

Two new species of the genus *Aelurillus* Simon, 1885 (Araneae, Salticidae) from Africa

Galina N. AZARKINA

ABSTRACT

AZARKINA, G.N. 2009. Two new species of the genus *Aelurillus* Simon, 1885 (Araneae, Salticidae) from Africa. *J. Afrotrop. Zool.* 5: 171-177.

Two new species of *Aelurillus*, *A. russellsmithi* sp.n. from Côte d'Ivoire, and *A. madagascariensis* sp. n. from Madagascar, are diagnosed, illustrated and described. Distribution maps are provided for both species.

AZARKINA, G. N. Section of Invertebrates non-insects, Royal Museum for Central Africa, Leuvensesteenweg 13, B-3080, Tervuren, Belgium (urmakuz@yahoo.com); Zoological Museum, Institute for Systematics and Ecology of Animals, SB RAS, Lrunze Street 11, 630091, Novosibirsk, Russia

Keywords: new species, Côte d'Ivoire, Ivory Coast, Madagascar.

INTRODUCTION

The genus *Aelurillus* Simon, 1885 currently includes approximately 60 species, 19 of which occur in North Africa (Platnick 2008). Azarkina & Logunov (2006) recently redescribed several of the North African species. A revision of the entire genus will be published by the author.

The present paper describes the first representatives of the genus *Aelurillus* in tropical Africa. One species was found in a rice field experiment in Côte d'Ivoire, whereas the second was caught in yellow pan traps in forest in Madagascar.

MATERIAL AND METHODS

This work is based on the collections of jumping spiders from the Royal Museum for Central Africa and material from the personal collection of Dr. A. Russell-Smith. All specimens were examined in ethanol and descriptions of colours refer to specimens in alcohol. The drawings were made with the aid of a reticular eyepiece attached to a MBS-10 stereomicroscope. The male pedipalps and the epigynes were detached for study. The epigynes were macerated in pancreatin in a borax-solution (Alvarez-Padilla & Hormiga 2007) for one night. After drawing, the copulatory organs were placed in microvials with ethanol with the specimens from which they had been removed. The photos were made with a Leica DFC 500 camera attached to the stereomicroscope.

All drawings were edited with Adobe Photoshop, all maps were prepared using CorelDraw Graphic Suite. Holotypes are deposited in the Musée royal de

l'Afrique centrale, Tervuren, Belgium (indicated as MRAC in the text, Dr R. Jocqué); some paratypes are kept in MRAC, in the British Museum of Natural History, London, UK (BMNH, Mrs J. Beccaloni), in the Zoological Museum of Institute for Systematics and Ecology of Animals, Novosibirsk, Russia (ISEA, Dr G.N. Azarkina), and in the Manchester Museum, University of Manchester, Manchester, UK (MMUM, Dr D.V. Logunov).

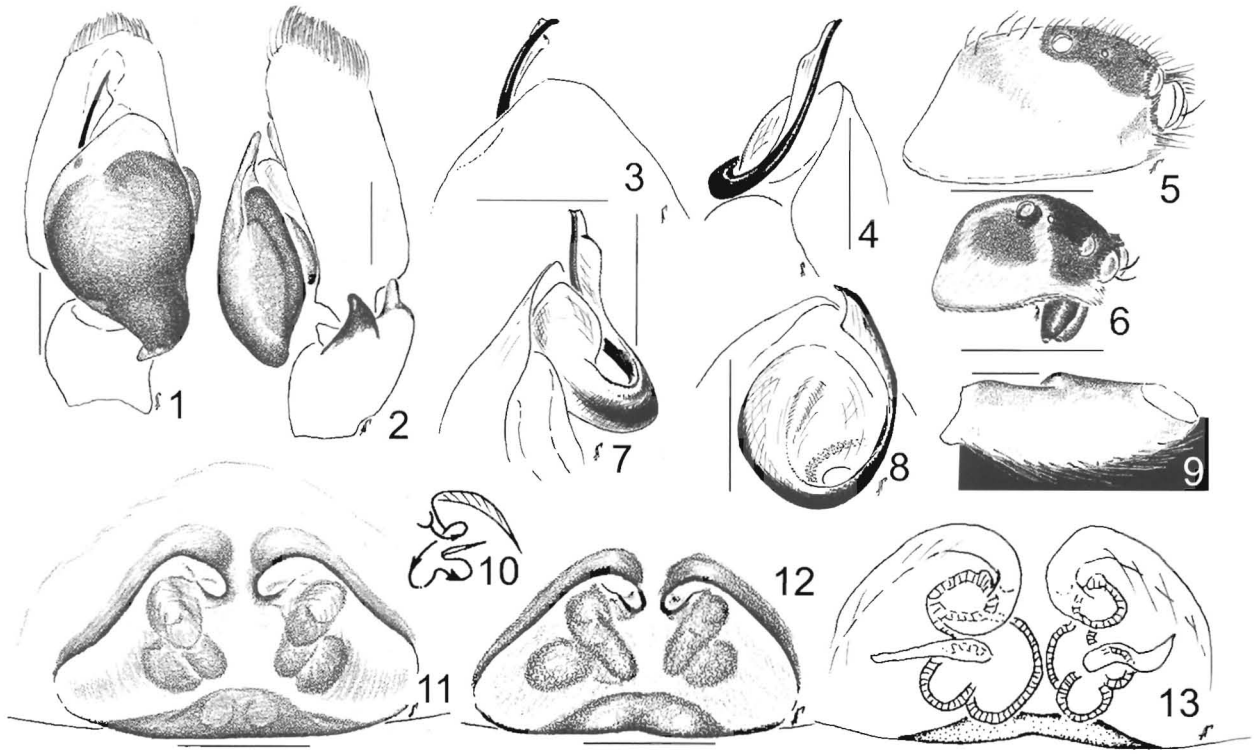
Abbreviations used in the text: WARDA: West African Rice Development Association, AME: anterior median eyes, PME: posterior median eyes, PLE: posterior lateral eyes, Fm: femur, Pt: patella, Ti: tibia, Mt: metatarsus. The sequence of leg segments in measurement data is as follows: femur + patella + tibia + metatarsus + tarsus. All measurements are in mm. For the leg spination the system adopted is that by used by Ono (1988).

Aelurillus russellsmithi n. sp.

Figures 1-13, 29, 30-32, 35

Type material *Holotype*: ♂: CÔTE D'IVOIRE: Bouaké, WARDA, ca. 7°41'N, 5°02'W, weed trash experiment, 21.X.1994, A. Russell-Smith (MRAC 225.259).

Paratypes: CÔTE D'IVOIRE: 5 ♂: Bouaké, WARDA, ca. 7°41'N, 5°02'W, weed trash experiment, 21.X.1994, A. Russell-Smith (MRAC 225.257); 3 ♂: same locality, weed trash experiment, 21.X.1994, A. Russell-Smith (BMNH); 2 ♀: same locality, quadrats, weed control, 17.VIII.1994, A. Russell-Smith (MRAC 225.258); 1 ♀: same locality, quadrats, weed control, 17.VIII.1994, A. Russell-Smith (BMNH); 3



Figs 1-13. *Aelurillus russellsmithi* n. sp., male and female, paratypes: 1. male palp, ventral view; 2. ditto, retrolateral view; 3. embolic division, ventral view; 4. ditto, prolateral view; 5. female carapace, lateral view; 6. male carapace, lateral view; 7. embolic division, retrolateral view; 8. ditto, dorsal view; 9. palpal femur, retrolateral view; 10. schematic course of insemination ducts; 11, 12. epigyne, ventral view; 13. spermathecae, dorsal view (scales = 1 mm (5, 6), 0.1 mm (1-4, 7-9, 11-13)).

♂: same locality, weed trash experiment, 21.X.1994, A. Russell-Smith (MMUM); 3 ♂: same locality, weed trash experiment, 21.X.1994, A. Russell-Smith (ISEA).

Comparative material: *Holotype Aelurillus tumidulus*: ♀: ETHIOPIA: Hararghe Prov., Awash National Park 9°N, 40°E, 1000 m a.s.l., Ras Hotel, heaps of cut grass, 6.X.1988, A. Russell-Smith (MRAC 219.309).

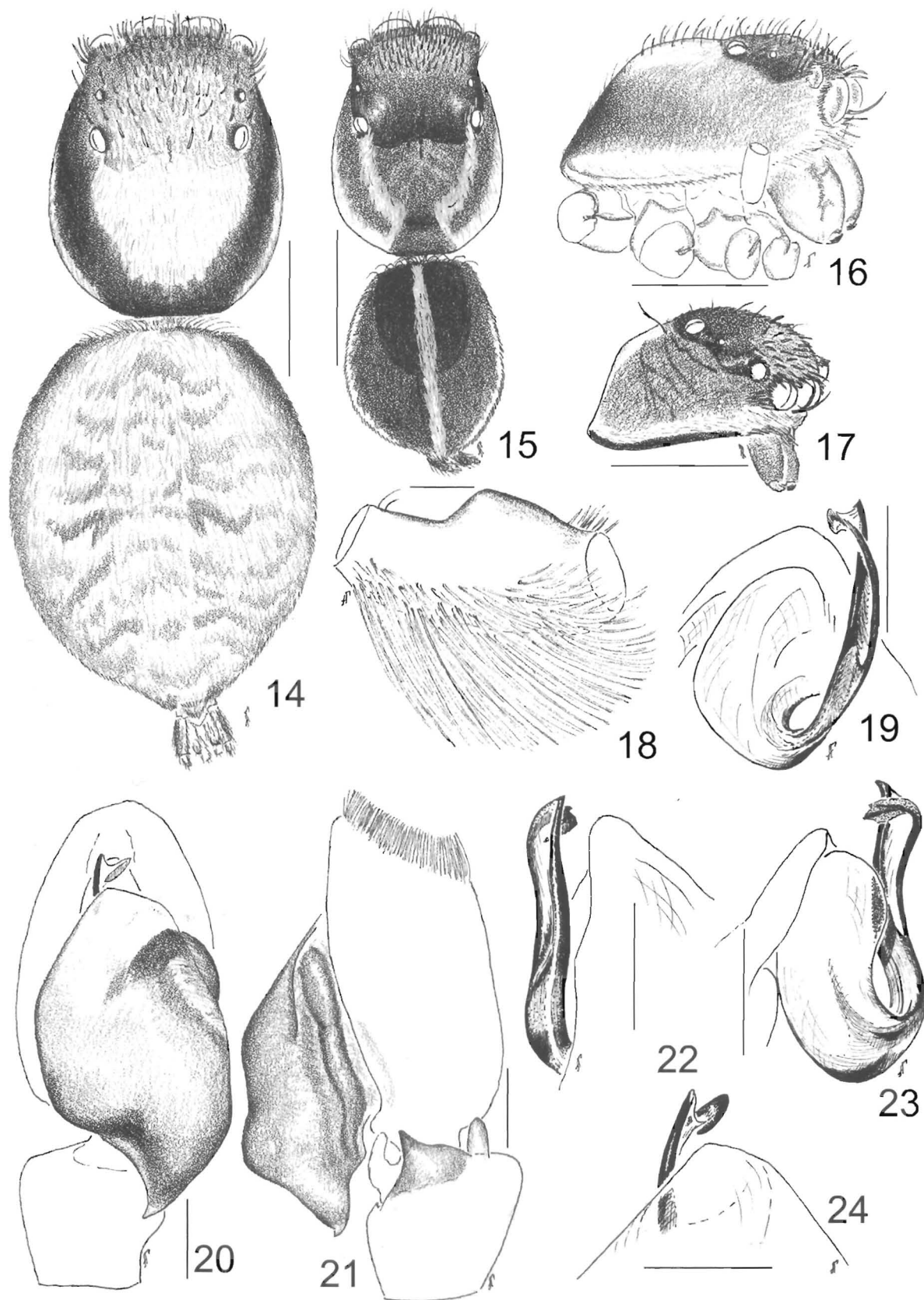
Diagnosis Very tiny spiders. The female of this species is close to *Aelurillus tumidulus* Wesołowska & Tomasiewicz, 2008, having the same colouration and bulging shape of carapace, but differs in the smaller size of body, the shape of the epigynal pocket with less curved posterior rim than in *A. tumidulus*, and in the shape of copulatory openings (Figs 11-12 and Wesołowska & Tomasiewicz 2008: Fig. 3). The male differs from other species by the well-exposed embolic division – almost $\frac{1}{3}$ - $\frac{1}{2}$ of the length of embolic division is visible above the bulbus (Figs 1, 3) and the unusual vertical white bands on the lateral part of carapace (Fig. 6).

Ethymology The species is dedicated to the collector Dr Anthony Russell-Smith, an arachnologist who has been studying African spiders for many years.

Description Male: Measurements: Cephalothorax: length 1.2-1.3, width 0.97-1.05, height at PLE 0.70-

0.85. Ocular area: length 0.67-0.70, wide anteriorly 0.85-0.95, wide posteriorly 0.82-0.90. Abdomen: length 0.92-1.07, width 0.85-1.05. Clypeal height: 0.12. Cheliceral height: 0.32. Diameter of AME: 0.25. Length of leg segments: I: 0.70+0.35+0.45+0.25+0.27. II: 0.70+0.35+0.45+0.30+0.30. III: 1.20+0.55+0.67+0.47+0.35. IV: 0.85+0.35+0.47+0.55+0.40. Leg spination. I: Fm d 0-1-1-4; Pt pr 1; Ti pr 1-1-1, rt 0-1, v 2-2-2 ap; Mt pr & rt 1-1 ap; v 2-2 ap. II: Fm d 0-1-2-5; Pt pr & rt 1; Ti d 1-0-0, pr 1-1-1, rt 0-1, v 1-1-2 ap; Mt pr & rt 1-1 ap; v 2-2 ap. III: Fm d 0-1-0-2-4; Pt pr & rt 1; Ti d 1-0-0, pr & rt 0-1-1-0, v 0-0-2 ap; Mt d 1-1-0, pr & rt 1-0-2 ap; v 1-1-2 ap. IV: Fm d 0-1-0-1-2; Pt pr & rt 1; Ti d 1-0-0, pr 0-1-1, rt 1-1-1, v 1-0-2 ap; Mt d 1-1-0, pr 0-1-2 ap, rt 1-0-2 ap, v 1-0-2 ap.

Colouration: carapace dark brown, with black ocular area, covered with transparent brown scale hairs. Dorsum with two longitudinal bands from PME to posterior part of carapace. Laterally with wide white band, with white vertical bands laterally beneath ocular area (Fig. 6). Clypeus is brown, with white hairs at base (Fig. 32). Cheeks are dark brown, with white scales at base and with brown scales above. Abdomen grey-yellow. Dorsum with barely perceptible scutum and medial white band. Book



Figs 14-24. *Aelurillus madagascariensis* n.sp., male and female, paratypes: 14. female, body pattern; 15. male, body pattern; 16. female carapace, lateral view; 17. male carapace, lateral view; 18. palpal femur, retrolateral view; 19. embolic division, dorsal view; 20. male palp, ventral view; 21. ditto, retrolateral view; 22-24. embolic division, pro-, retrolateral and ventral views (scales = 1 mm (14-17), 0.1 mm (18-24)).

lungs covers are yellow-brown, spinnerets are dark brown. All legs are yellow-brown. Femora I-II are brown pro- and retrolaterally, retrolaterally with yellow apical oval spot. Patellae, tibiae and metatarsi are brown ventrally, tarsi are completely brown. Femora III and IV with two apical and distal brown rings. Femora of palpi are yellow-brown, dorsally covered with white hairs, with ventro-prolateral swelling (Fig. 9). Palpal tibia with two apophysis (Fig. 2). Palpal structure as in Figs 1-4, 7-8.

Female. Measurements: Cephalothorax: length 1.20-1.25, width 1.50-1.60, height at PLE 1.17-1.25. Ocular area. Length 0.80-0.85, wide anteriorly 1.15-1.20, wide posteriorly 1.10-1.15. Abdomen: length 2.17-2.35, width 2.15-2.47. Clypeal height: 0.15. Cheliceral height: 0.55-0.65. Diameter of AME: 0.40. Length of leg segments: I: 0.85+0.55+0.65+0.40+0.40. II: 0.95+0.55+0.65+0.40+0.42. III: 1.57+0.72+1.00+0.72+0.50. IV: 1.25+0.57+0.65+0.90+0.47. Leg spination: I: Fm d 0-1-1-3; Ti pr 1-1, v 1-1-2 ap; Mt pr & rt 1-1 ap; v 2-2 ap. II: Fm d 0-1-1-4 or 0-1-1-5; Ti pr 1-1, v 2-1-2 ap or 2-2-2 ap; Mt pr & rt 1-1 ap; v 2-2 ap. III: Fm d 0-1-0-1-4; Pt pr & rt 1; Ti d 1-0-0, pr & rt 0-1-1, v 0-0-2 ap; Mt d 1-0-0, pr & rt 1-0-2 ap; v 1-1-2 ap. IV: Fm d 0-1-0-1-3; Pt pr 1 or pr & rt 1; Ti d 1-0-0, pr & rt 0-1-1, v 1-0-2 ap; Mt d 1-0-0, pr 1-1-2 ap, rt 1-0-2 ap, v 1-1-2 ap.

Colouration: carapace is brown, with dark brown ocular area, laterally with wide white band. Clypeus is yellow, brown beneath AME. Cheeks are brown-yellow, clypeus and cheeks covered with sparse white hairs (Fig. 31). Sternum and chelicerae are brownish-yellow. Abdomen is brownish-yellow, dorsum is brownish, with indistinct pattern generated by brownish and yellowish spots (Fig. 30). Book lungs covers are yellow-brown, spinnerets are yellow. All legs are yellow. Femora of legs I-II apically with brownish semi-ring. Femora III with apical brown semi-ring in prolatero-proximal part of femora with brown spot. Femora IV with apical brown semi-ring. All tibiae with proximal brown semi-ring. Palpi are

yellow, covered with white and brown hairs and bristles. Structure of epigyne and spermathecae as in Figs 10-13.

Distribution Only known from the type locality near Bouaké in Côte d'Ivoire (Map 29).

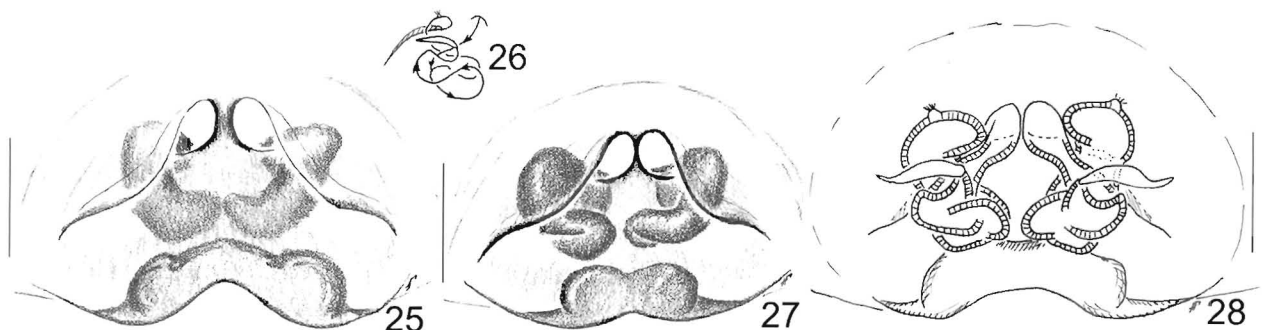
Aelurillus madagascariensis n. sp.

Figures 14-29, 33-34

Type material *Holotype*: ♂: MADAGASCAR: Tamatave [=Toamasina], Manakambahiny near Vavaténe [=Vavatenina], ca. 17°27'S, 49°19'E, forest, yellow tank, II.1995, A. Pauly (MRAC 206205).

Paratypes: MADAGASCAR: 2 ♂: Andranovola, ca. 13°57'S, 49°58'E, 12.II.1995, A. Pauly (MRAC 206268); 3 ♂: Tamatave [=Toamasina], Manakambahiny near Vavaténe [=Vavatenina], ca. 17°27'S, 49°19'E, forest, yellow tank, II.1995, A. Pauly (MRAC 206209); 1 ♂: same locality, forest, II.1995, A. Pauly (MRAC 206591); 1 ♀: Tamatave [=Toamasina], Foulpointe [=Mahavelona], ca. 17°41'S, 49°27'E, forest d'Analalava, II.1995, A. Pauly (MRAC 206542); 7 ♂: same locality, II.1995, A. Pauly (MRAC 206541); 26 ♂, 7 ♀: same locality, yellow tank, I.1995, A. Pauly (MRAC 206756); 2 ♂: Tamatave [=Toamasina], Foulpointe [=Mahavelona], ca. 17°41'S, 49°30'E, 2.XI.1991, A. Pauly (MRAC 213586).

Diagnosis This species is close to *A. politiventris* O. Pickard-Cambridge, 1872 and *A. gershomii* Prószyński, 2000 but differs in the smaller size, body colouration (Figs 14-15), smaller scutum in males (Fig. 15), white hair on clypeus in both sexes (Figs 33-34) and structures of the embolic division, epigyne and spermathecae. Embolic division has shortest membranous part between embolus and terminal apophysis (Figs 19, 22-23), spacing between copulatory openings in *A. madagascariensis* (Figs 25-27) is narrower than in *A. gershomii* (Prószyński, 2000: Fig. 13). The spermathecae in *A. madagascariensis* (Figs 26, 28) are simpler than those in *A. gershomii* (Prószyński, 2000: Fig. 14).



Figs 25-28. *Aelurillus madagascariensis* n.sp., females, paratypes: 25, 27. epigyne, ventral view; 26. schematic course of insemination ducts; 28. spermathecae, dorsal view (scales = 0.1 mm).

Ethymology The species is named after its *terra typica* (Madagascar).

Description Male. Measurements: Cephalothorax: length 1.72-1.85, width 1.3-1.5, height at PLE 0.95-1.12. Ocular area: length 0.75-0.87, wide anteriorly 1.00-1.15, wide posteriorly 0.95-1.10. Abdomen: Length 1.50-1.65, width 1.00-1.20. Clypeal height: 0.15. Cheliceral height: 0.45-0.55. Diameter of AME: 0.30. Length of leg segments: I: 0.90+0.50+0.57+0.42+0.37. II: 0.87+0.50+0.52+0.45+0.32. III: 1.30+0.55+0.70+0.75+0.45. IV: 1.12+0.50+0.67+0.82+0.45. Leg spination. I: Fm d 0-1-1-5; Pt pr 1; Ti pr 1-1-1, rt 0-1-0, v 2-2-2 ap; Mt pr & rt 1-1 ap; v 2-2 ap. II: Fm d 0-1-2-5; Pt pr & rt 1; Ti d 1-0-0, pr 1-1-1, rt 0-1-1, v 1-1-2 ap; Mt d 1-0, pr & rt 1-1 ap; v 2-2 ap. III: Fm d 0-1-3-5; Pt pr & rt 1; Ti d 1-0-0, pr & rt 1-1-1-1, v 1-0-2 ap; Mt d 1-1-0, pr & rt 1-0-2 ap; v 1-1-2 ap. IV: Fm d 0-1-1-5; Pt pr & rt 1; Ti d 1-0-0, pr & rt 1-1-1-1, v 1-0-2 ap; Mt d 1-1-0, pr 1-1-2 ap, rt 1-0-2 ap, v 1-1-2 ap. Colouration: carapace brown, with dark-brown ocular area. Dorsum covered with brown scale hairs, with two white longitudinal bands from PME to posterior part of carapace (Fig. 15). Laterally with wide white bands (Fig. 17). Ocular area covered with brown scale hairs and short and long bristles, denser just behind anterior ocular row ("rod-hairs", Logunov & Hečiak 1996). Clypeus yellow-brown. Cheeks and clypeus with dense white hairs, with one row of long white

bristles (Fig. 33). Sternum yellow-grey-brownish, covered with short white hairs. Chelicerae are yellow-brown, with short white hairs proximally and with dark-brown short hairs distally. Abdomen is grey-yellow. Dorsum brown covered with brown scales and hairs, with medial white longitudinal band. Book lungs covers are yellow, spinnerets are brown. Coxae, trochanters and femora of legs I-II are yellow. Coxae III prolaterally and ventrally with brown patches in apical part. Femora III-IV yellow, apically brownish (approx. $\frac{1}{3}$ length of femora). Patellae, tibiae, metatarsi and tarsi of legs I-II are brownish-yellow. Tibiae and metatarsi I-II with small brown semi-ring prolateral-apically. Patellae, tibiae, metatarsi and tarsi III-IV are brown-yellow, patellae with brown ring apically. Tibiae, metatarsi and tarsi with brown rings apically and distally. Palpi are yellow, covered with long white hairs and sparse brown bristles. Tip of cymbium with brown hairs. Palpal femora with prolatero-ventral swelling (Fig. 18). Palpal tibiae with 2 apophysis, dorsal apophysis yellow and narrow, ventral brown and wider (Fig. 21). Palpal structure as in Figs 19-24.

Female. Measurements: Cephalothorax: length 2.10-2.17, width 1.65-1.70, height at PLE 1.32-1.40. Ocular area: Length 0.85-0.90, wide anteriorly 1.20-1.25, wide posteriorly 1.12-1.20. Abdomen: length 2.45-3.00, width 1.85-2.35. Clypeal height: 0.2-0.25. Cheliceral height: 0.75. Diameter of AME: 0.35.

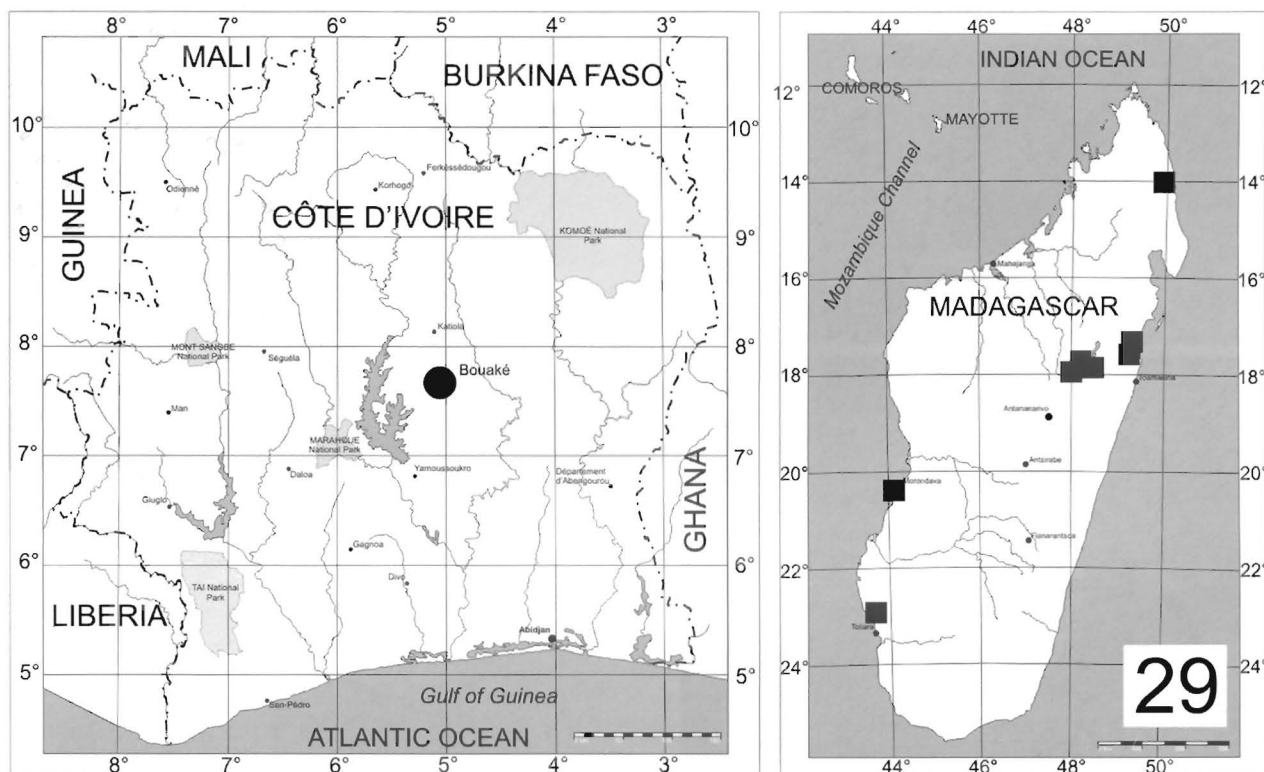


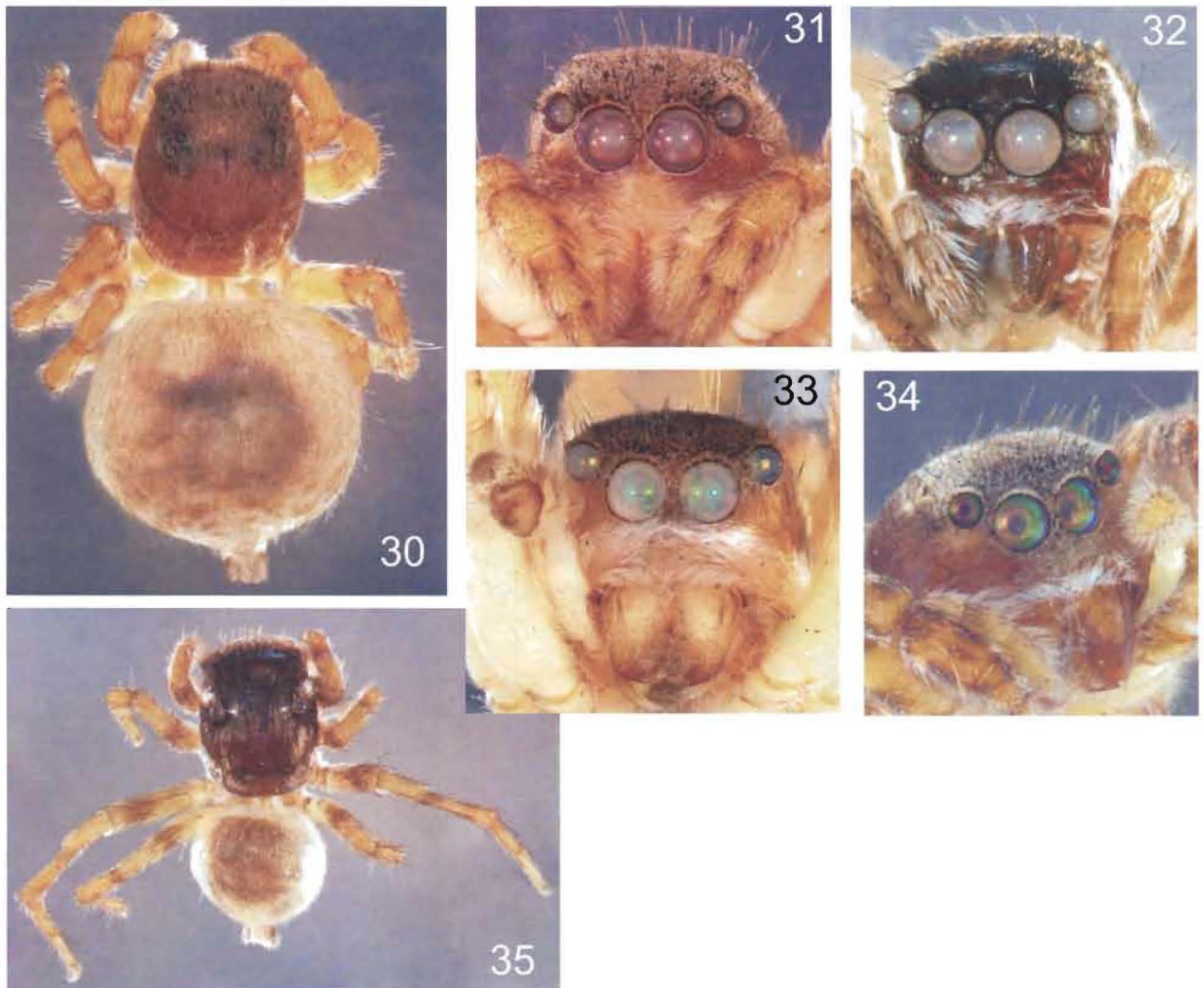
Fig. 29. Distributional map of *A. russellsmithi* n. sp. (circle) and *A. madagascariensis* n. sp. (square).

Length of leg segments: I: 1.00+0.60+0.60+0.45+0.40. II: 1.05+0.60+0.50+0.50+0.42. III: 1.70+0.80+0.85+0.85+0.75. IV: 1.30+0.55+0.75+0.95+0.55. Leg spination: I: Fm d 0-1-1-4; Ti pr 2-1, v 1-1-2 ap; Mt pr & rt 1-1 ap; v 2-2 ap. II: Fm d 0-1-2-5; Ti pr 1-1, v 1-1-2 ap; Mt pr & rt 1-1 ap; v 2-2 ap. III: Fm d 0-1-1-4; Pt pr & rt 1; Ti d 1-0-0, pr & rt 1-1-1, v 1-0-2 ap; Mt d 1-1-0, pr & rt 1-0-2 ap; v 2-0-2 ap. IV: Fm d 0-1-1-2; Pt pr & rt 1; Ti d 1-0-0, pr & rt 1-1-1, v 2-0-2 ap; Mt d 1-1-0, pr 1-1-2 ap, rt 1-0-2 ap, v 1-1-2 ap.

Colouration: carapace brown, with dark brown ocular area. Dorsum covered with dark brown scale hairs, with wide white band from PME to beginning of posterior part of carapace (Fig. 14). Laterally with band formed by transparent-white scale hairs. Clypeus and cheeks are yellow-brown, covered with white hairs. Chelicerae are yellow-brown (Fig. 34). Sternum is brownish-yellow, with white hairs. Abdomen is brownish-yellow. Dorsum is brown,

covered with white and brown scales which form indistinct pattern, with dark brown spot proximally and laterally. Book lungs covers are brownish-yellow. Anterior and median spinnerets are yellow, posterior spinnerets are brown. Coxae and trochanters are brownish, yellow ventrally. Femora are yellow, with brown rings proximally and distally. Patellae, tibiae, metatarsi and tarsi of all legs are brownish-yellow. Patellae, tarsi and metatarsi with brown spots and rings. Palpi are yellow. Tibiae of palpi are brownish proximally, covered with white hairs. Structure of epigyne and spermathecae as in Figs 25-28.

Distribution Known only from Madagascar (Map 29). The record of *A. madagascariensis* from Madagascar is the first proven record of true *Aelurillus* from south of the equator in the Afrotropical region. All of the previous records of '*Aelurillus*' from South Africa turned out to belong to other genera (Azarkina, in prep.).



Figs 30-35. *Aelurillus russellsmithi* n. sp.: 30, 35. female and male habitus, dorsal view; 31. female face; 32. male face. *Aelurillus madagascariensis* n. sp.: 33. female face; 34. male face.

ACKNOWLEDGEMENTS

I wish to thank the colleagues who provided specimens of *Aelurillus* for study: Dr Rudy Jocqué (Royal Museum for Central Africa, Tervuren, Belgium) and Dr Anthony Russell-Smith (Sittingbourne, UK). I also wish to express my warmest thanks to Domir De Bakker and Jean-Pierre Michiels who assisted with the material from Madagascar, to Myriam Vandenbosch for help with the scanning drawings, to Wouter Fannes (all from Royal Museum for Central Africa, Tervuren, Belgium) for information on methods for cleaning epigynes and to Dr Wanda Wesołowska (Zoological Institute, Wrocław University, Wrocław, Poland) for help with special paper for the drawings. Special thanks are due to Dr Anthony Russell-Smith who helped me with sorting, the first identification of *Aelurillus* and corrected the English in this paper.

REFERENCES

- ALVAREZ-PADILLA, F. & HORMIGA, G. 2007 (2008). A protocol for digesting internal tissues and mounting spiders for scanning electron microscopy. *Journal of Arachnology* 35: 538-542.
- AZARKINA, G.N. & LOGUNOV, D.V. 2006. Taxonomic notes on nine *Aelurillus* species of the western Mediterranean (Araneae: Salticidae). *Bulletin of the British Arachnological Society* 13: 233-248.
- LOGUNOV, D.V. & HEĆIAK, S. 1996. *Asianellus*, a new genus of the subfamily Aelurillinae (Araneae: Salticidae). *Entomologica Scandinavica* 27: 103-118.
- ONO, H. 1988. A revisional study of the spider family Thomisidae (Arachnida, Araneae) of Japan. *National Science Museum. Tokyo*: 1-252.
- PLATNICK, N.I. 2008. 'The world spider catalog, version 9.0' Available at <http://research.amnh.org/entomology/spiders/catalog>.
- PRÓSZYŃSKI, J. 2000. On mostly new Salticidae (Aranei) from Levant. *Arthropoda Selecta* 8(4): 231-262.
- WESOŁOWSKA, W. & TOMASIEWICZ, B. 2008. New species and records of Ethiopian jumping spiders (Araneae, Salticidae). *Journal of Afrotropical Zoology* 4: 3-59.