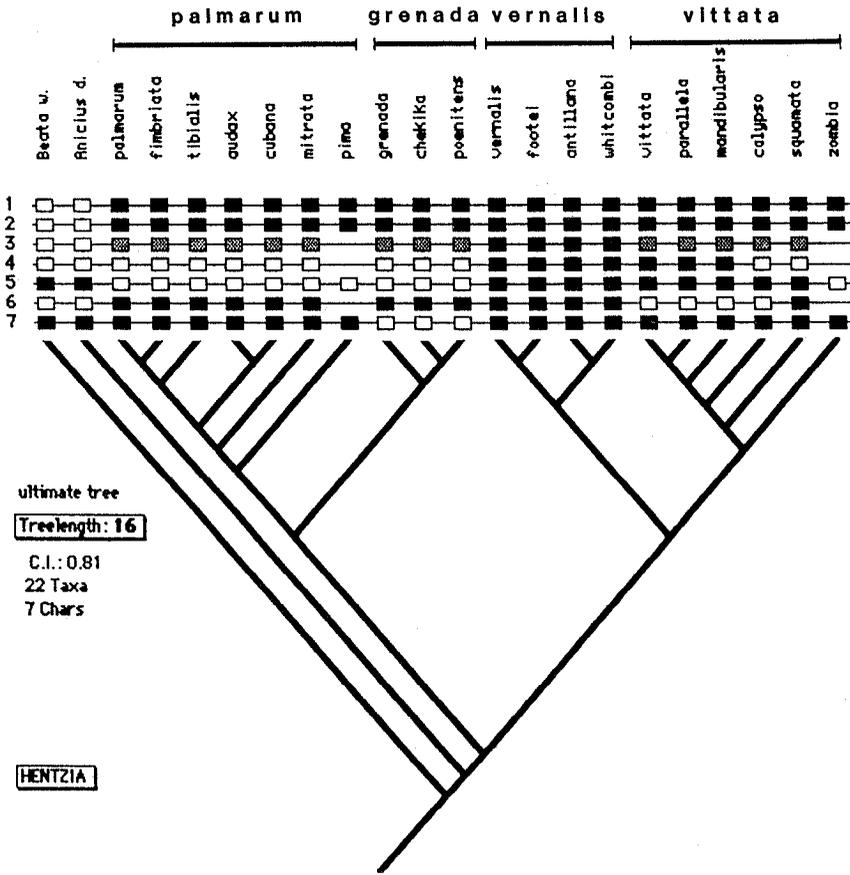


Figures 10-14.—*Anicius dolius* Chamberlin: 10, left chelicera of male from Michoacan, Mexico, ventral view; 11, 12, palp of holotype male from Guadalajara, Mexico; 11, ventral view; 12, retrolateral view; 13, 14, epigynum of female from Michoacan, Mexico; 13, ventral view; 14, dorsal view.

KEY TO THE SPECIES OF *HENTZIA*

Note: Any specimen found north of southern Georgia and east of a line from Minnesota south to west Texas is almost certainly either *H. palmarum* or *H. mitrata*. From southern Georgia through Florida *H. grenada* is also possible and *H. chekika* may be encountered in southern Florida.

- 1. Males .....2  
 Females .....19
- 2. Tibial apophysis sinuate (Fig. 92); with 2-3 apparent retromarginal teeth (actually only one truncate retromarginal tooth on distal 1/4) (Figs. 89, 90); basal part of embolus reduced and more firmly attached to the



Character	type	weight	states	steps	C.I.
1. F hair pencils	r	2	2	1	1.00
2. F spatulate hairs	r	3	2	1	1.00
3. M retrotooth	u	2	3	2	1.00
4. M bulb	r	1	2	2	0.50
5. F epigynum	r	1	2	2	0.50
6. M proteeth	r	1	2	2	0.50
7. F epigtubes	r	1	2	1	1.00

- 1. F hair pencils: absent; present;
- 2. F spatulate hairs: absent; present;
- 3. M retrotooth: bifurcate; simple; truncate;
- 4. M bulb: lobes equal; prolateral reduced;
- 5. F epigynum: with cone; without cone;
- 6. M proteeth: equal; not equal;
- 7. F epigtubes: j-shaped; other;

Figure 15.—Cladogram of the genus *Hentzia*, based on seven morphological characters. Only species groups are separated by the characters used on the cladogram. Species separations are based on characters defined in the species group descriptions in the text. The four species groups defined are 1) *palmarum*, 2) *grenada*, 3) *vernal*, and 4) *vittata*. See text section on the relationships of *Hentzia* for discussion of characters used.

- tegulum (Fig. 91) (northern South America, St. Vincent, Trinidad and Barbados) ..... *vernalis*
- Tibial apophysis curved, truncate or straight, never sinuate; always with one retromarginal tooth; embolus not reduced ..... 3
3. Retromarginal tooth straight or curved and truncate or rarely bifurcate (Figs. 96, 97, 104, 109) ..... 4
- Retromarginal tooth simple ..... 6
4. Fang with at least one tooth (Figs. 96, 97) (Dominica, St. Lucia) .... *footei*
- Fang without teeth ..... 5
5. Distal promarginal tooth equidistant from proximal promarginal and retromarginal tooth as seen from below (Fig. 109) (northern Lesser Antilles and Puerto Rico) ..... *whitcombi*
- Distal promarginal tooth closer to retromarginal tooth (Fig. 104) (Cuba to St. Lucia) ..... *antillana*
6. Tibial apophysis of palpus truncated and slanted (Fig. 47) (Cuba) .... *tibialis*
- Tibial apophysis usually spike-like or curved ..... 7
7. Tibial apophysis distinctly curved (Cuba) ..... 8
- Tibial apophysis straight or nearly so ..... 9
8. Larger than 5.25 mm found only in the mountains of southeastern Cuba ..... *audax*
- Never larger than 5.25 mm; usually 3-4 mm; widespread in Cuba ..... *cubana*
9. Chelicerae covered with white scales (Fig. 146) (Mona Island, Puerto Rico) ..... *squamata*
- Chelicerae not covered with white scales ..... 10
10. First legs without pigment (Fig. 29); chelicerae rarely elongate; bulb noticeably expanded distally (Fig. 33) (Quebec south to Florida and west to Kansas, Oklahoma and Texas) ..... *mitrata*
- First legs pigmented ..... 11
11. Chelicerae robust in larger males, being nearly as wide as long ..... 12
- Chelicerae elongate in larger males, much longer than wide ..... 15
12. Chelicerae with dorsal tubercle (rarely absent) (Fig. 140) (Hispaniola) ..... *mandibularis*
- Chelicerae without dorsal tubercle ..... 13
13. Tiny species (ca. 3 mm) with distinctive dorsal abdominal markings (Fig. 130) (Jamaica) ..... *calypso*
- Larger species (>3 mm), without distinctive dorsal markings (males difficult to distinguish) ..... 14

14. Range from Panama along South American coast to Trinidad and Guyana .....*parallela*  
Range Jamaica, Hispaniola, Cuba and the Bahamas .....*vittata*
15. Bulb with distinctive sperm duct loop (Figs. 70, 71); elongated species (Fig. 67) associated with small palms and cycads (Florida, Georgia) ....*grenada*  
Bulb without sperm duct loop; sperm duct only slightly curved ..... 16
16. Dorsal abdominal pattern with 8-10 dark spots (Figs. 80, 81); associated with tall palm trees such as *Cocos* (Florida, Bahamas, Cuba) .....*chekika*  
Pattern without 8-10 dark spots; not associated with tall palms ..... 17
17. Retromarginal cheliceral tooth opposite or nearly opposite proximal promarginal tooth (Figs. 18, 19) (Nova Scotia, east to Bermuda, south to Cuba, west to Oklahoma and Texas, northeastern Mexico) ....*palmarum*  
Cheliceral teeth approximately equidistant (Figs. 37, 75) ..... 18
18. Anterior bulb lobe slanted and smaller than posterior (Fig. 76); relatively tiny species (ca. 3 mm) known only from Sonora .....*poenitens*  
Anterior bulb lobe not slanted; lobes approximately equal in size; larger species (usually > 4 mm) (Tamaulipas south to Costa Rica, north along the Pacific coast to Nayarit) .....*fimbriata*
19. Covered with pink iridescent scales; epigynum with internal "cloverleaf" structure (Fig. 155) (Hispaniola) .....*zombia*  
Without pink iridescent scales; epigynum not as in Fig. 155 ..... 20
20. Epigynum as in Figs. 65, 66, with c-shaped openings; dorsal abdominal spot pattern block-like (Fig. 64) (Arizona) .....*pima*  
Epigynum unlike Figs. 65, 66, with openings not c-shaped ..... 21
21. Tiny species (ca. 3-4 mm); dorsal abdominal pattern distinctive (Fig. 131); epigynum with large round openings less than one diameter apart (Figs. 135, 136) (Jamaica) .....*calypso*  
Larger species (usually > 4 mm); epigynum with relatively smaller openings or openings not round ..... 22
22. Legs unpigmented; epigynum with long central tubular structure (Fig. 35) (Southern Canada south to Florida and west to Texas) .....*mitrata*  
Legs pigmented; epigynum with short, bell-like, or no central structure .... 23
23. With short bell-like structure on epigynum; epigynal openings rounded or forming atrium (Figs. 24, 26) (Nova Scotia to Bermuda and Cuba, west to Texas and northeastern Mexico) ..... *palmarum*  
With vague bell-like structure on epigynum, or with none; openings variable, but not as in *palmarum* ..... 24
24. Epigynum as in Figs. 93, 94, with apparent double lateral tubes in dorsal view; dorsal abdominal pattern lacking (Northern South America, Trinidad, St. Vincent, Barbados) .....*vernalis*

- Epigynum unlike Figs. 93, 94, with only one pair of tubes; with or without dorsal abdominal pattern .....25
25. Epigynum with trumpet-shaped openings (Figs. 107, 152) .....26  
Epigynum otherwise .....27
26. Spermathecae larger in area than trumpet-shaped part of epigynum (Figs. 152, 153) (found only on Mona Island) .....*squamata*  
Spermathecae equal in area to trumpet-shaped part (Figs. 107, 108) (Cuba, Hispaniola and Puerto Rico to St. Lucia) .....*antillana*
27. Epigynal openings circular or oval .....28  
Epigynal openings not circular or oval .....30
28. With vague central bell-shaped structure on epigynum (Fig. 112) (Puerto Rico to Guadeloupe) .....*whitcombi*  
Without vague bell-shaped structure .....29
29. Epigynal openings circular (Fig. 144) (Hispaniola) .....*mandibularis*  
Epigynal openings oval (Fig. 128) (Central America, northern South America, east to Trinidad) .....*parallela*
30. Epigynum with characteristic "hump" anteriorly (Figs. 40, 42) (Tamaulipas south to Costa Rica and north to Nayarit) .....*fimbriata*  
Epigynum not so constructed .....31
31. Epigynum wider than long .....32  
Epigynum longer than wide .....34
32. Epigynum with complicated series of tubes (Fig. 51) .....*tibialis*  
Epigynum relatively simple internally .....33
33. Abdomen lacking dorsal pattern (Fig. 74); small species - ca. 3 mm; found in Sonora, Mexico .....*poenitens*  
Abdomen with distinctive pattern of five pairs of brown spots (Fig. 81); larger species - 5-6 mm; found in Cuba, the Bahamas and Florida...*chekika*
34. Epigynum with funnel-like or angulate openings (Cuba) .....35  
Epigynum without funnel-like openings .....36
35. Epigynum with straight, trumpet-like tubes, leading to slit-like openings (Figs. 57, 58); large species (5.25 mm or larger) found in southeastern mountains of Cuba .....*audax*  
Epigynum with tubes twisted laterally; openings oval; small species (usually 3-4 mm); widespread in Cuba; epigynum diagnostic (Figs. 62, 63) *cubana*
36. Epigynum with elongate tube leading to slit-like openings (Fig. 72) (Florida and southern Georgia) .....*grenada*  
Epigynum with bent tube leading to openings .....37

37. Epigynal openings slanting posteriorly (Fig. 100) (Dominica to St. Lucia) ..... *footei*  
 Epigynal openings not slanting posteriorly, but laterally (Jamaica through Hispaniola and Cuba to the Bahamas) ..... *vittata*

SPECIES ACCOUNTS

*Hentzia* Marx 1883

*Attus* Walckenaer 1805 (applied to nearly all salticids - junior synonym of *Salticus* Latreille 1804).  
*Epiblemum* Hentz 1832 (applied to *Salticus* as well as *Hentzia*).  
*Hentzia* Marx 1883, type species *palmarum* (Hentz) 1832.  
*Wala* Keyserling 1885, type species *palmarum* (Hentz) 1832. Synonymy Bryant 1940.  
*Anoka* Peckham and Peckham 1893, type species *vernalis* Peckham and Peckham 1893. Synonymy Bryant 1940.  
*Parahentzia* Bryant 1943, type species *mandibularis* Bryant 1943. NEW SYNONYMY.  
*Maeviobeata* Caporiacco 1947, type species *charitonovi* Caporiacco 1947. NEW SYNONYMY.

As noted in an earlier section, this genus is characterized by the primarily female characters of hair pencils below the PME and spatulate hairs on the ventral retromargin of the first patella and distal femur. Members of the genus are also characterized by males having long, thin emboli arising on the prolateral side of the tegulum and an anterior separation on the bulb, forming two lobes. *Hentzia vernalis* is an exception to the latter character, having the bulb partially reduced. Most males have elongate chelicerae and the first legs considerably darker than posterior three pairs. Females usually have spermathecae with a series of spiral twists and always have chelicerae with two simple promarginal teeth and one bicuspid retromarginal tooth. The retromarginal teeth of the male chelicerae are usually simple or truncate, the latter form often being bent distally.

SPECIES MISPLACED IN THE GENUS *HENTZIA*

*Wala noda* Chamberlin 1916 = *Corythalia noda* (Chamberlin), NEW COMBINATION. Holotype and paratype females from Torontoy, PERU, and female from Conservidayo River, PERU (MCZ) examined.

*PALMARUM* SPECIES GROUP

The *palmarum* species group consists of seven species of slightly elongate spiders with short to moderately elongate chelicerae and a bell-shaped or tubular central structure on the epigynum of the females. With the exception of *H. mitrata*, all of the known males have darkly pigmented or marked legs. The group is the most widespread of the species groups of *Hentzia*, being found from Nova Scotia to Bermuda, south to Cuba and South America, west to Oklahoma and Texas and north along the west Mexican coast as far as Nayarit and Sinaloa. One species, *H. pima* n. sp., is known from only one female, but appears to be a member of this group and occurs in southern Arizona.

At present, the species within this group and within the *vittata* group are perhaps the most difficult to relate by synapomorphic characters. In the case of

the *palmarum* group this is, at least in part, because several of the species are from Cuba and relatively little material is available. It appears that *H. palmarum*, *H. fimbriata* and *H. tibialis* are closely related, based on similarities in the structure of the palpi, such as the long, relatively thin and slightly curved tibial apophysis. It could be equally argued that *H. mitrata* would fit here as well, and I have left it next to *H. palmarum* in the species descriptions for convenience, but it differs from all the other species in the group in having long, white-fringed front legs and thus appears on the cladogram as a separate line (Fig. 15). Both *H. audax* and *H. cubana* have extremely similar males, except for size and thickness of the palpal tibial apophysis, but the females differ significantly (see species descriptions). Finally the male of *H. pima* is unknown and its placement on the cladogram is problematic. Until more material becomes available, especially from Cuba, the relationships of the species within the *palmarum* species group can only be assigned provisionally.

### *Hentzia palmarum* (Hentz)

Figs. 16-28, Map 1

*Epiblemum palmarum* Hentz 1832:108 (type lost); 1846:366; Peckham and Peckham 1883:28.

*Attus marginatus* Walckenaer 1837:466 (type lost) (see Maddison 1986:142, 143).

*Attus ambiguus* Walckenaer 1837:467 (type lost); Chamberlin and Ivie 1944:201.

*Hentzia palmarum* Marx 1883:26; Kaston 1948:491; Chickering 1944:161.

*Icius palmarum* Peckham and Peckham 1888:46; Emerton 1891:232; Emerton 1902:56.

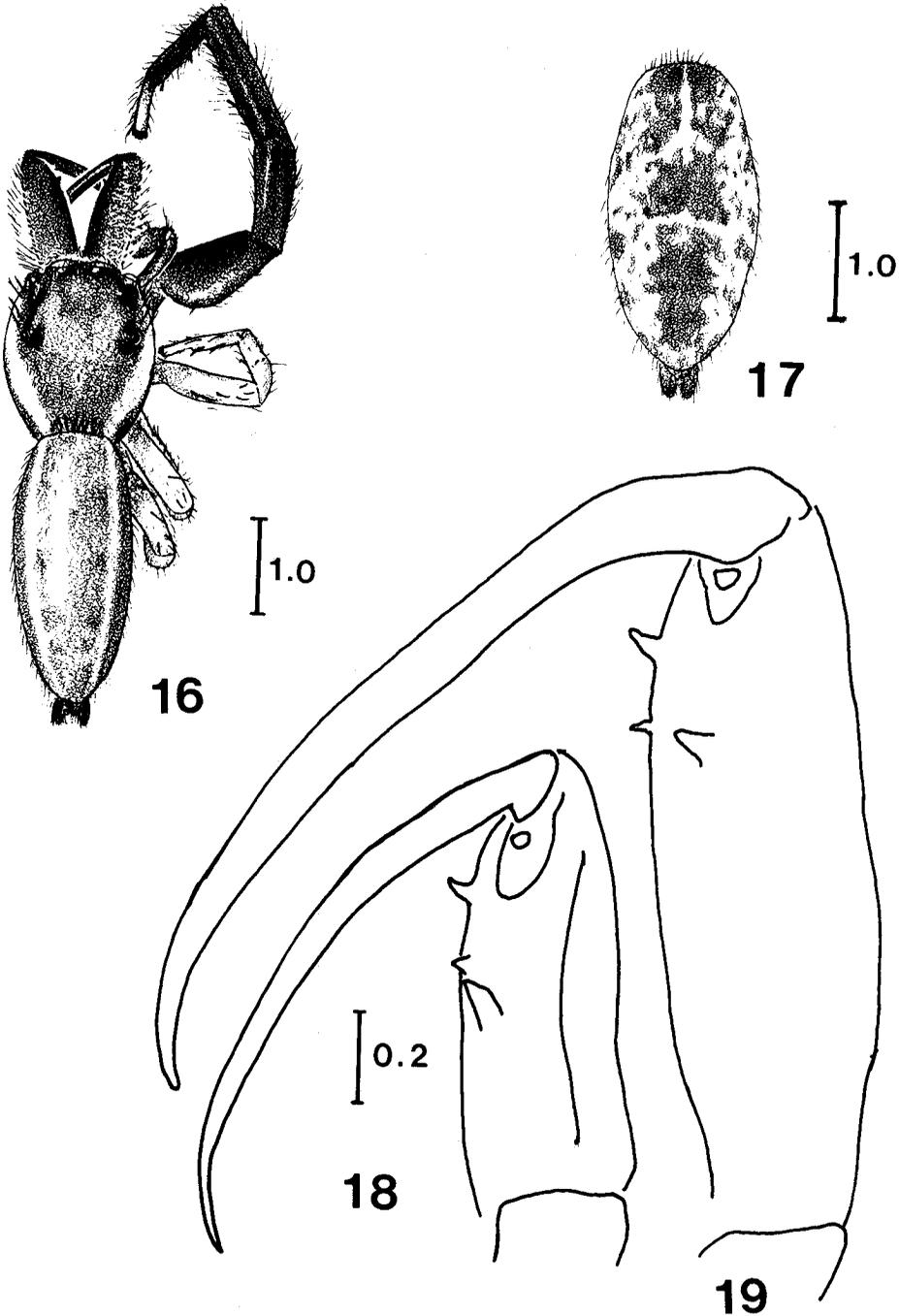
*Anoka palmarum* Peckham and Peckham 1894:126; Simon 1901:614.

*Wala palmarum* Peckham and Peckham 1909:508; Comstock 1912.

NOTE: *Icius vittatus* Keyserling 1885 and *Wala albovittata* Keyserling 1885 were incorrectly assigned as synonyms of *H. palmarum* and are instead senior synonyms of *Hentzia peckhami* (Cockerell).

**Diagnosis.**—Chelicerae of male with retromarginal tooth usually directly in line with proximal promarginal tooth (Figs. 18, 19) (separates this species from all but *H. mitrata*), bulb of male palpus with edges of distal half parallel or expanded (Figs. 20, 22), first legs pigmented (Fig. 16) (separates this species from *H. mitrata*), female epigynum with bell-like median structure (Figs. 24, 26). Chelicerae of male usually elongate; male chelicerae and first legs pigmented; median dorsal marking on posterior 1/3 of carapace if present thin (willow leaf shape); female often with herring-bone pattern; bodies of both male and female distinctly less elongate than those of *H. grenada* or *H. chekika* n. sp.

**Male.**—Total length 4.00-5.30. Carapace 1.60-2.00 long, 1.30-1.70 wide, 0.80-1.00 high at PLE. Ocular area 0.70-0.90 long, 1.00-1.30 wide anteriorly, 1.10-1.40 posteriorly. Chelicerae 0.75-1.80 long 0.30-0.45 wide (10 males from Cedar Key Levy Co., Florida). Carapace length and cheliceral length measurements (124 specimens from The Bahamas, Florida, Pennsylvania, Texas, Bermuda, Georgia, New Jersey, Ontario, Nova Scotia, North Carolina, South Carolina, Arkansas, Missouri, Massachusetts and Michigan, not including above specimens) 1.36-2.35 and 0.40-2.20 (Fig. 28). PME equidistant to ALE and PLE. Leg formula 1423. Carapace red to orange-brown with white scales forming willow-leaf marking on dorsal posterior 2/3 and lateral bands. Margin of carapace black, with dark area becoming wider toward posterior. Clypeus covered with white hairs. Eyes ringed with black except AME which are ringed with dark brown. Chelicerae dark red brown with pale promarginal 1/3. Labium dark brown with pale tip. Sternum



Figures 16-19.—*Hentzia palmarum* (Hentz): 16, male from Plymouth Co., Mass., dorsal view; 17, female from Highlands Co., Fla., dorsal view of abdomen; 18, left chelicera of male from Tulsa Co., Okla., ventral view; 19, left chelicera of male from Levy Co., Fla., ventral view.

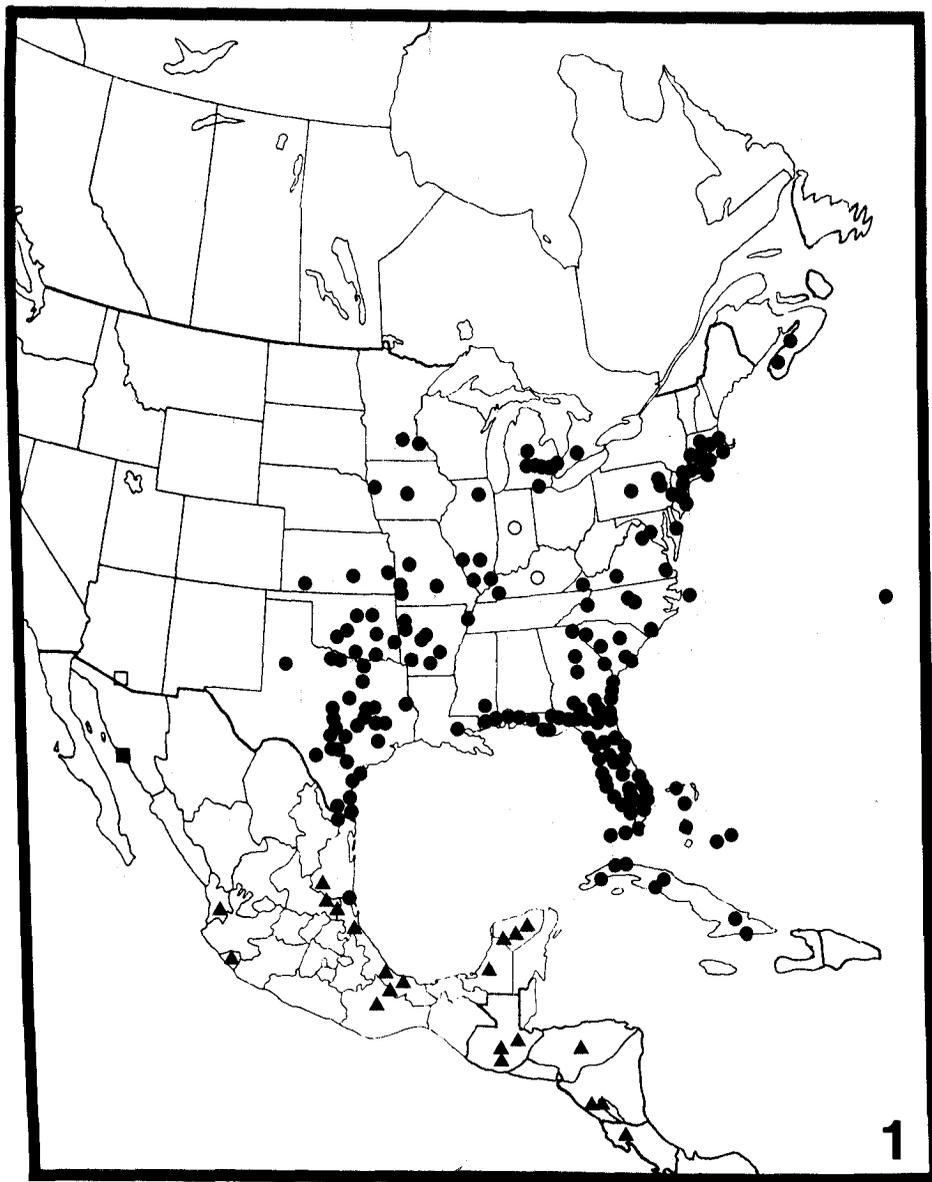
orange. Abdomen either with central dark band, lateral white scale bands on either side and venter brown or with 3-4 dark spots on the central band. Abdomen covered with iridescent scales. First leg red-brown, tarsus yellow, proximal metatarsus yellow, dorsal femur lighter brown. Other legs yellow. Palpi red-brown, cymbium yellow.

**Female.**—Total length 4.70-6.10. Carapace 1.90-2.40 long, 1.40-2.05 wide, 0.70-1.00 high at PLE. Ocular area 0.80-1.00 long, 1.20-1.45 mm wide anteriorly, 1.30-1.70 mm wide posteriorly. Chelicerae 0.50-0.80 long, 0.35-0.55 wide (10 females from Cedar Key, Levy Co., Florida). PME slightly closer to ALE than to PLE. Leg formula 1423. Carapace red-brown with lighter center which ends before posterior margin. Eyes ringed with black except AME ringed with brown. Carapace covered with white scales. Clypeus covered with white hairs. Chelicerae red-brown. Endites dark brown, prolateral 1/3 lighter. Labium dark brown with pale tip. Sternum orange-brown. Abdomen yellowish with dark central pattern, sometimes with herring-bone pattern or with three to four brown spots, similar to pattern of female *H. mitrata*. Front legs orange-brown with femur darker anteroventrally and patella and tibia darker distally. Other legs yellow. Palpi yellow with dorsal dark spots on proximal patella, tibia and tarsus.

**Distribution.**—Nova Scotia and Ontario south to Cuba and the Bahamas, east to Bermuda and west to Minnesota, Nebraska, Texas and Tamaulipas, Mexico. (Map 1).

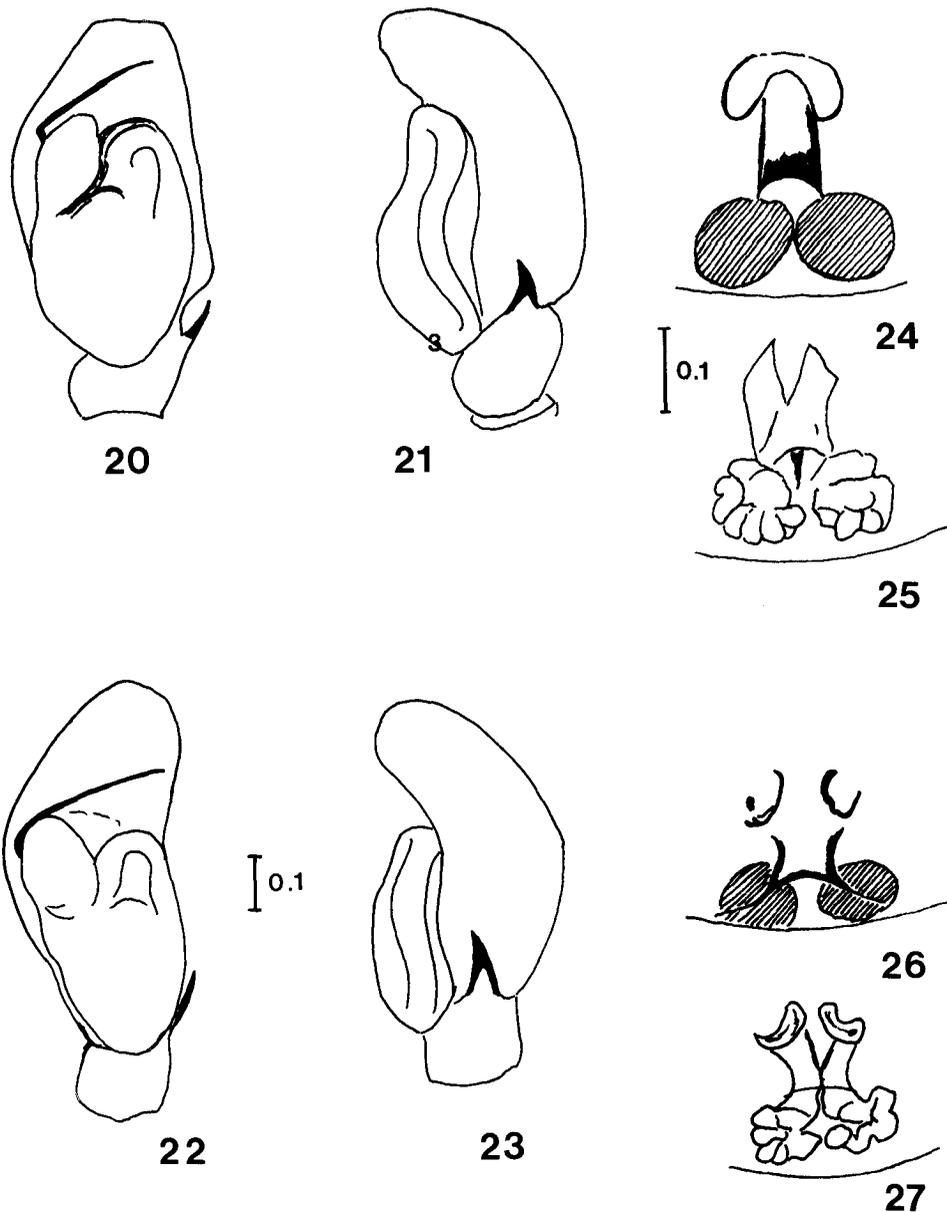
**Variation.**—Males differ in size and in length of the chelicerae (Fig. 28). There does not appear to be an allometric relationship between these two parameters and the plotted dots fit a straight line with the formula  $y = 0.498697x + 1.194149$ . Males of other species appear to have similar relationships between carapace and chelicera measurements (differing somewhat in placement along the curve and in the exact formula for the curve), and were represented by fewer data points. Because of these factors, the graph of *H. palmarum* measurements is presented here as a representative for the genus. Generally the pattern of the carapace is relatively uniform, but both males and females have some variation in abdominal patterns; the males sometimes having central spots, but may lack them and the females sometimes have a herring-bone pattern or brown spots like female *H. mitrata*. There seems to be no geographic association with these patterns.

**Natural history.**—Males and females have been collected throughout the year, especially in the southern part of their range. Immatures seem to be also present throughout the year. This species is primarily associated with shrubs and small trees and has been collected on black mangroves, red mangroves, white mangroves, willows, scrub oaks and various understory shrubs in Florida. Females from Florida (most from black mangroves near Cedar Key, Levy Co.) produced an average of 15.1 eggs in the laboratory (range 6 to 27, SD = 5.5,  $n = 24$ ) from March through October. Populations on black mangrove were relatively dense throughout the year in 1975. This species is often found sympatrically with *H. grenada* (Peckham and Peckham), but the latter is almost always found on saw palmettoes or dwarf *Sabal* palms. *Hentzia mitrata* (Hentz) is also found sympatrically with *H. palmarum* and long series of both species were collected in Bucks Co., Pennsylvania by Wilton Ivie, unfortunately without any ecological notes. Males of *H. palmarum* exhibit a characteristic courtship and agonistic display (described by Richman 1982).



Map 1.—North and Central America, showing distribution of *Hentzia palmarum* (closed circles, open circles = state record only), *H. poenitens* (closed square), *H. pima* (open square), and *H. fimbriata* (closed triangles).

**Specimens examined.**—(Material from Bruce Cutler Collection not examined marked with an asterisk) **BAHAMAS:** Great Exuma (UCB), Harbor Island (MCZ). **BERMUDA:** Grasmere (MCZ). **CANADA:** NOVA SCOTIA; Digby (CNC), Kentville (CNC). ONTARIO; London (CNC). **CUBA:** Cabanas (AMNH), Cristo (AMNH), Habana (AMNH, MCZ), Holguin (MCZ), Pinar Rio (AMNH), Santa Clara (AMNH), Santiago de Cuba (MCZ), San Vicente (AMNH), Soledad (MCZ). **MEXICO:** TAMAULIPAS; Reynosa (AMNH), Tampico (AMNH). **U.S.A.** (county records only, except for the District of Columbia): ALABAMA; Baldwin (AMNH), Mobile (AMNH). ARKANSAS; Bradley (EPC), Conway (EPC), Crawford (EPC), Hempstead (ANSP, AMNH, EPC), Jefferson (EPC), Mississippi (EPC), Perry (EPC), Washington (EPC, MCZ). CONNECTICUT; Fairfield (AMNH), Hartford (AMNH, USNMNH), Litchfield (AMNH, USNMNH), New Haven (AMNH, USNMNH),



Figures 20-27.—*Hentzia palmarum* (Hentz): 20, 21, palp of male from Levy Co., Fla., 20, ventral view; 21, retrolateral view; 22, 23, palp of male from Tulsa Co., Okla.; 22, ventral view; 23, retrolateral view; 24, 25, epigynum of female from Levy Co., Fla., 24, ventral view; 25, dorsal view; 26, 27, epigynum of female from Highlands Co., Fla., 26, ventral view; 27, dorsal view.

*New London* (AMNH). DELAWARE; *Sussex* (FSCA). DISTRICT OF COLUMBIA; "East Branch" (USNMNH). FLORIDA; *Alachua* (AMNH, FSCA), *Baker* (FSCA), *Bay* (FSCA), *Broward* (FSCA), *Citrus* (AMNH, FSCA), *Collier* (FSCA), *Dade* (AMNH, FSCA, MCZ), *Dixie* (FSCA), *Duval* (FSCA), *Escambia* (FSCA), *Gadsden* (FSCA, MCZ), *Glades* (AMNH), *Hendry* (FSCA), *Highlands* (AMNH, DBR, FSCA, MCZ, UCB), *Hillsborough* (FSCA), *Indian River* (FSCA), *Jackson* (AMNH, FSCA), *Jefferson* (MCZ), *Lake* (AMNH, FSCA), *Lee* (AMNH), *Leon* (AMNH, MCZ), *Levy* (EPC, FSCA), *Maddison* (MCZ), *Manatee* (FSCA), *Marion* (FSCA), *Martin* (AMNH, FSCA), *Monroe*

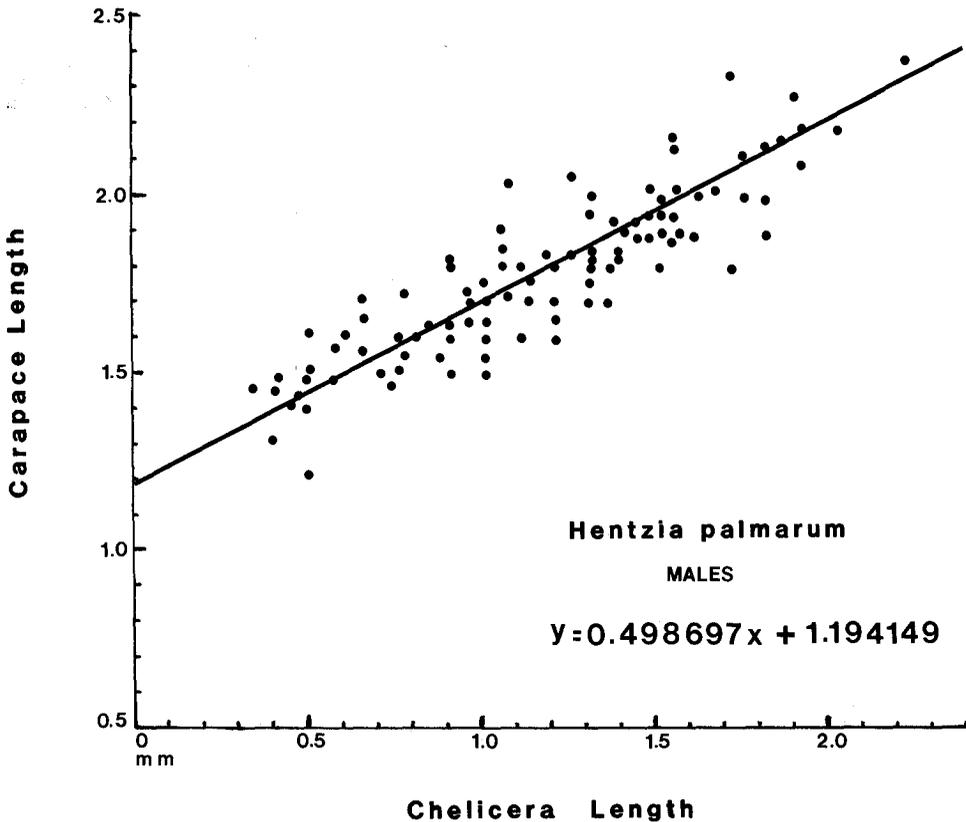


Figure 28.—Regression of carapace length vs. chelicera length for males of *Hentzia palmarum*, showing linear relationship and corresponding lack of allometry. Other species in the genus show similar regressions.

(AMNH, FSCA, MCZ, USNMNH), *Nassau* (AMNH), *Okaloosa* (AMNH, FSCA), *Orange* (AMNH, FSCA, USNMNH), *Palm Beach* (FSCA, MCZ), *Pasco* (FSCA), *Pinellas* (AMNH, EPC, FSCA, MCZ), *Polk* (FSCA), *Putnam* (FSCA), *St. Lucie* (FSCA), *Sarasota* (FSCA), *Seminole* (AMNH), *Volusia* (AMNH, FSCA), *Wakulla* (FSCA). GEORGIA; *Baker* (FSCA), *Bibb* (AMNH), *Brooks* (MCZ), *Charlton* (AMNH, FSCA), *Chatham* (AMNH), *Clarke* (MCZ), *Glynn* (AMNH, USNMNH), *Liberty* (AMNH), *Lowndes* (AMNH), *Morgan* (USNMNH), *Raybun* (AMNH), *Screven* (AMNH), *Tift* (AMNH), *Turner* (AMNH), *Ware* (AMNH). ILLINOIS; *Fayette* (FSCA), *Jackson* (BC\*) *Kane* (AMNH) *Hardin* (AMNH), *Madison* (FSCA). INDIANA; (state record only) (AMNH). IOWA; *Story* (AMNH), *Woodbury* (FSCA). KANSAS; *Bourbon* (AMNH), *Meade* (AMNH), *Sedgewick* (EPC). KENTUCKY; *Trigg* (FSCA) and state record (AMNH). LOUISIANA; *East Baton Rouge* (AMNH), *Iberville* (AMNH). MARYLAND; *Montgomery* (AMNH). MASSACHUSETTS; *Barnstable* (AMNH), *Hampshire* (AMNH), *Plymouth* (USNMNH), *Suffolk* (EPC), *Worcester* (MCZ). MICHIGAN; *Clinton* (FSCA), *Lenawee* (AMNH), *Livingston* (FSCA), *Macomb* (AMNH), *Midland* (AMNH), *Oakland* (AMNH), *St. Clair* (AMNH), *St. Joseph* (USNMNH), *Shiawassee* (BC\*). MINNESOTA; *LeSeur* (BC\*), *Wabasha* (BC\*). MISSISSIPPI; *Forest* (AMNH), *George* (AMNH), *Hancock* (AMNH), *Harrison* (AMNH). MISSOURI; *Johnson* (EPC), *Newton* (EPC), *Phelps* (EPC), *Vernon* (EPC). NEBRASKA; *Dawson* (AMNH), *Jefferson* (DBR), *Hamilton* (DBR), *Harlan* (DBR). NEW JERSEY; *Bergen* (AMNH), *Burlington* (AMNH, MCZ), *Middlesex* (AMNH, CNC), *Ocean* (AMNH). NEW YORK; *Suffolk* (AMNH). NORTH CAROLINA; *Avery* (MCZ), *Dare* (CNC), *Durham* (AMNH), *Macon* (USNMNH), *New Hanover* (MCZ), *Wake* (AMNH). OKLAHOMA; *Carter* (AMNH), *Choctaw* (AMNH), *Comanche* (AMNH), *Grady* (AMNH), *Le Flore* (AMNH), *Marshall* (AMNH), *Payne* (DBR), *Pittsburgh* (AMNH), *Tulsa* (DBR). PENNSYLVANIA; *Bucks* (AMNH), *Carbon* (ANSP), *Centre* (MCZ) *Luzern* (ANSP), *Schuylkill* (USNMNH). SOUTH

CAROLINA; *Aiken* (AMNH), *Anderson* (CNC), *Berkeley* (USNMNH), *Charleston* (AMNH), *Dorchester* (AMNH), *Kershaw* (AMNH). TEXAS; *Aransas* (AMNH), *Austin* (AMNH), *Bell* (AMNH), *Bexar* (AMNH, MCZ), *Brazos* (TAM), *Cameron* (AMNH, MCZ), *Comal* (AMNH), *Dallas* (AMNH, USNMNH), *Erath* (TAM), *Grayson* (AMNH), *Gillespie* (AMNH), *Hidalgo* (AMNH, TAM, USNMNH), *Karnes* (MCZ), *Kenedy* (TAM), *Kerr* (AMNH, FSCA), *Limestone* (AMNH), *Llano* (AMNH), *Lubbock* (AMNH), *Medina* (AMNH), *McLennan* (AMNH), *San Patricio* (AMNH, FSCA, MCZ), *San Saba* (AMNH), *Shelby* (AMNH), *Travis* (ANSP, AMNH), *Walker* (TAM), *Wichita* (FSCA), *Wilbarger* (AMNH), *Williamson* (AMNH), *Uvalde* (AMNH). VIRGINIA; *Accomack* (USNMNH), *Arlington* (AMNH, USNMNH), *Augusta* (USNMNH), *Montgomery* (FSCA), *Norfolk* (MCZ).

*Hentzia mitrata* (Hentz)

Figs. 29-36, Map 2

*Attus mitratus* Hentz 1846:363 (type destroyed).

*Attus morigerus* Hentz 1846:365 (type destroyed).

*Maevia sulphurea* C. L. Koch 1848:71 (type not examined).

*Maevia pallida* C. L. Koch 1848:79 (type not examined).

*Icius mitratus* Peckham and Peckham 1888:48; Emerton 1891:232; 1902:57.

*Anoka mitrata* Peckham and Peckham 1894:125.

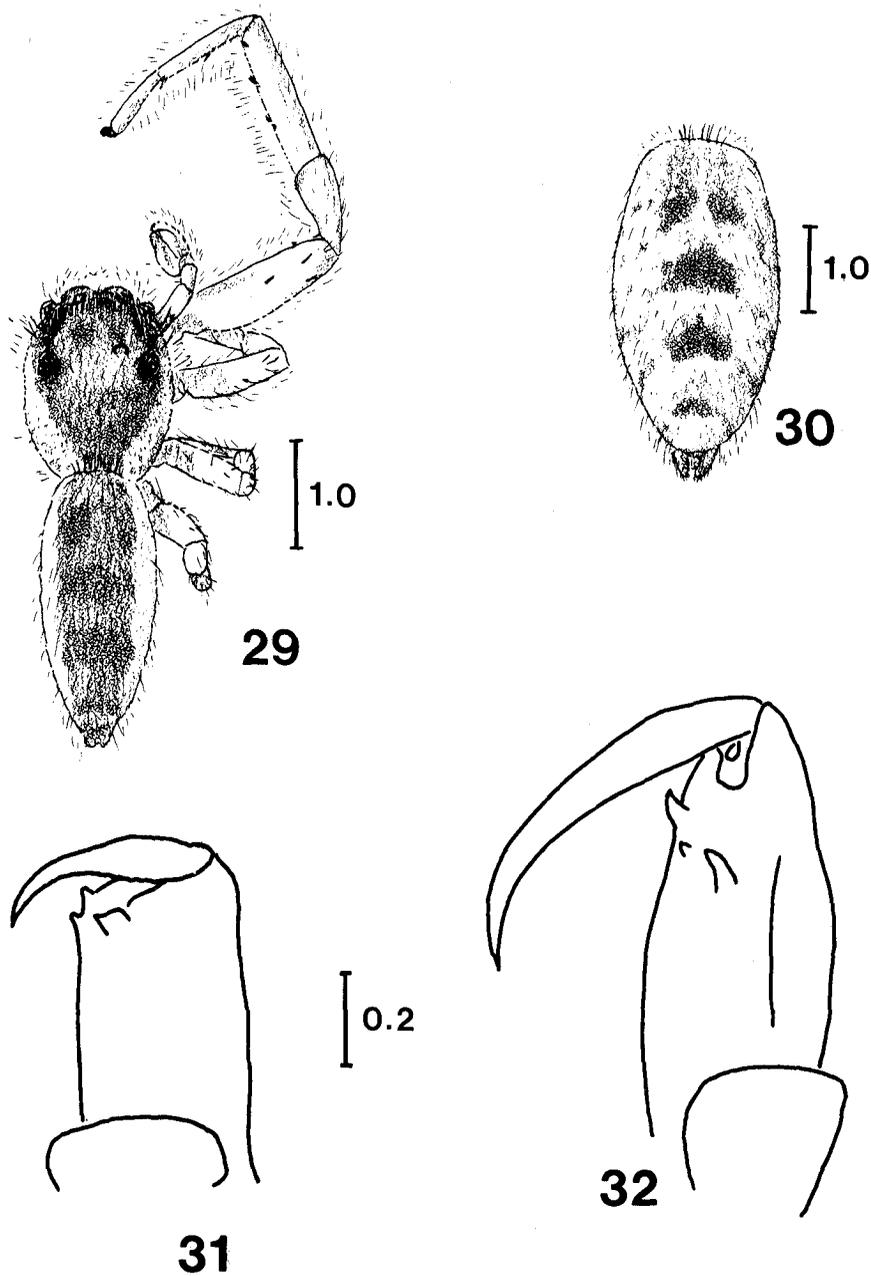
*Wala mitrata* Peckham and Peckham 1909:507.

*H. mitrata* Chickering 1944:159; Kaston 1948:492.

**Diagnosis.**—Male chelicerae generally short and lacking pigmentation, male first legs with white hair fringe and unpigmented (Fig. 29). Male palpus with bulb expanded toward distal end (Fig. 33). Female with elongate central bell-shaped structure on epigynum (Fig. 35), generally with legs unpigmented. These characteristics separate this species from all other members of the genus.

**Male.**—Total length 3.50-4.10. Carapace 1.50-1.70 long, 1.20-1.40 wide, 0.65-0.85 high at PLE. Ocular area 0.65-0.75 long, 0.90-1.02 wide anteriorly and 1.00-1.10 wide posteriorly. Chelicerae 0.50-0.60 long, 0.30-0.35 wide (10 males from NE of Jamison, Horseshoe Bend, Neshaminy Creek, Bucks Co., Pennsylvania). Carapace length and cheliceral length measurements (49 specimens from Quebec, Ontario, Georgia, New Jersey, Missouri, Mississippi, Florida and North Carolina) 1.45-2.05 and 0.50-1.15. The males with the longest chelicerae from Florida. PME equidistant between ALE and PLE. Leg formula 1423. Carapace orange with red-brown bands on either side of center, extending around eyes. Eyes ringed in black except AME which are ringed with brown. Clypeus covered with white hairs. Chelicerae whitish. Endites, labium and sternum yellow-cream. Abdomen yellow colored with brown markings (Fig. 29). Venter gray to cream. All legs yellow. Palpi yellow. In life males of this species from Florida appear to be white with white legs and orange dorsum.

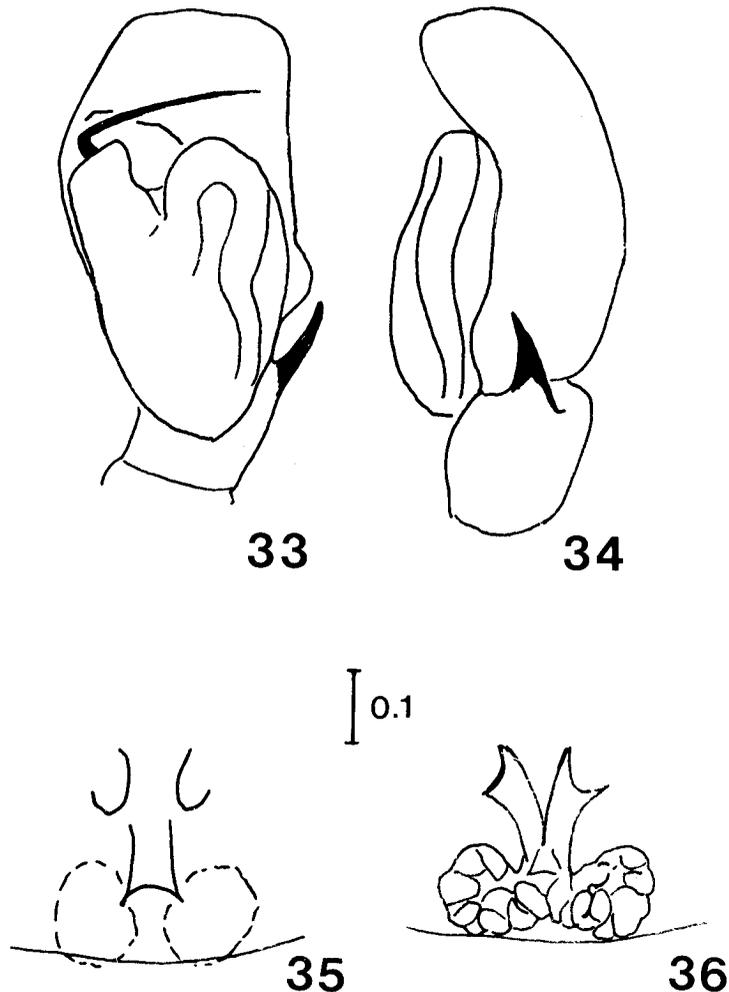
**Female.**—Total length 2.90-4.50. Carapace 1.50-1.80 long, 1.20-1.40 wide, 0.60-0.75 high at PLE. Ocular area 0.65-0.80 long, 0.95-1.12 wide anteriorly, 1.00-1.20 posteriorly. Chelicerae 0.40-0.50 long, 0.26-0.35 wide (10 females from NE of Jamison, Horseshoe Bend, Neshaminy Creek, Bucks Co., Pennsylvania). PME closer to ALE than to PLE. Leg formula 1423. Carapace orange-brown, covered with white hairs, scales. Clypeus covered with white hairs. Endites and labium lighter distally. Abdomen yellowish with brown pattern (Fig. 30). First legs orange. Other legs and palpi yellowish. In life females from Florida are white with brown markings on the body and white legs.



Figures 29-32.—*Hentzia mitrata* (Hentz): 29, male from Washington Co., Minn., dorsal view; 30, female from Washington Co., Minn., dorsal view of abdomen; 31, 32, ventral views of male left chelicera; 31, from Bucks Co., Penn., 32, from Dade Co., Fla.

**Distribution.**—Ontario and Quebec south to Florida and the Bahamas and west to eastern Texas and Minnesota (Map 2).

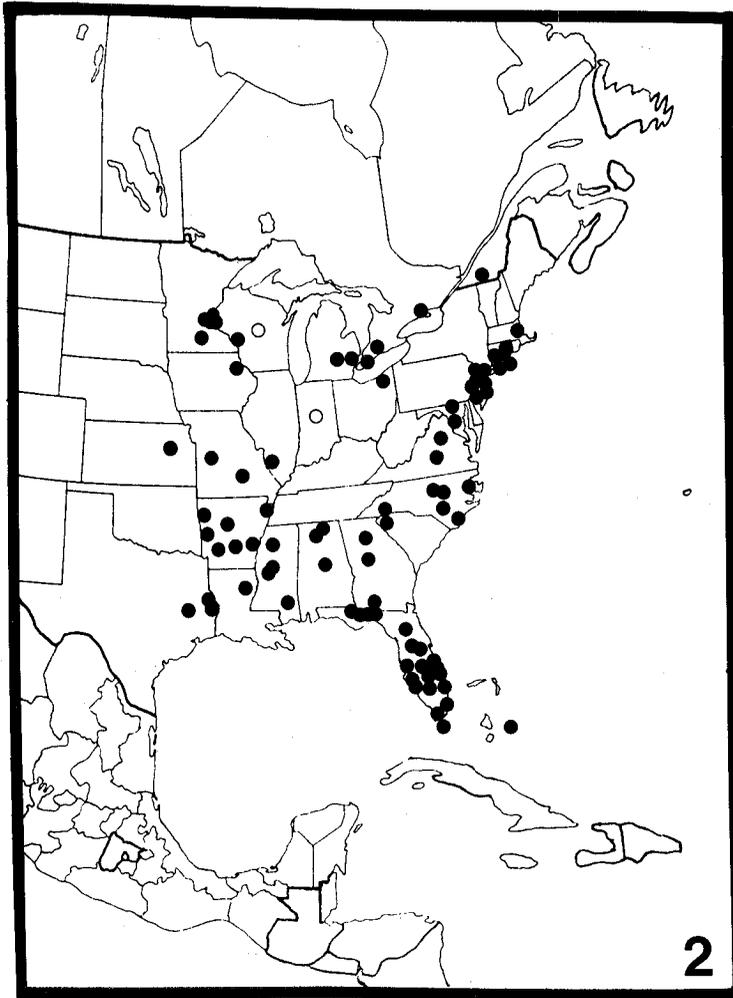
**Variation.**—Males generally have short chelicerae in most of the species range except in parts of Florida, where they may have chelicerae half as long as the carapace. Males from Florida tend to have sparser fringes on the first legs and



Figures 33-36.—*Hentzia mitrata* (Hentz): 33, 34, palp of male from Dade Co., Fla.; 33, ventral view; 34, retrolateral view; 35, 36, epigynum of female from Bucks Co., Penn.; 35, ventral view; 36, dorsal view.

narrower palpi, but otherwise match with more northern specimens. Females vary in the dorsal markings, with some similar to *H. palmarum* females. The epigyna are relatively uniform. Some specimens from Cuba (MCZ) may have to be assigned to this species, but I have not seen a male that looked exactly like mainland specimens. Until more material is available from Cuba, I feel that it is best to not include the records of *H. mitrata* from this island.

**Natural history.**—Adults have been collected in every month of the year, especially in the southern part of the range. They usually have been collected on shrubs, such as wax myrtle, or trees, such as live oak. Natural enemies include the wasp *Trypoxylon (Trypargilum) clavatum* Say (Hymenoptera: Sphecidae). Adults and immatures were found as prey in the nests of this wasp under a wooden bridge in Leon Co., Florida in July along with some *H. palmarum* (Coll. G. B. Edwards). The courtship behavior was described by Peckham and Peckham (1889, 1890) and Richman (1982).



Map 2.—North and Central America, showing distribution of *Hentzia mitrata*.

**Specimens examined.**—(Material from Bruce Cutler Collection not examined marked with an asterisk) **BAHAMAS:** Great Exuma (MCZ), Rum Cay (MCZ). **CANADA:** ONTARIO; Belleville (FSCA), Essex Co. (CNC), London (CNC), Pelee Island (AMNH), Turkey Point (FSCA). QUEBEC; Frelighsburg (CNC). **U.S.A.:** (County records only, except for the District of Columbia) **ALABAMA;** Baldwin (AMNH), Coosa (AMNH), Madison (AMNH), Morgan (AMNH). **ARKANSAS;** Arkansas (EPC), Conway (EPC), Hempstead (ANSP, EPC), Jefferson (EPC), Mississippi (EPC), Polk (EPC), Washington (EPC, MCZ). **CONNECTICUT;** London (AMNH), Middlesex (AMNH), New Haven (AMNH, USNMNH). **DISTRICT OF COLUMBIA;** “Chain Bridge” (USNMNH), “Battery” (USNMNH). **FLORIDA;** Alachua (FSCA, UCB), Dade (AMNH, FSCA, MCZ), Gadsden (MCZ), Glades (AMNH), Hernando (FSCA), Highlands (AMNH), Hillsborough (FSCA), Indian River (MCZ), Jackson (FSCA), Jefferson (MCZ), Lake (AMNH), Levy (FSCA), Leon (FSCA, MCZ), Martin (AMNH), Monroe (AMNH, FSCA), Orange (AMNH), Palm Beach (FSCA, MCZ), Pasco (FSCA), Polk (FSCA), St. Lucie (FSCA), Sarasota (FSCA). **GEORGIA;** Charleton (USNMNH), Dekalb (AMNH), Hall (AMNH, USNMNH), Thomas (CNC, DBR). **ILLINOIS;** St. Clair? (AMNH) also state record (AMNH). **INDIANA;** State record (AMNH). **IOWA;** Clayton (MCZ). **KANSAS;** Riley (FSCA). **LOUISIANA;** Madison (AMNH). **MARYLAND;** Montgomery (AMNH, USNMNH). **MASSACHUSETTS;** Plymouth (USNMNH), Suffolk (MCZ). **MICHIGAN;** Livingston (FSCA), St. Claire (AMNH), Shiawassee (BC\*), **MINNESOTA;** Anoka (FSCA), Blue Earth (MCZ), Chisago (BC\*), Hennepin (BC\*), Ramsey (BC\*), Wright (BC\*), Washington (DBR). **MISSISSIPPI;** Forest

(AMNH), *Humphreys* (AMNH), *Panola* (EPC), *Sharkey* (EPC). MISSOURI; *Johnson* (EPC), *Phelps* (EPC). NEW JERSEY; *Bergen* (AMNH), *Burlington* (AMNH), *Camden* (CNC), *Hunterdon* (AMNH), *Middlesex* (CNC, FSCA), *Monmouth* (AMNH), *Ocean* (AMNH), *Sussex* (AMNH), *Warren* (FSCA). NEW YORK; *Suffolk* (AMNH). NORTH CAROLINA; *Cumberland* (FSCA), *New Hanover* (MCZ), *Orange* (AMNH), *Transylvania* (MCZ), *Wake* (AMNH), *Washington* (MCZ). OHIO; *Lake* (AMNH). PENNSYLVANIA; *Bucks* (AMNH), *Philadelphia* (ANSP). SOUTH CAROLINA; *Oconee* (AMNH). TEXAS; *Jasper* (AMNH), *Sabine* (MCZ), *Walker* (TAM). VIRGINIA; *Amherst* (CNC, FSCA), *Arlington* (USNMNH), *Campbell* (USNMNH), *Fairfax* (USNMNH), *Montgomery* (USNMNH), *Page* (AMNH). WEST VIRGINIA; *Hamshire* (AMNH). WISCONSIN; *LaCrosse* (FSCA), *St. Croix* (BC\*), and state record (MCZ).

*Hentzia fimbriata* (F. O. P. - Cambridge)

Figs. 37-43, Map 1

*Anoka fimbriata* F. O. P. - Cambridge 1901:256 (types from Guatemala in BMNH examined).

*Anoka grenada* F. O. P. - Cambridge 1901:256 (not *Anoka grenada* Peckham and Peckham 1894) (specimens from Guatemala in BMNH examined).

*Wala fimbriata* Petrunkevitch 1911:716.

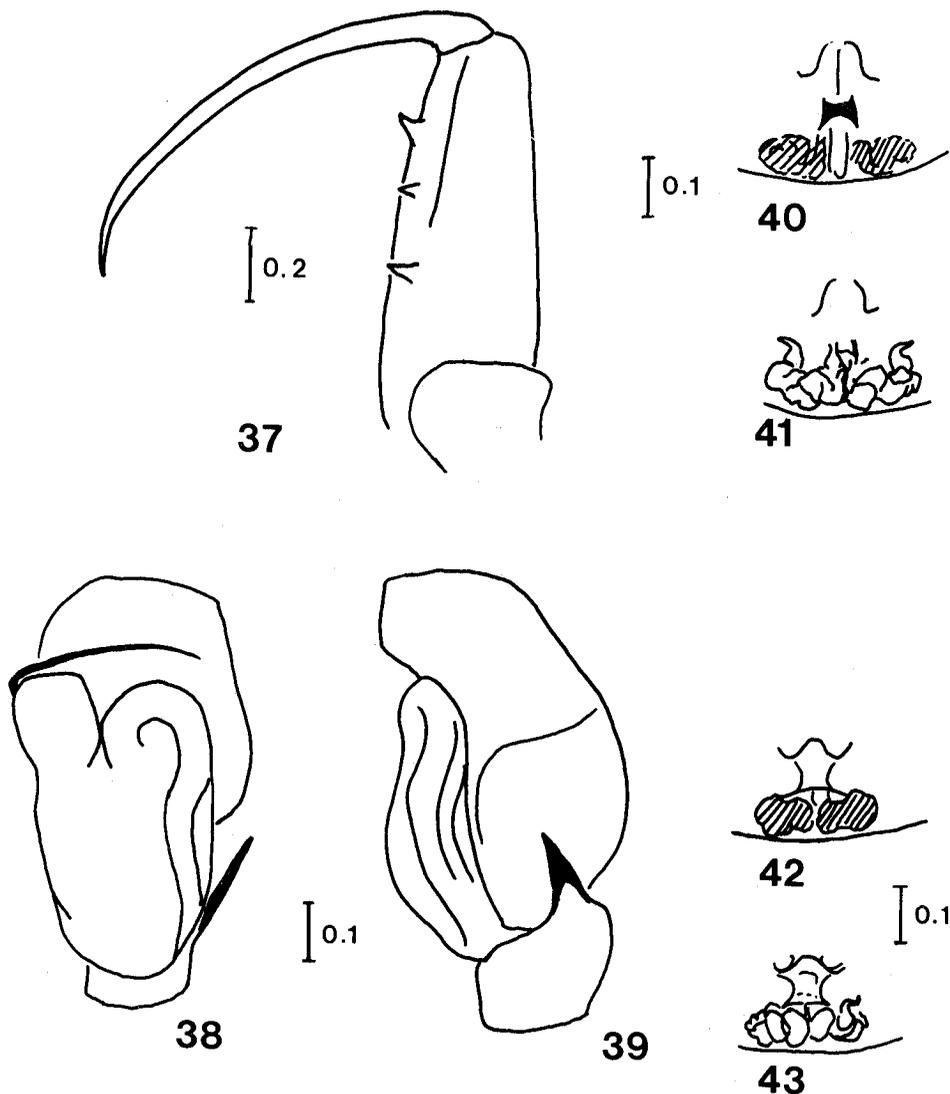
*H. fimbriata* Roewer 1954:1217.

**Diagnosis.**—Male similar to *H. palmarum* but with retromarginal cheliceral tooth separated from the first promarginal by at least the distance between promarginal teeth as seen ventrally (Fig. 37). Female with characteristic bell-shaped central epigynal structure with a “hump” between lateral openings (Figs. 40-43).

**Male.**—Total length 3.10-4.90. Carapace 1.50-1.90 long, 1.15-1.60 wide, 0.60-0.80 high at PLE. Ocular area 0.60-0.80 long, 0.95-1.20 wide anteriorly and 1.00-1.30 wide posteriorly. Chelicerae 0.50-1.50 long, 0.30-0.50 wide (14 males from Guatemala, Mexico and Nicaragua). Carapace and cheliceral length measurements (23 males from Mexico and Central America) 1.50-2.38 and 0.50-1.89. Males of Cambridge's “*grenada*” with long chelicerae as opposed to his type specimens of *A. fimbriata*. As far as is known there are no valid records for *H. grenada* from Central or South America (see description of *H. grenada*). PME slightly closer to ALE than to PLE. Leg formula 1423. Carapace yellow, with lateral bands of white hairs. Black around all eyes but AME; brown around AME. Clypeus with white hairs. Chelicerae red to yellow-brown. Endites and labium yellow brown. Sternum orange-brown. Abdomen yellow with or without darker markings. First legs yellow-brown, darker on anterior ventral femora, patellae and tibiae. Other legs yellow. Pedipalpi yellow with dark spot on distal patellae.

**Female.**—Total length 3.60-5.15. Carapace 1.40-2.15 long, 1.10-1.40 wide, 0.50-0.70 high at PLE. Ocular area 0.60-0.75 long, 0.88-1.50 wide anteriorly and 0.95-1.15 wide posteriorly. Chelicerae 0.30-0.40 long, 0.20-0.30 wide (14 females from Guatemala, Mexico and Nicaragua). PME closer to ALE than to PLE. Leg formula 1423. Carapace orange with white hairs laterally. Black around eyes except AME. Brown around AME. Clypeus covered with white hairs. Chelicerae orange. Endites and labium orange. Sternum orange. Abdomen light brown with gray-brown markings. Venter yellow. First legs yellow to orange. Pedipalpi yellow.

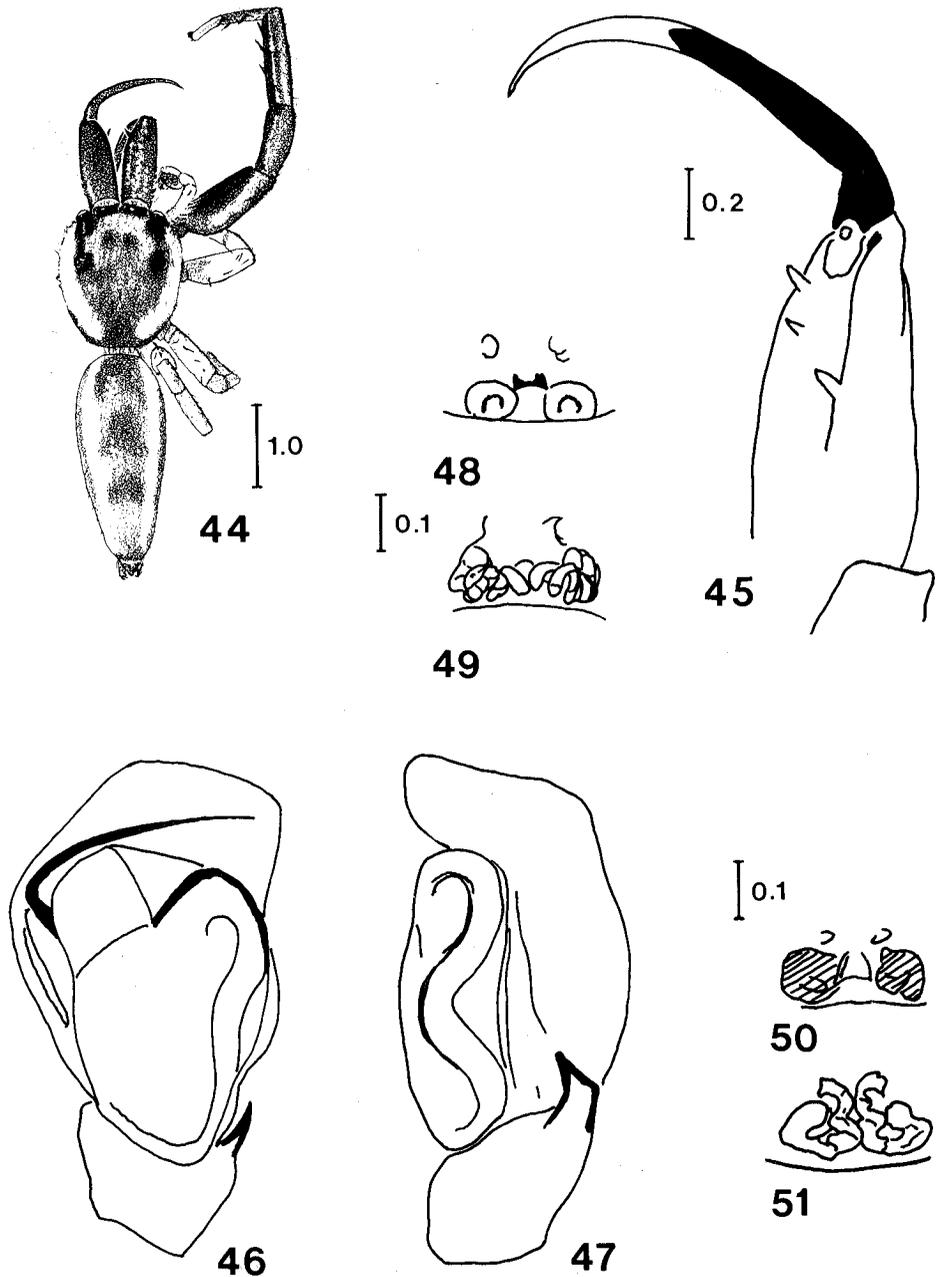
**Distribution.**—East coast of Mexico from southern Tamaulipas south to Colombia and north along the West coast to Nayarit (Map 1).



Figures 37-43.—*Hentzia fimbriata* (F. O. P.-Cambridge): 37-39, "Syntype" male from Guatemala; 37, left chelicera, ventral view; 38, palp, ventral view; 39, palp, retrolateral view; 40, 41, epigynum of female from Panzos, Guatemala; 40, ventral view; 41, dorsal view; 42, 43 epigynum of female from Campeche, Mexico; 42, ventral view; 43, dorsal view.

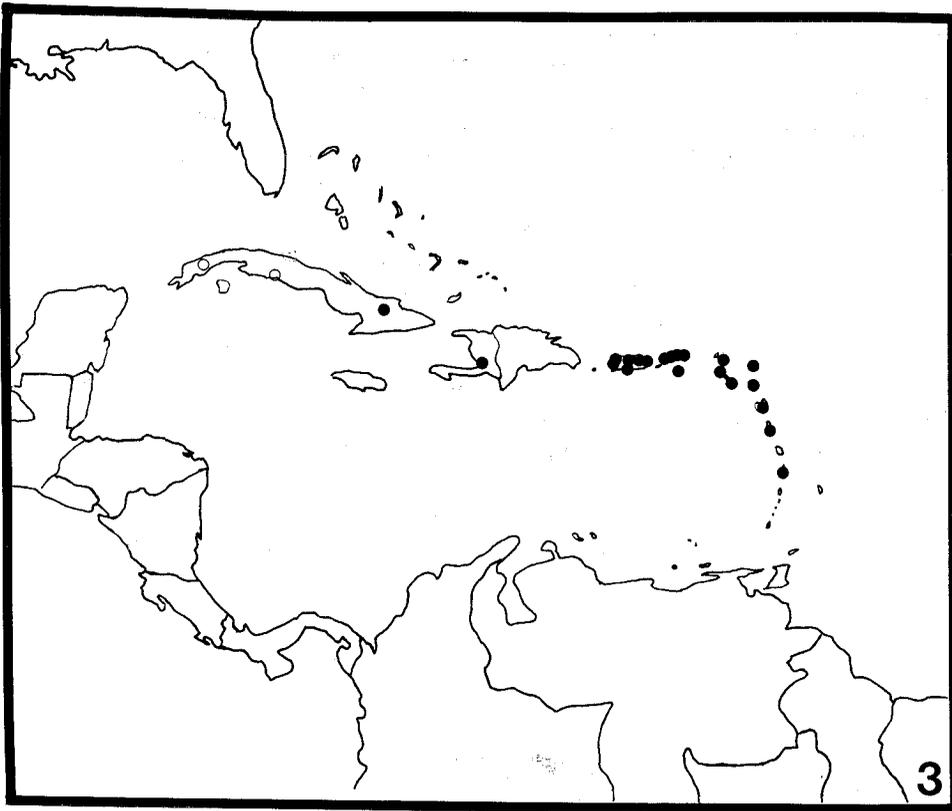
**Natural history.**—Males have been collected in January, March and June-November. Females have been collected in February-March, May-August and October. Adults probably can be found through the year, as with *H. palmarum*. Specimens from Veracruz were collected by W. Maddison on bushes along roadside in marsh.

**Specimens examined.**—**COLOMBIA:** Isla San Andres (UCR). **COSTA RICA:** GUANACASTE; 4 km NW Canyas (UCB), Comunidad (MCZ). **GUATEMALA:** Amatitlan (AMNH), Panzos (AMNH), Petapa (BMNH), Rabinal (AMNH). **HONDURAS:** Roatan (FSCA). **MEXICO:** CAMPECHE; 6 km W Francisco Escarcega (MCZ). **COLIMA:** Santiago (AMNH). **NAYARIT:** Tepic (AMNH). **OAXACA:** Soledad (AMNH), 13 km S Tuxtepec (MCZ). **SAN LUIS POTOSI:** 20 mi. E Ciudad del Maiz (AMNH), Tamazunchale (AMNH). **TAMAULIPAS:** Nacimiento del Rio Frio nr. Gomez Farias



Figures 44-51.—*Hentzia tibialis* Bryant: 44, male from San Vicente, Cuba, dorsal view; 45, left chelicera of male from Pinar, Cuba, ventral view; 46, 47, palp of male from Soledad, Cuba; 46, ventral view; 47, retrolateral view; 48, 49 epigynum of female from San Vicente, Cuba; 48, ventral view; 49, dorsal view; 50, 51, epigynum of female from Habana, Cuba; 50, ventral view; 51, dorsal view.

(MCZ), 34 km E Tula (MCZ). VERACRUZ; Alamo (AMNH), 40 km E Coatzacoalcos (MCZ), Rio Blanco (MCZ), San Rafael (MCZ), Tlacotalpan (AMNH). YUCATAN; Grutas de Lolton 7 km S Oxkutzca (MCZ), 12 km N Pisté (MCZ), Uxmal (AMNH). NICARAGUA: Granada (MCZ), Masachapa (AMNH).



Map 3.—West Indies, showing distribution of *Hentzia antillana* (closed circles) and *H. tibialis* (open circles).

*Hentzia tibialis* Bryant

Figs. 44-51, Map 3

*Balmaceda peckhami* Bryant 1940:464 (holotype female from Soledad, Cuba, in MCZ examined - *Hentzia peckhami* preoccupied by *Anoka p.* Cockerell 1893). NEW SYNONYMY.

*H. tibialis* Bryant 1940:498 (holotype male from Soledad, Cuba, in MCZ examined, allotype female = *H. chekika* n. sp.).

**Diagnosis.**—Males differ from all other *Hentzia* spp. in having a truncated tibial apophysis on the palpus (Fig. 47). Otherwise they resemble *H. palmarum* in general structure. The apparent female is *Balmaceda peckhami* Bryant. The female paired by Bryant (1940) with *H. tibialis* is *H. chekika* n. sp. The female of *H. tibialis* differs from all other *Hentzia* in having wide spaced openings in the epigynal plate and in the structure of the spermathecal ducts (Figs. 48-51).

**Male.**—Total length 3.90-4.92. Carapace 1.35-1.89 long, 1.35-1.80 wide, 0.70-0.86 high at PLE. Ocular area 0.70-0.82 long, 1.05-1.23 wide anteriorly and 1.10-1.31 wide posteriorly. Chelicerae 0.90-1.89 long, 0.35-0.53 wide (five males from Cuba). PME closer to ALE than to PLE. Leg formula 1432 (leg 3 and 2 very close in length). Carapace red-brown with white hairs laterally. Black around eyes except dark brown around AME. Clypeus red-brown. Chelicerae red-brown with anterolateral dark brown line. Fang black with distal 1/4 yellow. Endites and labium dark brown. Sternum orange. Abdomen orange-brown covered with

iridescent scales, white laterally. Venter brown; epigastric furrow with lateral orange streaks. First legs red-brown, darker anteroventrally. Tarsi yellow. Other legs orange. Pedipalpi yellow; bulb very dark, almost black.

**Female.**—Total length 3.40-4.65. Carapace 1.40-1.70 long, 1.10-1.38 wide, 0.60-0.80 high at PLE. Ocular area 0.65-0.85 long, 0.95-1.18 wide anteriorly and 1.00-1.25 wide posteriorly. Chelicerae 0.40-0.50 long, 0.25-0.35 wide (seven females from Cuba). PME closer to ALE than to PLE. Leg formula 1423 (leg 1 and leg 4 close in length). Carapace orange-brown with white scales and hairs laterally. Black around eyes except brown around AME. Clypeus covered with white hairs. Chelicerae orange to red-brown. Endites and labium orange-brown with lighter tips. Sternum orange to brown. Abdomen yellow with darker brown central band of block-like markings. Lateral areas with brown blotches. Venter yellow. First legs yellow-brown, darker around distal patellae, tibiae and metatarsi; tarsi yellow. Other legs yellow. Pedipalpi yellow with proximal half annulae except on femora.

**Distribution.**—Known only from Cuba (Map 3).

**Natural history.**—Males collected from May and July-September. Females collected from February and July.

**Specimens examined.**—CUBA: Habana (MCZ), Luis Lazo (MCZ), Pinar del Rio (AMNH), San Vicente (AMNH), Soledad (MCZ).

### *Hentzia audax* Bryant

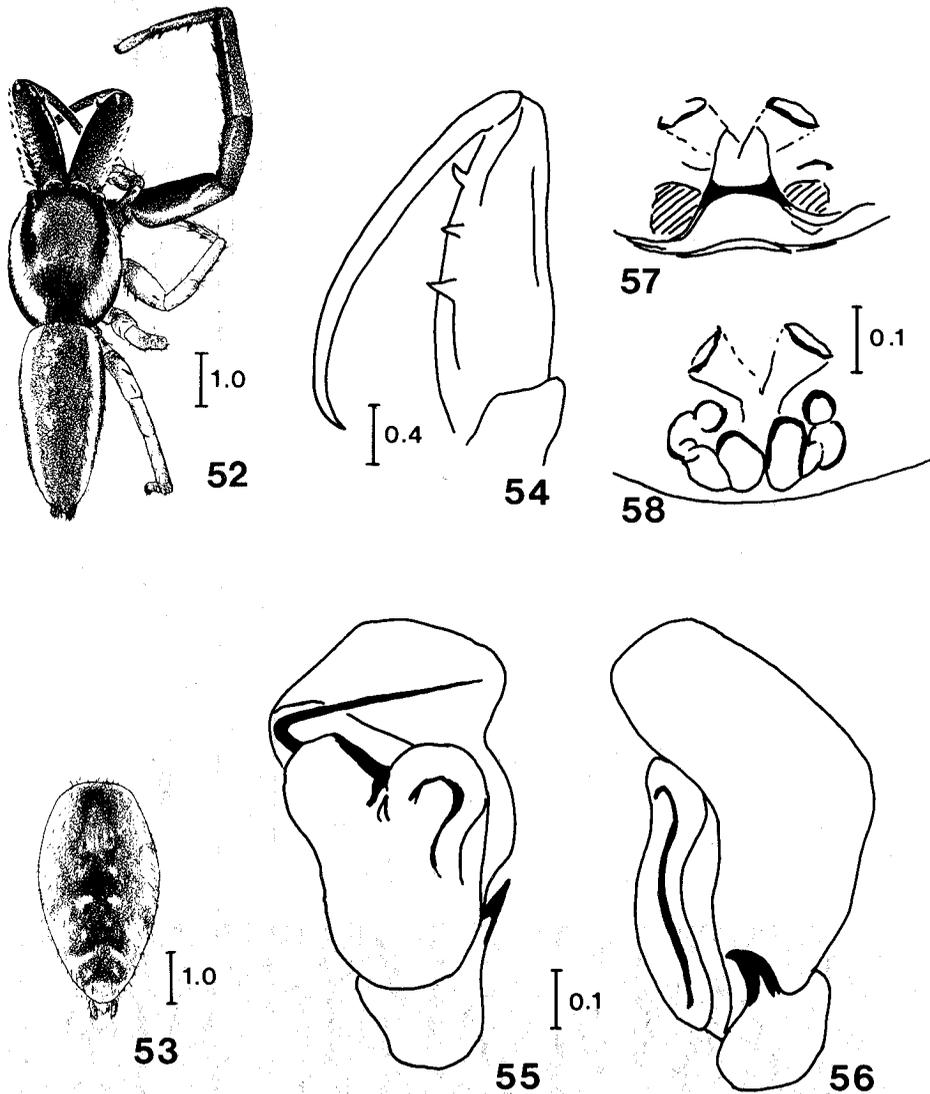
Figs. 52-58, Map 4

*Hentzia audax* Bryant 1940:496 (holotype male and allotype female from Pico Turquino, Cuba in MCZ examined).

**Diagnosis.**—Males differ from other members of the genus, except *H. cubana*, by the curved and often massive tibial apophysis on the palpus (Figs. 55, 56) and the pattern of cheliceral teeth (Fig. 54). It differs from *H. cubana* in being much larger (over 5.25 mm as opposed to 3-4 mm) and in the structure of the palp (Figs. 55, 56). The female epigynum differs from that of *H. cubana* in having trumpet-like straight lateral tubes, with slit-like openings (Figs. 57, 58).

**Male.**—Total length 5.30-6.00. Carapace 2.30-2.54 long, 1.90-2.10 wide, 0.90-1.10 high at PLE. Ocular area 0.90-1.10 long, 1.35-1.45 wide anteriorly, 1.45-1.60 wide posteriorly. Chelicerae 1.60-2.40 long, 0.60-0.66 wide (six males from Pico Turquino, Cuba). PME closer to ALE than to PLE. Leg formula 1423. Carapace red-brown, with yellow area between eyes and dark around eyes. White scales laterally. Clypeus and chelicerae red-brown. Endites and labium light red-brown. Sternum light red-brown to yellow-brown. Abdomen yellow-brown with an iridescent sheen caused by scales. Faint dorsal markings, lateral white lines. Venter yellow. First legs red-brown, slightly lighter on dorsal proximal femora and on tarsi. Other legs yellow. Pedipalpi red-brown, cymbium darker.

**Female.**—Total length 6.07-6.80. Carapace 2.20-2.21 long, 1.80-2.00 wide, 1.10-1.15 high at PLE. Ocular area 0.90-1.05 long, 1.39-1.45 wide anteriorly and 1.64-1.65 wide posteriorly. Chelicerae 0.82-0.90 long, 0.49-0.60 wide (two females Pico Turquino, Cuba). PME slightly closer to ALE than to PLE. Leg formula 1423.



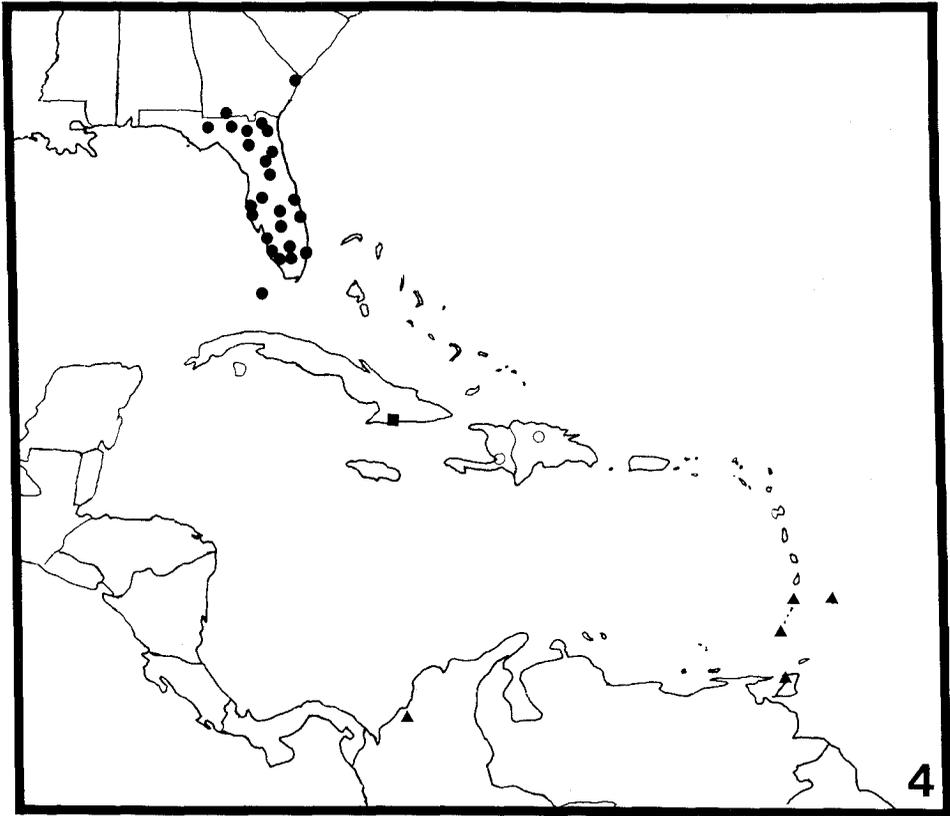
Figures 52-58.—*Hentzia audax* Bryant, types from Pico Turquino, Cuba: 52, 53, paratypes; 52, male, dorsal view; 53, female, dorsal view of abdomen; 54, left chelicera of male holotype, ventral view; 55, 56, palp of male paratype; 55, ventral view; 56, retrolateral view; 57, 58, epigynum of female paratype; 57, ventral view; 58, dorsal view.

Carapace red-brown; yellow areas between eyes; eyes dark. Chelicerae red-brown. Endites and labium red-brown. Sternum yellow-brown. Abdomen yellow with central pattern of brownish anterior paired streaks, followed by three central streaks or triangles. Venter yellow. First legs red-brown. Other legs yellow. Pedipalpi red-brown with yellow tips.

**Distribution.**—Known only from mountains and coast of southeastern Cuba. (Map 4)

**Natural history.**—Males and females collected in June.

**Specimens examined.**—CUBA: Pico Turquino (MCZ), coast below Pico Turquino (MCZ).



Map 4.—West Indies and Florida, showing distribution of *Hentzia grenada* (closed circles), *H. mandibularis* (open circles), *H. audax* (closed squares), and *H. vernalis* (closed triangles).

*Hentzia cubana*, new species

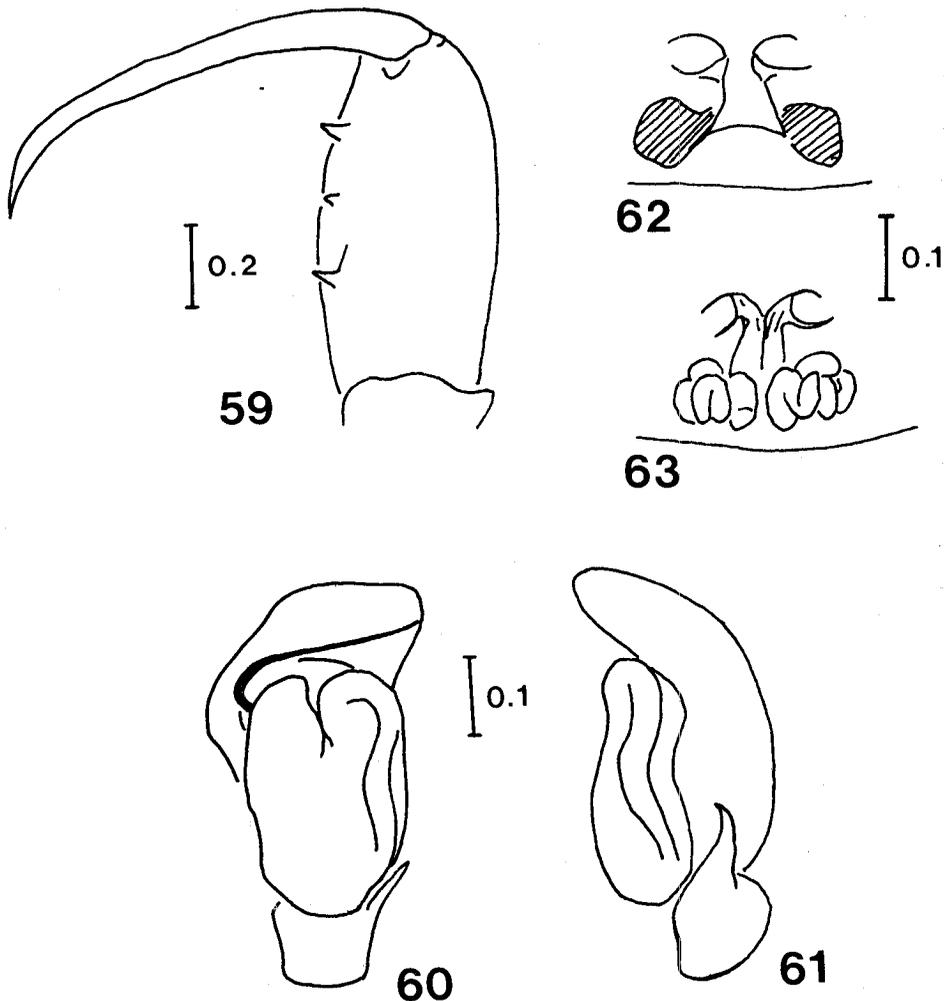
Figs. 59-63, Map 5

**Types.**—Holotype male and allotype female from Soledad, Cuba (August 1931, N. Banks) deposited in the Museum of Comparative Zoology.

**Etymology.**—The name is derived from the island on which the species occurs.

**Diagnosis.**—Males differ from all other species of *Hentzia* except *audax* in having a hooked tibial apophysis combined with nearly equidistant cheliceral teeth. They differ from *H. audax* in being much smaller (less than 4 mm), in the more slender tibial apophysis of the male pedipalp (Figs. 60, 61), and in the associated females. Females differ from all other species in the details of the epigynum (Figs. 62, 63). This species may prefer the lowlands more than *H. audax*.

**Male.**—Total length 3.25-3.75. Carapace 1.35-1.55 long, 1.10-1.30 wide, 0.60-0.75 high at PLE. Ocular area 0.60-0.75 long, 0.90-1.10 wide anteriorly and 1.00-1.12 wide posteriorly. Chelicerae 0.40-1.10 long, 0.30-0.42 wide (seven males from Soledad, Cuba). PME closer to ALE than to PLE. Leg formula 1423. Carapace red-brown with lateral white scales. Black around eyes except red-brown around AME. Clypeus covered with white hairs. Chelicerae red-brown. Endites very dark, with anterolateral edge white. Labium dark brown, tip white. Sternum



Figures 59-63.—*Hentzia cubana* n. sp. from Cuba: 59, left chelicera of male, ventral view; 60, 61, palp of male from Soledad, 60, ventral view; 61, retrolateral view; 62, 63, epigynum of female; 62, ventral view; 63, dorsal view.

orange. Abdomen brown, with shiny scales; laterally lighter. Venter light brown. First legs red-brown; tarsus and metatarsus lighter and metatarsus with slightly darker distal end. Other legs yellow-orange. Pedipalps orange-brown, cymbium lighter.

**Female.**—Total length 4.20-5.00. Carapace 1.55-1.90 long, 1.28-1.60 wide, 0.65-0.75 high. Ocular area 0.70-0.80 long, 1.08-1.20 wide anteriorly and 1.10-1.30 wide posteriorly. Chelicerae 0.40-0.55 long, 0.30-0.40 wide (five females from Soledad, Cuba). PME equidistant between ALE and PLE. Leg formula 1423. Carapace orange-brown; white scales laterally. Black around eyes except brown around AME. Clypeus covered with white hairs. Chelicerae orange. Endites and labium dark brown, with pale tips. Sternum dark brown. Abdomen yellowish with brown central band; central band with two light streaks forming inverted "V" anteriorly, followed by lateral notches near middle and narrowing into a triangular and then block-like mark toward posterior. Venter yellow. First legs



Map 5.—West Indies, showing distribution of *Hentzia whitcombi* (closed circles), *H. cubana* (open circles), *H. squamata* (closed square), and *H. calypso* (closed triangles).

orange-brown with tarsus-metatarsus lighter; metatarsus with darker distal ring. Other legs yellow-orange. Pedipalpi yellow with dark dorsal markings on proximal tarsus and tibia.

**Distribution.**—Known only from Cuba (Map 5).

**Natural history.**—Males collected in February-March, May, July-September and November. Females in February-March and July-August. As in other tropical species, adults are probably found throughout the year.

**Specimens examined.**—CUBA: Buenos Aires (MCZ), Cienaga de Zapata (MCZ), Habana (MCZ), Pinar del Rio (MCZ), Punta San Juan (MCZ), Soledad (MCZ), 5 mi. E of Soledad (MCZ), Trinidad Mountains (MCZ).

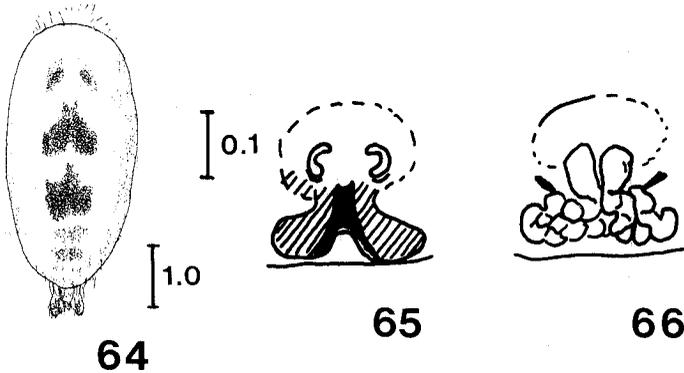
*Hentzia pima*, new species

Figs. 64-66, Map 1

**Types.**—Holotype female from Brown Canyon, Baboquivari Mountains, Pima Co., Arizona (8 June 1958, W. J. Gertsch) deposited in the American Museum of Natural History. The male is not known.

**Etymology.**—The name is derived from the American Indian tribe which also gave the name to the county.

**Diagnosis.**—Different from all other members of the genus in the c-shaped



Figures 64-66.—*Hentzia pima* n. sp., female holotype from Brown Canyon, Baboquivari Mts., Pima Co., Ariz.; 64, dorsal view of abdomen; 65, 66, epigynum; 65, ventral view; 66, dorsal view.

epigynal openings (Figs. 65, 66). Dorsal abdominal pattern (Fig. 64) similar to other members of the *palmarum* group.

**Female.**—Total length 5.61. Carapace 2.12 long, 1.77 wide, 0.89 high at PLE. Ocular area 0.89 long, 1.30 wide anteriorly and 1.48 wide posteriorly. Chelicerae 0.77 long, 0.47 wide (only holotype). PME closer to ALE than to PLE. Leg formula 1423. Carapace orange with scattered black hairs and white scales laterally. Dark around eyes. Clypeus covered with white hairs. Chelicerae orange, red-brown ventrally. Endites red-brown with white prolateral edges. Labium red-brown. Sternum orange. Abdomen yellow with distinctive brown markings consisting of two curved v-shaped marks in center of dorsum (Fig. 64). First legs orange. Other legs and pedipalpi yellow.

**Distribution.**—Known only from southern Arizona (Map 1).

**Natural history.**—Holotype collected in June.

**Specimens examined.**—Only from the type locality (AMNH).

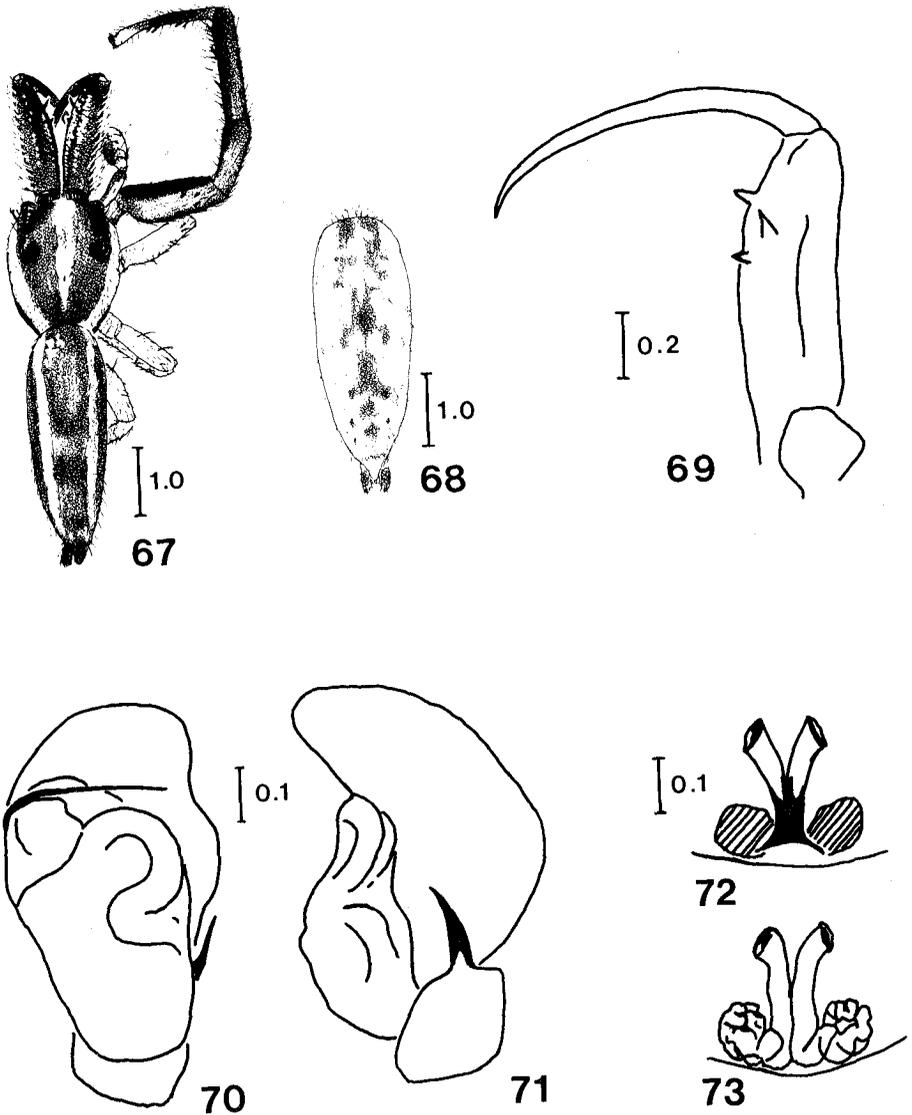
### GRENADA SPECIES GROUP

The *grenada* species group consists of only three species, *H. grenada*, *H. chekika* and *H. poenitens*. They have distinctive female epigyna (Figs. 72, 73, 78, 79, 85, 86), with elongate to short J-shaped tubes leading to the spermathecae. Males of *H. grenada* differ from other members of the species group and from all other known *Hentzia* males by having a sperm tube loop in the bulb (Figs. 70, 71). It also differs from the other two species in the species group by the length of the female J-shaped tubes. The possible relationship of these three species is indicated on the cladogram (Fig. 15). Both *H. grenada* and *H. chekika* are very elongate, with moderately long chelicerae in large males. *Hentzia poenitens* is one of the smallest of the species of *Hentzia* and is widely separated geographically from the other species, being found in Sonora on the west coast of Mexico.

#### *Hentzia grenada* (Peckham and Peckham)

Figs. 67-73, Map 4

*Anoka grenada* Peckham and Peckham 1894:126 (holotype male from "New Grenada" in MCZ examined).



Figures 67-73. *Hentzia grenada* (Peckham and Peckham): 67, 68, 70-73, from Highlands Co., Fla.; 67, male, dorsal view; 68, female, dorsal view of abdomen; 69, left chelicera of holotype male from "New Grenada", ventral view; 70, 71, palp of male; 70, ventral view; 71, retrolateral view; 72, 73, epigynum of female; 72, ventral view; 73, dorsal view.

*Wala grenada* Banks 1904:138; Peckham and Peckham 1909:507.

*H. grenada* Roewer 1954:1217.

**Diagnosis.**—Males differ from all other members of the genus by the presence of a loop in the sperm duct as viewed from the retromargin of the palpal bulb (Figs. 70, 71). Females have a characteristic epigynal structure, including two long, slightly J-shaped ducts (Figs. 72, 73). Both males and females have very elongate bodies and males possess a white band on the central dorsal carapace which widens toward the eyes (Fig. 67). Only *H. chekika* has a similar appearance, but the latter species is larger, lives on tall palm trees and differs in

lacking the loop on the bulb of the male palpus and in the structure of the female epigynum.

**Male.**—Total length 4.08-5.70. Carapace 1.58-1.80 long, 1.20-1.70 wide, 0.66-0.80 high at PLE. Ocular area 0.65-0.90 long, 1.00-1.23 wide anteriorly and 1.00-1.23 wide posteriorly. Chelicerae 0.90-1.80 long, 0.30-0.48 wide (10 males from Highlands and Martin counties, Florida). PME slightly closer to ALE than to PLE. Leg formula 1423. Carapace red-brown with central band of white scales and hairs widening toward AME. Lateral white band followed by marginal dark band. Black around eyes except brown around AME. Clypeus covered with white hairs. Chelicerae dark red-brown, fangs lighter on distal 1/3. Endites and labium dark brown. Sternum orange. Abdomen yellow dorsally with red-brown markings (Fig. 67). Venter light brown with lateral areas lighter. First legs yellow with red-brown prolateral and retrolateral femora, distal patellae, distal and proximal tibiae. Other legs yellow. Pedipalpi red-brown with cymbium yellow.

**Female.**—Total length 4.10-5.50. Carapace 1.60-2.00 long, 1.20-1.52 wide, 0.55-0.80 high at PLE. Ocular area 0.70-0.90 long, 1.00-1.22 wide anteriorly and 1.05-1.28 wide posteriorly. Chelicerae 0.40-0.60 long, 0.28-0.42 wide (10 females from Highlands and Martin counties, Florida). PME slightly closer to ALE than to PLE. Leg formula 1423. Carapace orange, darker laterally back of eyes and lighter down middle and in band along either side. Margin line black. Black around eyes except brown around AME. Clypeus covered with white hairs. Chelicerae orange-brown. Endites and labium orange-brown with light distal tips. Sternum yellow. Abdomen yellow with brown markings (Fig. 68). Venter yellow. First legs yellow with brown retrolateral streak on femora and dark spots on the promargin of femora, distal and prolateral patellae, and distal and proximal tibiae. Other legs yellow. Pedipalpi yellow with dorsal spots on proximal patellae, tibiae and tarsi.

**Distribution.**—Florida and south Georgia (Map 4).

**Discussion.**—It appears that the type specimen of this species was mislabeled at some point, as it matches perfectly with males from Florida but does not compare with any specimens known from Central America, northern South America or the West Indies. New Grenada is now the modern state of Colombia. A similar problem was discovered with two of Keyserling's types (see *H. vittata*).

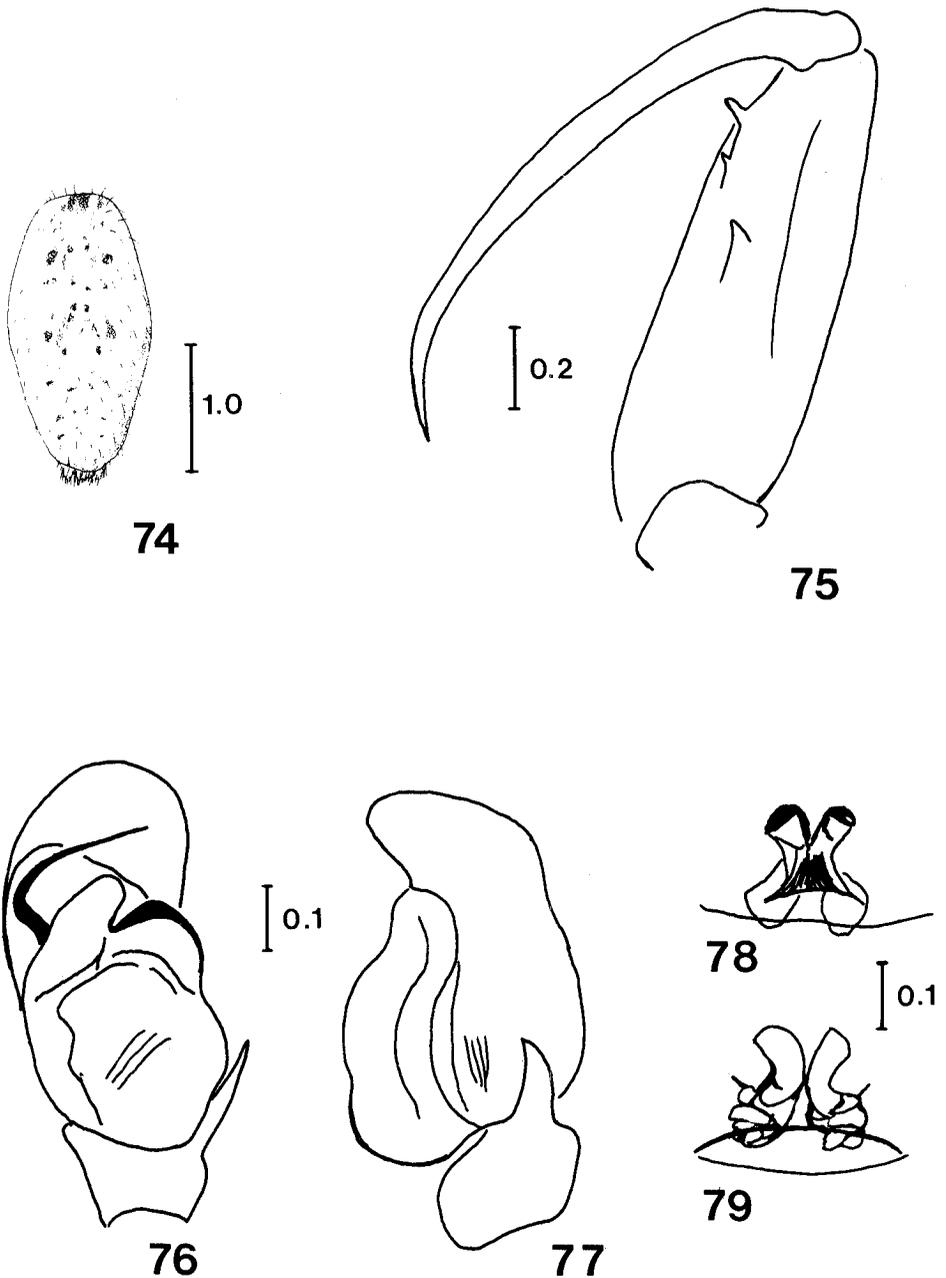
**Natural history.**—Males have been collected in every month but October and females from every month but January, August and October. There are thus probably adults throughout the year. The courtship is quite similar to that of *H. palmarum* and males will readily mate with females of the latter species under laboratory conditions (Richman 1982). Hybrids are unknown in the wild and immatures from crosses were not successfully raised in the laboratory.

**Specimens examined.**—U.S.A.: (County records only) FLORIDA; *Alachua* (FSCA), *Baker* (FSCA), *Collier* (AMNH, FSCA, MCZ), *Dade* (FSCA, MCZ), *Duval* (FSCA), *Gadsden* (FSCA), *Glades* (FSCA), *Hamilton* (AMNH), *Highlands* (AMNH, DBR, FSCA), *Hillsborough* (FSCA), *Indian River* (AMNH, FSCA), *Lake* (AMNH), *Lee* (AMNH), *Manatee* (DBR), *Marion* (FSCA), *Martin* (FSCA), *Monroe* (AMNH, FSCA, MCZ), *Pinellas* (FSCA), *Nassau* (FSCA), *Putnam* (FSCA). GEORGIA; *Chatham* (USNMNH), *Lowndes* (AMNH).

### *Hentzia poenitens* (Chamberlin)

Figs. 74-79, Map 1

*Wala poenitens* Chamberlin 1924:680 (holotype male from Guaymas, Sonora, consisting of only the right palpus, in MCZ examined).



Figures 74-79.—*Hentzia poenitens* (Chamberlin) from Sonora, Mexico: 74, female from Los Algodones, dorsal view of abdomen; 75, left chelicera of male from Guaymas, ventral view; 76, 77, palp of male from Guaymas, 76, ventral view; 77, retrolateral view; 78, 79, epigynum of female from Los Algodones; 78, ventral view; 79, dorsal view.

*H. poenitens* Roewer 1954:1218.

**Diagnosis.**—Male palpus with slanted anterior bulb (Fig. 76) and internal structure of female epigynum with short J-shaped ducts diagnostic (Fig. 79). The smallest member of the genus other than *H. calypso*. Lacking markings.

**Male.**—Total length 3.60. Carapace 1.59 long, 1.30 wide, 0.65 high at PLE. Ocular area 0.71 long, 0.94 wide anteriorly and 1.06 wide posteriorly. Chelicerae 1.18 long, 0.41 wide (one male from Guaymas, Sonora). PME closer to ALE than to PLE. Leg formula 1423. Carapace orange with scattered black hairs; white scales laterally. Eyes as in other species of the group. Clypeus covered with white hairs. Chelicerae brown, darker and mottled ventrally; with corrugated iridescence. Endites brown, lighter toward prolateral edge. Labium brown, lighter anteriorly. Sternum yellow. Abdomen yellow with no markings. First legs yellow; femora dark brown laterally and ventrally with scattered white scales and dorsal yellow stripe. Other segments darker ventrally, lighter dorsally. Other legs yellow. Pedipalps brown mottled with yellow, tips yellow.

**Female.**—Total length 3.30-4.00. Carapace 1.36-1.50 long, 1.13-1.20 wide, 0.57-0.62 high at PLE. Ocular area 0.60-0.66 long, 0.82-0.90 wide anteriorly and 0.90-0.98 wide posteriorly. Chelicerae 0.35-0.45 long 0.24-0.35 wide (four females from Sonora, Mexico). PME closer to ALE than to PLE. Leg formula 1432. Carapace orange, black around eyes, lighter laterally. Clypeus with white hairs. Chelicerae red-brown. Endites and labium red brown. Sternum yellow-brown. Abdomen yellow, occasionally with faint central stripe. All legs yellow-brown. Pedipalpi yellow with proximal dorsal dark spots on all segments.

**Distribution.**—Known only from Sonora, Mexico (Map 1).

**Natural history.**—Males collected in April and July, females in March and August.

**Specimens examined.**—MEXICO: SONORA; Guaymas (AMNH, MCZ), 4-8 mi. S Peon (FSCA), 6 mi. N San Carlos Bay (UCB).

### *Hentzia chekika*, new species

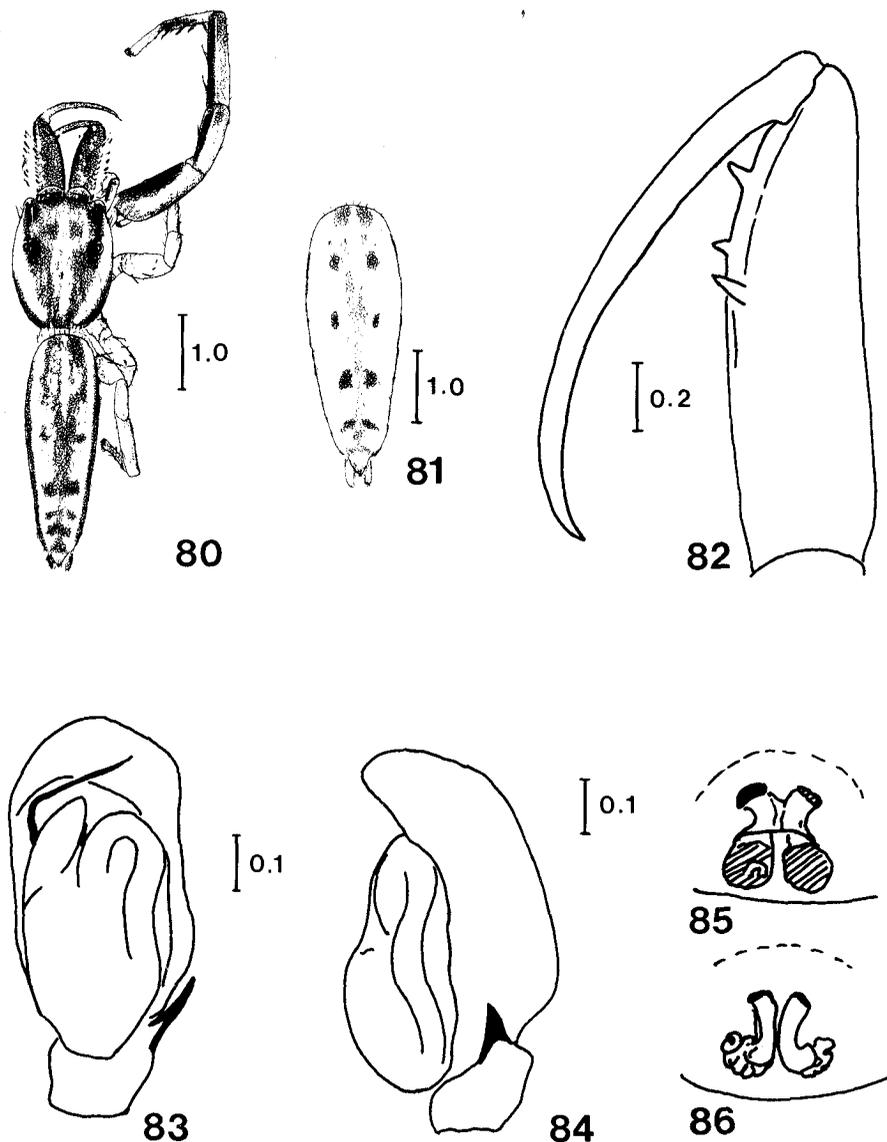
Figs. 80-86, Map 6

**Types.**—Male holotype and female allotype from Matheson Hammock Park, Miami, Dade Co., Florida (7 May 1985; G. B. Edwards), deposited in the FSCA. Male and female paratypes in the FSCA, AMNH and MCZ.

**Etymology.**—The specific name refers to one of the last chiefs of the Calusa Indians of south Florida.

**Diagnosis.**—*Hentzia chekika* is one of the largest of the *Hentzia* species; members of both sexes usually being over 5 mm in length. Males resemble those of *H. grenada*, but are larger, lack the loop on the retromargin of the palpal bulb (Figs. 83, 84), have a distinctive pattern of elongated spots connected with a central tree-like marking on the dorsal abdomen (Fig. 80), and the epigynum has longer J-shaped ducts than *H. poenitens*, but much shorter than those of *H. grenada* (Fig. 86).

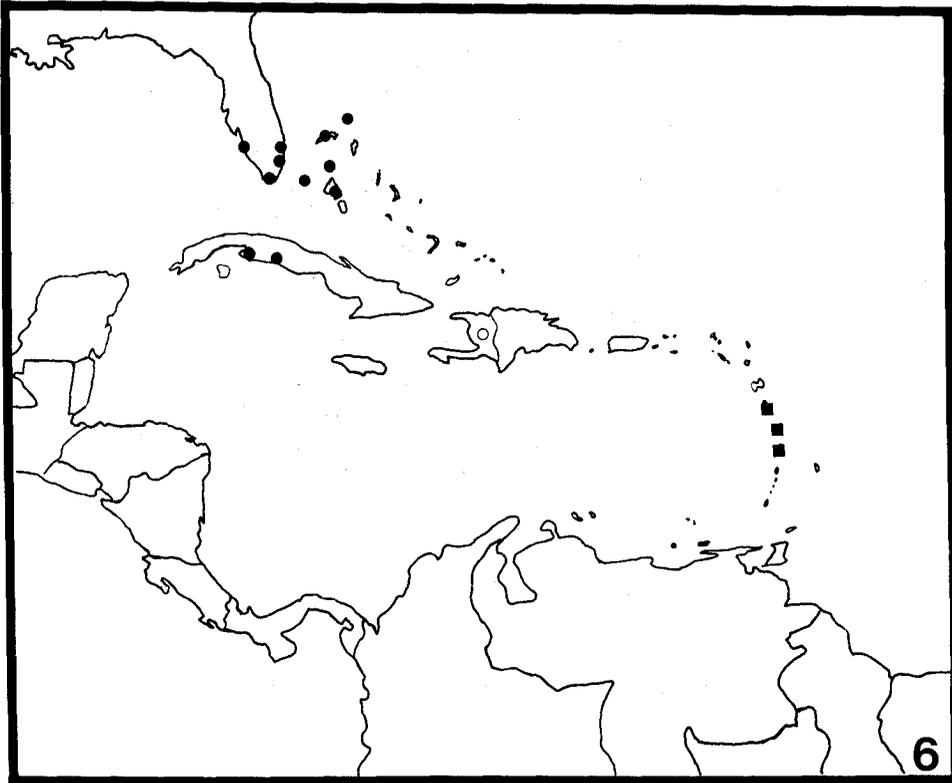
**Male.**—Total length 4.35-6.30. Carapace 1.70-2.30 long, 1.25-1.80 wide, 0.65-1.00 high at PLE. Ocular area 0.70-1.05 long, 1.10-1.45 wide anteriorly and 1.05-1.45 wide posteriorly. Chelicerae 0.70-2.00 long, 0.33-0.50 wide (10 males from Dade Co., Florida, and 1 male from Cuba). PME closer to ALE than to PLE. Leg formula 1423. Carapace yellow-brown with red-brown bands on either side. Dorsum with narrowing central band of white hairs nearly reaching AME. White spots of hairs between anterior eyes; otherwise black around eyes except brown around AME. Lateral white bands followed by black margin around carapace.



Figures 80-86.—*Hentzia chekika* n. sp.: 80-84, from Dade Co., Fla., 80, male, dorsal view; 81, female, dorsal view of abdomen; 82, left chelicera of male, ventral view; 83, 84, palp of male; 83, ventral view; 84, retrolateral view; 85, 86, epigynum of female from Soledad, Cuba; 85, ventral view; 86, dorsal view.

Clypeus covered with white hairs. Chelicerae red to yellow brown, iridescent, often darker prolaterally. Fang of holotype with distal 1/4 lighter. Endites brown, holotype with light prolateral 1/2. Labium brown. Sternum orange. Abdomen yellow-brown with distinctive darker pattern (Fig. 80). Venter yellow. First legs yellow-brown, dark brown anteroventrally except tarsi and metatarsi. Metatarsi brown, darker distally. Tarsi yellow. Other legs yellow. Pedipalpi yellow; bulb brown and proximal brown bands on patellae and tibiae.

**Female.**—Total length 4.60-7.00. Carapace 1.90-2.40 long, 1.35-1.80 wide, 0.65-0.90 mm high. Ocular area 0.85-1.00 long, 1.20-1.40 wide anteriorly, 1.20-1.40



Map 6.—West Indies and Florida, showing distribution of *Hentzia chekika* (closed circles), *H. zombia* (open circles), and *H. footei* (closed squares).

wide posteriorly. Chelicerae 0.50-0.80 long, 0.40-0.50 wide (11 females from Dade Co., Florida, and 6 from Cuba). PME closer to ALE than to PLE. Leg formula 1423. Carapace orange with brown lateral area, followed by orange and then a black margin. White hairs scattered throughout. Black around eyes except brown around AME. Clypeus covered with white hairs. Chelicerae red-brown. Endites red-brown, lighter medially. Labium red-brown, lighter anteriorly. Sternum orange to yellow with dark lateral bands in allotype. Abdomen yellow with brown pattern (Fig. 71). Venter yellowish. First legs orange with brown prolateral femora and patellae, dark brown distal band on tibiae and metatarsi, white scales on proventral femora. Other legs yellow to orange. Pedipalpi yellow-orange with dark dorsal bands on proximal tibiae, patellae and tarsi.

**Distribution.**—Florida, Bahamas and Cuba (Map 6).

**Natural history.**—Males have been collected from March to May, July to September, November to December. Females from January, March, May to August and November. Probably both sexes can be collected in any month of the year. Records which include habitat data indicate that this species is found primarily on tall feather palms such as *Cocos nucifera* and *Roystonea regia*.

**Specimens examined.**—BAHAMAS: Abaco Cays (AMNH), Andros (AMNH), Freeport (AMNH), Grand Bahama (AMNH), North Bimini (AMNH), Stirrup Cay (FSCA). CUBA: Soledad (MCZ), Cienaga de Zapata (MCZ). U.S.A.: FLORIDA; *Broward Co.*, Ft. Lauderdale (FSCA); *Dade Co.*, Miami-Doral Country Club (FSCA), Matheson Hammock (FSCA), Kendall (AMNH), Crandon Park (AMNH), Perrine (AMNH); *Lee Co.*, Sanibel Island (MCZ). *Monroe Co.*, Flamingo (FSCA).

### VERNALIS SPECIES GROUP

This group takes the name of its most aberrant member by virtue of priority. *Hentzia vernalis* appears to have been derived from *footei*-like ancestors, based on the structure of the male palpi and chelicerae (Figs. 89-92, 96-99). All members of this species group have truncated retromarginal teeth in the male which distinguishes them from all other species in the genus (Figs. 89, 90, 96, 97, 104, 109). Most large males in this species group, with the possible exception of *H. footei*, have very elongate chelicerae. The four species in this group, *H. vernalis*, *H. footei*, *H. antillana* and *H. whitcombi* (n. sp.) range from Cuba to Colombia. The two species pairs within the species group (Fig. 15) can be separated by the structure of the retromarginal teeth of the males. Both *H. vernalis* and *H. footei* have relatively short, straight, truncated or (rarely) bifurcate retromarginal teeth (Figs. 89, 90 and 96, 97), whereas *H. antillana* and *H. whitcombi* have angled and truncate retromarginal teeth (Figs. 104, 109). The species can be further divided by the structure of the epigyna and arrangement of cheliceral teeth.

#### *Hentzia vernalis* (Peckham and Peckham)

Figs. 87-94, Map 4

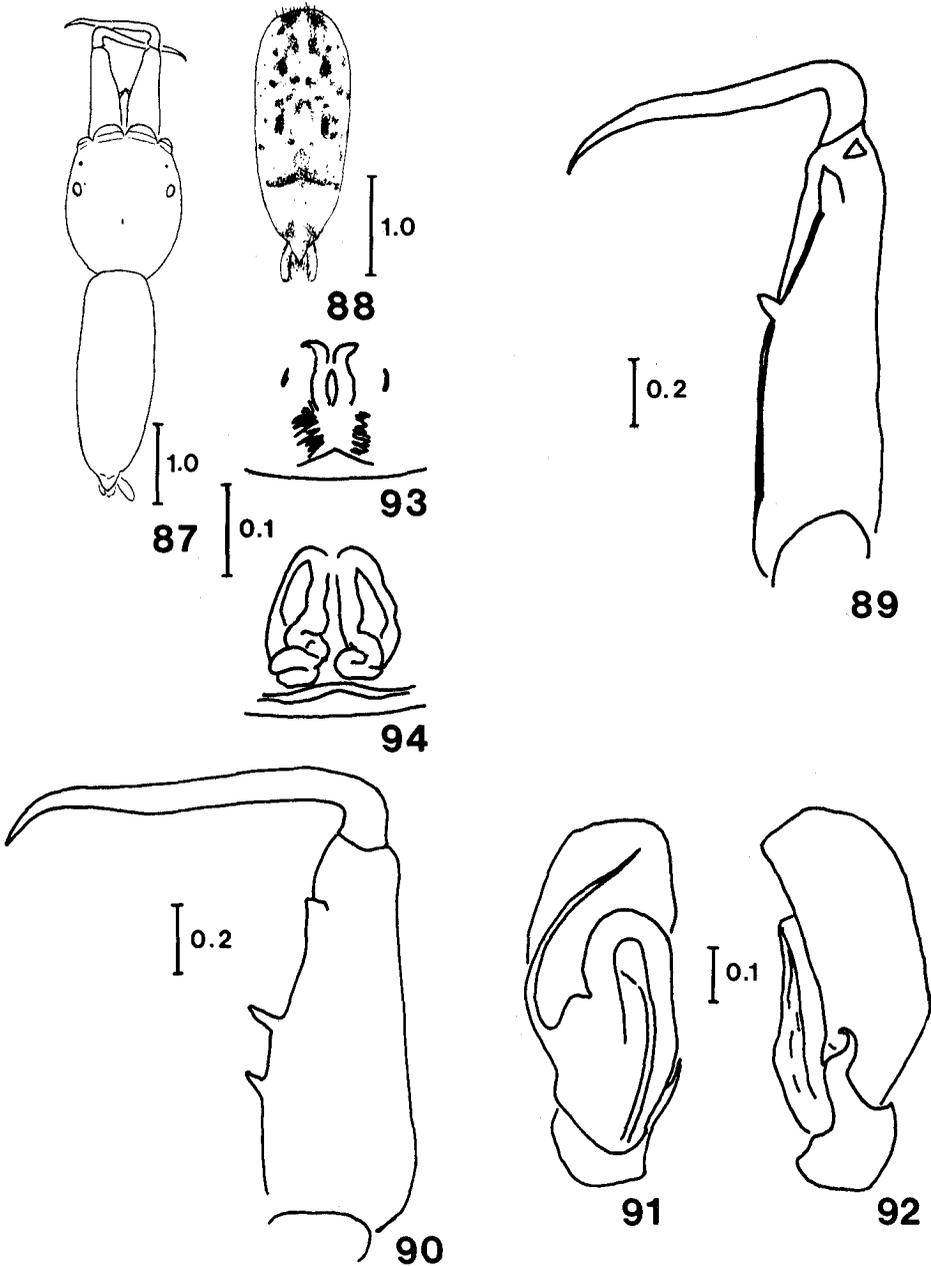
*Anoka vernalis* Peckham and Peckham 1893:701 (holotype male from St. Vincent in the MCZ examined).

*H. vernalis* Roewer 1954:1218.

**Diagnosis.**—Males are unlike any other *Hentzia* in the structure of their chelicerae (Figs. 89, 90) and their palpi (Figs. 91, 92). They appear to form the most extreme end of the spectrum for their species group. The females have hair pencils like other *Hentzia*, but the epigynum is unlike any other member of the genus in that there appears to be two tubes on either side (Figs. 93, 94).

**Male.**—Total length 3.75-4.85. Carapace 1.55-2.00 long, 1.20-1.50 wide, 0.65-0.80 high at PLE. Ocular area 0.70-0.80 long, 1.05-1.25 wide anteriorly, 1.08-1.30 wide posteriorly. Chelicerae 0.85-1.50 long, 0.35-0.46 wide (7 males from St. Vincent, Trinidad, Grenada and Barbados). PME closer to ALE than to PLE. Leg formula 1423. Carapace orange, ocular area yellow with lateral white areas from posterior to eyes. Eyes surrounded by black, except AME red-brown. Clypeus covered with white hairs. Chelicerae orange. Endites, labium and sternum flesh-colored. Abdomen yellow with four vague darker spots. Venter yellow with two parallel darker lines. First legs orange. Other legs yellow. Pedipalpi yellow.

**Female.**—Total length 3.50-5.50. Carapace 1.40-1.90 long, 1.10-1.50 wide, 0.55-0.70 high at PLE. Ocular area 0.60-0.85 long, 0.95-1.20 wide anteriorly and 1.00-1.30 wide posteriorly. Chelicerae 0.30-0.60 long, 0.25-0.50 wide (six females from St. Vincent and Grenada). AME equidistant between ALE and PLE. Leg formula 1432. Carapace orange, black around eyes except brown around AME. Darker around lateral areas of carapace and dorsally to midline. Clypeus covered with white hairs. Chelicerae, endites and labium orange. Sternum yellow. Abdomen yellow with pattern of speckles followed by band 3/4 way to spinnerets, similar to that found on many *H. antillana* females. First legs yellow, slightly darker dorsally on distal patellae and tibiae. Other legs and pedipalpi yellow.



Figures 87-94.—*Hentzia vernalis* (Peckham and Peckham): 87, 89, 91-94, from St. Vincent; 87, holotype male, dorsal outline view; 88, female, dorsal view of abdomen; 89, left chelicera of holotype male, ventral view; 90, left chelicera of male from Barbados, ventral view; 91, 92, palp of holotype male; 91, ventral view; 92, retrolateral view; 93, 94, epigynum of female; 93, ventral view; 94, dorsal view.

**Distribution.**—Northern South America, Trinidad, Barbados, St. Vincent and Grenada (Map 4).

**Natural history.**—Males collected in April and August-September (Other specimens with no dates). Females in February and August-October. Probably found as adults all year.

**Specimens examined.**—**BARBADOS:** Barbados (USNMNH), Bridgetown (AMNH). **COLOMBIA:** Cienaga (FSCA), Mag. Tasajera (FSCA). **GRENADA:** Broadway (MCZ), St. Georges (AMNH). **ST. VINCENT:** Island record (MCZ), Kingston (AMNH). **TRINIDAD:** Port-of-Spain (MCZ).

*Hentzia footei* (Petrunkevitch)

Figs. 95-101, Map 6

*Wala footei* Petrunkevitch 1914:330 (holotype male from Dominica in AMNH examined).  
*H. footei* Roewer 1954:1217.

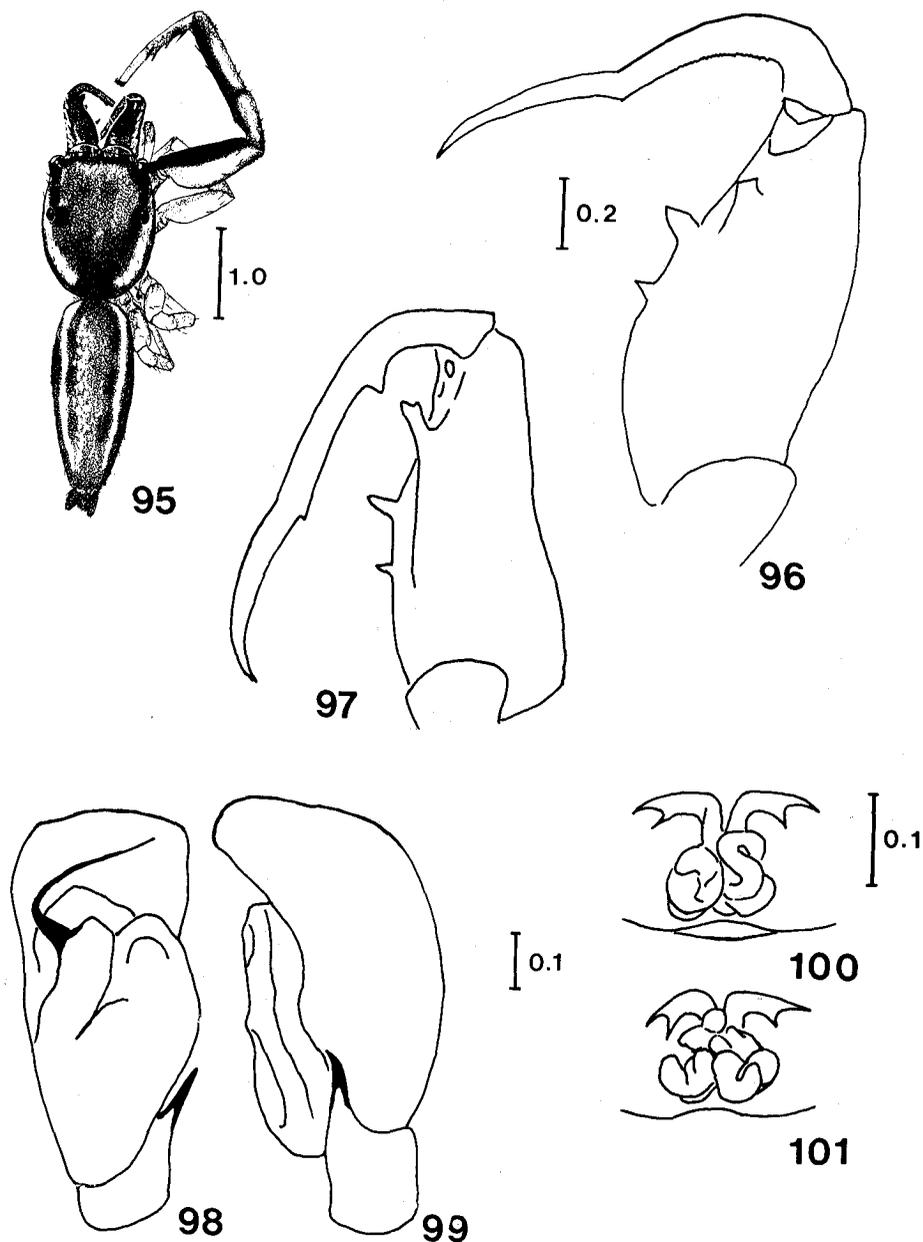
**Diagnosis.**—Males differ from all other *Hentzia* in having at least one tooth on the fang, and occasionally having a bifurcate retromarginal tooth (Figs. 96, 97). The female epigynal structure (Figs. 100, 101) differs from other *Hentzia* in having slender downturned tubes and deeply indented openings. In this character the epigynum is similar to that of *Anicius dolius*.

**Male.**—Total length 2.90-4.43. Carapace 1.30-1.89 long, 1.05-1.48 wide, 0.55-0.82 high at PLE. Ocular area 0.65-0.90 long, 0.93-1.23 wide anteriorly and 0.93-1.31 wide posteriorly. Chelicerae 0.42-1.07 long, 0.25-0.49 wide (10 males from Dominica, Martinique and St. Lucia). PME closer to ALE than to PLE. Leg formula 1423. Carapace red-brown; lighter scales and white band of hairs laterally. Black around eyes and margin. Clypeus dark brown. Chelicerae yellow to red-brown. Endites gray to dark brown with prolateral distal 1/3 cream. Labium dark brown with distal 1/6 cream. Sternum yellowish. Abdomen yellow-brown, slightly metallic, with indistinct cross bands (especially just anterior from spinnerets). Lateral dorsal white bands, followed by gray toward venter. Venter brown with two narrow posterior gray stripes. First legs yellow to red-brown with 1/2 prolateral and ventral femora, patellae and tibiae dark brown and proximal and distal patellae and tibiae dark brown. Tarsi sometimes with yellow tip. Holotype with only indistinct markings on first legs. Other legs yellow. Pedipalpi yellow with orange bulb with dark band or streak on distal femora.

**Female.**—Total length 4.70-5.05. Carapace 1.90-2.15 long, 1.48-1.68 wide, 0.75-0.80 high at PLE. Ocular area 0.85-0.90 long, 1.30-1.40 wide anteriorly and 1.30-1.45 side posteriorly. Chelicerae 0.50-0.60 long, 0.40-0.45 wide (three females from St. Lucia). PME closer to ALE than to PLE. Leg formula 1432. Carapace orange-brown. Black around eyes, except brown around AME. Clypeus covered with white hairs. Chelicerae orange brown. Endites red-brown with lighter prolateral anterior edge. Labium red-brown with lighter anterior 1/5. Sternum yellow. Abdomen yellow with brown central pattern. Anteriorly there is a yellow streak ending in a claw-like mark on the midline followed by a dark brown inverted V and three connected triangle decreasing in size ending at the spinnerets. Lateral to these markings the abdomen is spotted and blotched with brown. Venter yellow with dark triangular marking anterior to the spinnerets and black ring around spinnerets. First legs yellow-brown; prolateral brown bands on distal femora, patellae, tibiae and metatarsi, and proximal tibiae. Other legs yellow. Pedipalpi yellow.

**Distribution.**—Dominica, Martinique and St. Lucia in the southern Lesser Antilles (Map 6).

**Natural history.**—Males from January, June-July and October. Females from October. Probably found as adults all year.



Figures 95-101.—*Hentzia footei* (Petrunkevitch): 95, male from St. Lucia, dorsal view; 96, 97, left chelicerae of males; 96, holotype from Dominica, ventral view; 97, Martinique, ventral view; 98, 99, palp of holotype male from Dominica; 98, ventral view; 99, retrolateral view; 100, 101, epigynum of female from St. Lucia; 100, ventral view; 101, dorsal view.

**Specimens examined.**—BRITISH WEST INDIES: St. Lucia (MCZ). DOMINICA: Roseau (AMNH), Springfield (USNMNH). MARTINIQUE: Fond la Haye (AMNH), Pointe Ferret (AMNH).

*Hentzia antillana* Bryant

Figs. 102-108, Map 3

*Wala vernalis* Petrunkevitch 1930:139 (misidentification).*Hentzia antillana* Bryant 1940:494 (holotype male and allotype female from Antigua in MCZ examined).

**Diagnosis.**—Males can be distinguished from all other members of the genus except *H. whitcombi* n. sp. and some specimens of *H. footei* by the presence of a curved, truncated retromarginal tooth on the chelicerae. It can be distinguished from *H. whitcombi* by the pattern of promarginal teeth in relationship to the retromarginal tooth and from *H. footei* by the general structure of the chelicerae (Fig. 104). The female epigynal structure has characteristic trumpet-shaped tubes leading to the spermathecae (Fig. 108).

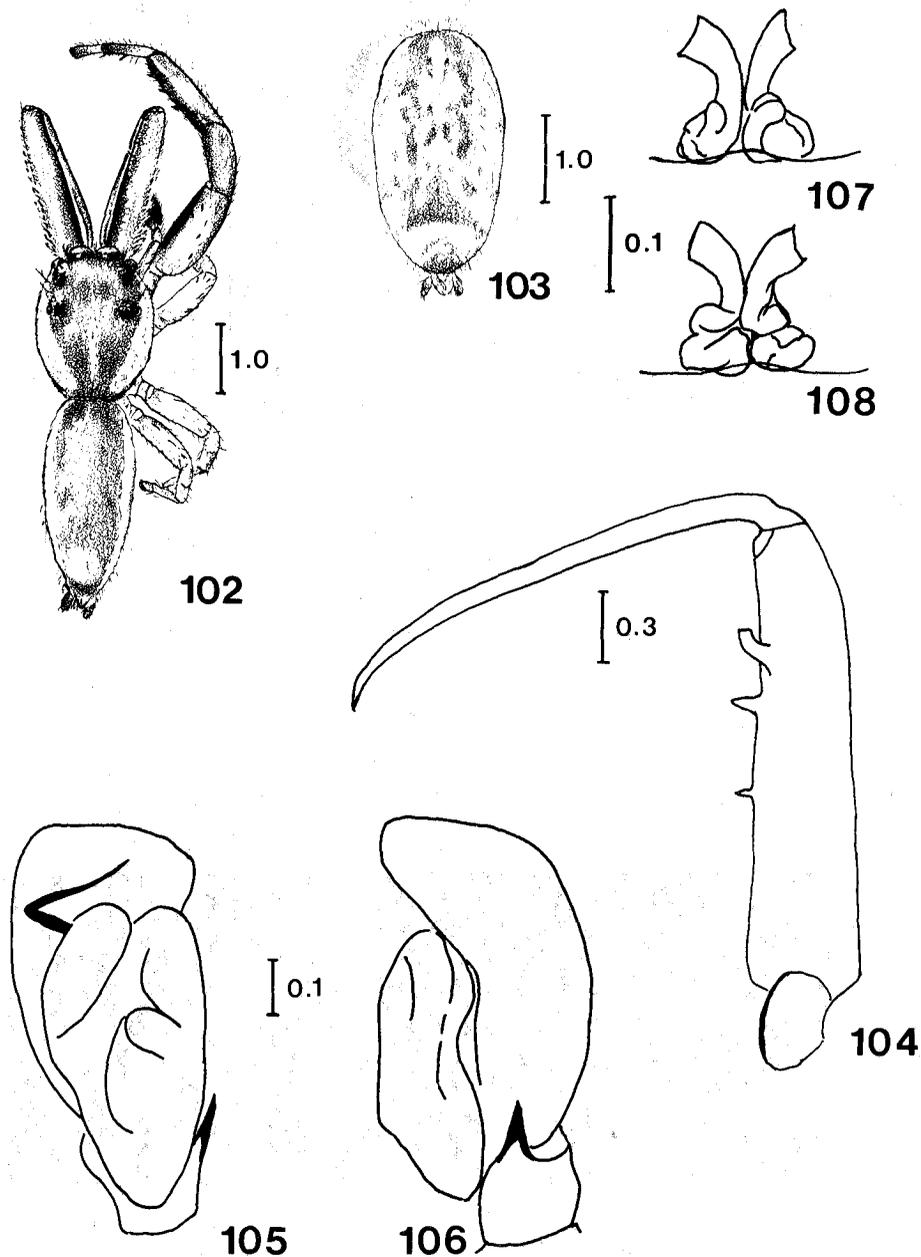
**Male.**—Total length 3.60-5.00. Carapace 1.50-2.00 long, 1.30-1.70 wide, 0.70-1.00 high at PLE. Ocular area 0.70-0.90 long, 1.00-1.25 wide anteriorly, 1.15-1.40 wide posteriorly. Chelicerae 1.10-2.00 long, 0.30-0.43 wide (10 males from Virgin Gorda, British Virgin Islands). PME slightly closer to ALE than to PLE. Leg formula 1423. Carapace red-brown with white hairs laterally. Dark around eyes. Clypeus with white hairs. Chelicerae yellow brown, promargin red-brown; fang darker. Endites red-brown with lighter inner edge. Labium dark brown. Sternum yellow-brown. Abdomen golden brown, slightly metallic. Venter and lateral areas yellow-gray. First legs yellow-brown; darker under pro-lateral femora, patellae and tibiae. Indistinct bands on distal patellae, tibiae and metatarsi. Other legs yellow. Pedipalpi red-brown; cymbium and bulb darker.

**Female.**—Total length 4.05-5.50. Carapace 1.50-2.10 long, 1.25-1.70 wide, 0.60-0.90 high at PLE. Ocular area 0.70-0.80 long, 1.00-1.30 wide anteriorly and 1.10-1.45 wide posteriorly. Chelicerae 0.45-0.80 long, 0.30-0.50 wide (10 females from Virgin Gorda, British Virgin Islands). PME closer to ALE than to PLE. Leg formula 1423. Carapace red-brown with lateral white hairs. Eyes dark. Clypeus with white hairs. Chelicerae red-brown. Endites red-brown with yellow pro-lateral tip. Labium red-brown. Sternum yellow-brown. Abdomen yellow with red-brown markings. A posterior dark band (also seen in *H. vernalis* and *H. squamata* females) is almost always present. First legs red-brown. Other legs yellow. Pedipalpi yellow; annulate at proximal joints.

**Distribution.**—West Indies from Dominica to Cuba (Map 3).

**Natural history.**—Males and females have been collected in every month but December. It is probably found in all months as adults. In Puerto Rico the species was common in citrus groves in May and was also occasionally swept from tall grass. In Guadeloupe they were abundant in citrus in February. It is sympatric with *H. whitcombi* over much of its range.

**Specimens examined.**—ANTIGUA: Antigua (MCZ, USNMNH), Crosbies (MCZ), St. Johns (AMNH), Shirley Heights (MCZ). BARBUDA: Codrington (AMNH). BRITISH VIRGIN ISLANDS: Amegada (AMNH, USNMNH), Beef Island (AMNH), George Dog Island (AMNH), Ginger Island (AMNH), Greater Thatch Island (AMNH), Green Cay (AMNH), Guana Island (AMNH, USNMNH), Little Comonoe (AMNH), Little Thatch Island (AMNH), Little Tobago (AMNH), Sandy Key (AMNH), Tortola (AMNH, MCZ, USNMNH), Virgin Gorda (AMNH, MCZ). BRITISH WEST INDIES: St. Kitts (MCZ), St. Lucia (MCZ), St. Nevis (MCZ). CUBA: Ceiba (AMNH). DOMINICA: country record (MCZ), Fond Sophie (AMNH), Roseau (AMNH); GUADELOUPE: Maire Galant (FSCA), Petit Bourg (FSCA), Pointe-a-Pitre (AMNH). HAITI: Port-au-Prince (MCZ). LEEWARD ISLANDS: Saint Maarten (AMNH), Saba (MCZ). MARTINIQUE:



Figures 102-108.—*Hentzia antillana* Bryant: 102, 103, from Isabela, Puerto Rico; 102, male, dorsal view; 103, female, dorsal view of abdomen; 104-106, holotype male from Antigua; 104, left chelicera, ventral view; 105, 106, palp; 105, ventral view; 106, retrolateral view; 107, 108, epigynum of female from Virgin Gorda, British Virgin Islands; 107, ventral view; 108, dorsal view.

Fond la Haye (AMNH), Pointe Ferret (AMNH) Trois Ilets (AMNH). **MONTSERRAT:** Plymouth (AMNH). **PUERTO RICO:** Aibonito (AMNH), Arecibo (AMNH), Barros (AMNH), Blanquilla (AMNH), Cabeza de Parro Island (AMNH), Cambalache Forest (AMNH), Camuy (AMNH), Caña Gorda (DBR), Cayo Abogado (AMNH), Cayo Caracoles (AMNH), Cayo San Cristobal (AMNH), Chicken Island (AMNH), Coamo Springs (AMNH), Corozal (AMNH), Desecheo Island (AMNH), Isabela (DBR), Isla Palominires (MCZ), Isla Ramos (AMNH), Isleta Marina (AMNH), Laguna

Cartegena (MCZ), La Parquera (MCZ), Loma Tinaja (AMNH), Luquillo Mountains (MCZ), Manati (AMNH), Maricao Bosque National (MCZ), Mayaguez (AMNH, DBR, MCZ), Muertes Island (AMNH), Nicacos Island (MCZ), Quebradilla (AMNH), Pico Atalaya (AMNH), Pineros Island (AMNH), Ratonos Island (AMNH), Rio Piedras (MCZ), San Juan (AMNH, MCZ), Vega Baja (AMNH), Vivevero de Catalina (AMNH). UNITED STATES VIRGIN ISLANDS: Anegada (AMNH), Hassel Is. (AMNH), St. Croix (MCZ, USNMNH), St. John (FSCA, MCZ, USNMNH), St. Thomas (MCZ).

*Hentzia whitcombi*, new species

Figs. 109-113, Map 5

**Types.**—Holotype male and allotype female from Petit Bourg, Basse Terre, Guadeloupe (25 February 1977. W. H. Whitcomb) deposited in the FSCA.

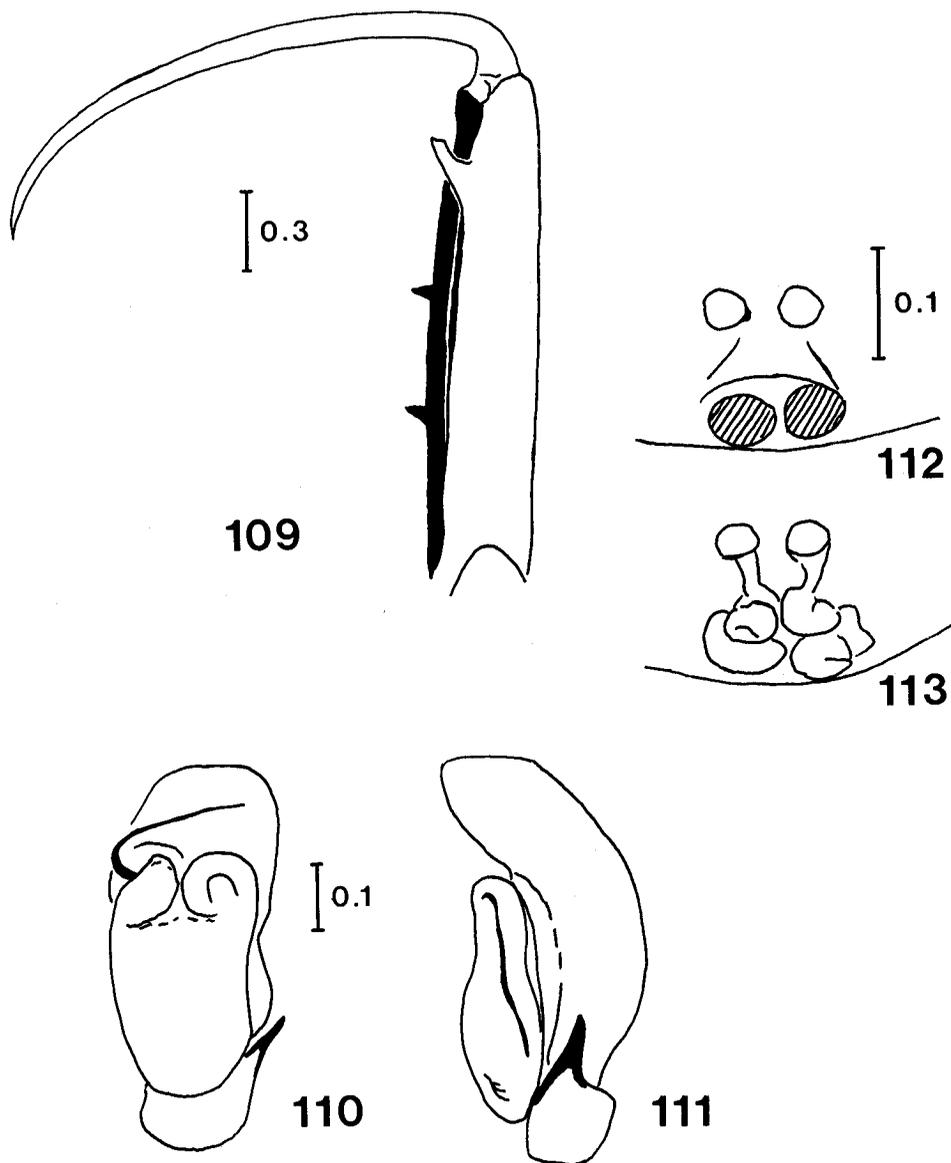
**Etyymology.**—The species is named for Dr. W. H. Whitcomb, Professor Emeritus, University of Florida, who collected the type series during his study on the natural enemies of citrus pests.

**Diagnosis.**—Males differ from all other *Hentzia* except *H. antillana* in having long chelicerae with a curved truncated retromarginal tooth. They differ from *H. antillana* males in the arrangement of the cheliceral teeth (Fig. 109). The female epigynum differs from that of *H. antillana* by having round openings (Figs. 112, 113).

**Males.**—Total length 3.20-4.90. Carapace 1.50-1.90 long, 1.20-1.50 wide, 6.50-8.50 high at PLE. Ocular area 0.70-0.92 long, 1.00-1.22 wide anteriorly and 1.00-1.28 wide posteriorly. Chelicerae 0.65-1.70 long, 2.40-4.00 wide (10 males from Guadeloupe). PME closer to ALE than to PLE. Leg formula 1423. Carapace red-brown with central dorsal spearhead-like light marking with point toward posterior. Lateral areas with white scales. Black around eyes except dark brown around AME. Carapace with scattered iridescent scales. Clypeus brown with white hairs. Chelicerae red brown, darker prolaterally, with fringe of white hairs. Distal 1/5 of fang yellowish. Endites dark brown, tip pale. Labium dark brown, tip pale. Sternum orange. Abdomen dark brown with darker markings, similar to those of *H. antillana*. Dorsum with iridescent scales. Lateral area with pattern of white and brown stripes. Venter light brown. First legs yellow; dark brown prolaterally and ventrally. Other legs yellow. All legs with iridescent scales. Pedipalpi yellow; bulb and cymbium brown.

**Female.**—Total length 3.80-5.40. Carapace 1.70-2.00 long, 1.30-1.60 wide, 0.70-0.80 high at PLE. Ocular area 0.70-0.85 long, 1.15-1.30 wide anteriorly and 1.20-1.40 wide posteriorly. Chelicerae 0.40-0.60 long, 0.30-0.45 wide (10 females from Guadeloupe). PME closer to ALE than to PLE. Leg formula 1423. Carapace orange; white scales laterally. Black around eyes except brown around AME. Clypeus with white hairs. Chelicerae orange-brown. Endites dark brown, prolateral tip pale. Labium dark brown with pale tip. Sternum yellow. Abdomen yellow with brown markings like *H. antillana*. Venter yellow. First legs yellow with light brown markings on prolateral distal femora, patellae and tibiae, and retrolateral femora. Other legs yellow. Pedipalpi yellow with brown dorsal proximal markings on patellae, tibiae and tarsi.

**Natural history.**—Males have been collected in January-April and June-July. Females have been collected from January-March and May-August. They probably occur throughout the year.



Figures 109-113.—*Hentzia whitcombi* n. sp. from Basse Terre, Guadeloupe: 109, left chelicera of male, ventral view; 110, 111, palp of male; 110, ventral view; 111, retrolateral view; 112, 113, epigynum of female; 112, ventral view; 113, dorsal view.

**Specimens examined.**—**BRITISH VIRGIN ISLANDS:** Peter Island (AMNH). **BRITISH WEST INDIES:** St. Kitts (MCZ). **DOMINICA:** Portsmouth (AMNH), Roseau (USNMNH). **GADELOUPE:** Pointe-a-Pitre (AMNH), Petit Bourg (FSCA), Lamentin (FSCA). **MONTSERRAT:** Galways Estate (AMNH). **PUERTO RICO:** Aguadilla (USNMNH), Culebrita Island (AMNH), La Pauquera (MCZ), Levin's Rock (AMNH), Maricao (MCZ), Maracao National Forest (AMNH), Mayaguez (AMNH, MCZ), Rio Piedras (AMNH), Toro Negro (MCZ). **UNITED STATES VIRGIN ISLANDS:** St. John (FSCA), St. Thomas (MCZ).

## VITTATA SPECIES GROUP

This group contains two species formerly placed in the genera *Parahentzia* Bryant and *Maeviobeata* Caporiacco. It also contains the *Hentzia* or *Wala* species *squamata* and *vittata*, as well as two new species, *calypso* and *zombia*, for a total of six species. All the known males have characteristic cheliceral teeth, with a spike-like retromarginal tooth and usually two smaller promarginal teeth (Figs. 115, 116, 125, 132, 139, 148, 149). Most males in this species group have robust chelicerae and are less elongate than other *Hentzia* species. *Hentzia calypso* is one of the smallest species of the genus, but the rest are larger and comparable to most other *Hentzia* species in size. The species range from the Bahamas and Cuba to northern South America and Central America.

The *vittata* group part of the cladogram (Fig. 15) is more or less arbitrary in that *H. zombia* is known only from females, *H. squamata* is somewhat aberrant in that it has males with long chelicerae, and *H. calypso* is more elongate and much smaller than other species in the group. In addition, *H. mandibularis* males often have a strange tubercle on the dorsal chelicerae. The only two species that can be easily related, other than by the characters found in the group as a whole, are *H. vittata* and *H. parallela*. The males of these are difficult to separate and it is possible that they represent variations of one widespread species. At present I am treating them as separate species, but I would not be totally surprised if they turned out to be synonyms, although the females seem to exhibit some differences that may separate these similar species (see species descriptions).

*Hentzia vittata* (Keyserling)

Figs. 114-122, Map 7

*Icius vittatus* Keyserling 1885:504 (holotype female from "United States" in MCZ examined).

*Wala albovittata* Keyserling 1885:517 (holotype male from "United States" in MCZ examined). NEW SYNONYMY.

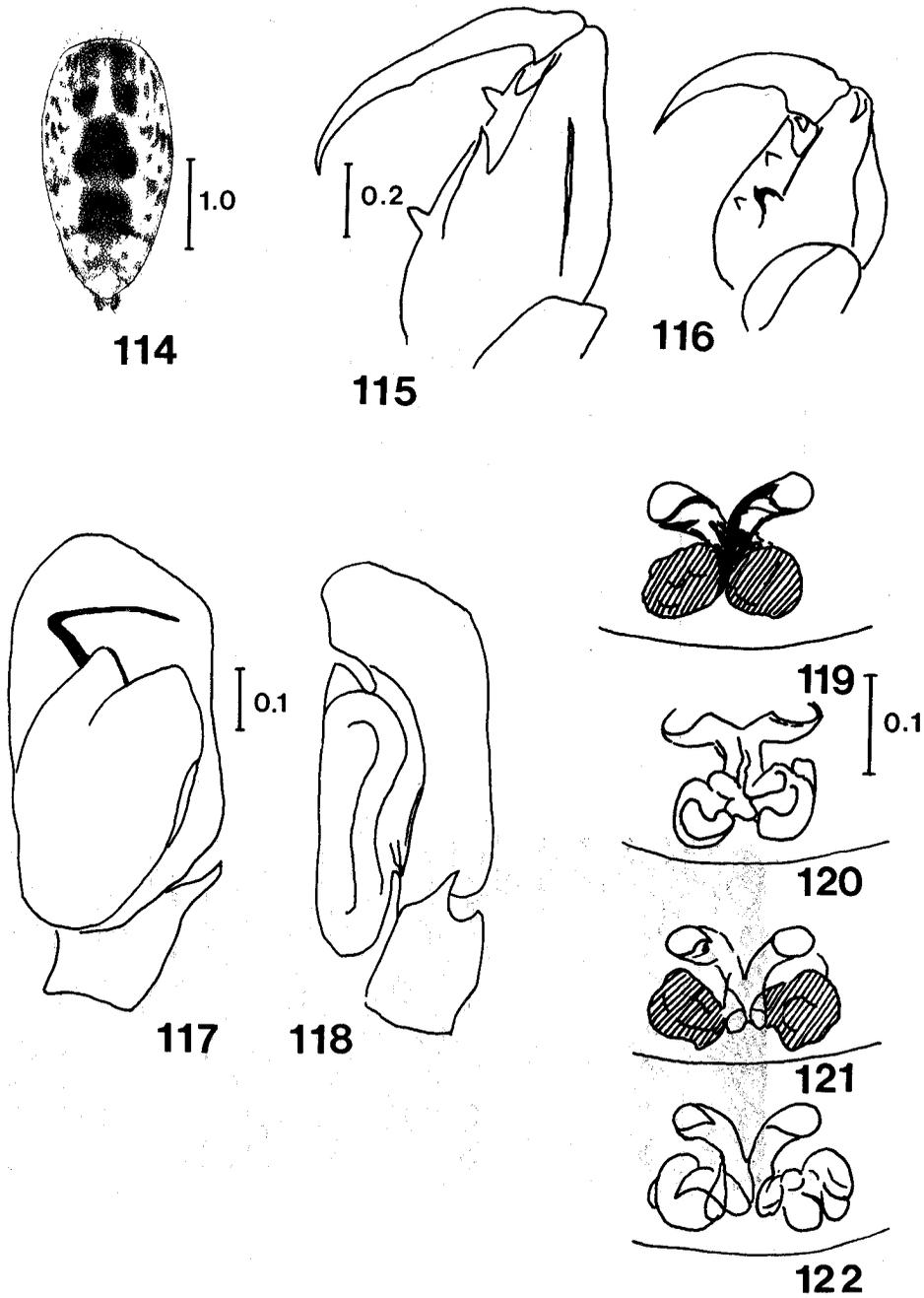
*Anoka peckhami* Cockerell 1893:221 (holotype and paratypes from Jamaica in MCZ examined). NEW SYNONYMY.

*Anoka moneagua* Peckham and Peckham 1894:127 (holotype and paratypes in MCZ examined). NEW SYNONYMY.

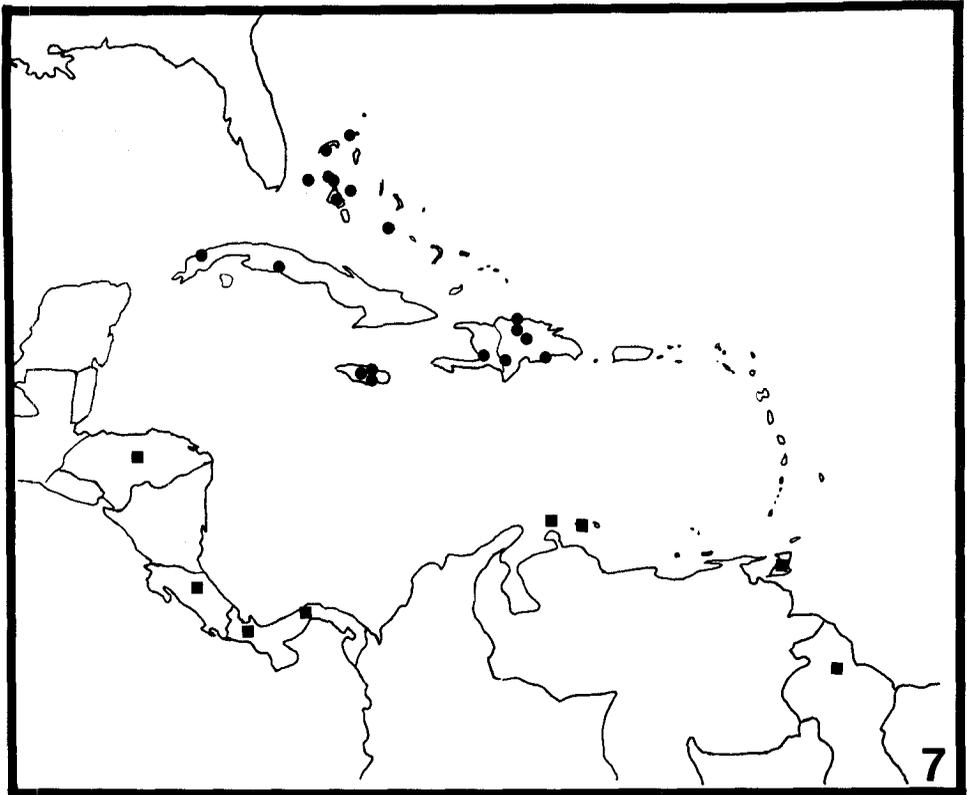
*Hentzia peckhami* Bryant 1943:488. NEW SYNONYMY.

**Diagnosis.**—Males differ from all other *Hentzia* males except for *H. parallela* and *H. calypso* in the structure of the chelicerae (Figs. 115, 116). They differ from *H. calypso* in size and pattern. *H. vittata* and *H. parallela* are very close and can be distinguished primarily by the female epigyna of *H. vittata* (Figs. 119-122), which have wider spermathecal areas than either *H. parallela* or *H. calypso*.

**Male.**—Total length 2.95-5.17. Carapace 1.39-2.21 long, 1.23-1.80 wide, 0.66-1.15 high at PLE. Ocular area 0.66-0.90 long, 1.07-1.31 wide anteriorly, 1.15-1.48 wide posteriorly. Chelicerae 0.41-1.23 long, 0.37-0.51 wide (11 males from Jamaica plus the holotype of *Wala albovittata* from "United States"). PME closer to ALE than to PLE. Leg formula 1423. Carapace red-brown; white hairs laterally. Eyes surrounded by black except brown around AME. Clypeus covered with white hairs. Chelicerae red-brown, metallic. Endites and labium dark red-brown, sometimes with lighter tips. Sternum light red-brown to orange. Abdomen orange to golden brown, often with slight indication of markings dorsally and



Figures 114-122—*Hentzia vittata* (Kerserling): 114, female from Torrington, Jamaica, dorsal view of abdomen; 115, left chelicera of male (holotype of *Anoka peckhami* Cockerell) from Jamaica, ventral view; 116, left chelicera of male from Freeport, Grand Bahama, ventral view; 117, 118, palp of male (holotype of *Anoka moneagua* Peckham and Peckham) from Moneague, Jamaica; 117 ventral view; 118, retrolateral view; 119-122, epigyna of females; 119, 120, from Jamaica; 119, ventral view; 120, dorsal view; 121, 122, from Cuba; 121, ventral view; 122, dorsal view.



Map 7.—West Indies and Central America, showing distribution of *Hentzia vittata* (closed circles) and *H. parallela* (closed squares).

sometimes with lateral lighter bands. Lateral area darker; venter gray-brown to brown. First legs red-brown, darker ventrally and laterally. Tarsus orange. Other legs yellow-brown to yellow. Coxae yellow. Pedipalpi red-brown, femora and patellae sometimes yellow.

**Female.**—Total length 3.44-5.00. Carapace 1.48-1.89 long, 1.23-1.72 wide, 0.65-0.82 high at PLE. Ocular area 0.74-0.98 long, 0.98-1.30 wide anteriorly and 1.15-1.39 wide posteriorly. Chelicerae 0.40-0.57 long, 0.30-0.41 wide (10 females from Jamaica, Haiti and the holotype of *Icius vittatus* from "United States"). PME closer to ALE than to PLE. Leg formula 1432. Carapace yellow to orange-brown with lateral white hairs. Eyes surrounded by black, except brown around AME. Clypeus white to yellow. Chelicerae light red-brown to orange. Endites and labium red-brown to orange, lighter distally. Sternum red-brown to yellow-brown. Abdomen yellow with either four dark brown spots dorsally followed by a dark cross-band or with a pattern of two brown spots anteriorly, followed posteriorly by two to three triangular to square markings, ending at spinnerets. Venter yellow to yellow brown. First legs yellow-brown to orange. Other legs yellow to yellow-brown. Pedipalpi yellow with darker proximal dorsal spots on all but femora.

**Distribution.**—Bahamas, Cuba, Hispaniola and Jamaica (Map 7).

**Natural history.**—Males have been collected in January, March-April, June-July and October-December. Females in January-June and August-December. Adults are present throughout the year.

**Specimens examined.**—**BAHAMAS:** Abaco Cays (AMNH), Andros (AMNH), Cat Island (AMNH), Elbow Cay (AMNH), Grand Bahama (AMNH), Great Exuma (MCZ), Harbor Island (MCZ), Little Harbor Cay (AMNH), Lucaya (AMNH), Nassau (AMNH), New Providence Island (AMNH), North Bimini (AMNH), South Bimini (AMNH), Stirrup Cay (FSCA), West Caicos (AMNH). **CUBA:** Buenos Aires (MCZ), San Blas (MCZ), Soledad (MCZ), 7 km N Vinales (AMNH). **DOMINICAN REPUBLIC:** Bara Hora (MCZ), Boca Caica (AMNH), La Matica (AMNH), Largo Enriqueillo (FSCA), La Vega (MCZ), Las Waitas (MCZ), Nisibon (FSCA), Puerto Plata (MCZ), Santo Domingo (AMNH), S of Santiago (MCZ). **HAITI:** Carrefour (AMNH), Diguini (MCZ), Formond (FSCA), Grand Anne (MCZ), Grand Riviere (MCZ), Kenscoff (AMNH), La Boule (AMNH), La Hoatte (MCZ), Les Anglais (FSCA), Port-au-Prince (AMNH, MCZ), Post Terre Rouge (MCZ). **JAMAICA:** Christina (AMNH, MCZ), Discovery Bay (AMNH), The Great Morass (AMNH), Hanover Askenish (MCZ), Holland Bay (AMNH), James (MCZ), Kingston (AMNH, MCZ), Manderville (MCZ), Moneague (MCZ), 2.5 mi. E Ocho Rios (MCZ), Port Antonis (MCZ), Port Henderson (MCZ), Portland (MCZ), Robin's Bay (MCZ), Roundhill (AMNH), St. Andrew (MCZ), St. Ann (MCZ), St. Catherine (MCZ), St. Elizabeth (MCZ), St. Mary (MCZ), St. Thomas (MCZ), Unity Valley (AMNH), Westmoreland (MCZ), Whitehouse (AMNH).

*Hentzia parallela* (Peckham and Peckham)

Figs. 123-129, Map 7

*Anoka parallela* Peckham and Peckham 1894:129 (holotype male from Trinidad in MCZ examined).

*Wala parallela* Petrunkevitch 1911:717.

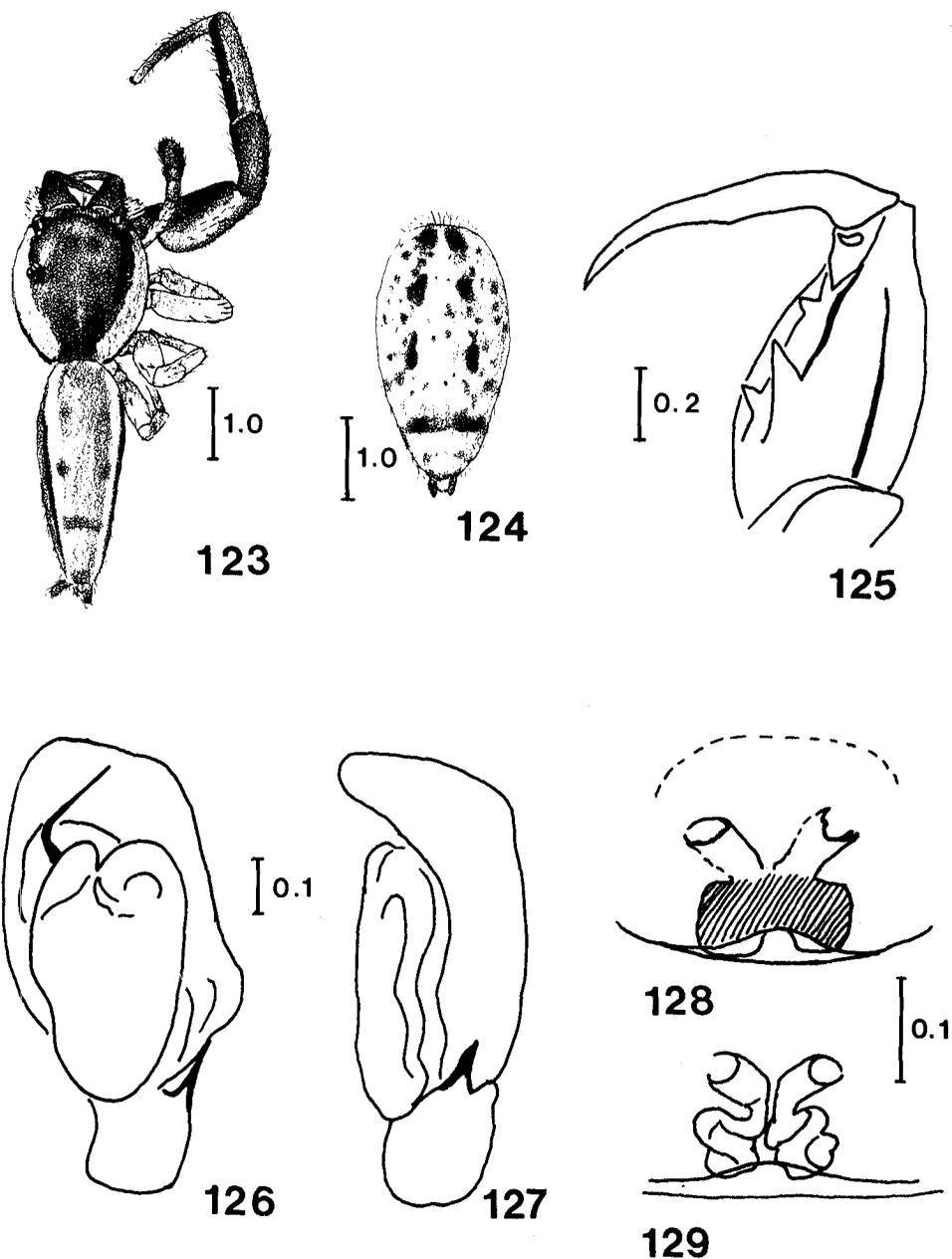
*Parahentzia insignita* Chickering 1946:316 (holotype male and allotype female from Panama Canal Zone in MCZ examined). NEW SYNONYMY.

*Maeviobeatia charitonovi* Caporiacco 1947:34; 1948:734 (holotype male and paratype male and female from Guyana in the Museo Zoologico "La Specola," Florence, Italy, examined by M. E. Galiano - synonymy based on her drawings). NEW SYNONYMY.

*H. parallela* Roewer 1954:1218.

**Diagnosis.**—Males differ from all other *Hentzia* except *H. vittata* in having massive chelicerae with a slanted, spike-like retromarginal tooth (Fig. 125). They differ from *H. calypso* in size dorsal pattern and distribution. Female epigynum (Figs. 128, 129) diagnostic, with trumpet-like openings and rectangular spermathecal area.

**Male.**—Total length 3.95-5.15. Carapace 1.60-2.07 long, 1.35-1.85 wide, 0.70-1.06 high at PLE. Ocular area 0.70-0.90 long, 1.05-1.42 wide anteriorly, 1.15-1.53 wide posteriorly. Chelicerae 0.50-1.00 long, 0.35-0.60 wide (10 males from Boquete, Panama and 8 from Canal Zone, Aruba, Curaçao and Trinidad. Total 18). PME closer to ALE than to PLE. Leg formula 1423. Carapace red-brown; band of white hairs laterally, often followed by a wide black band to margin. Black around eyes, except brown around AME. Clypeus red-brown covered with white hairs. Chelicerae red-brown. Endites and labium, red-brown, often with lighter distal tips. Sternum red-brown. Abdomen orange to red-brown, often without markings or with four dark spots dorsally followed by two bands just anterior to spinnerets. There is occasionally a lighter longitudinal band on each side of the dorsum. Darker lateral areas. Venter gray to brown, in at least one case with three rows of small light dots. First legs red-brown, darker on prolateral surface of femora, patellae and tibiae. Other legs yellow. Pedipalpi yellow to red-brown, cymbium slightly darker.



Figures 123-129.—*Hentzia parallela* (Peckham and Peckham): 123, 124, from Fort Randolph, Canal Zone, Panama; 123, male, dorsal view; 124, female, dorsal view of abdomen; 125, left chelicera of male (holotype of *Parahentzia insignita* Chickering) from Canal Zone, Panama, ventral view; 126, 127, palp of male from Oranjstad, Aruba; 126, ventral view; 127, retrolateral view; 128, 129, epigynum of female from Panama; 128, ventral view; 129, dorsal view.

**Female.**—Total length 3.75-5.70. Carapace 1.70-1.95 long, 1.30-1.60 wide, 0.65-0.77 high at PLE. Ocular area 0.65-0.85 long, 1.05-1.30 wide anteriorly and 1.15-1.39 wide posteriorly. Chelicerae 0.35-0.50 long, 0.30-0.41 wide (12 females from Panama and Canal Zone). PME closer to ALE than to PLE. Leg formula 1423.

Carapace orange with darker paired dorsal posterior and lateral longitudinal bands. Black around eyes, except brown around AME. Clypeus orange. Chelicerae orange. Endites and labium orange, lighter on distal tips. Sternum orange. Abdomen yellow with two longitudinal rows of four brown spots each, followed by a thin band of thick dark brown spots just anterior to the spinnerets. All legs yellow-orange. Pedipalpi yellow, unmarked.

**Distribution.**—Trinidad, Guyana, Aruba, Curaçao, Costa Rica, Honduras and Panama (Map 7).

**Natural history.**—Males have been collected in January, June-August and November-December. Females from June-August and November. They are probably found as adults all year.

**Specimens examined.**—ARUBA: Oranjested (AMNH). COSTA RICA: Monteverde (AMNH). CURAÇAO: Piscadera Bay (AMNH). HONDURAS: Lancetilla (MCZ). PANAMA: Boquete (MCZ), Canal Zone (Barro Colorado) (MCZ), El Valle (AMNH). TRINIDAD: East Coast (MCZ), Piarcó (AMNH).

### *Hentzia calypso*, new species

Figs. 130-136, Map 5

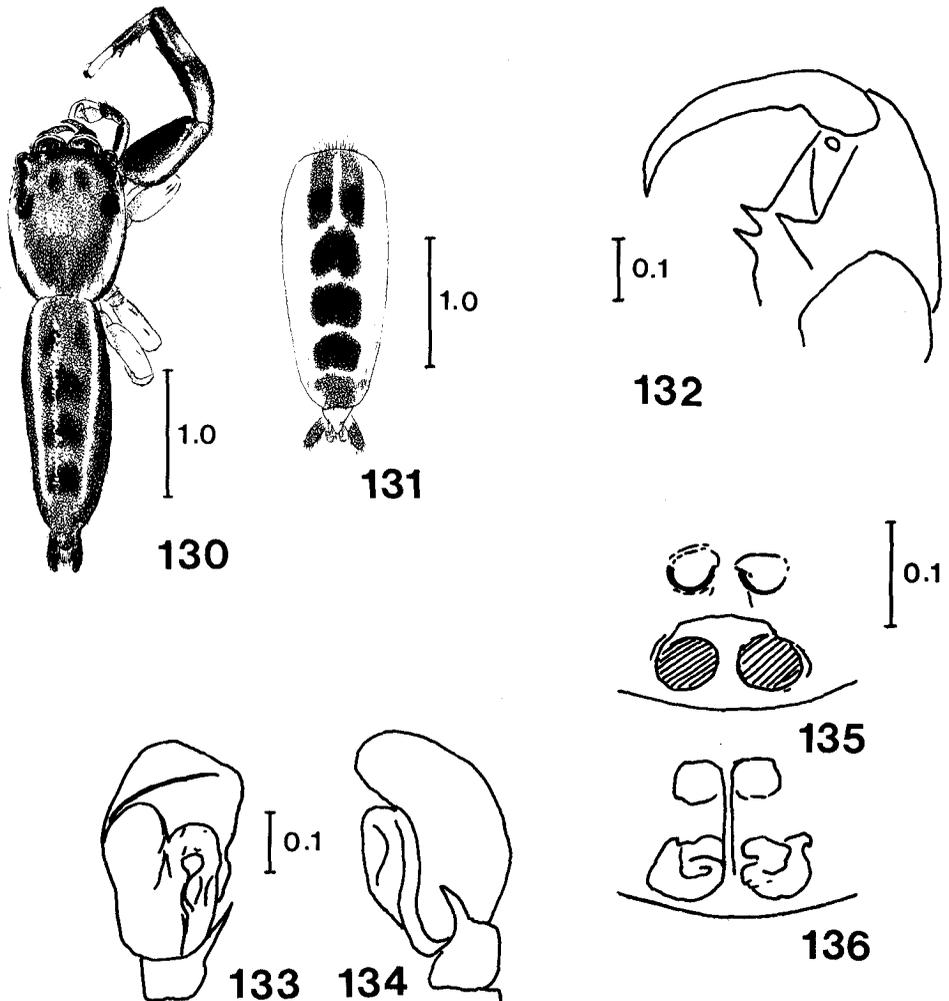
**Types.**—Male holotype from 2 mi. SW Unity Valley, Jamaica (18 March 1955; A. M. Nadler), deposited in the AMNH. Male and female paratypes from Jamaica deposited in the AMNH and the MCZ.

**Etymology.**—The specific name refers to the sea nymph in Homer's *Odyssey* and also a style of music found in the southern Caribbean.

**Diagnosis.**—*Hentzia calypso* is one of the smallest species of the genus, males being less than 4.0 mm and females from 3.5 to 4.5 mm in length. The structure of the male chelicerae is similar to that of *H. vittata*, but the body is much more elongate and the dorsal pattern is distinctive (Figs. 130, 131). Female epigynum diagnostic, with large openings and oval spermathecae internally (Figs. 135, 136); externally similar to those of *H. chekika* and *H. poenitens* (Fig. 135). It differs from the former species in size, internal structure of epigynal tubes, pattern and distribution and from the latter in internal structure of epigynum, pattern and distribution.

**Male.**—Total length 3.15-3.90. Carapace 1.25-1.50 long, 0.92-1.12 wide, 0.50-0.60 high at PLE. Ocular area 0.55-0.70 long, 0.80-0.95 wide anteriorly and 0.82-0.95 wide posteriorly. Chelicerae 0.25-0.50 long, 0.23-0.32 wide (four males from Jamaica). PME slightly closer to PLE than to ALE. Leg formula 1423. Carapace red-brown with white lateral bands. Black around eyes except AME, which is dark brown. Clypeus red-brown. Chelicerae dark brown. Endites dark brown with prolateral 1/3 lighter. Labium dark brown with lighter anterior 1/3. Sternum red-brown. Abdomen dark red-brown with darker squarish spots and white lateral stripes dorsally (Fig. 130). Venter gray-brown. First legs yellow-brown with darker brown on prolateral and ventral femora, patellae and tibiae. Darker bands on distal patellae, distal and proximal tibiae and distal metatarsus. Tarsus yellow. Other legs yellow. Pedipalpi with yellow cymbium, dark brown patellae and tibiae, and femur with yellow dorsally, dark brown prolaterally.

**Female.**—Total length 3.50-4.45. Carapace 1.50-1.65 long, 1.10-1.30 wide, 0.55-0.70 high at PLE. Ocular area 0.60-0.70 long, 0.95-1.00 wide anteriorly and 0.95-1.10 posteriorly. Chelicerae 0.25-0.40 long, 0.25-0.30 wide. PME closer to PLE



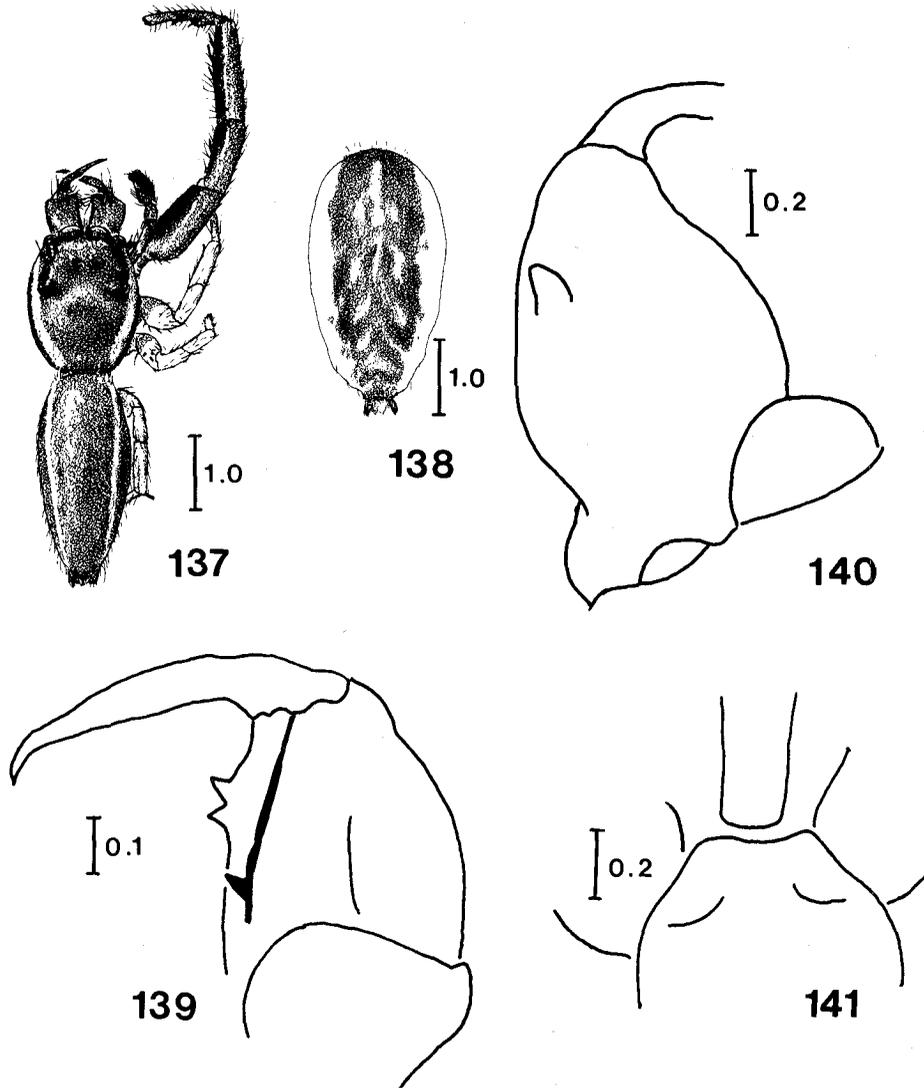
Figures 130-136.—*Hentzia calypso* n. sp.: 130-134, from Unity Valley, Jamaica; 130, male, dorsal view; 131, female, dorsal view of abdomen; 132, left chelicera of male, ventral view; 133, 134, palp of male; 133, ventral view; 134, retrolateral view; 135, 136, epigynum of female from Roundhill, Jamaica; 135, ventral view; 136, dorsal view.

than to ALE. Leg formula 1423. Carapace orange, black around eyes except AME; brown around AME; darker lateral to midline, lighter along margin. Clypeus covered with white hairs. Chelicerae, endites and labium orange. Sternum yellow. Abdomen yellow with dark brown markings as in male. Streaks laterally forming rough stripes. Venter yellow. First legs yellow with dark stripe on prolateral femora and prolateral distal tibiae. Spots on retrolateral distal and proximal tibiae, distal femora and patellae. Other legs and pedipalpi yellow.

**Distribution.**—Known only from Jamaica (Map 5).

**Natural history.**—Males from March and November. Females from July and November. Probably adults can be collected all year.

**Specimens examined.**—JAMAICA: Buff Bay (MCZ), Manderville (FSCA), New Castle (MCZ), Roundhill (AMNH), St. Andrew (MCZ), St. Catherine (AMNH).



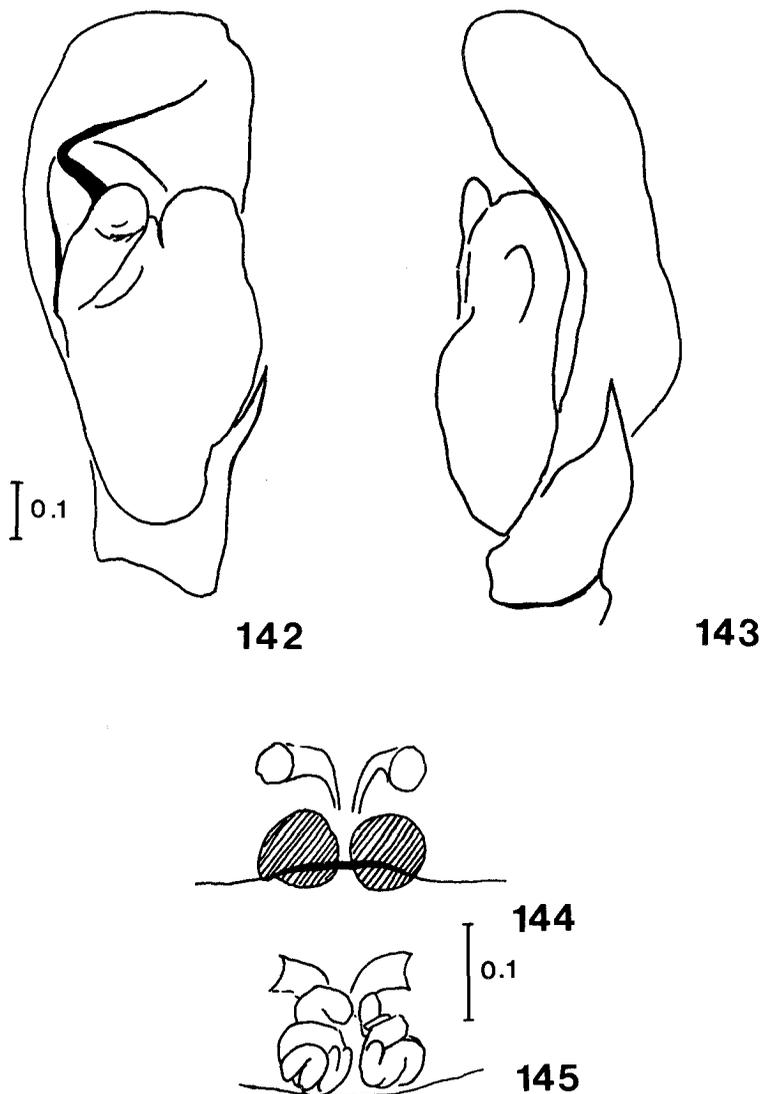
Figures 137-141.—*Hentzia mandibularis* (Bryant): 137, 138, from Dept. L'Oeste, Haiti; 137, male from Morne d'Enfer, dorsal view; 138, female from Parc National de la Vicite, dorsal view of abdomen; 139, left chelicera of male from Port-au-Prince, Haiti, ventral view; 140, 141, holotype male from the Dominican Republic; 140, left chelicera, dorsal view, showing tubercle; 141, anterior sternum, ventral view showing depressions.

*Hentzia mandibularis* (Bryant)

Figs. 137-145, Map 4

*Parahentzia mandibularis* Bryant 1943:500 (holotype male from foothills of Cordillera Central S of Santiago, Dominican Republic, in MCZ examined).

**Diagnosis.**—Although *H. mandibularis* is atypical in that males may have a pronounced tubercle on the dorsal chelicerae, it is certainly a *Hentzia* and is related to *H. vittata*. They may also have the depressions in the sternum mentioned by Bryant, or they may lack them. The males differ from other



Figures 142-145.—*Hentzia mandibularis* (Bryant): 142, 143, palp of holotype male; 142, ventral view; 143, retrolateral view; 144, 145, epigynum of female from La Decouverte, Haiti; 144, ventral view; 145, dorsal view.

*Hentzia* males with thick and short chelicerae by the position and size of the retromarginal tooth (Fig. 139) the presence in some males of a dorsolateral tubercle on the chelicerae (Fig. 140), the narrow labium and the presence in some males of two depressions in the anterior sternum (Fig. 141). The structure of the epigynum, with circular openings, is diagnostic for females (Figs. 144, 145).

**Male.**—Total length 3.70-5.17. Carapace 1.55-2.13 long, 1.20-2.05 wide, 0.70-1.15 high at PLE. Ocular area 0.75-0.90 long, 1.00-1.31 wide anteriorly and 1.18-1.48 wide posteriorly. Chelicerae 0.50-1.15 long, 0.30-0.57 wide (seven males from Haiti and the Dominican Republic). PME closer to ALE than to PLE. Leg formula 1423. Carapace red-brown with white bands laterally. Eyes surrounded by black, except AME, surrounded by dark brown. Clypeus covered with white

hairs. Chelicerae red to orange-brown. Endites, labium and sternum red to orange-brown with two indentations on anterior sternum (Fig. 141). Abdomen red to orange-brown with white dorsolateral bands. Lateral area gray-brown; venter red to gray-brown. Scattered iridescent scales and often with darker markings in central dorsal portion. First legs red-brown, darker anteriorly and ventrally. Tarsus lighter. Other legs whitish to orange. Pedipalpi red-brown, bulb and cymbium darker.

**Female.**—Total length 4.15-4.84. Carapace 1.71-1.80 long, 1.35-1.40 wide, 0.70-0.77 high at PLE. Ocular area 0.77-0.80 long, 1.06-1.10 wide anteriorly and 1.20-1.25 wide posteriorly. Chelicerae 0.50-0.90 long 0.30-0.35 wide (three females from Haiti). PME closer to ALE than to PLE. Leg formula 1423. Carapace red-brown with scattered black hairs, white scales laterally and iridescent scales dorsally, especially between eyes. Clypeus covered with white hairs. Chelicerae orange-brown, without tubercles. Endites dark brown with pale tips. Labium dark brown. Sternum red-brown. Abdomen red-brown with white streaks and spots and lateral bands. Lateral area red-brown, venter whitish. First legs yellow-brown, darker ventrolaterally on femur and on distal tibia, patella and metatarsus. Metatarsus-tarsus generally yellow. Other legs white. Pedipalpi yellow; proximal brown spots on dorsal tibia, patella and tarsus.

**Distribution.**—Known only from the island of Hispaniola (Map 4).

**Variation.**—Specimens may have or lack distinct depressions in the sternum. Males may have dorsal cheliceral tubercles or may lack them, or have only traces.

**Natural history.**—Males have been collected in March and May-July. Females are known only from March and May.

**Specimens examined.**—DOMINICAN REPUBLIC: Foothills Cordillera Central S of Santiago (MCZ). HAITI: Dept. L'Oeste.; Parc National de la Vicite (FSCA), Morne d'Enfer (FSCA), Kenscoff (AMNH), Port-au-Prince (MCZ).

### *Hentzia squamata* (Petrunkevitch)

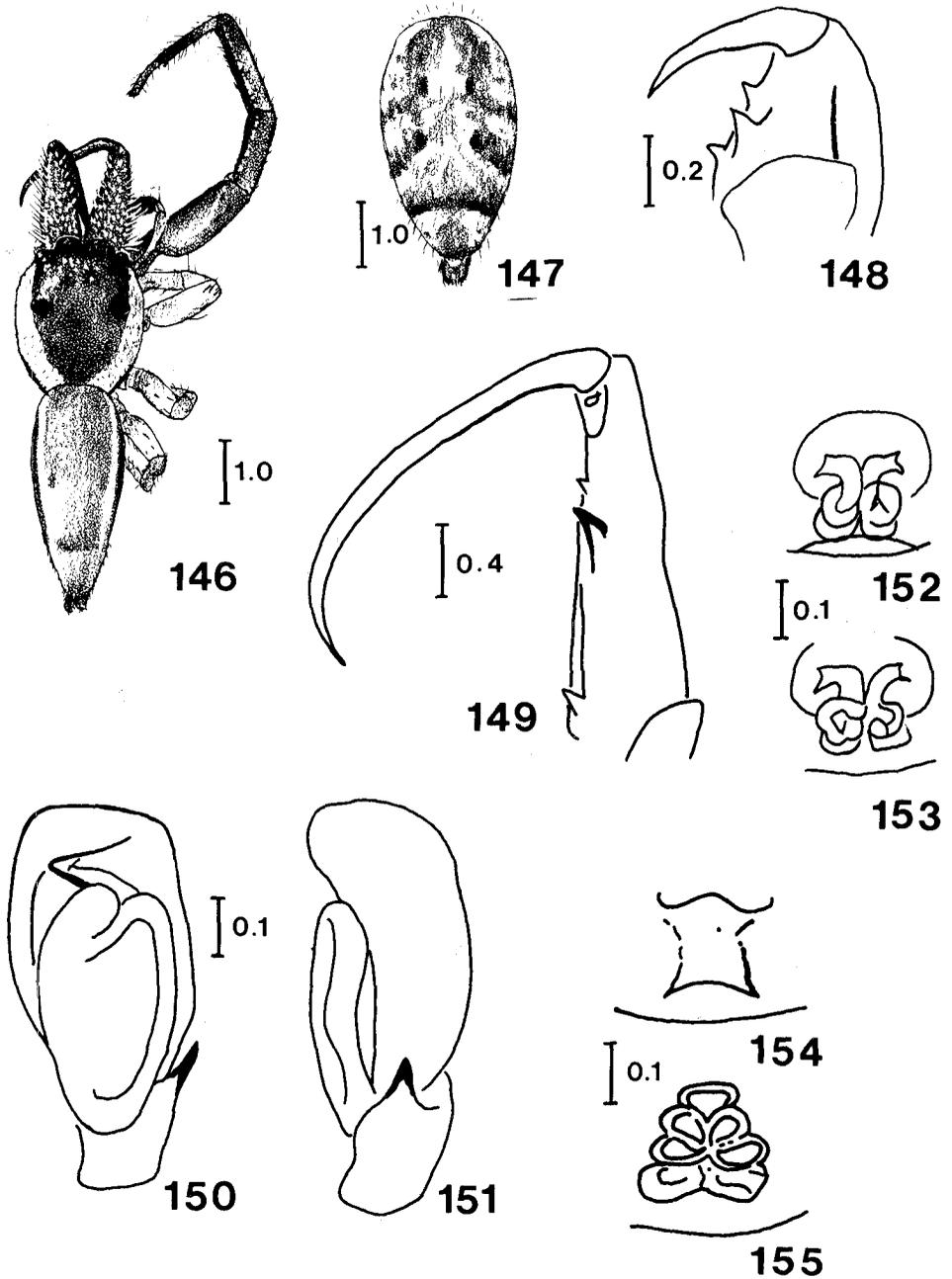
Figs. 146-153, Map 5

*Wala squamata* Petrunkevitch 1930:146 (holotype and paratypes from Mona Island in AMNH examined).

*Hentzia squamata* Bryant 1947:93.

**Diagnosis.**—Males differ from all other *Hentzia* in having white scales nearly covering chelicerae (Fig. 146). Females resemble females of *H. antillana* closely and can be easily separated only by association with males. Males also differ from males of *H. antillana* in the arrangement and structure of the cheliceral teeth (Figs. 148, 149), which place it in the *vittata* species group.

**Male.**—Total length 3.69-5.44. Carapace 1.77-2.48 long, 1.48-2.12 wide, 0.89-1.18 high at PLE. Ocular area 0.83-1.06 long, 1.21-1.53 wide anteriorly and 1.30-1.59 wide posteriorly. Chelicerae 0.59-2.12 long, 0.44-0.65 wide (eight males from Mona Island). PME closer to ALE than to PLE. Leg formula 1423. Carapace red-brown, yellowish in ocular area and with lateral white scales. Eyes ringed with black. Clypeus covered with white hairs. Chelicerae yellow-brown, covered with pearly scales. Endites and labium yellow-brown with light distal tips. Sternum yellow-brown. Abdomen yellow-brown with darker markings (Fig. 146) and with light dorsolateral stripes, followed by dark lateral stripes. Venter yellow-



Figures 146-153—*Hentzia squamata* (Petrunkevitch) from Mona Island: 146, male, dorsal view; 147, female, dorsal view of abdomen; 148, left chelicera of male, ventral view; 149, left chelicera of another male, ventral view; 150, 151, palp of holotype male; 150, ventral view; 151, retrolateral view; 152, 153, epigynum of female; 152, ventral view; 153, dorsal view.

Figures 154-155.—*Hentzia zombia* n. sp., epigynum of female from Roche Platte, Haiti; 154, ventral view; 155, dorsal view.

brown. First legs yellow-brown. Other legs lighter yellow-brown. Pedipalpi yellow brown with dark dorsal spot on tibiae.

**Female.**—Total length 4.13-6.67. Carapace 1.89-2.48 long, 1.59-2.18 wide, 0.83-1.06 high at PLE. Ocular area 0.83-1.06 long, 1.24-1.53 wide anteriorly and 1.36-1.77 wide posteriorly. Chelicerae 0.53-0.89 long, 0.35-0.59 wide (11 females from Mona Island). PME closer to ALE than to PLE. Leg formula 1423. Carapace red-brown, yellow in ocular area. Eyes ringed in black except AME ringed in brown. Clypeus covered with white hairs. Chelicerae red or yellow-brown. Endites and labium red-brown with lighter distal tips. Sternum yellow-brown. Abdomen yellow with brown markings much like *H. antillana* (Fig. 147). Venter yellow. First legs yellow-brown. Other legs lighter yellow-brown. Pedipalpi yellow with dorsal proximal spots except on femora.

**Distribution.**—Known only from Mona Island (Map 5).

**Natural history.**—Males collected in February, April and August. Females in August. Probably found all year, but the island is little collected because of difficulties of access.

**Specimens examined.**—PUERTO RICO: Mona Island (AMNH, MCZ).

*Hentzia zombia*, new species

Fig. 154, 155, Map 6

**Types.**—Female holotype from Morne d'Enfer, Dept. L'Oeste, Haiti (5 May 1984, M. C. Thomas) deposited in the FSCA.

**Etymology.**—The specific name refers to the "living dead" of West Indian voodoo.

**Diagnosis.**—While females have the major characteristics of the genus—hair pencils, spatulate hairs on femora and external genitalia similar to several described species, such as *H. fimbriata* (Fig. 154), it is easily distinguished from all other species by its large size (about 7 mm), stocky build and covering of pink iridescent scales. The internal epigynal structure (Fig. 155) is unlike any other *Hentzia*. It is at present difficult to place this species in a species group, but it is assumed to be related to *H. vittata* because of its general body shape and the structure of the external epigynum.

**Female.**—Total length 6.60-7.10. Carapace 2.60-2.90 long, 2.20-2.45 wide, 1.20 high at PLE. Ocular region 1.15-1.20 long, 1.45-1.60 wide anteriorly and 1.60-1.80 wide posteriorly. Chelicerae 0.90-1.00 long, 0.70-0.80 wide (two females from Haiti). PME closer to ALE than to PLE. Leg formula 1423. Carapace dark brown. Eye region dark with black around all eyes except dark brown around AME. Clypeus dark brown. Chelicerae dark red-brown. Endites and labium dark brown with white tips. Sternum orange. Coxae orange. Abdomen dark brown to yellow, with darker markings consisting of four dark patches on the posterior dorsal two-thirds and two dark streaks just anterior to spinnerets which nearly join at midline. Venter brown. First legs brown; lateral femora darker; tarsus yellow. Other legs yellow. Pedipalpi dark brown; tarsi lighter on distal 2/3. Body covered with iridescent pink scales.

**Distribution.**—Known only from Haiti (Map 6).

**Natural history.**—Collected in February and May.

**Specimens examined.**—HAITI: Morne d'Enfer (FSCA), Roche Platte (FSCA).

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