

# Jumping spiders (Arachnida, Araneae, Salticidae) from the Nimba Mountains in Guinea

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## ABSTRACT

Fifteen species of jumping spiders (Salticidae) are reported from the Nimba Mountains in Guinea. The results fully support recognition of the Nimba Mountains as a biodiversity hot-spot. Four new genera are established: *Gramenca* n. gen. (small spiders with a high carapace and female with a very large epigyne), *Lamottella* n. gen. (medium size spiders with very long first legs and a unique structure of the male copulatory organ), *Nimbarus* n. gen. (small spiders characterized by the structure of the chelicerae and the male copulatory organ) and *Toticoryx* n. gen. (small and flat spiders with very distinctive female genitalia). Twelve species are described as new: *Cembalea affinis* n. sp., *Evarcha bakorensis* n. sp., *E. certa* n. sp., *E. maculata* n. sp., *Gramenca prima* n. gen., n. sp., *Heliophanus heurtaultae* n. sp., *Lamottella longipes* n. gen., n. sp., *Langelurillus horrifer* n. sp., *Nimbarus pratensis* n. gen., n. sp., *Plexippus fuscus* n. sp., *Rhene formosa* n. sp. and *Toticoryx exilis* n. gen., n. sp. *Habrocestum diversipes* Berland & Millot, 1941 is synonymised with *H. nigrum* Berland & Millot, 1941 and transferred to the genus *Langelurillus* Próchniewicz, 1994. The Nimba Mountains thus present a very high biodiversity but it is expected that a larger number of endemic species will be identified in this mountain chain with the study of the remaining collections.

## KEY WORDS

Arachnida,  
Araneae,  
Salticidae,  
western Africa,  
Nimba Mountains,  
new genera,  
new species,  
synonym.

## RÉSUMÉ

*Les araignées sauteuses (Arachnida, Araneae, Salticidae) des Monts Nimba en Guinée.*

Quinze espèces d'araignées sauteuses (Salticidae) sont répertoriées des Monts Nimba en Guinée. Quatre nouveaux genres sont définis : *Gramenca* n. gen. (petites araignées à céphalothorax élevé dont les femelles ont un très large épigyne), *Lamottella* n. gen. (araignées de taille moyenne à très longues premières paires de pattes, avec une structure unique du bulbe copulateur mâle), *Nimbarus* n. gen. (petites araignées caractérisées par la structure des chélicères et l'organe mâle) et *Toticoryx* n. gen. (petites araignées aplaties avec des genitalia femelles caractéristiques). Douze espèces sont décrites comme nouvelles : *Cembalea affinis* n. sp., *Evarcha bakorensis* n. sp., *E. certa* n. sp., *E. maculata* n. sp., *Gramenca prima* n. gen., n. sp., *Heliophanus heurtaultae* n. sp., *Lamottella longipes* n. gen., n. sp., *Langelurillus horrifera* n. sp., *Nimbarus pratensis* n. gen., n. sp., *Plexippus fuscus* n. sp., *Rhene formosa* n. sp. et *Toticoryx exilis* n. gen., n. sp. *Habrocestum diversipes* Berland & Millot, 1941 est mis en synonymie avec *H. nigrum* Berland & Millot, 1941 et placé dans le genre *Langelurillus* Próchniewicz, 1994. Les Monts Nimba présentent déjà une très grande biodiversité mais un plus grand nombre d'espèces endémiques devraient être encore identifiées dans cette chaîne montagneuse avec l'étude des collectes restantes.

## MOTS CLÉS

Arachnida,  
Araneae,  
Salticidae,  
Afrique de l'ouest,  
Monts Nimba,  
nouveaux genres,  
nouvelles espèces,  
synonyme.

## INTRODUCTION

A multidisciplinary study, as part of a UNESCO pilot project, has been carried out for 20 years to show the biological value of the Nimba Mountains (West Africa). The steep mountain slopes and the poor soils have contributed to the preservation of the primary vegetation there. The designation of this site as an Integral Natural Reserve in 1981 has confirmed the high status of the area. However, the recent intensive mineral prospecting in the mountains combined with poaching threaten the reserve.

Over the past 50 years several scientific expeditions collected rich zoological materials in the Nimba Mountains. The collection of spiders from the reserve is still being in progress (see the preliminary report of Rollard 1993).

Here we describe the jumping spiders of this mountain ridge. Our paper adds substantially to the scant knowledge of the western African salticids. Hitherto only papers of Berland & Millot (1941) and Wanless & Clark (1975) have dealt exclusively with jumping spiders from

West Africa. Otherwise, scattered accounts are to be found in Fage (1923), Simon (1885, 1887, 1902a, b), Wanless (1980, 1985) and Wesołowska (1986).

## MATERIAL AND METHODS

The Nimba Mountains are a volcanic mountain chain situated at the border of Guinea, Ivory Coast and Liberia. It is 7 to 10 km wide and extends for c. 40 km from SW to NE (Fig. 1). Height of all the peaks exceeds 1000 m a.s.l. The mountains are steep and notched by valleys with sheer slopes. No trees or shrubs are present on the peaks. The mountain range is covered by herbaceous plants of grassland character; montane or sub-montane vegetation in Schnell's (1987) terminology. The high-altitude meadows are often covered with fog during the rainy season, from May to November.

Specimens were collected during expeditions led by Prof. M. Lamotte in the years 1942, 1951,

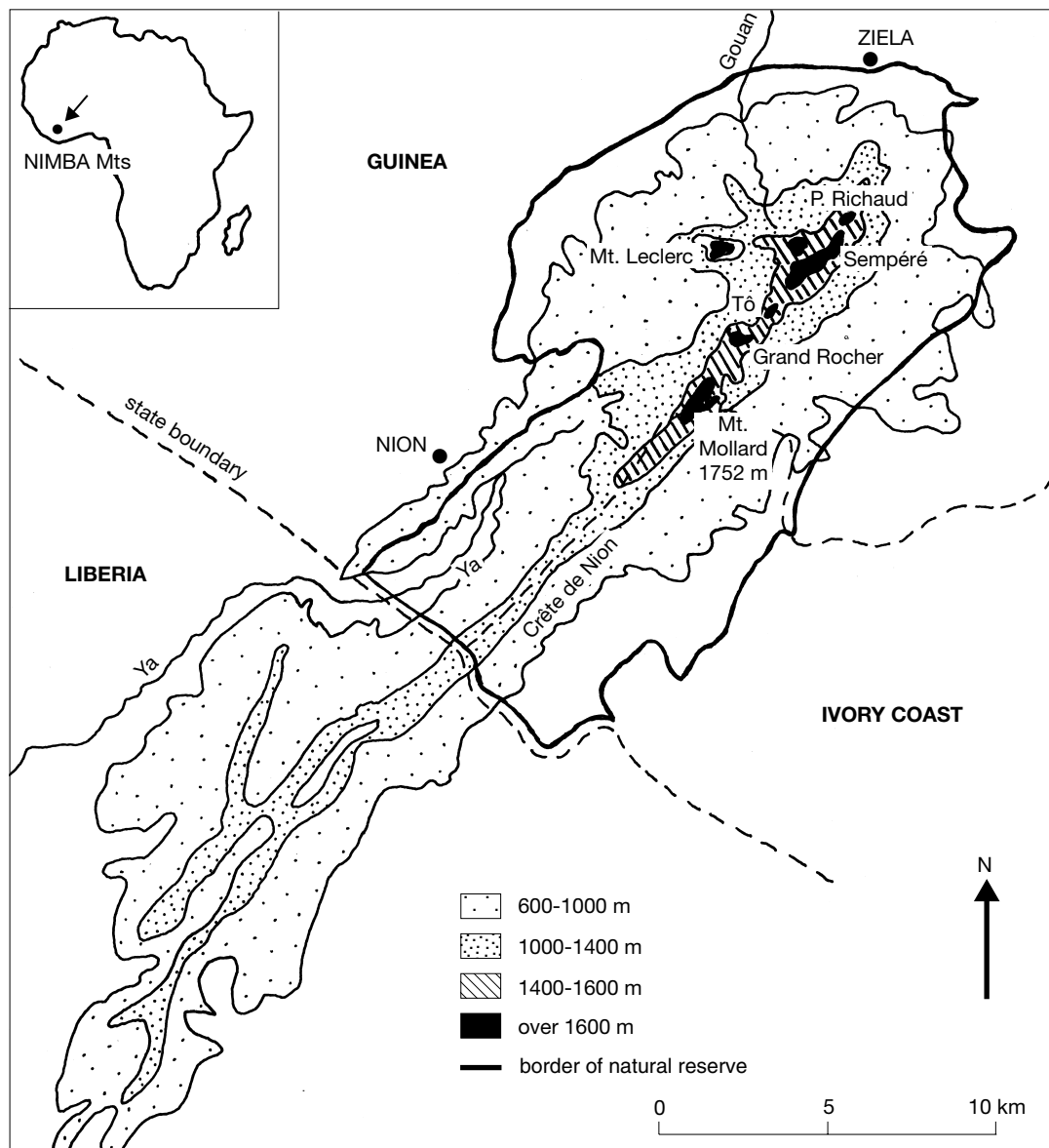


FIG. 1. — Location of the Nimba Mountains.

1956 and 1961, by several collectors, not necessarily arachnologists, then by the senior author during a more recent expedition in 1991. The spiders were collected in March, June and from September to October. They were found essentially in the high-altitude meadows, some also in steppes or savanna.

Spiders were exclusively hand collected and preserved in 70% ethanol. Specimens were examined in a dish of alcohol. Descriptions of colours pertain to wet specimens in ethanol. The drawings were made with the aid of a reticular eyepiece attached to a stereomicroscope. The male pedipalps and the epigynes were removed for

study. The epigynes were macerated in hot 5% KOH for a few minutes, and cleared in eugenol. After examination, the genitalia in micro-vials of ethanol were placed in the vials containing the specimens from which they had been removed. All measurements are given in millimetres. The leg spination system follows Ono (1988). Holotypes and all other specimens are kept in the Muséum national d'Histoire naturelle (MNHN), Paris.

#### ABBREVIATIONS

ap	apical;
a.s.l.	above sea level;
d	dorsal;
Fm	femur;
Mt	metatarsus;
pl	prolateral;
Pt	patella;
rl	retrolateral;
Tb	tibia;
v	ventral.

#### SYSTEMATICS

Family SALTICIDAE Blackwall, 1841

Genus *Bacelarella* Berland & Millot, 1941

*Bacelarella fradei* Berland & Millot, 1941  
(Fig. 2)

*Bacelarella fradei* Berland & Millot, 1941: 390. — Prószyński 1987: 4.

MATERIAL EXAMINED. — Road to Pierré Richaud, 850 m a.s.l., savanna near woodland, 20.X.1956, leg. M. Lamotte, 1 ♂.

DISTRIBUTION. — This species was described from western Africa (Ivory Coast and Guinea).

#### DESCRIPTION

Male. Measurements: carapace length 3.1, width 2.2, height 1.6. Abdomen length 2.7, width 1.8. Eye field length 1.4, anterior width 2.0, posterior width 1.9. Medium sized spider. Carapace high, eye field occupies almost half of carapace length. Coloration of carapace brown, eyes surrounded black. Prostrate short brown hairs cover whole carapace, but hairs denser on ocular area, long bristles

near eyes. White hairs surround anterior median eyes and form small patch on eye field, behind these eyes. Clypeus clothed in white hairs. Chelicerae brown, with big retromarginal tooth and two promarginal teeth (Fig. 2A). Labium and maxillae brown with pale tips, sternum yellow. Abdomen oval, slightly narrower posteriorly. Coloration of abdomen brownish-orange, with traces of darker pattern, only anterior edge of abdomen dark brown, clothed in brown hairs. Sides of abdomen whitish. Venter yellowish-grey. Spinnerets yellowish. Legs light brown, their hairs and spines brown. Pedipalps brown. Cymbium rather narrow (Fig. 2D), with process on promargin at its base (Fig. 2E). Embolus very long, encircles bulbus more than once, with large pars pendula (Fig. 2B). Bulbus rounded, with large strongly sclerotized tegular apophysis. Tegular apophysis forms bicuspid crest (Fig. 2B, C). Palpal tibia short, with single pointed apophysis (Fig. 2D, E).

Genus *Cembalea* Wesołowska, 1993

*Cembalea affinis* n. sp.  
(Fig. 3)

TYPE MATERIAL. — Holotype: Nion crest, 1300 m a.s.l., on ground, 16.III.1991, leg. C. Rollard, ♂; paratype: together with holotype, 1 ♂.

ETYMOLOGY. — The specific name is Latin for “related”, and refers to the resemblance of this species to *C. plumosa*.

DIAGNOSIS. — The species resembles *Cembalea plumosa* (Lessert, 1925). The male differs from it in the longer embolus and position of the embolic base (cf. Fig. 3C-F with figs 14-17 in Wesołowska 1993a).

#### DESCRIPTION

Male. Measurements: carapace length 2.3, width 1.6, height 1.0. Abdomen length 1.9, width 1.0. Eye field length 1.1, anterior width 1.5, posterior width 1.4. Leg spination: I Fm d 0-1-1-1, pl 0-1, Tb pl 0-1-0, v 2-2-2, Mt v 2-2; II Fm d 0-1-1-1, pl 0-1, Tb pl 0-1-0, v 2-2-2, Mt pl 0-1, rl 1-1, v 2-2; III Fm d 1-1-1, pl and rl 0-1, Pt pl and rl 1, Tb pl and rl 1-1, v 1-1ap, Mt d 2-2, pl and rl 1ap, v 2-2ap; IV Fm d 1-1-1, pl and rl 0-1, Pt pl 1, Tb pl and rl 1-1, v 1-1ap, Mt d 2-2, pl and rl

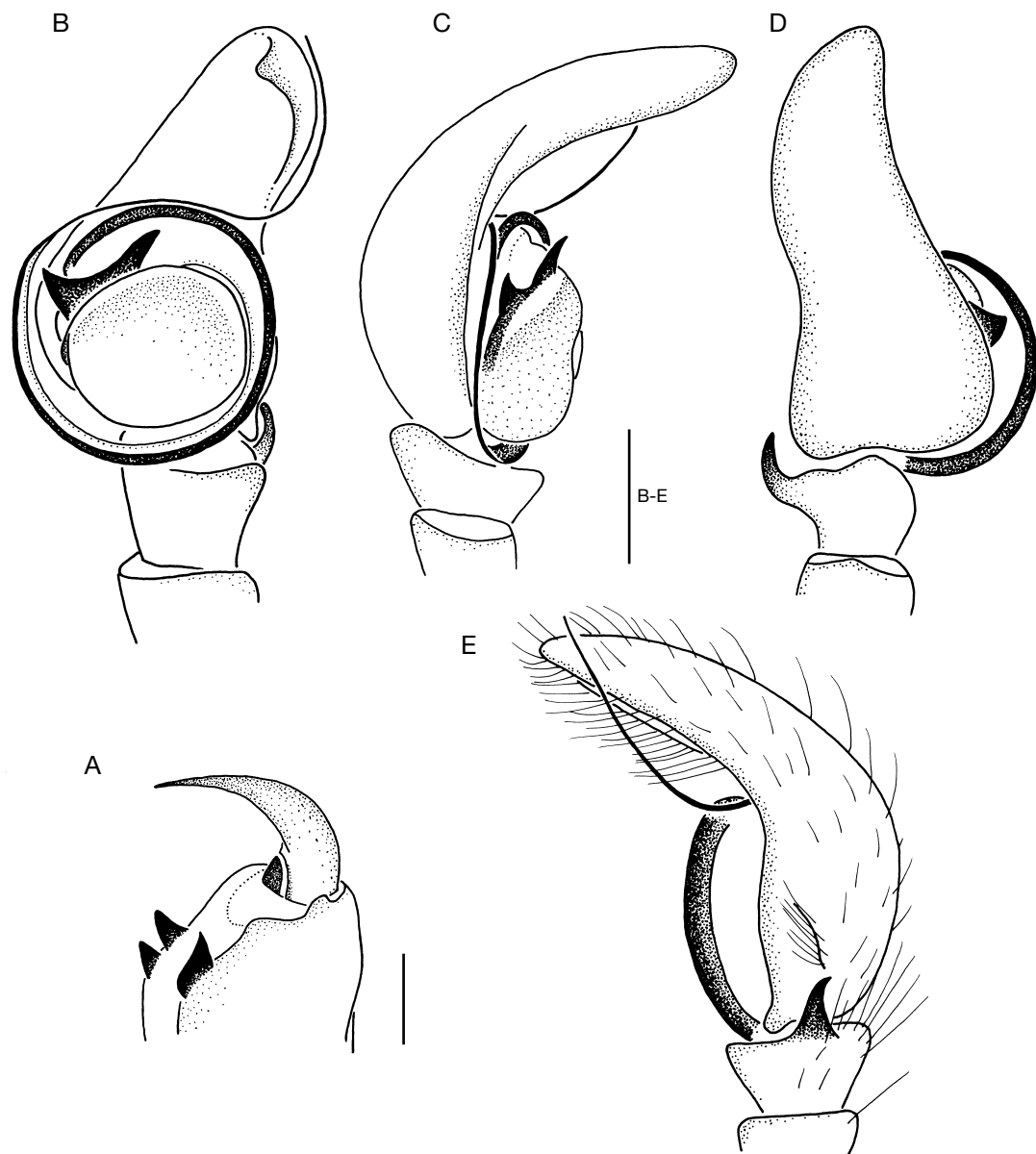


FIG. 2. — *Bacelarella fradei* Berland & Millot, 1941, ♂; **A**, cheliceral dentition; **B**, palpal organ, ventral view; **C**, palpal organ, retrolateral view; **D**, palpal organ, dorsal view; **E**, palpal organ, prolateral view. Scale bars: A, 0.3 mm; B-E, 0.5 mm.

1ap, v 2-2ap. General appearance as in Fig. 3A. Carapace high, very convex, its posterior edge hidden under anterior part of abdomen. Coloration of carapace brown, ocular area darker, vicinity of eyes black. Dense and rather long brown hairs cover carapace, lighter hairs on tho-

rax centre. Rusty scales surround anterior eyes. Clypeus low, with white hairs. Chelicerae brown, single big tooth on retromargin and two teeth on promargin (Fig. 3B). Labium, maxillae and sternum light brown. Abdomen elongated, fawnish-brown, with longitudinal wide irregular lighter

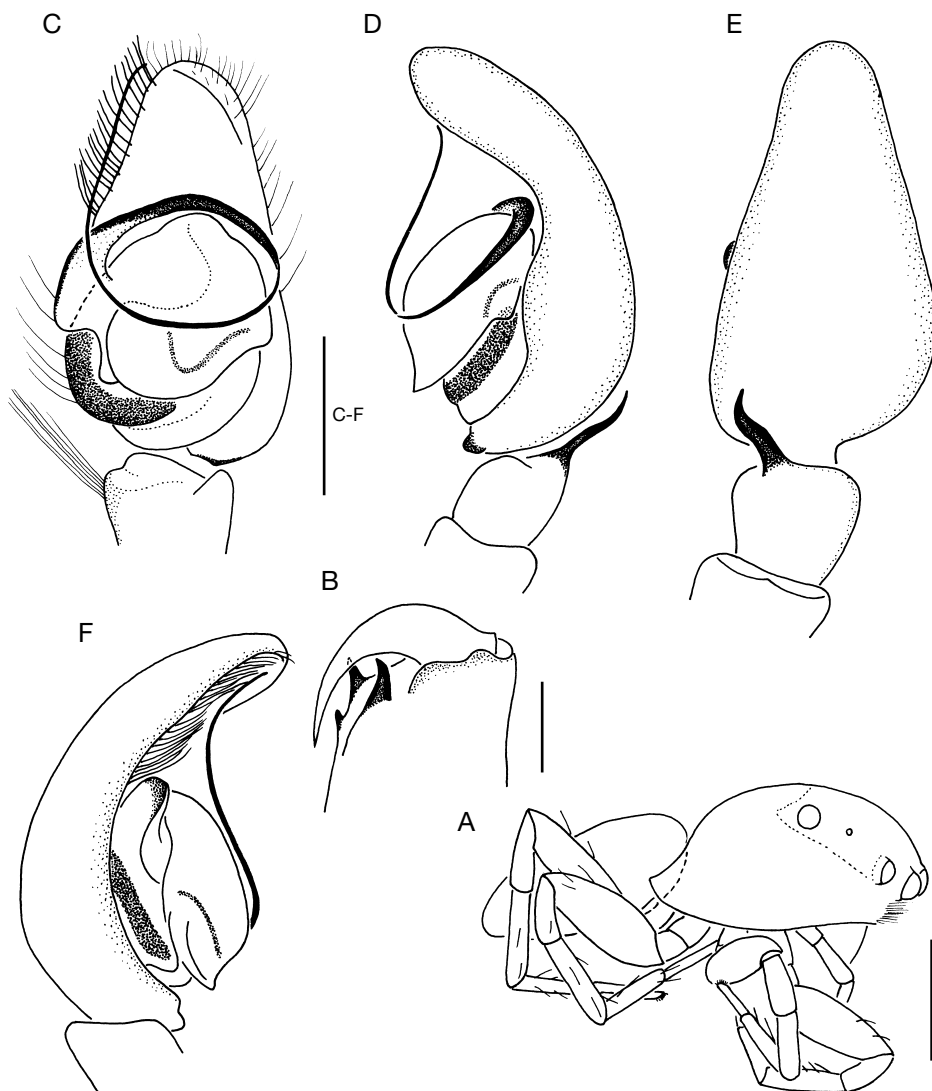


FIG. 3. — *Cembalea affinis* n. sp., paratype; **A**, general appearance, lateral view; **B**, cheliceral dentition; **C**, palpal organ, ventral view; **D**, palpal organ, prolateral view; **E**, palpal organ, dorsal view; **F**, palpal organ, retrolateral view. Scale bars: A, 1 mm; B, 0.2 mm; C-F, 0.3 mm.

stripe. Brown hairs cover abdomen, lighter at its anterior margin. Venter yellow. Spinnerets light. Legs yellow, clothed in brown hairs and spines. Pedipalps yellow. Row of very long, dense, black hairs on prolateral edge of cymbium, heavily contrasting with light palp. Embolus very long, thin, whip-shaped, forming loop (Fig. 3C, D). Single thin tibial apophysis (Fig. 3D, E). Female unknown.

Genus *Evarcha* Simon, 1902

*Evarcha bakorensis* n. sp.  
(Fig. 4)

TYPE MATERIAL. — Holotype: road to Bakoré, *Andropogon* steppe, 500 m a.s.l., 8.X.1956, leg. M. Lamotte, 1 ♂.

ETYMOLOGY. — The species is named after its type locality.

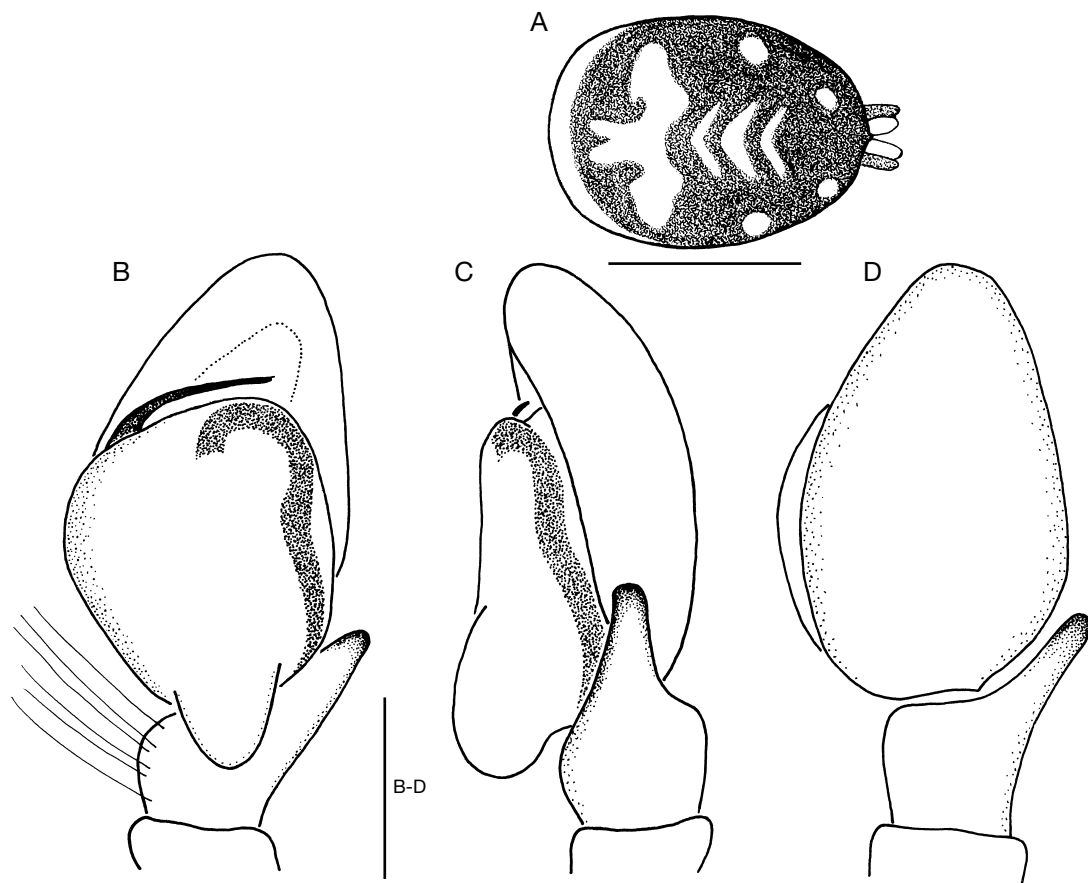


FIG. 4. — *Evarcha bakorensis* n. sp., holotype; **A**, abdominal pattern; **B**, palpal organ, ventral view; **C**, palpal organ, retrolateral view; **D**, palpal organ, dorsal view. Scale bars: A, 1 mm; B-D, 0.2 mm.

**DIAGNOSIS.** — The species resembles *Evarcha chubbi* Lessert, 1925, but differs from it in the shorter embolus and the shape of the tibial apophysis (cf. Fig. 4B-D with figs 79 and 80 in Lessert 1925).

#### DESCRIPTION

**Male.** Measurements: carapace length 1.5, width 1.1, height 0.7. Abdomen length 1.4, width 1.0. Eye field length 0.7, anterior and posterior width 1.1. Small spider, its carapace convex. Eye field dark brown, small triangular yellowish patch between eyes of III row. Thorax light brown, darker on slopes. Small fawn scales surround anterior eyes, between these eyes few white hairs. Clypeus covered with fawnish-yellow hairs. Chelicerae

light brown, promargin with two teeth, retromargin with single tooth. Labium and maxillae light brown with pale tips. Sternum yellowish-brown. Abdomen oval, brown with white anterior margin and pattern of whitish patches (Fig. 4A), venter yellowish. Long brown bristles at anterior margin of abdomen. Anterior spinnerets brown, posterior yellow. Legs I and II brown, only tarsi lighter. Femora of legs III and IV yellow with brown bases and tips, patellae and tibiae brown, metatarsi and tarsi yellow. Pedipalps yellowish-brown. Bulbus with big posterior lobe, embolus rather thin. Straight, wide and truncated single tibial apophysis (Fig. 4B-D).

**Female unknown.**

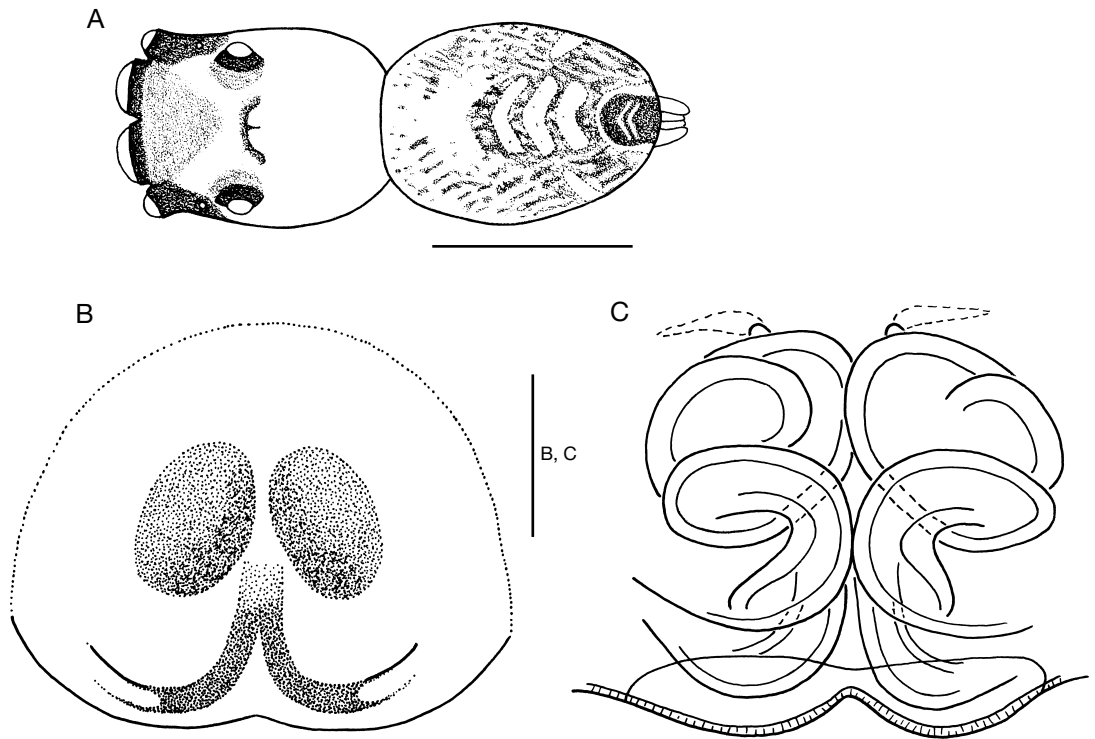


FIG. 5. — *Evarcha certa* n. sp., holotype; **A**, general appearance, dorsal view; **B**, epigyne; **C**, internal structure of epigyne. Scale bars: A, 2 mm; B, 0.3 mm; C, 0.2 mm.

*Evarcha certa* n. sp.  
(Fig. 5)

TYPE MATERIAL. — Holotype: Mountain Tô, meadow, 1200 m a.s.l., 10.XII.1951, leg. M. Lamotte & R. Roy, ♀.

ETYMOLOGY. — The specific name is Latin for “unquestionable”, and accentuates the generic membership of this species.

DIAGNOSIS. — The species is characterised by the structure of the epigyne; seminal ducts longer than in other members of the genus and receptacles composed of only few chambers.

DESCRIPTION

Male unknown.

Female. Measurements: carapace length 2.3, width 1.8, height 0.8. Abdomen length 2.3, width 1.8. Eye field length 1.0, anterior and posterior width 1.6. General appearance as in Fig. 5A. Carapace rather high, with large eye field. Coloration of

carapace light brown, ocular area darker, surroundings of eyes black. Few long bristles near eyes, very small yellowish scales surround anterior eyes. Clypeus low, light. Labium light brown with whitish tip, maxillae and sternum orange. Chelicerae light brown, single tooth on retromargin and two teeth on promargin. Abdomen fawnish-yellow with paler pattern (Fig. 5A), venter yellow, only few dark small dots on it. Spinnerets yellowish. Legs yellowish-orange clothed in light hairs. Spines brown. Epigyne oval, rather heavy sclerotized, with copulatory openings placed posteriorly (Fig. 5B). Internal structure shown in Fig. 5C.

*Evarcha maculata* n. sp.  
(Fig. 6)

TYPE MATERIAL. — Holotype: Mountain Leclerc, 900 m a.s.l., on the ground, 24.III.1991, leg. C. Rollard, ♂; paratype: together with holotype, 1 ♀.



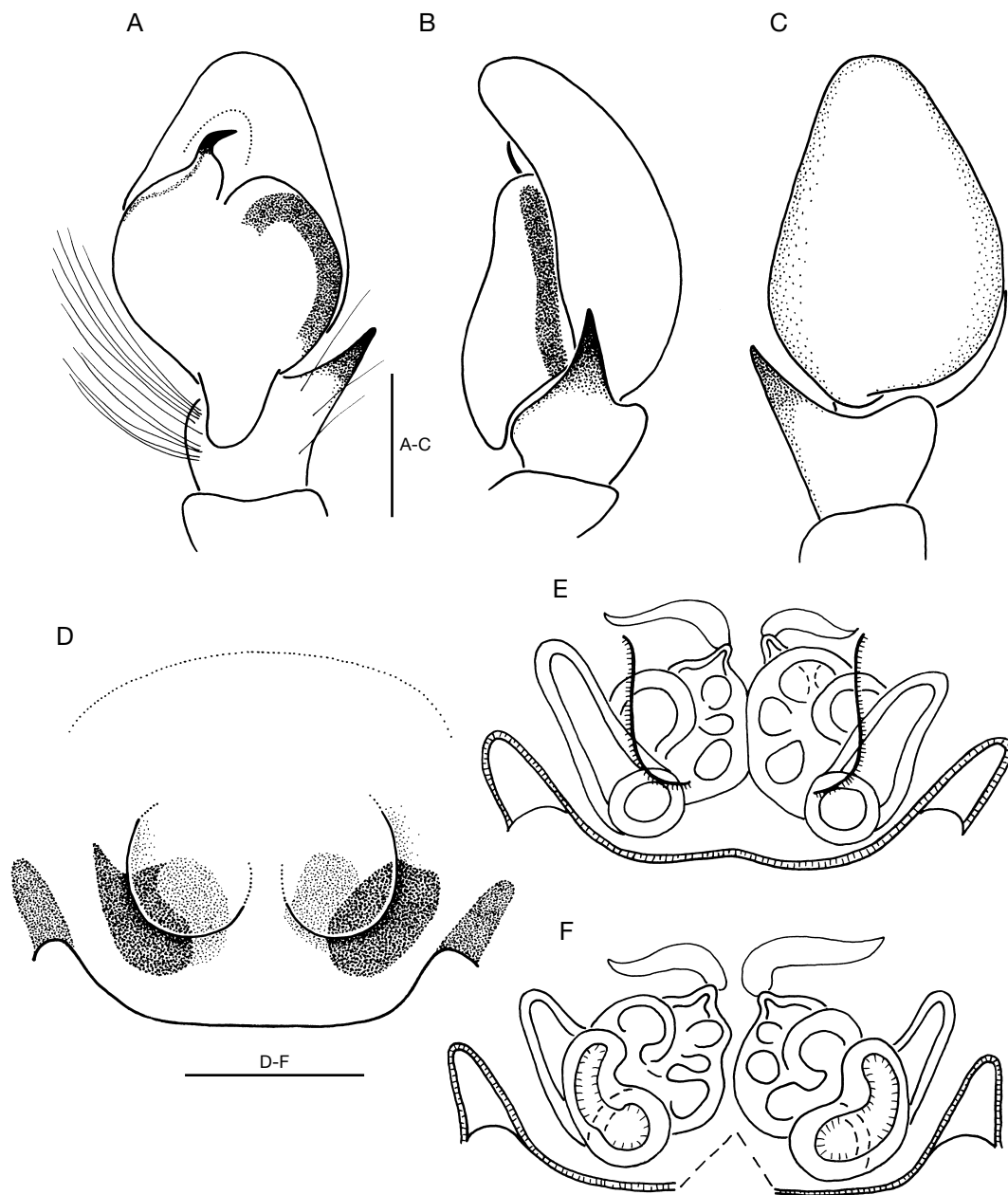


FIG. 6. — *Evarcha maculata* n. sp., holotype (male) and paratype (female); **A**, palpal organ, ventral view; **B**, palpal organ, retrolateral view; **C**, palpal organ, dorsal view; **D**, epigyne; **E**, internal structure of epigyne, ventral view; **F**, internal structure of epigyne, dorsal view. Scale bars: A-C, 0.2 mm; D-F, 0.1 mm.

**ETYMOLOGY.** — The specific name is Latin for “spotted”, and refers to the abdominal pattern of this species.

**DIAGNOSIS.** — The male may be distinguished by the short embolus and the shape of the tibial apophysis. The female differs from other species by details of the

internal structure of the epigyne, especially by the course of the seminal ducts.

#### DESCRIPTION

Male. Measurements: carapace length 1.7, width 1.2, height 0.8. Abdomen length 1.4, width 1.0. Eye field length 0.7, anterior width 1.1, posterior width 1.2. Eye field brown, two black patches in its centre, eye surrounds black. Thorax light brown, darker on slopes. Few brownish hairs on carapace, longer bristles near eyes. Small yellowish scales around anterior eyes. White hairs cover clypeus. Chelicerae and labium brown, sternum and maxillae yellowish-orange. Abdomen brownish with irregular median streak composed of yellowish patches; abdominal pattern resembles *E. certa* n. sp. Venter yellow, with wide median brownish streak and two narrow lines laterally. Sparse bristles at anterior abdominal margins. Spinnerets brown. Legs light brown with two darker rings on femora, and darker apical parts of remaining leg segments. Leg hairs brown and greyish, spines long. Pedipalp shown in Fig. 6A-C. Embolus very short, bulbus with big posterior lobe, tibial apophysis straight, pointed.

Female. Measurements: carapace length 1.8, width 1.4, height 0.7. Abdomen length 1.8, width 1.1. Eye field length 0.8, anterior width 1.2, posterior width 1.3. Like male, but coloration lighter. Carapace light brown, only eye surroundings black. Clypeus brownish. Abdominal pattern as in male, but clearly lighter, not contrasting. Brown hairs cover abdomen, longer and bushier at anterior edge. Spinnerets grey. Legs yellowish-orange. Epigyne strongly sclerotized with two pockets near epigastric furrow (Fig. 6D). Receptacles multi-chambered (Fig. 6E, F).

#### Genus *Gramenca* n. gen.

TYPE SPECIES. — *Gramenca prima* n. gen., n. sp.

ETYMOLOGY. — The generic name is derived from the Latin word “gramen” meaning “grass” and refers to the habitat of the type species. Gender feminine.

DIAGNOSIS AND AFFINITIES. — Small spider, body length c. 3 mm, carapace high. This genus is characterised by the very large epigyne, the form of which is

unique (see description of species). The structure of the female genitalia resembles those of the probably related genus *Parajotus* Peckham & Peckham, 1903, but epigynal pockets are in different position, they are situated more anteriorly and wider spaced. *Gramenca* n. gen. differs also in the presence of accessory glands.

#### *Gramenca prima* n. sp. (Fig. 7)

TYPE MATERIAL. — Holotype: road to Bakoré, *Andropogon* steppe, 500 m a.s.l., 8.X.1956, leg. M. Lamotte, ♀; paratype: together with holotype, 1 ♀.

ETYMOLOGY. — The specific name is Latin for “first”; this species is the first member of the genus.

DIAGNOSIS. — The species may be recognised by the size and shape of the epigyne, the course of the very long seminal ducts and the presence of two median epigynal pockets.

#### DESCRIPTION

Male unknown.

Female. Measurements: carapace length 1.4-1.5, width 1.1, height 0.6-0.7. Abdomen length 1.5-1.7, width 1.1-1.3. Eye field length 0.7-0.8, anterior and posterior width 1.0. Leg spination: I Fm d 1-1-1, Tb v 2-2-2, Mt v 2-2; II Fm d 1-1-2, Tb v 2-2-2, Mt v 2-2; III Fm d 1-1-2, Pt rl 1, Tb pl and rl 1-1, v 1ap, Mt pl and rl 1-1, v 2-2ap; IV Fm d 1-1-1, Tb pl and rl 1-1, v 2ap, Mt pl and rl 1-1, v 2-2ap. General appearance as in Fig. 7A. Small spider, with high carapace and large rectangular eye field. Carapace brown, ocular area darker, eyes surrounded by black rings. Sparse prostrate hairs on carapace, long brown setae in vicinity of eyes. Chelicerae brown, two teeth on promarginal edge and single big tooth on retromargin (Fig. 7B). Clypeus low, labium and maxillae light brown, sternum orange. Abdomen greyish-beige, with traces of light pattern formed by small dots, along its middle. Venter yellowish. Some brown setae at anterior abdominal margin. Spinnerets yellowish-grey. Legs yellow, with brown rings on their femora, patellae and tibiae. Leg hairs short, spines light brown, long. Epigyne large, elongated, more or less pentagonal, with two pockets in its centre (Fig. 7C). Seminal ducts very long and thin, narrowing before their outlet to receptacles.

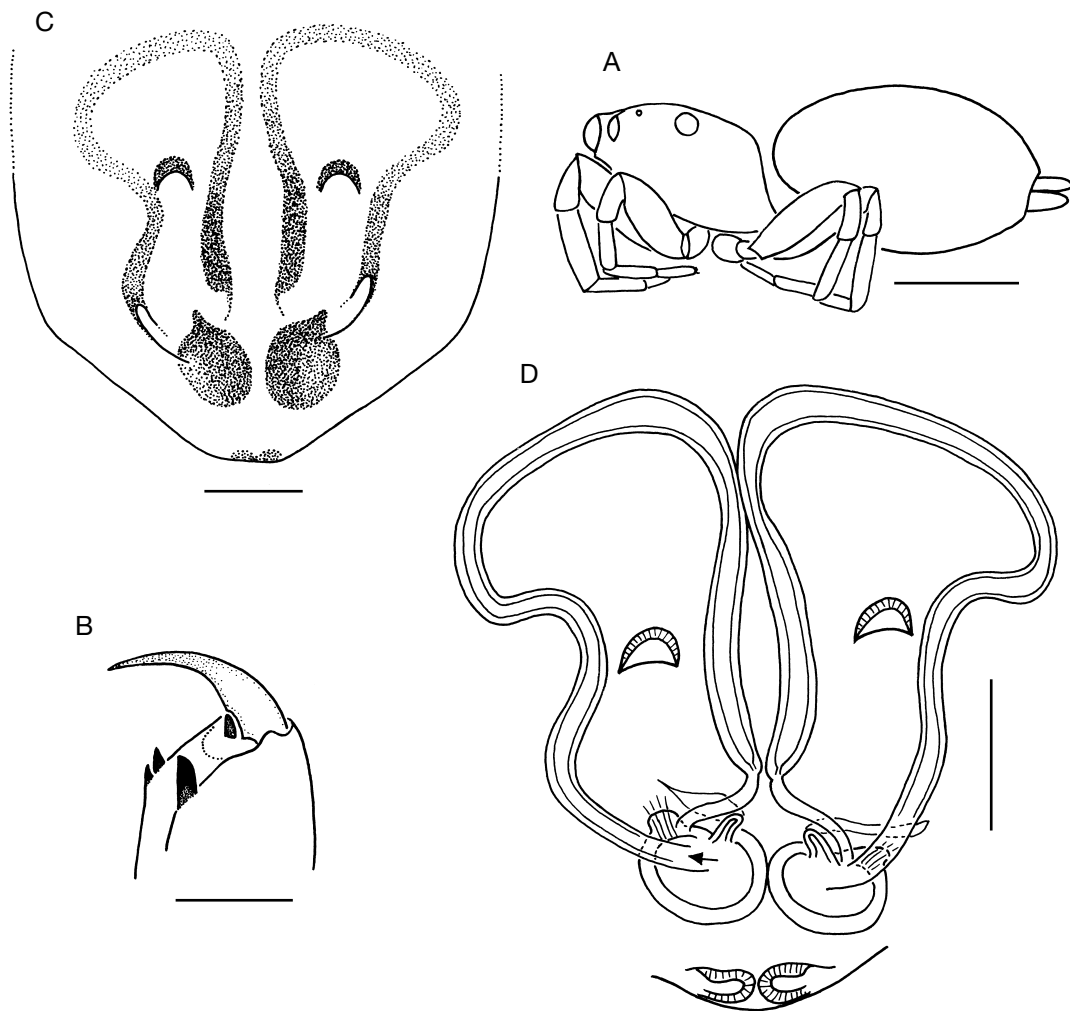


FIG. 7. — *Gramenca prima* n. gen., n. sp., paratype; **A**, general appearance, lateral view; **B**, cheliceral dentition; **C**, epigyne; **D**, internal structure of epigyne. Scale bars: A, 2 mm; B, 0.2 mm; C, D, 0.1 mm.

Receptacles small, kidney-shaped, with short accessory glands in their walls (Fig. 7D).

Genus *Heliophanus* C. L. Koch, 1833  
Subgenus *Helafricanus* Wesołowska, 1986

*Heliophanus (Helafricanus) heurtaultae* n. sp.  
(Figs 8; 9)

TYPE MATERIAL. — Holotype: Pierré Richaud, 1200–1350 m a.s.l., under low vegetation, 23.III.1991, leg. C. Rollard, ♂; paratypes: Sempéré, 1600 m a.s.l.,

under stones, 8.III.1991, leg. C. Rollard, 1 ♂, 2 ♀ ♀, 1 juv. — Road to Zougouépo, 1360 m a.s.l., meadow, 8–9.VIII.1951, leg. M. Lamotte & R. Roy, 1 ♀. — Pierré Richaud, 1600 m a.s.l., meadow, autumn 1951, leg. M. Lamotte & R. Roy, 1 ♀, 1 juv. — Same locality, on ground and low vegetation, 27.XI.1961, leg. P. Aguesse & M. Lamotte, 1 ♀. — Mountain Richard Mollard, 1600 m a.s.l., 9.XI.1951, leg. M. Lamotte & R. Roy, 1 ♀, 3 juv. — Mountain Richard Mollard, 1650 m a.s.l., on rock, 21.III.1991, leg. C. Rollard, 1 ♂. — Between Grand Rocher and Mountain Richard Mollard, 1620 m a.s.l., on ground, 20.III.1991, leg. C. Rollard, 1 ♂, 2 juv. — Grand Rocher, 1550 m a.s.l., 13.III.1991, leg. C. Rollard, 1 ♀, 1 juv. — Nion crest, 1380 m a.s.l., under stones, 16.III.1991, leg.

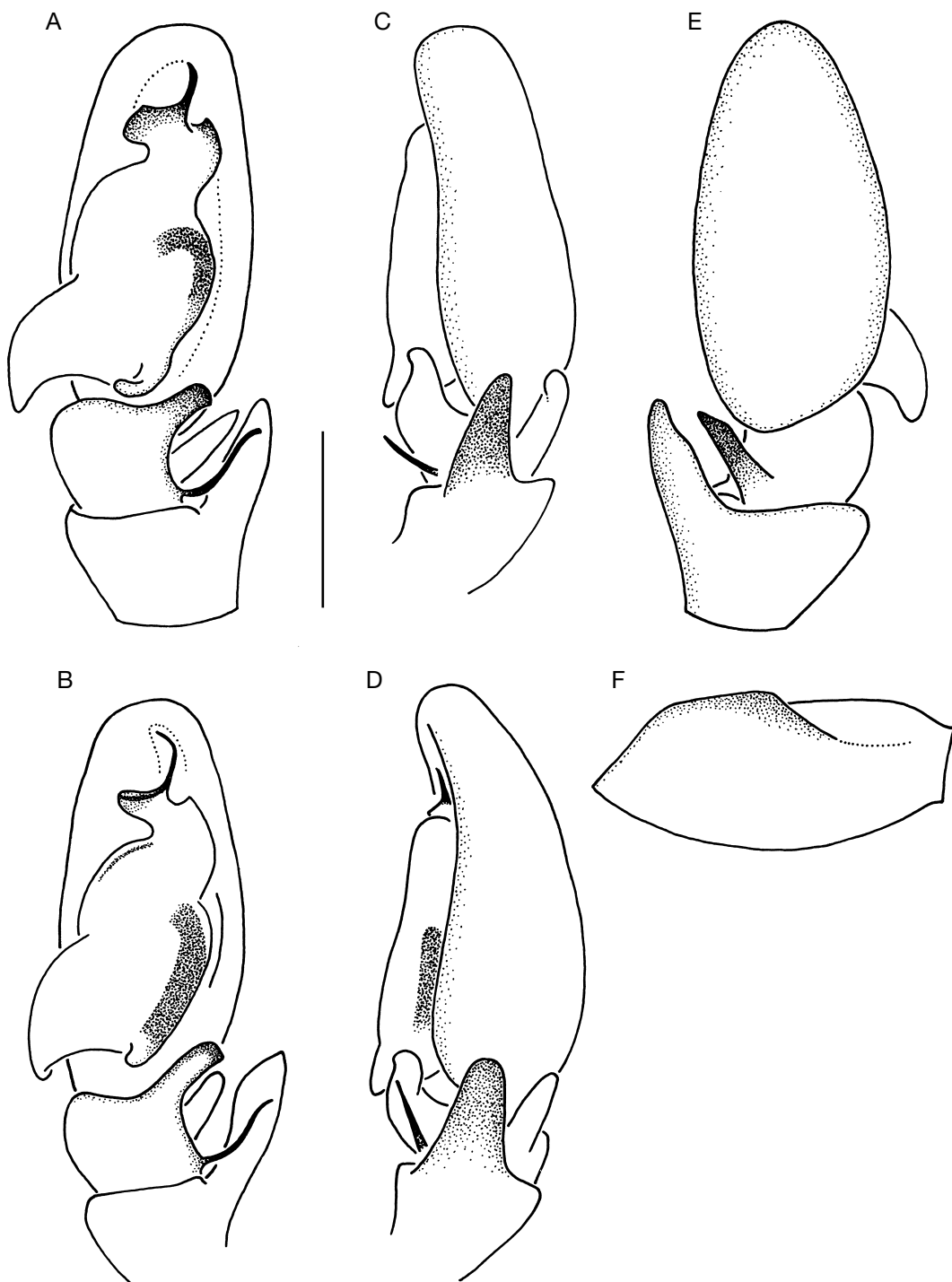


FIG. 8. — *Heliophanus heurtaultae* n. sp., paratypes; **A, B**, palpal organ, ventral views; **C, D**, palpal organ, retrolateral views; **E**, palpal organ, dorsal view; **F**, palpal femur. Scale bar: 0.2 mm.

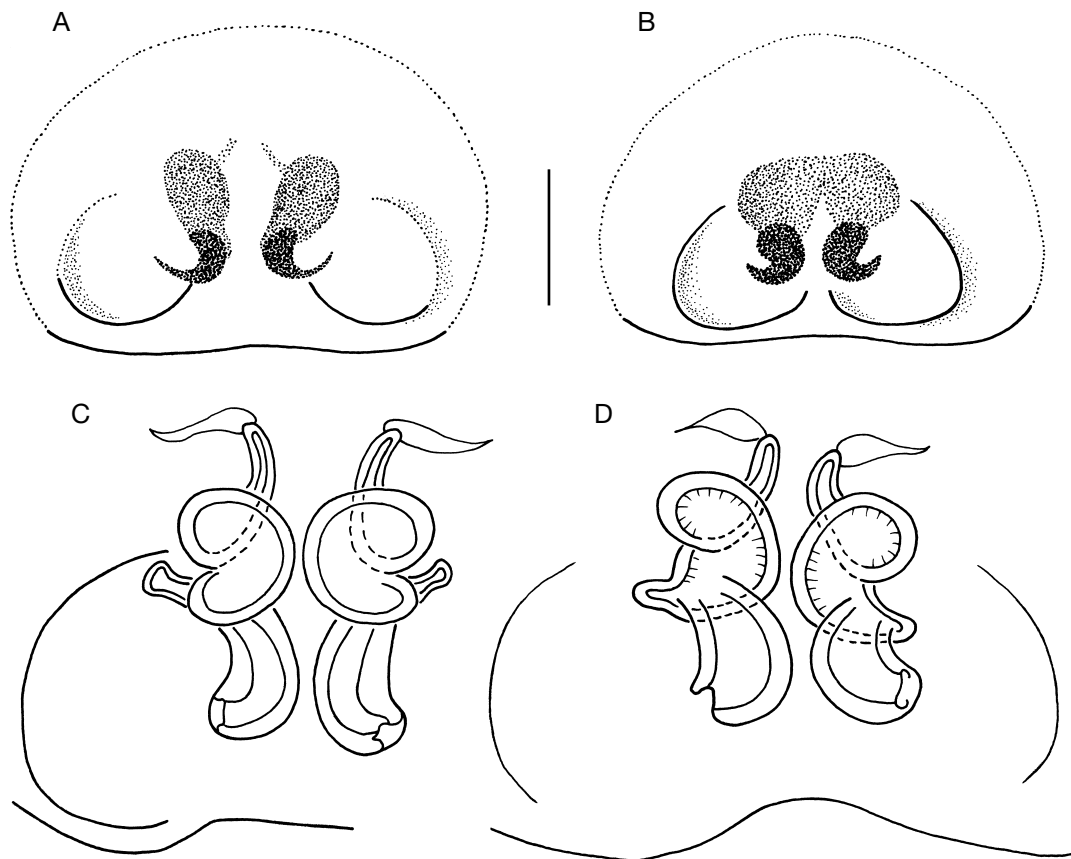


FIG. 9. — *Heliophanus heurtaultae* n. sp., paratypes; **A, B**, epigynes; **C, D**, internal structure of epigynes. Scale bar: A, B, 0.2 mm; C, D, 0.1 mm.

C. Rollard, 1 ♀. — Mountain Leclerc, 1550 m a.s.l., under vegetation, 23.III.1991, leg. C. Rollard, 1 ♀. — Mountain Tô, 1620 m a.s.l., 10.III.1991, leg. C. Rollard, 3 ♂♂, 2 ♀♀.

**ETYMOLOGY.** — This species is dedicated to the late Dr Jacqueline Heurtault, general secretary of the CIDA (International Society of Arachnology) for many years, curator of Arachnida at the Natural History Museum in Paris and a prominent authority on pseudoscorpions.

**DIAGNOSIS.** — The male may be separated from other species of the subgenus *Helaffricanus* with three tibial apophyses by the form of the embolus, the shape of the apophyses and lack of a process at the cymbium base. The female is rather difficult to distinguish, but this species has shorter seminal ducts than similar species.

#### DESCRIPTION

**Male.** Measurements: carapace length 1.5-1.6, width 1.1, height 0.6. Abdomen length 1.5-1.7, width 1.0-1.1. Eye field length 0.8, anterior width 1.0, posterior width 1.0. Small spider. Carapace dark, almost black, clothed in prostrate thin brown hairs. Brown bristles near eyes. Chelicerae dark brown. Labium, maxillae and sternum brown. Abdomen blackish, covered with dark hairs. Venter dark. Spinnerets brownish. Legs dark brown, their hairs dark. Pedipalps brown. Three tibial apophyses, ventrodiscal on very thin, spine-shaped (Fig. 8A-D). Patellar apophysis wide and truncated (Fig. 8B-D).

**Female.** Measurements: carapace length 1.7-1.9, width 1.3, height 0.6-0.7. Abdomen length 2.2-

2.6, width 1.4–1.6. Eye field length 0.7–0.8, anterior width 1.0, posterior width 1.1. Slightly larger than male. Carapace brown, ocular area black. Prostrate dense brown and grey hairs cover carapace, long bristles near eyes. Chelicerae and labium brown, maxillae light brown with pale tips, sternum yellow. Abdomen russet, with thin whitish line on anterior margin and traces of yellowish irregular median stripe. Venter light, in some specimens with wide dark streak medially. Dense brown hairs on dorsal surface of abdomen. Spinnerets brown. Legs yellow, sometimes lateral surfaces of femora and terminal ends of patellae and tibiae brownish. Epigyne with large central depression (Fig. 9B). Internal structures shown in Fig. 9C, D.

#### REMARKS

This species belongs to the *marshalli* group species within the subgenus *Helafricanus*.

#### Genus *Lamottella* n. gen.

TYPE SPECIES. — *Lamottella longipes* n. gen., n. sp.

ETYMOLOGY. — The new genus is dedicated to Prof. M. Lamotte, an ecologist and an outstanding specialist on frogs, who initiated and led the early scientific expeditions to the Nimba Mountains. Gender feminine.

DIAGNOSIS AND AFFINITIES. — Medium sized spider, body length *c.* 5.5 mm. Eye field large, carapace convex, chelicerae big, maxillae long, sternum short and wide, legs long. Especially long first legs, their femora with protruding setae on ventral surface. This genus is characterised by the very long first legs and the unique structure of the male copulatory organ (see description of species). Relatively simple structure of the male genitalia and modified habitus do not provide adequate base for drawing conclusions on the relationships of the genus.

#### *Lamottella longipes* n. sp. (Fig. 10)

TYPE MATERIAL. — Holotype: Mountain Tô, 1600–1650 m a.s.l., 20.VI.1942, ♂.

ETYMOLOGY. — The specific name is derived from Latin words “longus” and “pes” meaning “long leg”, and indicates the characteristic feature of this species.

DIAGNOSIS. — This species is distinguished by the long first legs and by details of the pedipalp structure; shape of the embolus, small bulbus, very narrow cymbium and long tibia with very short apophysis.

#### DESCRIPTION

Male. Measurements: carapace 2.8, width 2.2, height 1.6. Abdomen length 2.5, width 2.0. Eye field length 1.4, anterior width 1.9, posterior width 1.8. Leg spination: I Fm d 0-1-1-0, pl and rl 1ap, Pa pl 0-1, Tb pl 1-0-1-0, v 2-2-2-2, Mt pl and rl 0-1, v 2-2; II Fm d 0-1-1-0, pl 2ap, rl 1ap, Pa pl 0-1, Tb pl 1-1-1, v 2-2-2, Mt pl and rl 1-1, v 2-2; III Fm d 1-1, Pt pl and rl 1, Tb pl and rl 1-1, Mt pl 1ap, rl 1-1, v 1-2ap; IV Fm d 1-1, pl 0-1, Pt pl 1, Tb pl 1-1, v 1-2ap, Mt pl 1-1-0-1ap, rl 1-1-0-2ap, v 0-1-2ap. General appearance as in Fig. 10A. Carapace rounded, very high, eye field occupies about half its length. Coloration of carapace brown, vicinity of eyes black. Thin prostrate hairs cover carapace, long brown bristles near eyes. Clypeus clothed in white hairs. Chelicerae long brownish, with single big tooth on retromargin and two teeth on promargin (Fig. 10B). Maxillae elongated. Sternum rounded. Abdomen oval greyish-russet, with traces of fish-bone shaped lighter pattern. Prostrate short hairs on abdomen. Venter greyish. Spinnerets yellow. Legs long, with very elongated femora. Legs of first pair longest (especially long tibiae). Leg coloration light brown, spines and hairs brown. Protruding short hairs on ventral surfaces of femora I (Fig. 10A). Pedipalps long brown, clothed in long dark hairs. Cymbium long and very narrow (Fig. 10D). Bulbus rounded, embolus rather long, bent in half of its length (Fig. 10C, E). Palpal tibia very long, with single short and wide apophysis (Fig. 10F). Female unknown.

#### Genus *Langelurillus* Próchniewicz, 1994

#### *Langelurillus horriifer* n. sp. (Fig. 11)

TYPE MATERIAL. — Holotype: road to Bakoré, *Andropogon* steppe, 500 m a.s.l., 8.X.1956, leg. M. Lamotte, ♀.

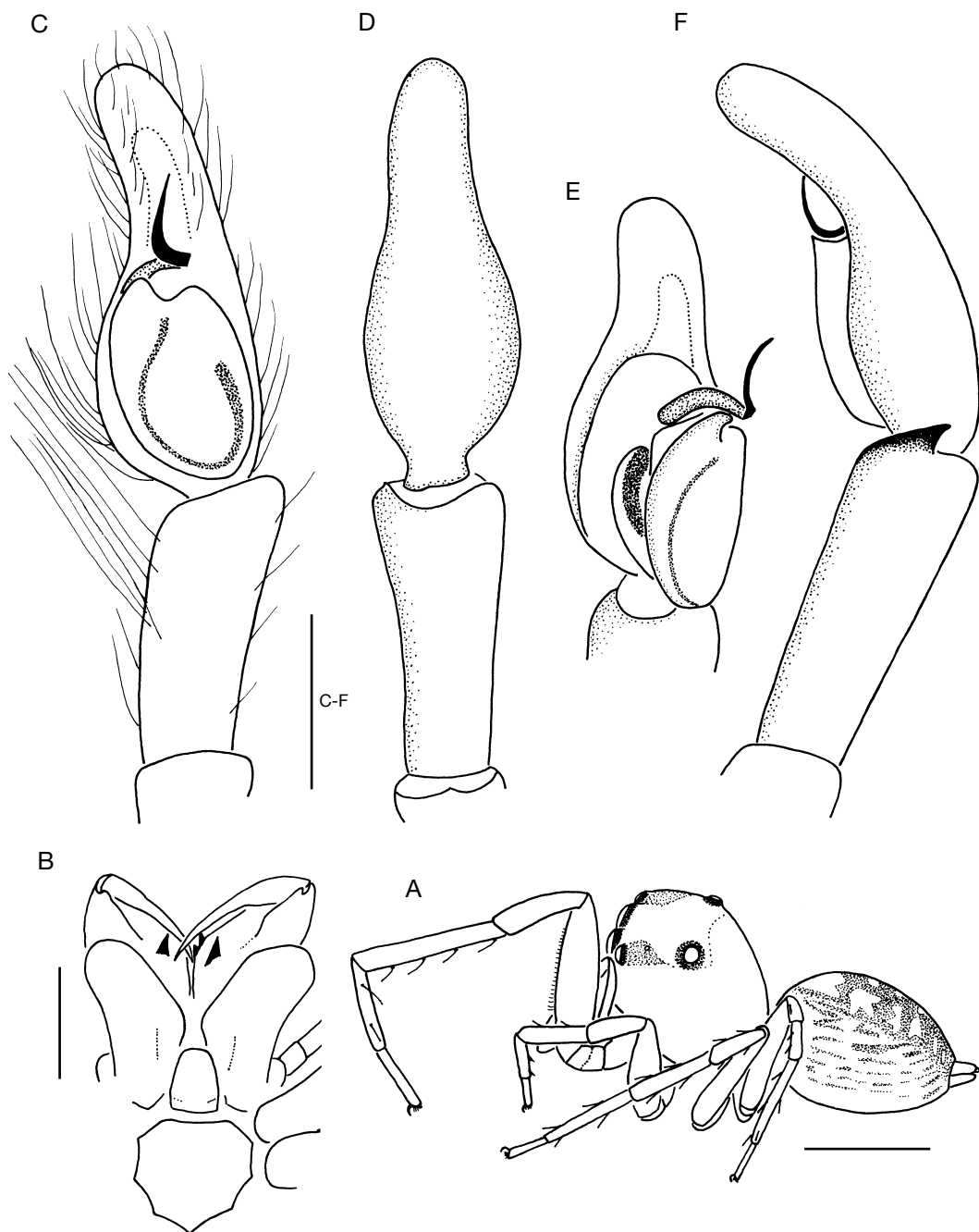


FIG. 10. — *Lamottella longipes* n. gen., n. sp., holotype; **A**, general appearance, lateral view; **B**, chelicerae and sternum; **C**, palpal organ, ventral view; **D**, palpal organ, dorsal view; **E**, palpal organ, ventrolateral view; **F**, palpal organ, retrolateral view. Scale bars: A, 2 mm; B, 0.1 mm; C-F, 0.3 mm.

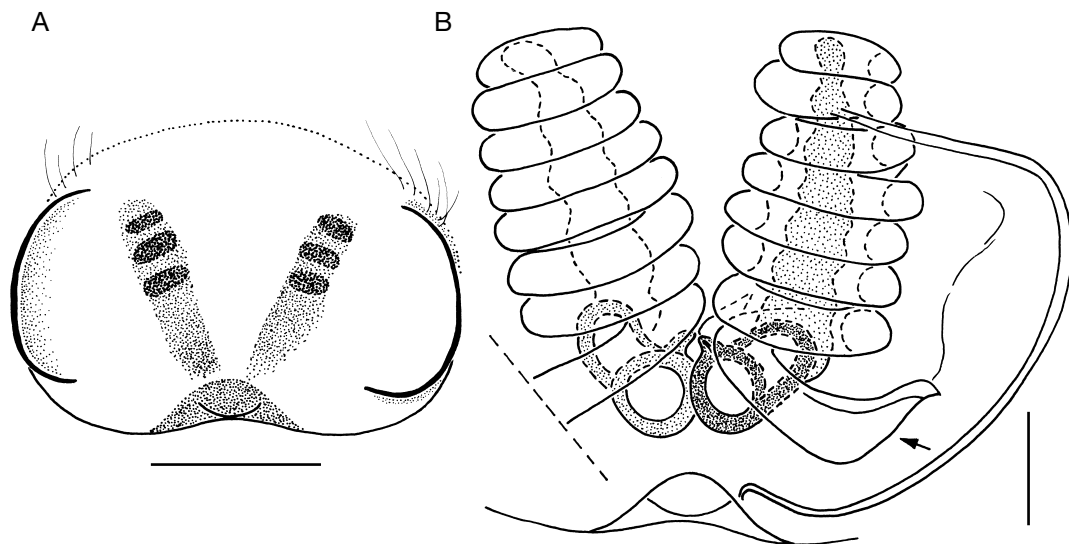


FIG. 11. — *Langelurillus horriker* n. sp., holotype; **A**, epigyne; **B**, internal structure of epigyne. Scale bars: A, 0.2 mm; B, 0.1 mm.

**ETYMOLOGY.** — The specific name is Latin for “terrible”, and refers to the complicated structure of the epigyne of this species.

**DIAGNOSIS.** — The species resembles *L. nigrinus* n. comb. and *L. difficilis* Wesołowska & Russell-Smith, 2000, but may be easily distinguished by the shape of the copulatory openings and the longer seminal ducts (cf. Fig. 11B with figs 13E and 124 in Wesołowska & Russell-Smith 2000).

#### DESCRIPTION

Male unknown.

Female. Measurements: carapace length 2.1, width 1.7, height 1.0. Abdomen length 2.7, width 2.5. Eye field length 0.8, anterior width 1.5, posterior width 1.4. Carapace high, brown, ocular area black. Brown and grey hairs cover carapace, long brown bristles in vicinity of eyes, short dense spines on eye field anteriorly. Small yellowish-fawn scales around anterior eyes. Chelicerae brown, toothless, with long hairs on promarginal protuberance. Labium and sternum orange, maxillae orange with whitish tips. Abdomen rounded, squat, brownish-beige, ventrally light. Sparse long brown hairs on abdomen, denser at its anterior edge. Spinnerets yellow. Legs light brown, their hairs brown. Epigyne oval, with elevated median part and two large depressions laterally

(Fig. 11A). Seminal ducts spirally coiled, very long, their spirals have eight loops, receptacles composed of two chambers (Fig. 11B).

#### *Langelurillus nigrinus*

(Berland & Millot, 1941) n. comb.

(Figs 12; 13)

*Habrocestum nigrinum* Berland & Millot, 1941: 303.

*Habrocestum diversipes* – Berland & Millot 1941: 301, n. syn.

**MATERIAL EXAMINED.** — Mountain Tò, 1620 m a.s.l., on ground, 10.III.1991, leg. C. Rollard, 2 ♂♂, 3 ♀♀. — Mountain Leclerc, 900-1450 m a.s.l., on ground, in low vegetation, 23-24.III.1991, leg. C. Rollard, 2 ♂♂, 2 ♀♀. — Grand Rocher, 1550 m a.s.l., on ground, 13.III.1991, leg. C. Rollard, 1 ♂. — Road from Grand Rocher to Mountain Richard Mollard, near peak of Grand Rocher, 1470 m a.s.l., in brushwood, 20.III.1991, leg. C. Rollard, 2 ♂♂. — Pierré Richaud, 1200-1350 m a.s.l., on ground in low vegetation, 26.III.1991, leg. C. Rollard, 1 ♀. — Route to Pierré Richaud, 850 m a.s.l., savanna near woodland, 20.X.1956, leg. M. Lamotte, 1 ♀. — Mountain Richard Mollard, 1600 m a.s.l., 9.XI.1951, leg. M. Lamotte & R. Roy, 1 ♀. — Ziéla, 500 m a.s.l., *Andropogon* steppe, 13.X.1956, leg. M. Lamotte, 1 ♂.

**COMPARATIVE MATERIAL.** — **Guinea.** Dalaba VIII. 1937, leg. L. Berland, 1 ♂ (paratype of *Habrocestum nigrinum*) (MNHN). — **Ivory Coast.** Man, IX.1937,



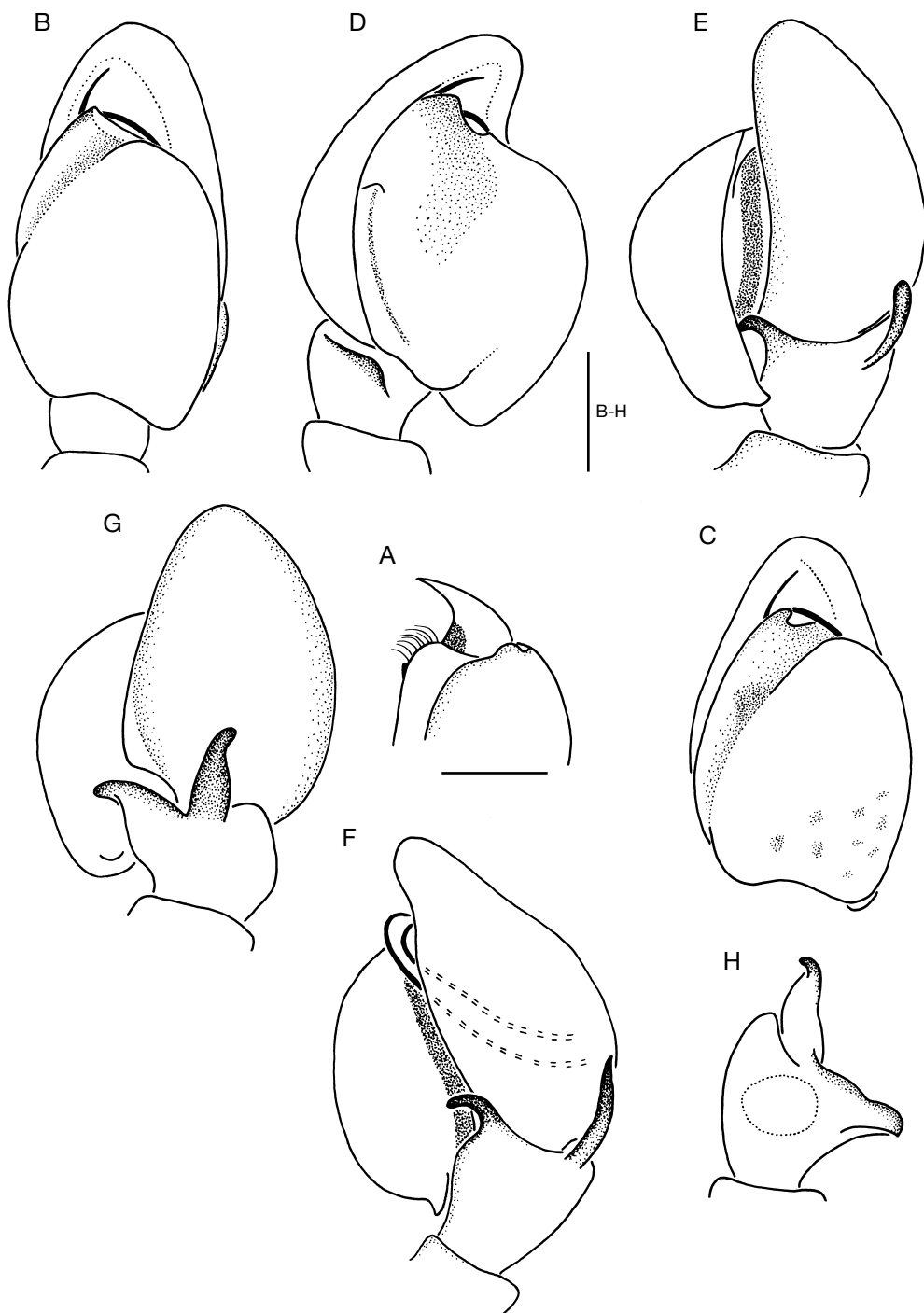


FIG. 12. — *Langelurillus nigratus* (Berland & Millot, 1941) n. comb., ♂; **A**, cheliceral dentition; **B**, **C**, palpal organ, ventral views; **D**, palpal organ, prolateral view; **E**, **F**, palpal organ, retrolateral views; **G**, palpal organ, dorsal view; **H**, palpal tibia, ventral view (bulbus and cymbium removed); **B**, **D**, **E**, **G**, paratype of *Habrocestum nigrum* Berland & Millot, 1941. Scale bars: 0.3 mm.

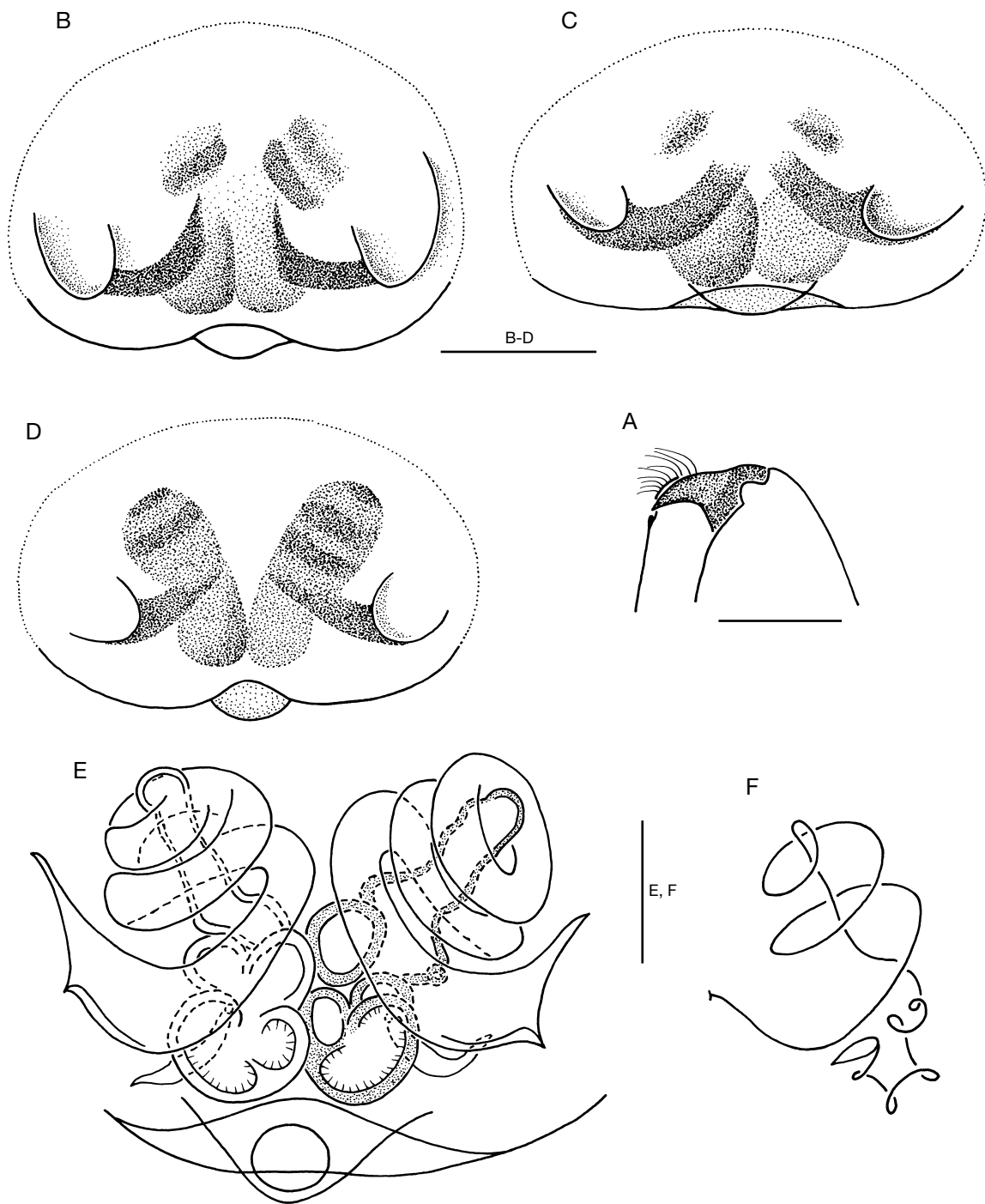


FIG. 13. — *Langelurillus nigratus* (Berland & Millot, 1941) n. comb., ♀; **A**, cheliceral dentition; **B-D**, epigynes; **E**, internal structure of epigyne; **F**, diagrammatic course of seminal duct; **D**, **E**, holotype of *Habrocestum diversipes* Berland & Millot, 1941. Scale bars: A, 0.5 mm; B-D, 0.2 mm; E, F, 0.1 mm.

leg. J. Millot, 1 ♀ (holotype of *Habrocestum diversipes*) (MNHN).

DISTRIBUTION. — Species distributed in western Africa (Ivory Coast and Guinea).

#### DESCRIPTION

Male. Measurements: carapace length 1.7-2.3, width 1.3-1.8, height 0.8-0.9. Abdomen length 1.4-2.0, width 1.0-1.7. Eye field length 0.7-1.0, anterior width 1.2-1.6, posterior width 1.1-1.5. Cephalothorax longer and wider than abdomen. Carapace convex, eye field short, fovea clearly visible. Coloration of carapace dark brown, ocular area black. Brown hairs cover carapace, dense long brown bristles near eyes, short thick bristles on anterior part of eye field. Anterior eyes surrounded by small fawn scales. In some specimens short light hairs form narrow white line running along anterior and lateral edges of eye field. Chelicerae with diminutive tooth and long bristles on promargin, retromarginal edge toothless (Fig. 12A). Clypeus low, dark brown. Labium, maxillae and sternum brown. Abdomen dark brown or greyish-brown, ventrally light brown or yellowish. Short brownish hairs on abdomen, longer and denser at its anterior margin. Spinnerets yellow. First legs thickest, their segments short. Coloration of legs brownish, basal parts of femora lighter. Leg hairs brown, spines numerous. Pedipalps brown. Tegulum very convex (Fig. 12D-G), embolus coiled on tip of bulbus, only its end visible (Fig. 12B, C), two flat tibial apophyses (Fig. 12E-H).

Female. Measurements: carapace length 2.2-2.5, width 1.8-1.9, height 1.0-1.2. Abdomen length 2.4-2.9, width 2.1-2.7. Eye field length 0.9-1.0, anterior width 1.4-1.6, posterior width 1.3-1.5. Resembles male, but abdomen bigger. Clypeus higher than in male. Chelicerae as in Fig. 13A. Abdomen lighter. Epigyne oval, copulatory openings placed laterally (Fig. 13B-D). Seminal ducts spirally coiled, receptacles composed of several chambers (Fig. 13E).

#### REMARKS

Only males of *H. nigratum* and a single female of *H. diversipes* have previously been described.

Their joint collection in the Nimba Mountains allows us to synonymise these species.

Genus *Natta* Karsch, 1879

#### *Natta chionogastra* (Simon, 1901)

*Cyllobelus chionogaster* Simon, 1901: 151.

*Natta chionogastra* – Prószyński 1985: 80. — Wesołowska 1993b: 18.

*Cyllobelus australis* – Peckham & Peckham 1903: 194.

*Natta australis* – Prószyński 1985: 83.

MATERIAL EXAMINED. — Road to Bié, 1000 m a.s.l., meadow, 5.XII.1951, leg. M. Lamotte & R. Roy, 1 ♂.

DISTRIBUTION. — A species widely distributed in the Afrotropical Region.

#### Genus *Nimbarus* n. gen.

TYPE SPECIES. — *Nimbarus pratensis* n. gen., n. sp.

ETYMOLOGY. — The generic name is derived from the *terra typica* of the type species (Nimba Mountains). Gender masculine.

DIAGNOSIS AND AFFINITIES. — Small spider, body length c. 4 mm. This genus is distinguished by the high carapace, the structure of the chelicerae and the unusual structure of the male copulatory organ (see description of species). Since the structure of the male genitalia of *Nimbarus* n. gen. is peculiar and not related to other salticids but its habitus is rather typical, relationships of this genus are difficult to settle and demand further study.

#### *Nimbarus pratensis* n. sp. (Fig. 14)

TYPE MATERIAL. — Holotype: Mountain Tô, 1600-1650 m a.s.l., meadow, 12-13.XII.1951, leg. M. Lamotte & R. Roy, ♂; paratypes: together with holotype, 3 ♂♂ (two without abdomen). — Same locality, 20-23.IX.1951, leg. M. Lamotte & R. Roy, 1 ♂.

ETYMOLOGY. — The specific name is Latin for “meadow”, and refers to the habitat of this species.

DIAGNOSIS. — This species is characterised by details of the pedipalp structure; the presence of two long processes on the bulbus tip, the form of the dorsal tib-

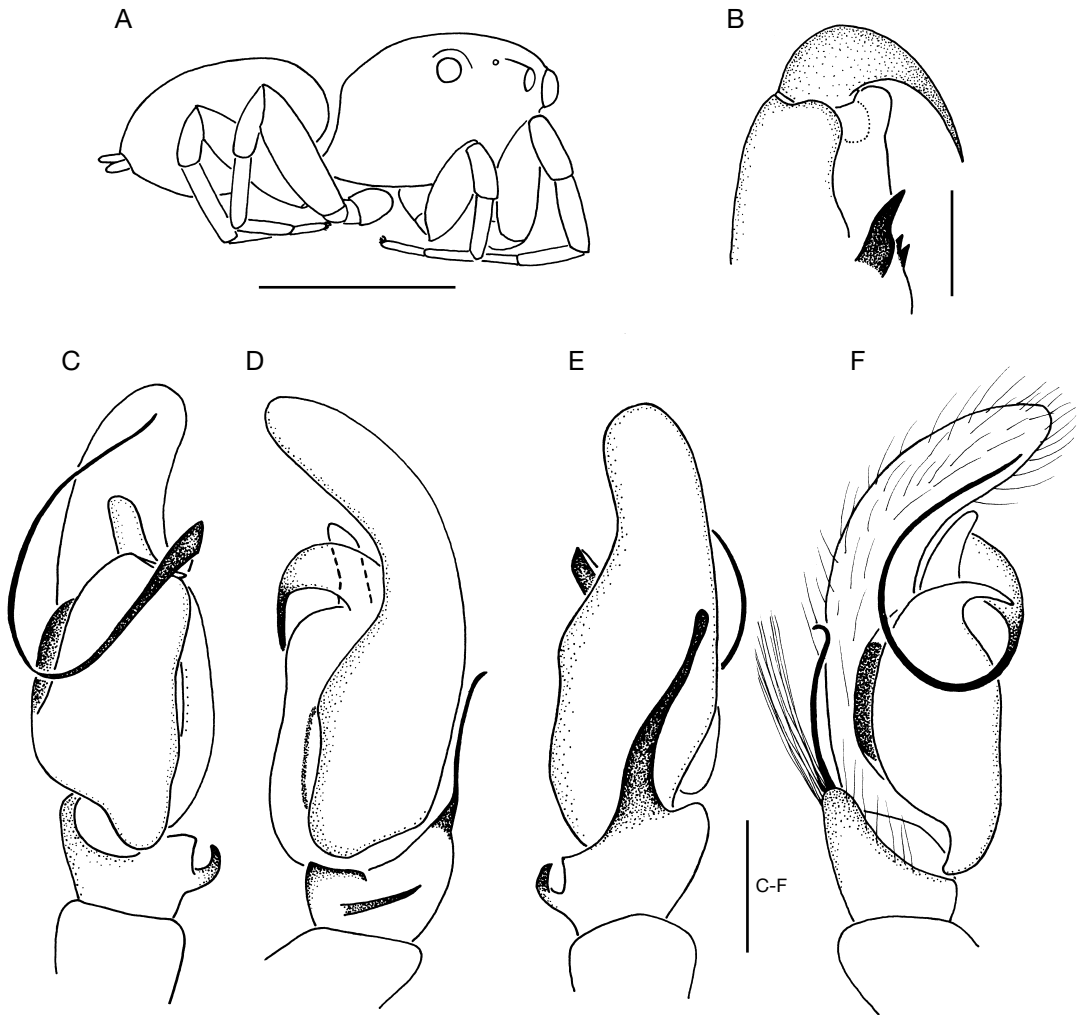


FIG. 14. — *Nimbarus pratensis* n. gen., n. sp., paratype; **A**, general appearance, lateral view; **B**, cheliceral dentition; **C**, palpal organ, ventral view; **D**, palpal organ, retrolateral view; **E**, palpal organ, dorsal view; **F**, palpal organ, ventro-prolateral view. Scale bars: A, 2 mm; B-F, 0.2 mm.

ial apophysis and the rolled up retrolateral cymbial edge.

#### DESCRIPTION

Male. Measurements: carapace length 1.7-2.0, width 1.2-1.5, height 0.8-0.9. Abdomen length 1.6-1.9, width 1.1-1.4. Eye field length 0.8-0.9, anterior and posterior width 1.2-1.3. Leg spination: I Fm d 1-1-1, Tb v 2-2-2ap, Mt v 2-2ap; II Fm d 1-1-1, Tb d 1-1, pl 1ap, v 1-1-1, Mt pl and v 1-1ap, rl 1ap; III Fm d 1-1-1, pl 1,

Tb pl and rl 1-1, v 1-1ap, Mt d 2ap, pl and rl 1-1-1ap, v 2ap; IV Fm d 1-1, pl 0-1, Pt pl 1, Tb pl and rl and v 1-1, Mt d 2ap, pl and rl 1-1-1ap, v 2ap. General appearance as in Fig. 14A. Carapace oval, very high. Coloration of carapace dark brown to blackish, in some specimens traces of light line along its middle, vicinity of eyes black. Very short prostrate hairs on carapace, their coloration brownish and grey, only near eyes long brown bristles. Clypeus clothed in white hairs. Chelicerae big, with stumpy

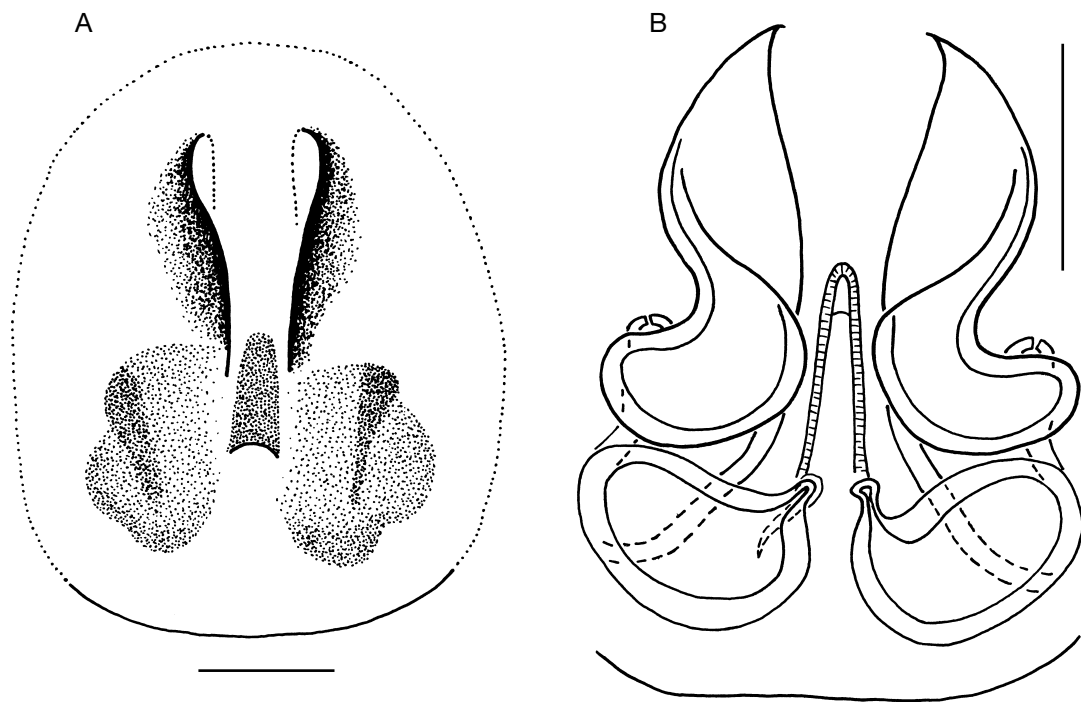


FIG. 15. — *Plexippus fuscus* n. sp., holotype; **A**, epigyne; **B**, internal structure of epigyne. Scale bars: 0.2 mm.

fang, two small teeth on promarginal edge and huge tooth on retromarginal one (Fig. 14B). Maxillae light brown, labium and sternum darker. Abdomen oval, dark brown, venter dark too. Some long brown hairs at anterior abdominal margins. Spinnerets brown. Legs dark brown, their hairs delicate, brown and greyish. Spines long. Pedipalps small, brown, with long hairs. Cymbium narrow, its retrolateral edge rolled up (Fig. 14C, D). Bulbus irregularly shaped, with long apical lobe and very thin horizontal process at embolus base (Fig. 14C, E). Embolus at tip of bulbus, long and thin, forming large loop. Embolus base wide, membranous (Fig. 14D). Palpal tibia short, with two apophyses; retrolateral of them rather small, almost horizontal; dorsal one thin, quite flat and very long (Fig. 14C, D). Tuft of long bristles near dorsal tibial apophysis. Female unknown.

Genus *Plexippus* C. L. Koch, 1846

*Plexippus fuscus* n. sp.  
(Fig. 15)

TYPE MATERIAL. — Holotype: Mountain Leclerc, 1250 m a.s.l., on ground in low vegetation, 23.III.1991, leg. C. Rollard, ♀.

ETYMOLOGY. — The specific name is Latin for “dark”, and refers to the coloration of this species.

DIAGNOSIS. — This species may be separated by the structure of the epigyne, especially the seminal ducts, initial parts of which are heavily sclerotized deep bowls.

DESCRIPTION

Male unknown.

Female. Measurements: carapace length 3.4, width 2.3, height 1.6. Abdomen length 4.0, width 2.4. Eye field length 1.3, anterior and

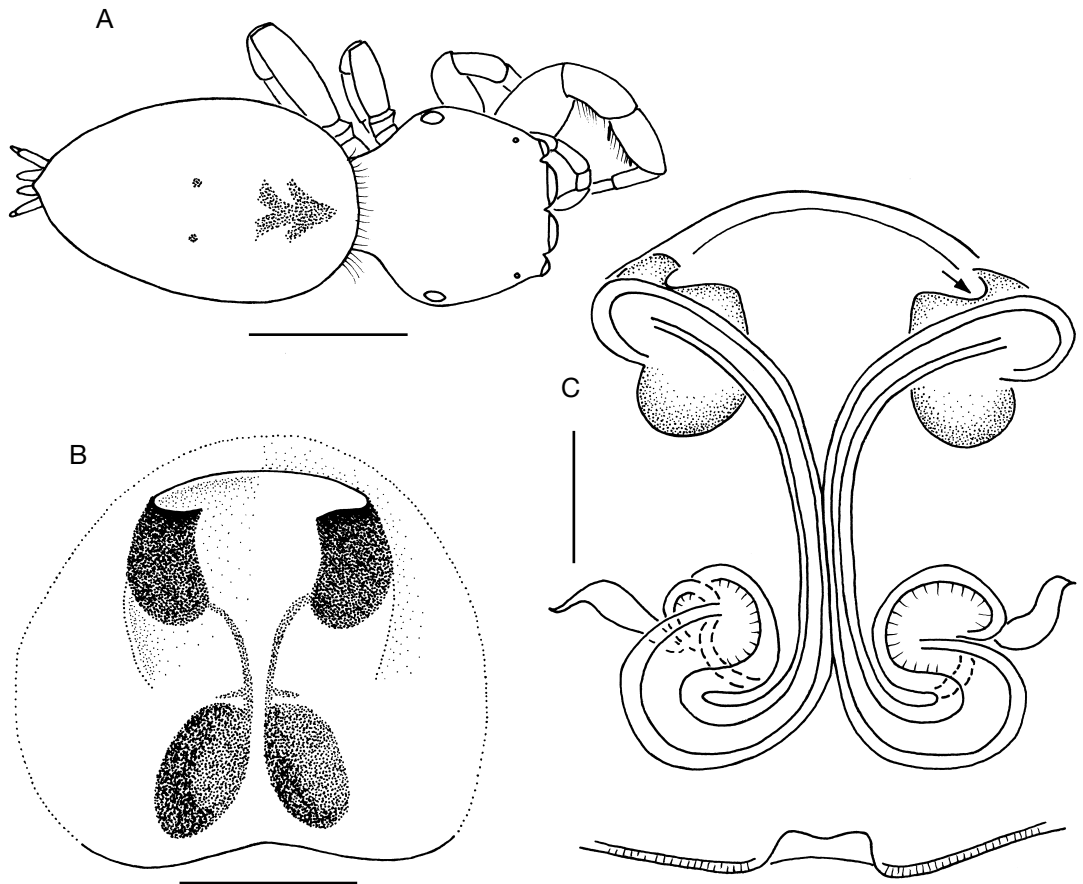


FIG. 16. — *Rhene formosa* n. sp., paratype; **A**, general appearance, dorsal view; **B**, epigyne; **C**, internal structure of epigyne, dorsal view. Scale bars: A, 2 mm; B, 0.2 mm; C, 0.1 mm.

posterior width 1.9. Medium sized spider. Carapace rather low, dark brown, near eyes black. Thorax medially lighter, orange. Dense brown hairs cover whole carapace, long bristles in vicinity of eyes. Clypeus low, brown. Chelicerae dark brown, two teeth on promargin, single tooth on retromargin. Labium brown, maxillae brown with pale tips, sternum orange. Abdomen elongated, brownish-russet with yellow broad median belt. Venter greyish-yellow. Dense brown hairs on abdomen, longer and denser at anterior margin. Spinnerets yellow. First pair of legs brown, remaining ones orange, only their femora brown. Leg hairs and spines brown. Epigyne elongated, large, strongly sclerotized, with single narrow pocket centrally

and two fissured gonopores (Fig. 15A). Initial parts of seminal ducts wide, very strongly sclerotized (Fig. 15B).

Genus *Rhene* Thorell, 1869

*Rhene formosa* n. sp.  
(Fig. 16)

TYPE MATERIAL. — Holotype: Mountain Leclerc, 1550 m a.s.l., on ground in low vegetation, 23.III.1991, leg. C. Rollard, ♀; paratype: same locality, 1250 m a.s.l., 23.III.1991, leg. C. Rollard, 1 ♀.

ETYMOLOGY. — The specific name is Latin for “shapely”, and refers to the body shape of this species.

DIAGNOSIS. — The female of this species may be separated from other members of the genus by its considerably longer and thinner seminal ducts and the extremely heavily sclerotized surroundings of the copulatory openings. The internal structure of the epigyne slightly resembles *Zeuxippus pallidus* Thorell, 1895, but the latter species has weakly sclerotized vicinity of the gonopores (see Zabka 1985).

#### DESCRIPTION

Male unknown.

Female. Measurements: carapace length 2.2, width 2.1, height 0.9. Abdomen length 3.5, width 2.3. Eye field length 1.3, anterior width 1.3, posterior width 2.1. General appearance as in Fig. 16A. Carapace very flat and wide, with large trapezoid eye field. Coloration of carapace dark brown, eyes surrounded by black. Ocular area punctured reticulate. Brown and grey hairs cover carapace. White hairs form very narrow line behind eyes of first row, at anterior edge of carapace. Clypeus very low, dark. Chelicerae dark brown, two teeth on promargin and one on retromargin. Labium and maxillae brown. Abdomen elongated, light beige with silver lustre, only traces of brownish pattern anteriorly. Venter light brown. Sparse brown hairs on abdomen, denser and longer at its anterior edge. Spinnerets brown. Legs brownish. First pair thickest, larger and darker than remaining ones, with long hairs on ventral surfaces of their patellae and tibiae. Epigyne large, strongly sclerotized, with shallow depression centrally (Fig. 16B). Copulatory openings hidden in very strongly sclerotized “baskets”, seminal ducts long and thin (Fig. 16C).

#### Genus *Toticoryx* n. gen.

TYPE SPECIES. — *Toticoryx exilis* n. gen., n. sp.

ETYMOLOGY. — The generic name is a arbitrary combination of letters. Gender masculine.

DIAGNOSIS AND AFFINITIES. — Very small and flat spider, body slender, its length *c.* 3 mm. Habitus of this genus resembles *Pseudicus* Simon, 1885, but the internal structure of the epigyne is unique; seminal ducts extremely short, pass into a big spherical reservoirs, the latter connected with spherical receptacles by intermediate canals. The structure of the female genitalia resembles that of the unrelated genus *Simaetha* Thorell, 1881, distributed in the Oriental and Australian

Regions (see Zabka 1994). Relationships of *Toticoryx* n. gen. are unclear and demand examination of the male.

#### *Toticoryx exilis* n. sp.

(Fig. 17)

TYPE MATERIAL. — Holotype: Pierré Richaud, on ground in low vegetation, 27.XI.1961, leg. P. Aguesse & M. Lamotte, ♀.

ETYMOLOGY. — The specific name is Latin for “slender”, and refers to the body shape of this species.

DIAGNOSIS. — This species is distinguished by the presence of an additional spherical chamber next to the copulatory opening.

#### DESCRIPTION

Male unknown.

Female. Measurements: carapace length 1.3, width 0.9, height 0.3. Abdomen length 1.8, width 0.9. Eye field length 0.6, anterior width 0.7, posterior width 0.8. Leg spination: I Fm d 1-1-1, Tb v 2-2-2, Mt v 2-2; II Fm d 1-1-1, Tb v 2-2, Mt v 2-2; III and IV Fm d 1-1-1. Very small and slender spider. Carapace flat, elongated, slightly wider posteriorly. Its coloration brown, only near eyes black. Sparse prostrate hairs on carapace, some longer bristles at anterior row of eyes. Chelicerae with two promarginal teeth and single retromarginal tooth. Labium, maxillae and sternum orange-brownish. Abdomen very elongated, russet-greyish. Venter yellowish with traces of longitudinal dark stripe medially. Few long bristles at anterior margin of abdomen. Spinnerets grey. Legs yellow. First legs slightly thicker than remaining, prolateral surfaces of their segments brownish. Leg hairs scarce, spines not numerous, on leg III and IV present only on femora. Epigyne with wide depression posteriorly (Fig. 17A). Internal structures rather weakly sclerotized. Initially very short seminal duct expands to spherical chamber, which is joined by long tube with spherical receptacle (Fig. 17B, C).

#### DISCUSSION

Of 15 species of salticids found in the Nimba Mountains only one (*Natta chionogastra*) is a

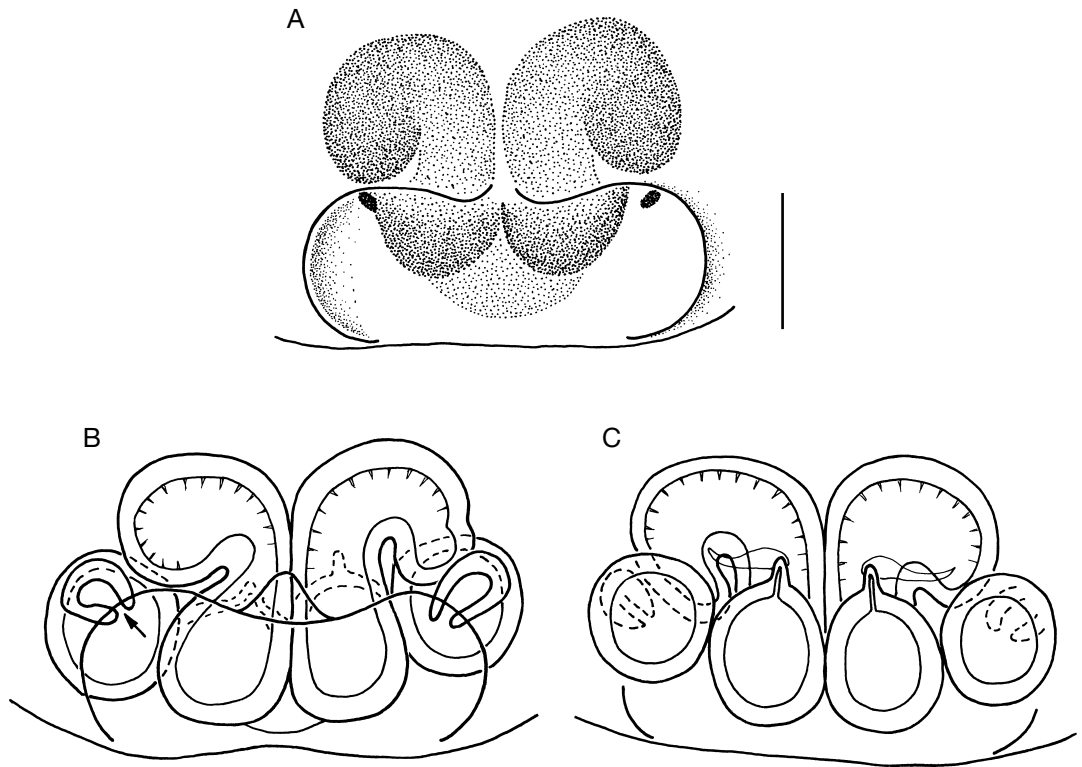


FIG. 17. — *Toticoryx exilis* n. gen., n. sp., holotype; **A**, epigyne; **B**, internal structure of epigyne, ventral view; **C**, internal structure of epigyne, dorsal view. Scale bar: 0.2 mm.

species widely distributed in the Afrotropical Region. Two species (*Bacelarella fradei* and *Langelurillus nigritus* n. comb.) were described by Berland & Millot (1941) from the immediate neighbourhood of the Nimba Mountains. The remaining twelve species are newly described. Four of them are so distinctive that the establishment of new genera for them has appeared necessary. Taking into account inadequate collecting efforts, there is a fair possibility of finding larger numbers of endemic species in this mountain chain.

#### Acknowledgements

The authors are very grateful to Prof. Maxime Lamotte for allowing them to study these collections and for all his advice. We also thank Laurent Albenga from the MNHN for his aid in preparing the map.

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