Spiders from Fernando de Noronha, Brazil. Part II. Proposal of a new genus and description of three new species of jumping spiders (Araneae, Salticidae)

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ABSTRACT. The new genus *Matagaia* is proposed to include the newly described *M. chromatopus* **sp. nov.** from Fernando de Noronha Archipelago, state of Pernambuco, Brazil. In addition, *Corythalia insularis* **sp. nov.** and *Neonella noronha* **sp. nov.** are also described from this locality. The synanthropic *Hasarius adansoni* (Audouin, 1826) and *Menemerus bivittatus* (Dufour, 1831) are also recorded from the Archipelago.
KEY WORDS. *Hasarius adansoni*; islands; *Menemerus bivittatus*; Neotropical Region; Pernambuco.

RESUMO. **Aranhas de Fernando de Noronha, Brasil. Parte II. Proposição de um gênero novo e descrição de três espécies novas de papa-moscas (Araneae, Salticidae).** O novo gênero *Matagaia* é proposto para incluir *M. chromatopus* **sp. nov.**, aqui descrita, do Arquipélago de Fernando de Noronha, Pernambuco, Brasil. Além desta espécie, *Corythalia insularis* **sp. nov.** e *Neonella noronha* **sp. nov.** também são descritas para a mesma localidade. As espécies sinantrópicas *Hasarius adansoni* (Audouin, 1826) e *Menemerus bivittatus* (Dufour, 1831) também são registradas para o arquipélago.
PALAVRAS-CHAVE. *Hasarius adansoni*; ilhas; *Menemerus bivittatus*; Região Neotropical; Pernambuco.

Fernando de Noronha is an isolated group of 21 volcanic islands, islets and rocks located in the South Equatorial Atlantic, approximately 345 km (215 miles) from the nearest Brazilian mainland, in the state of Rio Grande do Norte, Brazil. The climate is tropical, with two well defined seasons: the rainy season from January to August, and the dry season for the rest of the year. The average temperature is 25°C, with a variation of only 4.1°C. The land vegetation of the islands is made up mostly of vines and bushes with a few species of trees. There are also a great number of bushes and herbs not native to the island (Teixeira *et al*. 2003).

Despite the exuberant bird life present on the Archipelago, as occurs on other isolated oceanic systems, other vertebrate groups, such as amphibians, reptiles and mammals, are represented only by a few species. This poorness in diversity seems to happen also with the invertebrate fauna. The first study on spiders from Fernando de Noronha (Rodrigues *et al*. 2007) recorded the occurrence of only two species of Linyphiidae on the islands, the second most diverse spider family. Salticidae is the most diverse family within the order and this study, the second on spiders from this locality, shows that its fauna is also very poor on the islands studied. Only three native species, herein described for the first time, and two introduced species were found on the islands, a biodiversity very different from the hundreds of species present in Neotropical continental areas.

MATERIAL AND METHODS

The material examined, collected in field expeditions by GCCF, is deposited in the Instituto Butantan (IBSP, A.D. Brescovit) and duplicates were deposited in the Laboratório de Invertebrados Terrestres of the Universidade Federal de Pernambuco (UFPE, S.D. Vasconcelos). The material used for the SEM photograph (Scanning Electron Microscopy) is part of a donation made by G.B. Edwards from the Florida State Collection of Arthropods (FSCA) and is deposited in IBSP. The measurements are given in millimeters. The abbreviations used in the spinulation formulae are: (d) dorsal, (p) prolateral, (r) retrolateral, (v) ventral, (pr) proximal, (di) distal.

Heliophaninae Petrunkevitch, 1928

Matagaia gen. nov.

Type species: *Matagaia chromatopus* **sp. nov.**

Etymology. The generic name is an arbitrary combination of letters. Grammatical gender is feminine.

Diagnosis. *Matagaia* **gen. nov.** (Figs 1-9) is similar to *Icius* Simon, 1876 in general apearance (see Andreeva *et al*. 1984, fig. 1), by the sexual dimorphism and by having a short, bifid RTA and a short embolus in the male palp (see Metzner 1999, pl. 61, figs b-c). It can be distinguished from *Icius* by having a proximal, proventral excavation on the male palpal femur (Fig. 7,

arrow), like that present in species of *Helvetia* Peckham & Peckham, 1894 (see Galiano 1965, fig. 4; 1976, figs 6 and 12) and *Pseudicius* Simon, 1885 (see Prószynski 1979, fig. 272; Zabka 1985, fig. 230) and by the fact that the coiled spermathecae are dislocated anteriorly (Fig. 9), being transverse, close to the posterior border of the epigynum in *Icius* (see Metzner 1999, pl. 61, figs d-e).

Description. Medium sized salticids. Carapace almost rectangular (Fig. 1), moderately high (Fig. 2), with lateral granulose areas (Fig. 2, arrow) in both sexes. Chelicera small, vertical. Palp with a short embolus and two short retrolateral tibial apophyses (Figs 5-6), and with a proximal proventral depression on the palpal femur (Fig. 7, arrow). No leg hypertrophy. Femora I with a distal prolateral row of three tubercles (Fig. 1, arrow). Sexual dimorphism in legs color (see Fig. 4). Leg spination is very similar in both sexes: femur I d1-1-1, p1di, II d1-1-1, p2di, r2di, III d1-1-1, p0-1-2, r2di, IV d1-1-1, p0-1-2, r2di (male) or d1-1-1, p1di, r1di (female); patella I = II 0, III = IV r1; tibia I p1di, v2-2-2, II p1di, v1r-1r-2, III = IV p1-1-1, r1-1-1, v1p-2; metatarsus I = II v2-2, III = IV p1-2, r1-2, v1p-2. Abdomen short, with a dorsal scutum in the male (Fig. 1). Epigynum externally with a pair of semicircular openings (Fig. 8); internally with a pair of posterior curved pockets, short copulation ducts and no differentiated spermathecae (Fig. 9).

Distribution. Known only from Fernando de Noronha Archipelago, state of Pernambuco, Brazil.

Matagaia chromatopus sp. nov.

Figs 1-9

Types. Male holotype and female paratype from Fernando de Noronha Island (03°50'S, 32°15'W), Fernando de Noronha Archipelago, Pernambuco, Brazil, 7-19.IV.2006, G.C.C. Freitas *leg.*, deposited in IBSP 70338.

Etymology. The specific name is a combination of the Greek nouns *chromos* (color) and *pus* (foot), and refers to the male leg coloration (Fig. 4).

Description. Male (holotype). Total length: 3.70. Carapace dark brown, 2.00 long, 1.35 wide and 0.82 high, with a narrow longitudinal yellow stripe extending from the fovea to the posterior border and a wide stripe of white scales on the lateral borders (Fig. 1). Cephalic area black with a narrow longitudinal stripe of white scales (Fig. 1). Ocular quadrangle 1.05 long. Anterior eye row 1.20 wide, posterior 1.25 wide. Chelicera dark brown, with two teeth on the promargin and one on the retromargin. Palp (Figs 5-7) yellow. Endites, labium and sternum light brown. Legs 4132, yellow, with black rings on the distal femora, proximal tibiae, distal metatarsi, becoming ligther on posterior legs (Fig. 4). Length of femur I 1.07, II 0.92, III 1.05, IV 1.22; patella + tibia I 1.32, II 1.08, III 1.12, IV 1.30; metatarsus + tarsus I 0.97, II 0.87, III 1.10, IV 1.30. Abdomen as in the female but with a dorsal light brown scutum on the anterior two thirds, with a pair of paramedian longitudinal stripes of white scales and a pair of lateral londitudinal light brown stripes (Fig. 1); ventrally variegated with pale yellow and light brown. Spinnerets dark brown.

Female. Total length: 4.90. Carapace light brown, 2.40 long, 1.70 wide and 1.05 high, with no conspicuous stripe of scales. Ocular quadrangle 1.17 long. Anterior eye row 1.50 wide, posterior 1.57 wide. Chelicera light brown, as in the male. Palp yellow. Endites, labium and sternum yellow. Legs 4312, yellow with no spot. Length of femur I 1.20, II 1.10, III 1.30, IV 1.45; patella + tibia I 1.50, II 1.30, III 1.32, IV 1.60; metatarsus + tarsus I 1.00, II 0.90, III 1.27, IV 1.47. Abdomen dorsally with an anterior white halfmoon and three white triangles medially aligned forming a light longitudinal stripe (Fig. 3); laterally dark brown, slightly variegated; ventrally pale yellow with sparse brown spots. Epigynum as in figures 8-9. Spinnerets as in the male.

Additional material examined. Brazil, *Pernambuco*: Fernando de Noronha Archipelago, Fernando de Noronha Island: 1 male and 2 females, 9-19.X.2005 (IBSP 70355-70356), 2 males and 5 females, 7-18.IV.2006 (IBSP 70349-70354), 1 male and 1 female, 13.X.2005 (UFPE), all collected in pitfall traps by G.C.C. Freitas.

Distribution. Known only from the type locality.

Menemerus bivittatus (Dufour, 1831)

Note. For a complete list of synonyms and taxonomic entries, see Platnick 2007.

New records. Brazil, *Pernambuco*: Fernando de Noronha Archipelago, Fernando de Noronha Island (03°50'S, 32°15'W): 3 males and 2 females, 9-19.X.2005 (IBSP 70343, 70345), 1 male and 4 females, 7-17.IV.2006 (IBSP 70344, 70346-70348), 1 male and 1 female, 17.IV.2006 (UFPE), all collected manually in houses by G.C.C. Freitas.

Euophryinae Simon, 1901

Corythalia insularis sp. nov.

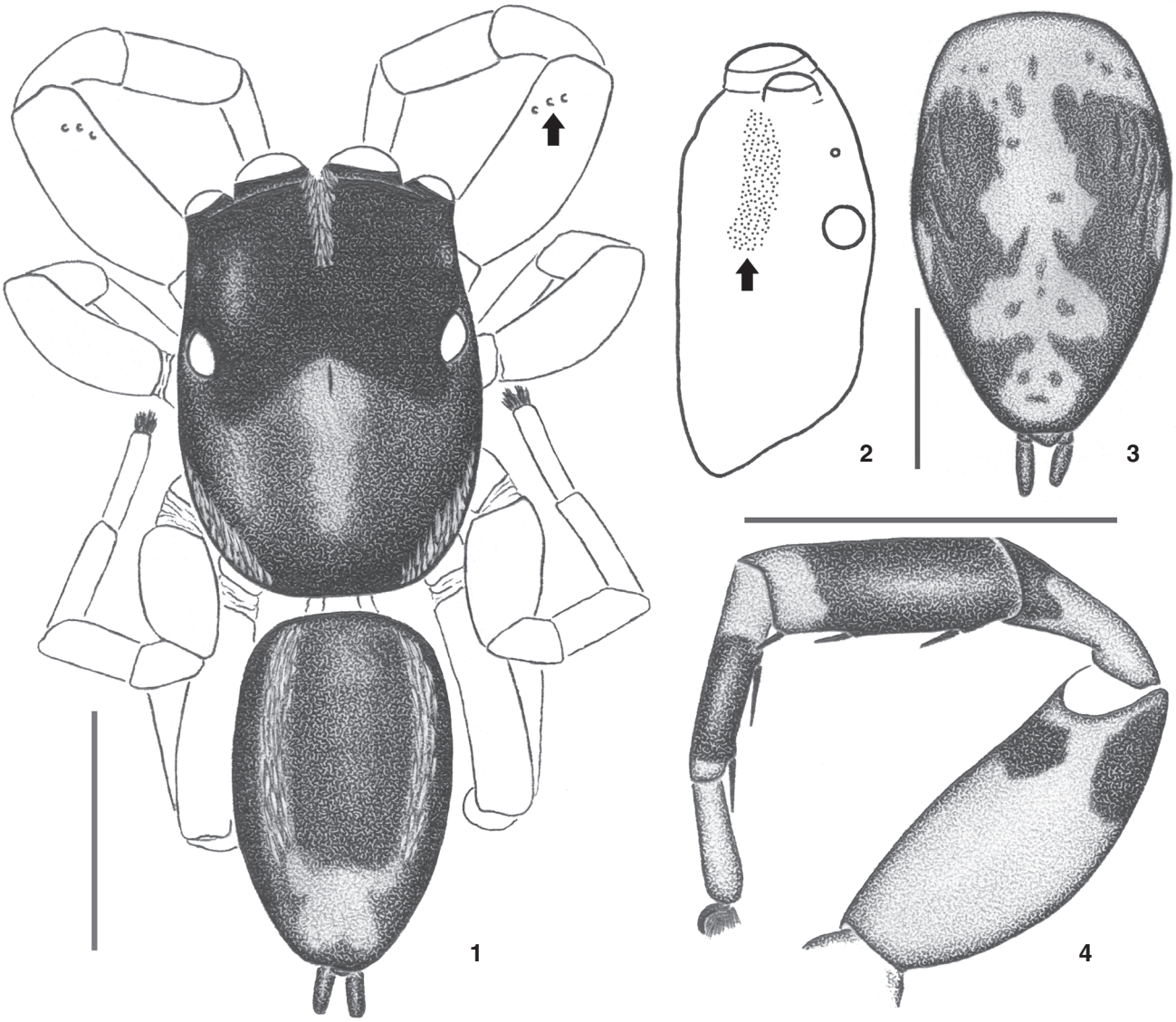
Figs 10-11

Type. Male holotype from Fernando de Noronha Island (03°50'S, 32°15'W), Fernando de Noronha Archipelago, Pernambuco, Brazil, 7-19.IV.2006, G.C.C. Freitas *leg.*, deposited in IBSP 70339.

Etymology. The specific name is a Latin adjective and means "of the island".

Diagnosis. *Corythalia insularis* sp. nov. differs from all the remaining known species of *Corythalia* from Brazil by having a tegulum posteriorly shortened (Figs 10-11).

Description. Male. Total length: 3.45. Carapace dark brown, 1.80 long, 1.25 wide and 0.82 high, with a wide stripe of white scales on the lateral borders. Cephalic area black with white scales on the anterior half. Ocular quadrangle 0.85 long. Anterior eye row 1.15 wide, posterior 1.10 wide. Clypeus covered with yellowish scales. Chelicera short, vertical, dark brown, with a very reduced tooth on retromargin. Palp (Figs 10-11) yellow, with a few dorsal scales on femur and patella. Endites, labium and sternum light brown. Legs 3 = 421, I-III dark brown,



Figures 1-4. *Matagaia chromatopus* **sp. nov.**: (1) male, dorsal view; (2) carapace, lateral view; (3) female abdomen, dorsal view; (4) male leg I, retroventral view. Scale lines: 1 mm.

with light tarsi, covered with dense black hairs, IV with alternated bands of dark brown and yellow. Length of femur I 0.95, II 0.95, III 1.10, IV 1.05; patella + tibia I 0.95, II 0.95, III 1.05, IV 1.05; metatarsus + tarsus I 0.75, II 0.80, III 1.05, IV 1.10. Abdomen yellow with a narrow transverse dark brown stripe anteriorly, a wide median transverse dark brown stripe and a narrow dark brown stripe posteriorly. Among these stripes, light areas covered with white scales; ventrally pale yellow. Spinnerets pale yellow.

Female. Unknown.

Additional material examined. None.

Distribution. Known only from the type locality.

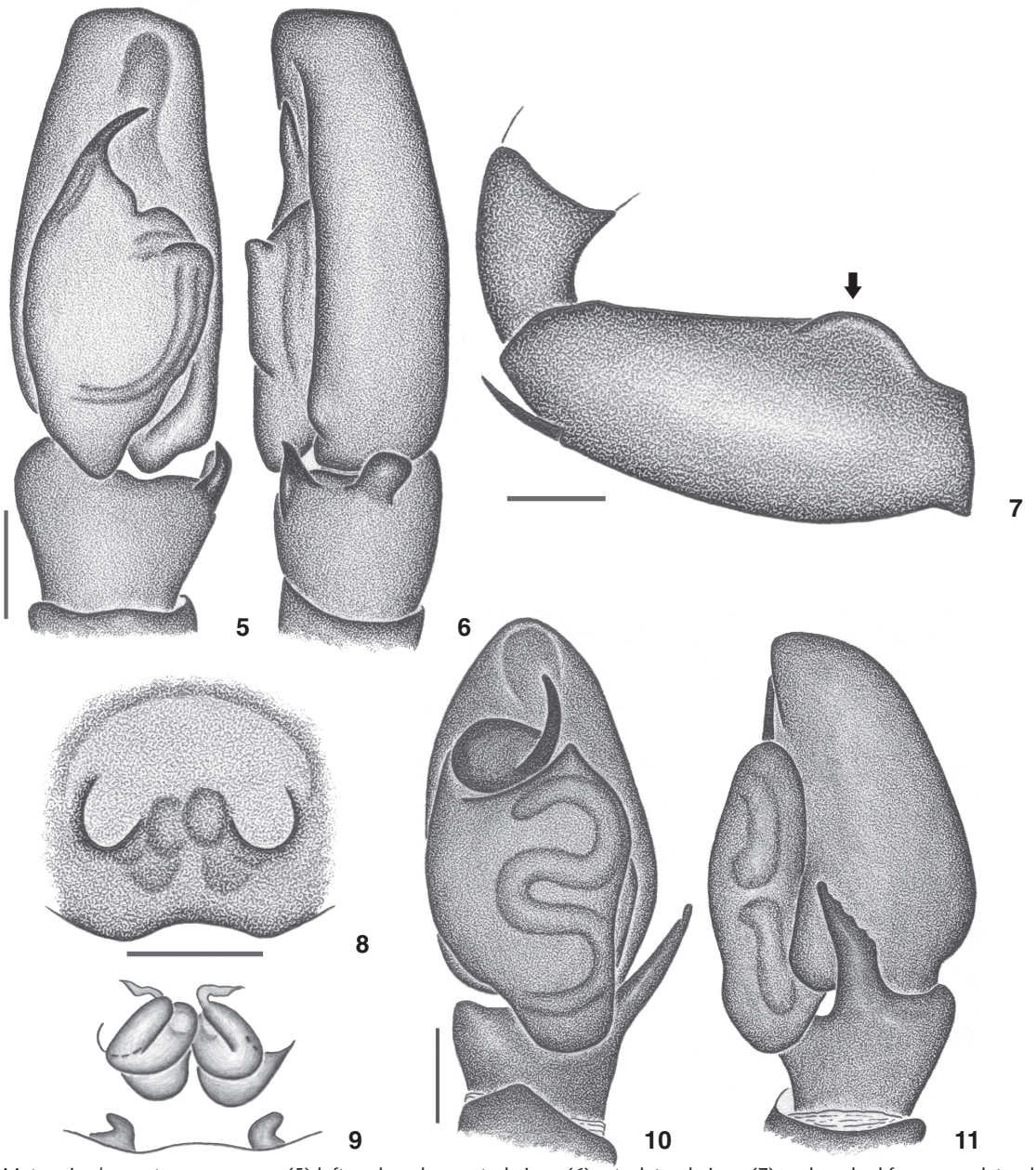
Neonella noronha sp. nov.

Figs 12-16

Types. Male holotype and female paratype from Fernando de Noronha Island (03°50'S, 32°15'W), Fernando de Noronha Archipelago, Pernambuco, Brazil, 7-19.IV.2006, G.C.C. Freitas *leg.*, deposited in IBSP 70337.

Etymology. The specific name is a toponym in apposition.

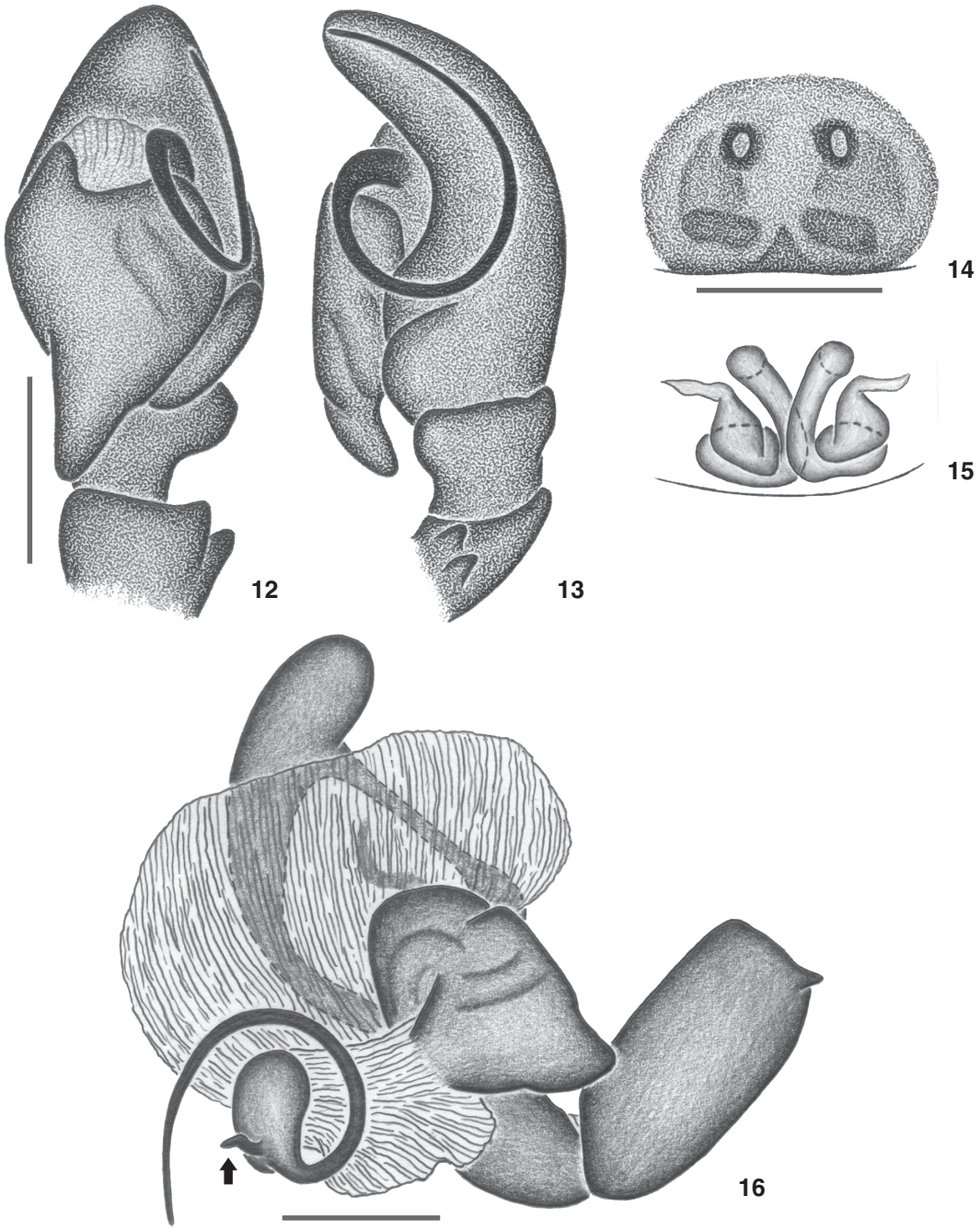
Diagnosis. *Neonella noronha* sp. nov. resembles *N. camillae* Edwards, 2002 (see Edwards 2002, fig. 5) and *N. salafraria* Ruiz & Brescovit, 2004 (see Ruiz & Brescovit 2004, fig. 3), with which



Figures 5-9. *Matagaia chromatopus* **sp. nov.**: (5) left male palp, ventral view; (6) retrolateral view; (7) male palpal femur, prolateral view; (8) female epigynum, ventral view; (9) dorsal view; (10-11) *Corythalia insularis* **sp. nov.**: (10) left male palp, ventral view; (11) retrolateral view. Scale lines: 0.1 mm.

it shares a coiled retrolateral embolus (Figs 12-13), but can be distinguished from the former by having a longer embolus and from the later by having a thinner embolus.

Description. Male. Total length: 1.78. Carapace light brown, 0.84 long, 0.61 wide and 0.36 high, with a narrow longitudinal yellow stripe extending from the fovea to the posterior border. Cephalic area black, ocular quadrangle 0.42 long. Anterior eye row 0.64 wide, posterior 0.60 wide. Clypeus narrow, dark brown. Chelicera prolaterally dark brown, retrolaterally yellow, with two teeth on the promargin and one on the retromargin. Palp light brown, with a pair of short apophyses retrolaterally on distal patella (Figs 12-13). Endites, labium and sternum yellow. Legs 4312, yellow, with prolateral and retrolateral faces of femora brown. Length of femur I 0.36, II 0.38, III 0.44,



Figures 12-16. *Neonella noronha* **sp. nov.**: (12) left male palp, ventral view; (13) retrolateral view; (14) female epigynum, ventral view; (15) dorsal view; (16) expanded male palp, proventral view. Scale lines: 0.1 mm.

IV 0.44; patella + tibia I 0.44, II 0.40, III 0.44, IV 0.48; metatarsus + tarsus I 0.40, II 0.38, III 0.42, IV 0.50. Abdomen pale yellow with a pair of paramedian longitudinal light brown stripes and a median longitudinal light stripe covered with white scales; ventrally pale yellow. Spinnerets pale yellow.

Female. Total length: 1.96. Carapace as in the male, 0.94 long, 0.70 wide and 0.49 high. Cephalic area black, ocular quadrangle 0.52 long. Anterior eye row 0.72 wide, posterior 0.72 wide. Clypeus, chelicera, endite, labium and sternum as in the male. Palp dark brown. Legs 4312, yellow, with prolateral and

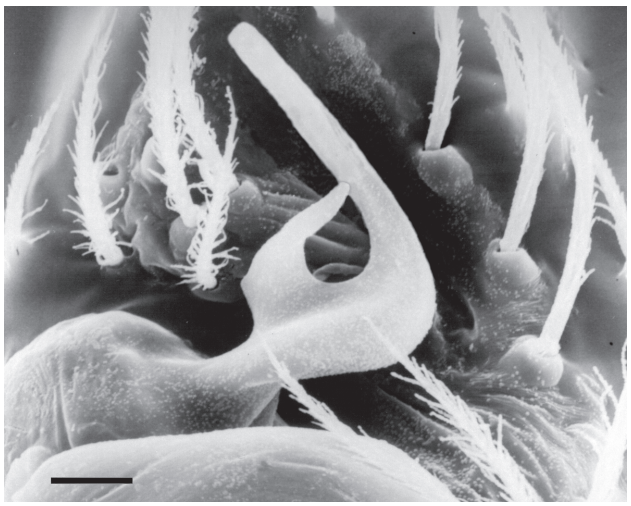


Figure 17. *Neonella vinnula*, detail of embolus, ventral view. Scale line: 10 µm.

retrolateral faces of femora brown and distal area of patellae, tibiae and metatarsi dark brown. Length of femur I 0.42, II 0.42, III 0.54, IV 0.56; patella + tibia I 0.52, II 0.44, III 0.54, IV 0.60; metatarsus + tarsus I 0.42, II 0.42, III 0.50, IV 0.64. Abdomen and spinnerets as in the male. Epigynum as in figures 14-15.

Comments. *Neonella noronha* **sp. nov.** has a paraembolic projection, only seen in expanded palps (Fig. 16, arrow). This structure may be present in other related species, such as *N. camillae* and *N. salafraria* and may be homologous to the comb-like paraembolic structure present in other species of this genus (see Galiano 1998, figs 8 and 11), and the curved, smooth paraembolic projection present in the type species *N. vinnula* Gertsch, 1936 (Fig. 17).

Additional material examined. Brazil, *Pernambuco*: Fernando de Noronha Archipelago, Fernando de Noronha Island: 44 males and 19 females, 9-18.IV.2006 (IBSP 70357-70405), 3 males and 3 females, 9-14.IV.2006 (UFPE), all collected in pitfall traps by G.C.C. Freitas.

Material used for comparison: *Neonella vinnula* Gertsch, 1936, 3 males and 1 female from Gainesville, Alachua County, Florida, United States of America, 24.IX.1974, G.B. Edwards *leg.*, ex FSCA, IBSP 81206 (Fig. 17).

Distribution. Known only from the type locality.

Salticoida *incertae sedis*
Hasarius adansoni (Audouin, 1826)

Note. For a complete list of synonyms and taxonomic entries, see Platnick (2007).

New records. Brazil, *Pernambuco*: Fernando de Noronha Archipelago, Fernando de Noronha Island (03°50'S, 32°15'W): 1 male and 1 female, 9-19.X.2005 (IBSP 70340, 70342), 1 male, 7-17.V.2006 (IBSP 70341), 1 male and 1 female, 9-19.X.2005 (UFPE), all collected manually in houses by G.C.C. Freitas.

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