Zootaxa 4088 (1): 001–050
http://www.mapress.com/j/zt/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://doi.org/10.11646/zootaxa.4088.1.1
http://zoobank.org/urn:lsid:zoobank.org:pub:7F80636F-C96A-40B8-9DC6-BD341EF0D5AE

The ant genus *Polyrhachis* F. Smith in sub-Saharan Africa, with descriptions of ten new species. (Hymenoptera: Formicidae)

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Accepted by J. Longino: 29 Jan. 2016; published: 8 Mar. 2016

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Abstract

Ten new sub-Saharan species of the ant genus *Polyrhachis* are described: *P. gibbula* **n. sp.** and *P. omissa* **n. sp.** belonging in the *viscosa*-group; *P. brevipilosa* **n. sp.**, *P. dubia* **n. sp.**, *P. longiseta* **n. sp.**, *P. luteipes* **n. sp.**, *P. submarginata* **n. sp.**, and *P. terminata* **n. sp.** in the *revoili*-group; *P. doudou* **n. sp.** and *P. fisheri* **n. sp.** in the *militaris*-group. Also, *P. epinotalis* Santschi and *P. kohli* Forel are revived from synonymy with *P. militaris* (Fabr.) and *P. volkarti* Forel respectively. The type of *P. cubaensis* Mayr is described, changing the interpretation of the taxon and revalidating two of its synonyms, *P. gerstaeckeri* Forel and *P. wilmsi* Forel **stat. n.**. The examination of the type of *Polyrhachis revoili* André has proved this taxon to be different from previous interpretations; its position is reviewed and all of its synonyms are transferred to *P. weissi* Santschi. In addition, the first description of the worker of *P. andrei* Emery is provided, as well as some new records and taxonomic and morphological notes concerning other species. Finally, a synonymic list of the 61 currently known sub-Saharan species, a key to species-groups and an updated key to the workers are given.

Key words: *Polyrhachis*, review, taxonomy, synopsis, key, new records, Africa

Introduction

The genus *Polyrhachis* comprises almost exclusively tropical and subtropical species living in the Old World and Australia. Bolton (1995) ranked *Polyrhachis* as the third most speciose ant genus with 477 species, having the highest diversity in the Indo-Australian region, with 280 species, but ranking only 9th in sub-Saharan Africa, with 47. Dorow (1995) published a synonymic catalogue of 469 species, with updated keys to subgenera and to some Asian groups. Dorow (1995: 7) retained the 12 subgenera for practical reasons even though he stated that some of them are possibly non-monophyletic. More recently, Bolton et al. (2006) listed 603 valid *Polyrhachis* species and subspecies.

Polyrhachis species are usually morphologically attractive ants because they bear variously shaped spines or teeth on the mesosoma and petiole, have brightly coloured pubescence and a thick and often distinctly sculptured integument. The genus is morphologically and biologically heterogeneous, including arboreal as well as ground-nesting species, and also comprises such unusual ways of life as tree-inhabiting weaver ants and mud-dwellers living in the intertidal zone among mangroves.

A comprehensive review of the genus at the species level has never been published. Nevertheless, in the last decades some regional faunas and/or taxonomic groups have been revised. Bolton (1973) dealt with the sub-Saharan species and, more recently, several papers concerning the much more speciose Asian and Australian *Polyrhachis* faunas have been published (e.g. Dorow & Kohout, 1995; Kohout, 2006; Kohout, 2007; Kohout, 2008). Kohout (2010) also described a new subgenus to provide a better framework for some Australian species.

Bolton (1973) identified and keyed out 47 valid sub-Saharan *Polyrhachis*, arranged into six species-groups of the subgenus *Myrma* Billberg. Since then no new *Polyrhachis* have been added to the known fauna of sub-Saharan Africa. The relatively few sub-Saharan *Polyrhachis* species have a range of nesting habits comparable to that of the whole genus: from forest species, building their nests with silk and plant debris among tree leaves, to ground-inhabiting savannah ones. This life style diversity can occur in a single species-group, despite the morphological similarity of its members.

While examining hundreds of mostly recently collected specimens, especially from the collections of my institution, as well as The Natural History Museum, London, the California Academy of Sciences, San Francisco, and AfriBugs, Pretoria, South Africa, I discovered 10 new species that are described here. All of them easily fit into the species-groups as defined by Bolton (1973). At present, the number of sub-Saharan *Polyrhachis* species has reached 61, still arranged following Bolton's (1973) species-groups. For detailed accounts and descriptions of the species not treated here, the reader should refer to Bolton (1973).

Depositories

AFRC	AfriBugs Collection, Pretoria, South Africa
BMNH	The Natural History Museum, London, United Kingdom
CAS	California Academy of Sciences, San Francisco, CA, USA
HLMD	Hessisches Landesmuseum Darmstadt, Germany
MCZ	Museum of Comparative Zoology at Harvard University, Cambridge, Mass., USA
MHNG	Musée d'Histoire Naturelle de Genève, Switzerland
MNHN	Muséum National d'Histoire Naturelle, Paris, France
MNHU	Museum für Naturkunde, Humboldt-Universität, Berlin, Germany
MRAC	Musée Royal de l'Afrique Centrale, Tervuren, Belgium
MSNG	Museo Civico di Storia Naturale, Genova, Italy
MSNM	Museo Civico di Storia Naturale, Milano, Italy
NHMW	Naturhistorisches Museum, Wien, Austria
SAM	South African Museum, Cape Town, South Africa

N.B. Collection codes have been reported whenever present.

Measurements and indices

HL (Head Length): in full face view, the maximum length of the head from the anterior clypeal margin to the posterior cephalic margin.

HW (Head Width): for sake of uniformity and comparison with Bolton (1973) data, it is measured in full face view just in front of the eyes.

CI (Cephalic Index): HWx100/HL.

SL (Scape Length): the length of the scape as a straight line between its apex and base, excluding the basalmost condylar bulb and "neck".

SI (Scape Index): SLx100/HW.

FW (Frontal Width): the maximum distance between frontal carinae in full face view.

FI (Frontal Index): FWx100/HW.

PW (Pronotal Width): in dorsal view the maximum distance between the bases of the pronotal spines where they meet the lateral margination or the rounded sides of the pronotum. There is often at least a faintly more pronounced concavity at that point. This measurement can be difficult to take, especially in species with a well developed pronotal margination. In such cases conspecific specimens of similar size can give quite different values.

MnL (Mesonotum Length): in gyne and male, in dorsal view the maximum length of mesonotum (scutum + scutellum).

ScW (Scutum Width): in gyne and male, in dorsal view the maximum width of the mesoscutum.

WL (Weber's Length): in profile, the diagonal distance from the point where the dorsum of the pronotum meets the cervical shield to the most protruding portion of the propodeal lobe.

HTL (Hind Tibia Length): the maximum length of the hind tibia excluding the proximal articulation, which is concealed when the leg is outstretched.

Measurements were taken by means of a Leica MZ 9.5 stereomicroscope with an ocular graticule and a "carrier AX", which allows work on a single optic path and a fully perpendicular view in order to obtain more precise data.

Most digital colour photos were taken by a Canon Power Shot S50 mounted on an ocular tube attached to a Leica MS5 stereomicroscope with a PlanAPO 1.0x objective and carrier AX; numerous shots of each specimen were combined using Helicon Focus software. Other high quality images were kindly provided by Antweb (http://www.antweb.org/)

Taxonomy

Synonymic synopsis of sub-Saharan *Polyrhachis* (species groups following Bolton, 1973)

alexisi-group
alexisi Forel, 1916
curta André, 1890
= *maynei* Forel, 1911
= *lyrifera* Stitz, 1933
latharis Bolton, 1973
lestoni Bolton, 1973
limitis Santschi, 1939

gamaii-group
gamaii Santschi, 1917

militaris-group
aerope Wheeler, 1922
alluaudi Emery, 1892
= *alluaudi* var. *anteplana* Forel, 1916
andrei Emery, 1921
asomaningi Bolton, 1973
concava André, 1889
cornuta Stitz, 1910
decellei Bolton, 1973
decemdentata André, 1889
= *decemdentata* var. *fernandensis* Forel, 1901
= *decemdentata* var. *flavipes* Stitz, 1910
= *decemdentata* var. *gustavi* Emery, 1921
= *decemdentata* subsp. *tenuistriata* Menozzi, 1933
doudou Rigato **n. sp.**
epinotalis Santschi, 1924 **stat. n.**
esarata Bolton, 1973
fisheri Rigato **n. sp.**
fissa Mayr, 1902
= *bequaerti* Wheeler, 1922
= *fissa* subsp. *ugandensis* Arnold, 1954
gagates F. Smith, 1858
= *gagates* var. *congolensis* Santschi, 1910
= *nigriseta* Santschi, 1910
= *nigriseta* var. *clariseta* Santschi, 1910
= *gagates* subsp. *indefinita* Forel, 1913
= *gagates* subsp. *obsidiana* Emery, 1921
gagates subsp. *indefinita* var. *acheron* Arnold, 1924 [unavailable name]
laboriosa F. Smith, 1858
= *laboriosa* var. *architecta* Santschi, 1924
= *hortulana* Arnold, 1955
latispina Emery, 1925
= *atalanta* Wheeler, 1922 [praeocc. name, nec *atalanta* Emery, 1898]
= *iperpunctata* Menozzi, 1942
= *iperstriata* Menozzi; in Eidmann, 1944 [misspelling]
lauta Santschi, 1910

= *lauta* var. *localis* Forel, 1913
= *lauta* var. *laeta* Emery, 1921
medusa Forel, 1897
= *medusae* Forel; in Santschi, 1914 [misspelling]
militaris (Fabricius, 1782)
= *militaris* subsp. *cupreopubescens* Forel, 1879
= *militaris* subsp. *striativentris* Emery, 1892
militaris subsp. *cupreopubescens* var. *transversaria* Forel, 1901 [unavailable name]
= *militaris* var. *calabarica* Forel, 1907
= *militaris* var. *ssibangensis* Forel, 1907
militaris subsp. *cupreopubescens* var. *argentatus* Stitz, 1910 [unavailable name]
= *militaris* subsp. *bruta* Santschi, 1912
militaris subsp. *cupreopubescens* var. *sankisiana* Forel, 1913 [unavailable name]
militaris subsp. *cupreopubescens* var. *dido* Wheeler, 1922 [unavailable name]
= *militaris* var. *nkomoensis* Santschi, 1924
militaris subsp. *cupreopubescens* var. *pleurata* Santschi, 1924 [unavailable name]
phidias Forel, 1910
rufipalpis Santschi, 1910
= *rufipalpis* var. *mayumbensis* Forel, 1913
schistacea (Gerstäcker, 1859)
= *carinatus* F. Smith, 1858
= *rugulosus* Mayr, 1862
= *schistazeus* (Gerstäcker); in Mayr, 1863 [misspelling]
= *militaris* st. *cafrorum* Forel, 1879
= *schistacea* var. *divina* Forel, 1913
= *schistacea* subsp. *atrociliata* Santschi, 1913
schistacea subsp. *atrociliata* var. *benguelensis* Santschi, 1913 [unavailable name]
= *schistacea* subsp. *fracta* Santschi, 1914
schistacea subsp. *fracta* var. *subplana* Santschi, 1914 [unavailable name]
= *schistacea* var. *gagatoides* Santschi, 1913
schistacea subsp. *atrociliata* var. *mediopilosa* Santschi, 1923 [unavailable name]
= *schistacea* var. *divinoides* Arnold, 1924
schlueteri Forel, 1886
= *schlüteri* var. *indigens* Forel, 1914
= *schlüteri* var. *plebeia* Santschi, 1914
sulcata André, 1895
wellmani Forel, 1909

monista-group
monista Santschi, 1910
spitteleri Forel, 1916

revoili-group
aenescens Stitz, 1910
braxa Bolton, 1973
brevipilosa Rigato **n. sp.**
dubia Rigato **n. sp.**
khepra Bolton, 1973
kohli Forel, 1916 **stat. n.**
lanuginosa Santschi, 1910
= *lanuginosa* subsp. *santschii* Emery, 1921
= *lanuginosa* subsp. *conradti* Santschi, 1923

= *lanuginosa* subsp. *felici* Emery, 1925
longiseta Rigato **n. sp.**
luteipes Rigato **n. sp.**
otleti Forel, 1916
platyomma Emery, 1921
regesa Bolton, 1973
revoili André, 1887
submarginata Rigato **n. sp.**
terminata Rigato **n. sp.**
transiens Bolton, 1973
volkarti Forel, 1916
weissi Santschi, 1910
= *natalensis* Santschi, 1914 **n. syn.**
= *revoili* var. *conduensis* Forel, 1915
= *revoili* var. *donisthorpei* Forel, 1916 **n. syn.**
= *revoili* subsp. *crassa* Emery, 1921
revoili subsp. *crassa* var. *phaenogaster* Emery, 1921 [unavailable name]
= *revoili* subsp. *balli* Santschi, 1939

viscosa-group
arnoldi Forel, 1914
cubaensis Mayr, 1862
durbanensis Forel, 1914
gerstaeckeri Forel, 1886 **stat. n.**
= *cubaensis* var. *striolatorugosa* Mayr, 1893 **n. syn.**
gibbula Rigato **n. sp.**
nigrita Mayr, 1895
= *schoutedeni* Santschi, 1919
omissa Rigato **n. sp.**
spinicola Forel, 1894
= *cubaensis* subsp. *gallicola* Forel 1894
viscosa F. Smith, 1858
= *antinorii* Emery, 1877
= *viscosa* var. *spretula* Santschi, 1923
= *cubaensis* subsp. *imatongica* Weber, 1943
wilmsi Forel, 1910 **stat. n.**

Key to sub-Saharan Africa *Polyrhachis* species-groups

1 Metanotal suture distinctly impressed, as a V- or U-shaped groove in profile 2
- Metanotal suture not impressed, often faint 3
2 At least pro- and mesonotum strongly laterally marginate . . . . . *militaris*-group
- Mesosoma immarginate . . . . . *monista*-group
3 Mesosoma distinctly laterally marginate. Pilosity strongly reduced. . . . . *viscosa*-group
- Mesosoma at least partially immarginate and/or at most with lateral margination very weak in part. Pilosity often abundant. . 4
4 Mesosoma short, in profile appearing distinctly high, short and posteriorly humped, with a long and very steep propodeal declivity; propodeal dorsum unarmed at its posterior corners. Anterior clypeal margin always bearing a median shallow rectangular lobe. . . . . *alexisi*-group
- Mesosoma more elongate, in profile not appearing distinctly high, short and posteriorly humped; propodeal declivity not particularly long and/or steep and propodeal dorsum usually toothed or ridged at its posterior corners. Anterior clypeal margin often without a median rectangular lobe 5
5 Mesosoma often fully immarginate; mesonotal and propodeal margination, if present, at most weak. In dorsal view mesoscutellum not visible . . . . . *revoili*-group
- Pro- and mesonotum immarginate, propodeum marginate. In dorsal view mesoscutellum distinct. . . . . *gamaii*-group

Key to sub-Saharan *Polyrhachis* workers (modified after Bolton, 1973)

Workers of *cubaensis* and *revoili* are unknown. New species in bold.

1 Anterior clypeal margin with a median, shallow, rectangular lobe. Eyes usually situated well up on the head and not breaking the outline of the sides in full-face view. Mesosoma short, usually not more than 1.1 times longer than broad, with a swollen appearance and a long, very steep propodeal declivity. Pronotum, at least partially, marginate; propodeal dorsum unarmed . . 2

- Anterior clypeal margin either arcuate or with a median, shallow lobe. Eyes breaking the outline of the sides of the head in full-face view except when the eyes are flat. Mesosoma more elongate, usually more than 1.3 times longer than broad, without a long, very steep propodeal declivity. Pronotum sometimes immarginate; propodeal dorsum usually armed with spines, teeth, tubercles or ridges 6

2 Petiole armed with two spines or teeth 3

- Petiole armed with four spines or teeth 4

3 Petiole in frontal view with two dorsolateral long spines, curved backwards and somewhat outwards at their apices, so that the whole petiole is lyre-shaped. Propodeum without a posterior transverse margination separating the dorsum from the declivity. (West and central Africa) . . . . . *curta*

- Petiole in frontal view with a pair of small triangular teeth. Propodeum usually with a weak posterior transverse margination separating the dorsum from the declivity. (Ghana, Rep. of the Congo, Central African Rep., Kenya) . . . . . *lestoni*

4 Propodeum immarginate, so that the dorsum rounds into the sides and declivity without interruption. (Dem. Rep. of the Congo, Central African Rep.) . . . . . *alexisi*

- Propodeum marginate laterally and posteriorly, so that the dorsum is separated from the sides and declivity 5

5 In dorsal view propodeal sides project strongly beyond the lateral marginations so that the total width of the propodeum is notably greater than the width between the marginations. In full-face view head trapezoidal, with distinct posterior corners and anteriorly convergent, somewhat straight sides. Eyes distant from the head sides. (Ghana, Rep. of the Congo) . . . . . *latharis*

- In dorsal view propodeal sides hardly projecting beyond the lateral marginations so that the total width of the propodeum is bounded, at least posteriorly, by the marginations. In full-face view head mostly oval, with less pronounced posterior corners and weakly convex sides. Eyes slightly interrupting the head outline. (Dem. Rep. of the Congo, Tanzania) . . . . . *limitis*

6 Pronotum immarginate, the dorsum curving smoothly and without interruption into the sides; rarely a trace of margination may appear anteriorly just behind the pronotal teeth 7

- Pronotum distinctly marginate at least for part of its length, usually throughout its entire length; if the margination is weak, it runs along most of the pronotal sides, petering out posteriorly 19

7 Dorsum of mesosoma without erect hairs. Mesoscutellum visible on dorsum of mesosoma. (South Africa: Natal). . . . . *gamaii*

- Dorsum of mesosoma with erect hairs. Mesoscutellum not visible on dorsum of mesosoma (West and Central Africa) 8

8 Metanotal groove broad and deeply impressed. Propodeum armed with a pair of long upcurved spines, as long or longer than those of the pronotum. Petiole with four long, back-curved spines. Dorsum of mesosoma with numerous stout hairs 9

- Metanotal groove neither broad nor deeply impressed, usually only represented by a line breaking the sculpturation. Propodeum unarmed or with a pair of tubercles, teeth or ridges which are notably smaller than those of the pronotum. Petiole with a dorsal pair of spines and a lateral pair of teeth or shorter spines. Dorsum of mesosoma with fine hairs 10

9 Promesonotal suture broad and deeply impressed. Propodeum without a median tuberculiform prominence between the spines. (West and Central Africa) . . . . . *monista*

- Promesonotal suture narrow, hardly impressed. Propodeum with a median tuberculiform prominence between the spines. (Ghana, Dem. Rep. of the Congo, Central African Rep.) . . . . . *spitteleri*

10 Eyes flat and somewhat sunk into the head surface. Metanotal suture stronger than the promesonotal one. (Cameroun) . . . . . *platyomma*

- Eyes convex, not sunk into the head surface. Metanotal suture weaker than the promesonotal one 11

11 Pronotal dorsum always with at least moderately raised sculpturation, usually dull 12

- Pronotal dorsum at most superficially reticulate, smooth and shining 17

12 Propodeum unarmed posteriorly, the dorsum and the declivity very weakly separated. Longest hairs on tibiae much longer than the maximum tibial width. (Cameroun, Rep. of the Congo). . . . . ***longiseta***

- Propodeum usually armed posteriorly either with a pair of transverse ridges (sometimes very weak) or with a pair of short upcurved teeth separating the dorsum from the declivity. If propodeal ridges absent, then hairs on tibiae at most hardly as long as the maximum tibial width 13

13 Median portion of clypeus projecting anteriorly as a truncated rectangular lobe. 14

- Median portion of clypeus arcuate and entire, without a truncated rectangular lobe 15

14 Propodeum in dorsal view distinctly longer than wide. Longest standing hairs on tibiae about as long as the maximum tibial width. (Democratic Republic of the Congo) . . . . . *kohli*

- Propodeum in dorsal view slightly wider than long. Longest standing hairs on tibiae about as long as half the maximum tibial width. (Republic of the Congo, Democratic Republic of the Congo). . . . . *volkarti*

15 Propodeum armed posteriorly with a pair of short upcurved teeth, between which the dorsum curves into the declivity. (Widespread in sub-Saharan Africa). . . . . *weissi*

- Propodeum armed posteriorly with a pair of transverse ridges separating the dorsum from the declivity; the ridges not meeting medially and sometimes very weak 16

16 Head and dorsum of mesosoma mostly longitudinally rugulose. The whole body appearing matte. Pubescence on the gaster long: each element much longer than the distance separating adjacent ones. Propodeal ridges and pronotal teeth distinct. (Cam-

eroun, Congo) . . . . . *lanuginosa*

- Head and dorsum of mesosoma irregularly sculptured, longitudinal rugulation at most ill-defined. Head and mesosoma weakly, gaster distinctly, shining. Pubescence on the gaster relatively sparse and short: each element at most slightly longer than the distance separating adjacent ones. Propodeal ridges faint, pronotal teeth minute. (Cameroun). . . . . ***dubia***

17 Anterior clypeal margin arcuate and entire. A short longitudinal groove, terminating in a pit-like depression posteriorly, occurs close to each antennal insertion. (Ghana) . . . . . *braxa*

- Anterior clypeal margin with a shallow rectangular lobe. No short longitudinal groove occurs close to each antennal insertion 18

18 Head distinctly more sculptured than the mesosoma. Dorsum of mesosoma without distinct sutures. Standing hairs very long and often sinuate. (Ghana) . . . . . *khepra*

- Head about as smooth as the mesosoma. Dorsum of mesosoma with a distinct promesonotal and a weak metanotal suture. Standing hairs relatively short and never sinuate. (Cameroun). . . . . ***luteipes***

19 Metanotal groove never impressed, represented only by a line or an indistinct scoring across the dorsum of the mesosoma which may fail to break the sculpturation 20

- Metanotal groove distinct, broad and always impressed; in profile often with the appearance of a V or U-shaped trench separating the mesonotum from the propodeum 35

20 Antennal scapes with numerous erect hairs 21

- Antennal scapes without erect hairs 26

21 Propodeal dorsum and declivity separated by a continuous, well developed ridge. Size large, HL > 2.50. (Tanzania) . . . . . ***terminata***

- Propodeal dorsum and declivity medially confluent, at most laterally separated by a pair of ridges. Size small, HL < 2.00 . . 22

22 Larger species, HL > 1.40 23

- Smaller species, HL < 1.35 25

23 Pronotal margination weak. Scape relatively longer, SI > 160. (Central African Rep.). . . . . ***submarginata***

- Pronotal margination well developed. Scape relatively shorter, SI < 150 24

24 Propodeum with a pair of transverse, well developed ridges between dorsum and declivity. Dorsum of mesonotum laterally smoothly rounding into the sides. (West and Central Africa) . . . . . *otleti*

- Propodeum with a pair of minute teeth at the posterodorsal corners. Dorsum of mesonotum separated from sides by an obtuse angle. (Uganda). . . . . *transiens*

25 Mid pair of petiolar spines more than twice as long as the tooth-like lateral pair. Many erect hairs on scapes that are much longer than maximum scape diameter. Tibiae and tarsi testaceous, basally piceous. (Ghana, Rep. of the Congo). . . . . *regesa*

- Mid pair of petiolar spines at most 1.5 times as long as the spiniform lateral pair. Few erect hairs on scapes, hardly longer than maximum scape diameter. Tibiae and tarsi piceous. (Gabon, Rep. of the Congo) . . . . . ***brevipilosa***

26 Propodeum laterally immarginate; pronotum laterally very weakly marginate for about half of its length. Sculpturation everywhere a fine superficial reticulation or reticulate-puncturation. (Cameroun). . . . . *aenescens*

- Propodeum laterally marginate; pronotum laterally marginate throughout its length. Sculpturation of mesosoma basically a fine reticulate-puncturation overlaid by longitudinal rugae or a loose rugoreticulum 27

27 Petiole bearing a pair of lateral spines and a pair of median teeth 28

- Petiole bearing a pair of lateral and a pair of, often longer, dorsal spines 30

28 Apex of antennal scape strongly broadened and hood-like in dorsal view, concealing the base of the first funicular joint, which is proximally dorsoventrally flattened. (Savannah regions throughout Africa) . . . . . *viscosa*

- Apex of antennal scape not broadened and hood-like, not concealing the base of the first funicular joint 29

29 Propodeal dorsum posterolaterally bearing a pair of relatively well-developed raised spines. Dorsum of propodeum curving evenly into the declivity. (Ghana, Uganda, Dem. Rep. of the Congo) . . . . . *nigrita*

- Propodeal dorsum posteriorly bearing a median lobe and posterolaterally a pair of upturned small teeth. Dorsum of propodeum often separated from the declivity by a thin ridge. (East Africa, also known from Yemen in southern Arabian Peninsula) . . . . . ***omissa***

30 First gastral tergite finely longitudinally striate. (South Africa, Malawi). . . . . *arnoldi*

- First gastral tergite finely reticulate-punctate 31

31 Propodeum without a transverse raised ridge running between the spines or teeth and separating the dorsum from the declivity, the dorsum passing through an angle or curving directly into the declivity, median tooth or tubercle absent. (South Africa: Natal). . . . . *durbanensis*

- Propodeum with a transverse raised ridge running between the spines or teeth and separating the dorsum from the declivity, the ridge often raised into a tooth or tubercle medially 32

32 Head in full face view trapezoidal, with distinct, rounded posterior corners. Head and mesosoma regularly longitudinally rugulose. (Kenya, Tanzania). . . . . ***gibbula***

- Head in full face view more or less oval, without distinct posterior corners. Head and mesosoma mostly reticulate-punctate, superimposed longitudinal rugulation usually weak and often more or less effaced 33

33 Posterior propodeal corners with small, upturned teeth, which are much smaller than the pronotal teeth. (Kenya, Tanzania) . . . . . *gerstaeckeri*

- Posterior propodeal corners with well developed, more or less upturned spines, which are similar in size to pronotal teeth . . 34

34 Frons and vertex bearing some pairs of standing hairs. (South Africa, Mozambique, Somalia) . . . . . *wilmsi*

- Frons and vertex without standing hairs. (South and East Africa) . . . . . *spinicola*

35 Petiole with two spines 36

- Petiole with four or six spines or teeth 37
36 Petiolar spines subparallel, strongly hooked backward at their apices. Clypeus carinate; gastral pubescence usually golden. (West and Central Africa, Uganda, Angola) . . . . . *laboriosa*
- Petiolar spines divergent, curving posteriorly along their length but not hooked apically. Clypeus ecarinate; gastral pubescence usually grey. (Dem. Rep. of the Congo, Angola, Zambia) . . . . . *wellmani*
37 Petiole with six spines or teeth. The smallest teeth behind the lateral spines may be reduced to blunt tubercles 38
- Petiole with four spines or teeth. No teeth or tubercles behind the lateral pair 39
38 Eyes placed behind the midlength of head sides. Petiole with a median pair of teeth and laterally with a pair of spines, each one bearing posteriorly a small tooth. The latter may even be reduced to a blunt tubercle. (West and Central Africa to the westernmost regions of Kenya and Tanzania) . . . . . *decemdentata*
- Eyes placed slightly in front of midlength of head sides. Petiole with a median pair of teeth and laterally with two pairs of long spines of similar length placed one in front of the other. (Ghana, Cameroun, Rep. of the Congo, Tanzania) . . . . . *andrei*
39 In profile, propodeal dorsum forming a strongly rounded gibbosity clearly above the level of the mesonotum. In dorsal view propodeal dorsum about twice as wide as long. 40
- In profile, propodeal dorsum at most slightly above the level of the mesonotum. In dorsal view propodeal dorsum at most a little wider than long. 41
40 Face on each side with a short, longitudinal, shallow groove terminating in a depression posteriorly and situated close to the outer margin of the antennal socket. Mesosomal sculpture weaker, finely longitudinally striolate. Mesosoma with sparse standing hairs on pronotum and mesonotum only, or, rarely, completely hairless. (West and Central Africa, Uganda) . . . . . *lauta*
- Face on each side without a short, longitudinal, shallow groove terminating in a depression posteriorly. Mesosomal sculpture stronger, pro- and mesonotum longitudinally rugulose, propodeum transversely so. Mesosoma, including propodeum, with moderately abundant standing hairs. (West and Central Africa, Uganda) . . . . . *fissa*
41 Mesosomal dorsum without erect hairs. 42
- At least pronotal dorsum with erect hairs 48
42 The whole body and appendages densely coated with silvery pubescence. Size larger, HL > 2.00, HW > 1.55. (South and East Africa) . . . . . *schlueteri*
- At most only the mesosoma with dense pubescence, which dorsally has a golden or brassy tinge. Size smaller, HL < 2.00, HW < 1.45. 43
43 Dorsum of mesosoma with long and dense pubescence, at least partially hiding the sculpturation. 44
- Dorsum of mesosoma with short and sparse pubescence, not hiding the sculpturation 46
44 Dorsum of head without standing hairs. In posterior view the side of the head at the ventral margin of the eye projecting laterally below the eye and forming a shield; in side view the ventral eye margin slightly concave, so that the eye is reniform. (West and Central Africa) . . . . . *concava*
- Dorsum of head with a pair of standing hairs situated on the vertex at the level of the posterior margins of the eyes. If the hairs have been lost, then the site of their original insertion is marked by a pair of pits.Eyes of usual shape, round or oval, without any shield below 45
45 Eyes smaller, globose and prominent, round in profile. Antennal scape longer (SI > 170). (Ghana, Central African Rep.). . . . . *decellei*
- Eyes larger, somewhat elliptical in profile. Antennal scape shorter (SI < 170). (West Africa) . . . . . *esarata*
46 Dorsum of pronotum strongly transversely concave, the lateral marginations projecting as raised flanges. (Dem. Rep. of the Congo). . . . . *aerope*
- Dorsum of pronotum very shallowly concave to transversely convex, the lateral marginations not projecting as raised flanges. 47
47 Sculpturation of head a fine, dense, reticulate-puncturation. Sides of the head below and in front of the eye, and the gena between the eye and the posteriorior clypeal margin with numerous more distinct pits, usually arranged in groups of three or four. Larger species, HL > 1.60. (West and Central Africa) . . . . . *alluaudi*
- Sculpturation of head a fine, dense, reticulation; the sides of the head below and in front of the eye, and the gena between the eye and the posteriorior clypeal margin with the same sculpturation as the dorsum. Smaller species, HL < 1.30. (West and Central Africa, Uganda). . . . . *rufipalpis*
48 Lateral pair of petiolar spines as long as, or even longer than the dorsal pair 49
- Lateral pair of petiolar spines short, always notably shorter than the dorsal pair, often reduced to small teeth. 51
49 Antennal scapes with numerous erect hairs. (Ghana) . . . . . *asomaningi*
- Antennal scapes with appressed pubescence only 50
50 Lateral pair of petiolar spines enormously developed, horn-like and much larger than the dorsal pair, which is tooth-like. First gastral tergite superficially reticulate-punctate. (Dem. Rep. of the Congo) . . . . . *cornuta*
- Lateral pair of petiolar spines not enormously developed and horn-like, only slightly longer than the dorsal pair. First gastral tergite strongly punctate and often appearing finely longitudinally rugulose. (Central African Rep., Tanzania, "Equatorial Africa") . . . . . *phidias*
51 Propodeum immarginate. Entire body deeply and regularly striate, the spaces between the striae strongly convex, giving a ploughed appearance. This sculpturation V-shaped on the anterior propodeum, longitudinal on head and rest of mesosomal dorsum. (Ghana, Congo, Equat. Guinea) . . . . . *sulcata*
- Propodeum marginate. Sculpturation not as above: strong striation, if present, occurring on head and mesosoma only; striae on gaster, if present, occur on the first gastral tergite only and are usually weak 52
52 Dorsum of propodeum separated from declivity by a strongly arched transverse, raised ridge running between the spines. Dor-

sum of head and mesosoma distinctly longitudinally rugose. (West and Central Africa, Uganda, Kenya, Tanzania). . . *latispina*

- Dorsum of propodeum not separated from declivity by an arched transverse ridge, the two surfaces confluent or separate by a weak, almost straight, ridge or by a distinct change of sculpturation. Dorsum of head and mesosoma usually with less strong sculpturation 53

53 Dorsum of mesosoma with erect hairs present only on the pronotum. Side of head between ventral border of eye and ventrolateral margin without erect hairs. Gaster highly polished, with a very fine, superficial reticulation, and with short, very diluted pubescence. (South and East Africa). . . . . *gagates*

- Dorsum of mesosoma with erect hairs present on all segments. Side of head between ventral border of eye and ventrolateral margin usually with erect hairs. Gaster usually dull, with a fine reticulate-punctate sculpturation, or sculpturation hidden by pubescence 54

54 Head in full-face view subrectangular, sides weakly convex, posterior corners always distinct as more or less obtuse angles. Behind each eye there is a blunt margination separating the head dorsum from the side. 55

- Head in full-face view oval or suboval, posteriorly usually forming a broad convexity with no or faint posterior corners. Behind each eye there is no margination: head dorsum and sides smoothly confluent 56

55 Smaller (HL < 2.30, WL < 3.20) and stouter. In profile, propodeal dorsum and declivity about equal in length. Distinctly less hairy: no standing hairs on appendages, petiole and on the head sides in front of the eyes. (Gabon) . . . . . ***doudou***

- Larger (HL > 2.30, WL > 3.30) and more slender. In profile, propodeal dorsum about twice as long as the declivity. Distinctly more hairy: standing hairs present, and usually abundant, on appendages, petiole and on the head sides in front of the eyes. (Forest regions throughout Africa) . . . . . *militaris*

56 Propodeal teeth spine-like, upturned and long, in profile often almost as long as the height of propodeal declivity 57

- Propodeal teeth short, in profile much shorter than the height of propodeal declivity 58

57 Pubescence long, abundant, mostly hiding the sculpturation and, at least partially, golden. Standing hairs relatively short: the longest ones on scapes and tibiae at most as long as scapes' and tibial width at midlength. Head and mesosoma at most finely longitudinally rugulose. (Widespread from West to East Africa). . . . . *epinotalis*

- Pubescence mostly inconspicuous and sparse. Standing hairs very long: the longest ones on scapes and tibiae about as long as thrice and twice scapes' and tibial width at midlength respectively. Head and mesosoma mostly strongly longitudinally rugose. (Gabon) . . . . . ***fisheri***

58 Pubescence greyish and short, not hiding the sculpturation. Mesosoma transversely nearly flat. Smaller and more slender, HW < 2.30, PW < 2.00. (Savannah regions throughout Africa). . . . . *schistacea*

- Pubescence silvery and long, often hiding the sculpturation. Mesosoma more transversely convex. Larger and stouter, HW > 2.30, PW > 2.20. (East Africa) . . . . . *medusa*

Species descriptions and taxonomic notes (g=gyne(s); m=male(s); w=worker(s))
N.B. short diagnosis are provided for all species dealt with in this section, except *cubaensis* and *revoili*, whose worker caste is still unknown.

Polyrhachis alexisi Forel

Polyrhachis alexisi Forel, 1916: 455, fig. 7. Syntype workers, DEM. REP. of the CONGO (*H. Kohl*) (MHNG) [not seen].

Diagnosis. The only species of the *alexisi*-group with a combination of four petiolar spines or teeth and immarginate propodeum.

This rare, but distinctive species was known from type specimens only (Bolton, 1973). A recently collected worker fully matches the description and drawings reported by Bolton (l.c.) and has these measurements: HL 1.25, HW 1.11, CI 89, SL 1.41, SI 127, FW 0.30, FI 27, PW 1.00, WL 1.56, HTL 1.35.

Material examined. CENTRAL AFRICAN REP.: P.N. Dzanga–Ndoki, 21.4 km 53° NE Bayanga, 3°02.01'N 16°24.57'E, 510 m, 6.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0089667, CAR01-S66).

Polyrhachis andrei Emery

Polyrhachis andrei Emery, 1921: 22, figs. 1a, b, c. Holotype gyne, CAMEROUN (*L. Conradt*) (MSNG) [not seen].

Diagnosis. A distinctive *militaris*-group species with six petiolar spines or teeth and eyes placed at or just in front of the midlength of the head sides.

Worker (n=1). HL 1.63, HW 1.33, CI 82, SL 1.58, SI 119, FW 0.63, FI 47, PW, 1.30 WL 2.08, HTL 1.78.

Head somewhat rectangular, side subparallel and weakly convex; posterior corners broadly rounded. Anterior clypeal border with its median third straight and almost lobe-like. Frons relatively wide. Eyes protruding and placed slightly in front of the midlength of head sides. Mesosoma entirely laterally marginate; the margination overhanging the sides. Promesonotal and metanotal groove distinct, especially the latter which is also clearly incised in lateral view. Pronotum, mesonotum and propodeum wider than long. Pronotum with anterolaterally directed strong teeth at its anterior corners. Propodeal dorsum bearing at its posterior corners a pair of very stout upturned and weakly outward directed spines. Propodeal dorsum and declivity mostly confluent. Petiolar node with a pair of strong teeth medially and two pairs of long, mostly straight spines laterally. The spines of each lateral pair diverge: the anteriormost spine is slightly in front and dorsolaterally directed, the posteriormost one arises from a lower point and is more backward tilted.

Mandibles finely reticulate-punctate with overlaying weak striolation and several hair-bearing pits. Clypeus superficially shagreened with sparse hair pits. Head dorsum mostly longitudinally rugose, the rugae posteriorly diverging; around the eyes the sculpturation is mainly reticulate-rugose. Dorsum of mesosoma longitudinally rugose. Mesosoma laterally reticulate-rugose with a more longitudinal pattern on pronotal and propodeal sides. Petiole roughly reticulate. Gaster finely reticulate-punctate and moderately shining.

Standing, yellowish stiff hairs occur sparsely all over the body. Identical, subdecumbent hairs occur also on the apical half of scapes, tibiae and mid- and hind-femora. Pubescence very short and inconspicuous.

Body and appendages black

Gyne (n=2). HL 1.72–1.89, HW 1.32–1.54, CI 77–81, SL 1.59–1.70, SI 110–120, FW 0.68–0.75, FI 49–52, WL 2.70–3.07, ScW 1.52–1.76, MnL 1.93–2.13, HTL 1.85–2.13.

With the usual differences from the worker caste.

Comment. Emery's (1921) description and figures of a queen are sufficient to identify this species. *Polyrhachis andrei* and *P. decemdentata* are the only known African species with six petiolar spines or teeth. Bolton (1973) based his diagnosis of *P. andrei* mostly on Emery's (1921) description, and thought it could even be a synonym of *P. decemdentata*. I have seen two gynes and a single worker of *andrei* and some gynes and several workers of *decemdentata* from various localities. These species are easily distinguishable on the basis of the characters reported in the key, and pilosity as well: *P. andrei* has sparse, stiff standing hairs mostly apically located on tibiae and scapes, whereas *P. decemdentata* has abundant, thin hairs uniformly distributed on legs and scapes.

Material examined. GHANA: Kade, 17.ii.1971 (*J. Majer*) (1 g, BMNH). **REPUBLIC of the CONGO**: Niari Region, 2.28617 S 12.87004 E, 709 m, 29.vi.2013–9.vii.2013, primary forest, pitfall trapping (*L. Niemand*) (1 w, AFRC: LN-RC1-033, CASENT0250043). **TANZANIA**: 37 mi. north of Mpanda, 1200 m, 18.xi.1967 (*E.S. Ross & A.R. Stephen*) (1 g, CAS).

***Polyrhachis brevipilosa* n. sp.**

(Figures 1a–c)

Diagnosis. A small species in the *revoili*-group with lobed clypeus, weakly marginate pronotum, minute propodeal teeth, rough reticulate-punctate sculpture, and relatively abundant and short standing hairs on body and appendages.

Holotype worker. HL 1.07, HW 0.89, CI 83, SL 1.21, SI 136, FW 0.33, FI 37, PW 0.79, WL 1.27, HTL 1.21.

Clypeus medially fairly distinctly carinate and with its anterior margin bearing a small protruding rectangular lobe, whose lateral corners are distinctly right-angled. Head in full face view subtrapezoidal, wider behind than in front, posterior margin wide and weakly convex with widely rounded posterior corners. Eyes relatively large and protruding. Mesosoma stout, evenly convex in profile. Pronotum laterally marginate, the margination interrupted a little in front of the promesonotal suture; mesonotum and propodeum immarginate. Pronotal teeth anteriorly diverging, relatively short and sharp. Promesonotal suture distinct, metanotal suture weaker and hardly interrupting the sculpturation. Propodeal teeth reduced to minute tubercles. Propodeal dorsum and declivity confluent in a blunt curvature. Petiole with four thin spines, the dorsal pair directed upward and slightly backward and about 1.5 times as long as the lateral pair. Petiolar dorsum in frontal (or posterior) view obtusely angled in the middle. First gastral tergite anteriorly concave.

Mandibles superficially striolate/shagreened and with sparse piligerous pits. Head, mesosoma, petiole and appendages reticulate-punctate and with a rough appearance, dull. Dorsum of head, pronotum and mesonotum also

with a superimposed, relatively dense, coarse longitudinal, sometimes inconspicuous, rugulation. Gaster finely reticulate-punctate and fairly shining.

Pubescence fine, whitish, short and moderately dense on most of the body and appendages, but sometimes poorly visible and never hiding the sculpturation. Standing hairs relatively short and moderately abundant on body and appendages, absent from the petiole. Longest hairs occur on head and leading edge of scapes. Few hairs on scapes longer than scape width at midlength; standing hairs on tibiae distinctly shorter than maximum tibial width.

Body black, legs mostly concolorous with the body, tibiae dark brown; antennal funiculi mostly testaceous, mandibular apex ferrugineous.

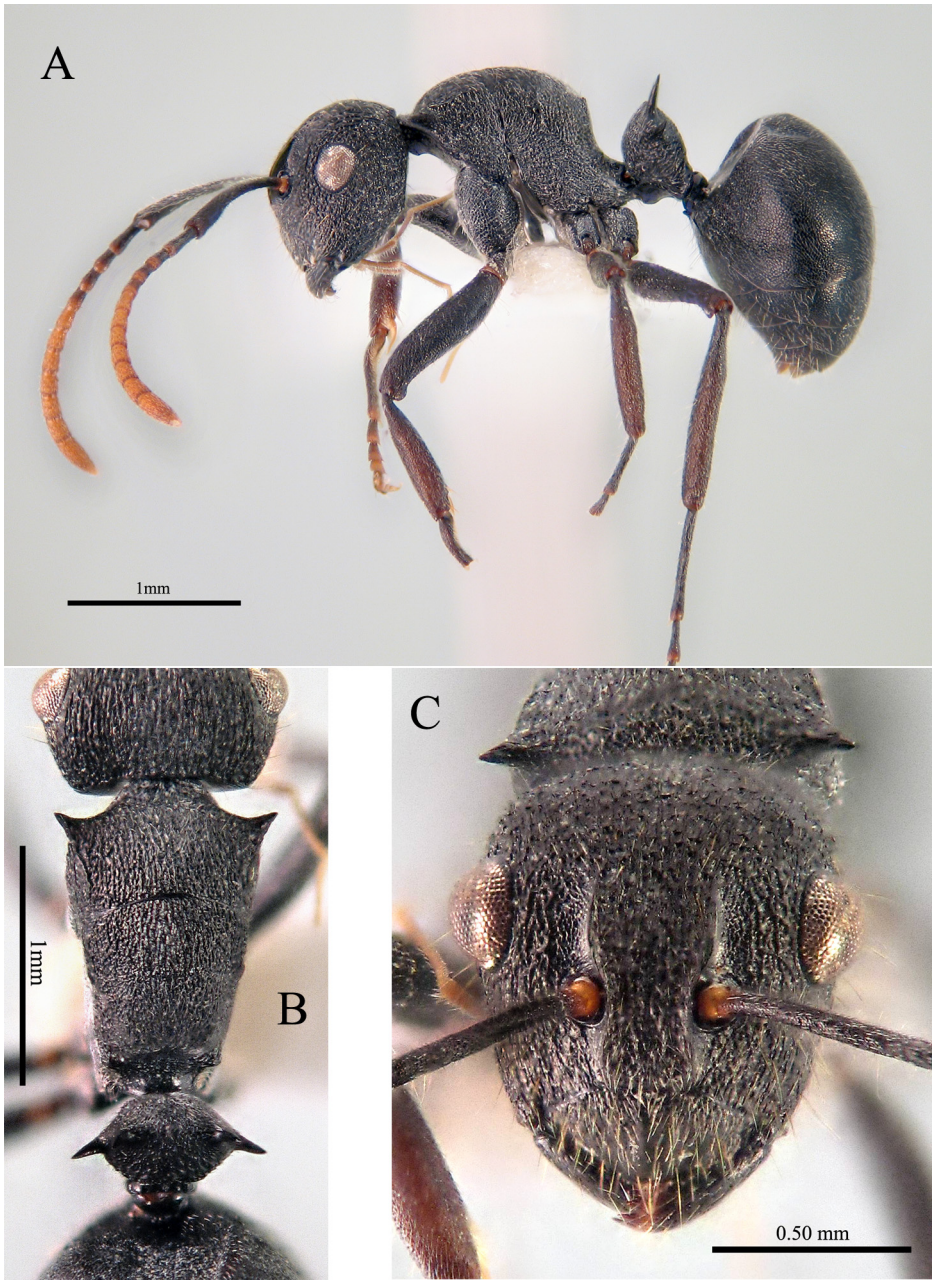

FIGURE 1. *Polyrhachis brevipilosa*, holotype worker: A, body profile; B, dorsum of mesosoma; C, head in full-face view. (Photos by M. Zilioli)

Paratype workers (n=2). HL 1.10–1.34, HW 0.91–1.07, CI 80–83, SL 1.27–1.48, SI 138–140, FW 0.34–0.42, FI 37–39, PW 0.82–1.02, WL 1.39–1.65, HTL 1.24–1.42. The smaller specimen does not significantly differ from the holotype. Yet an unexpectedly large specimen has a seemingly stouter mesosoma and pronotal teeth, and stronger petiolar spines (dorsal and lateral pairs more similar in size also). In my opinion, these differences are slight and possibly due to allometry.

Holotype worker. **GABON**: La Makandé, Forêt des Abeilles, I–II.1999, A. Dejean (BMNH).

Paratypes. **REPUBLIC of the CONGO**: Niari Region, 2.30921 S 12.82224 E, 754 m, 4.vii.2013, primary forest, canopy fogging (*L. Niemand*) (1 w, AFRC: LN-RC1-044, CASENT0250041); Niari Region, 2.31500 S 12.82488 E, 710 m, 5.vii.2013, primary forest, canopy fogging (*L. Niemand*) (1 w, AFRC: LN-RC1-041, CASENT0250033).

Comment. *Polyrhachis brevipilosa* is the smallest species of the *revoili*-group. Only *P. luteipes* n. sp. (see below) and *P. regesa* Bolton have a comparable size. *Polyrhachis luteipes* differs especially for its much weaker sculpturation, paler appendages and immarginate pronotum. *Polyrhachis regesa* is very similar to *brevipilosa*, but they can be distinguished as reported in the key. I examined the holotype of *P. regesa* Bolton and realized that the metanotal suture is not completely wanting as stated by Bolton and a faint trace remains visible under certain lights. Also, the propodeal "tubercles" (in Bolton's own words) of *regesa* look like weak ridges because they are relatively wide and much closer to one another than in *brevipilosa*, where they are short and tooth-like.

Polyrhachis cubaensis Mayr

Polyrhachis cubaensis Mayr, 1862: 687. Holotype gyne [not worker as reported in Bolton, 1973], originally labeled CUBA, 1843; then corrected into SOUTH AFRICA, Port Natal [currently Durban] (see Mayr, 1893: 195, footnote) (NHMW) [examined].

Holotype gyne. HL 1.45, HW 1.24, CI 86, SL 1.40, SI 113, FW 0.47, FI 38, ScW 1.15*, MnL 1.60*, ML 2.34*, HTL 1.47. (*These measurements are imprecise because the specimen was pinned through the mesosoma; the mesoscutum is slightly misplaced and is missing most of its right and posterior portions.)

Clypeus medially faintly carinate and with its anterior margin moderately and evenly arched. Head in full face view oval, wider behind than in front, posterior margin wide, moderately and evenly convex without posterior corners; sides in front of the eyes anteriorly converging and feebly convex. Eyes relatively large and convex. Ocelli small. Pronotum laterally weakly marginate. Pronotal teeth anteriorly diverging, stout and blunt, their tips weakly upturned. Propodeal dorsum feebly marginate laterally, strongly arched in profile and weakly convex transversely, about twice as wide as long. Propodeal teeth minute and upturned. Propodeal dorsum and declivity divided by a sudden change of slope, no ridge occurs between them. Petiole with two pairs of spines, the mid pair looks stouter and slightly shorter than the lateral one; the mid pair a little more distant from one another than mid and lateral spine of the same side. All petiolar spines weakly backward tilted. First gastral tergite anteriorly slightly concave.

Mandibles shagreened and with sparse piligerous pits. Body mostly subopaque with a slightly shining gaster. Body and appendages finely reticulate-punctate, with no trace of rugosity. Clypeus, pronotal dorsum, mesonotum, mesanepisternum, propodeal dorsum and declivity, posterior petiolar surface and gaster mostly appearing more superficially and tidily sculptured.

Standing hairs mostly wanting, occurring only at the gastral apex, on gastral sternites I-IV, at the anterior clypeal margin and mandibular apex. Pubescence very short, inconspicuous on most of the body and moderately dense on gaster and appendages, but never hiding the sculpturation; on the gaster the distance between two adjacent elements is about equal to their length.

Colour mainly black, legs mostly brown with proximally darker tibiae, tarsi and coxae. Antennae piceous, except their dark brown funicular apices; mandibles apically ferrugineous. Wings moderately infuscated.

Comment. While examining a doubtfully identified *P. cubaensis* specimen I realized that Bolton (1973) did not see any of the types belonging either to *cubaensis* or to its synonyms (i.e. *P. gerstaeckeri* Forel, *P. cubaensis* var. *striolatorugosa* Mayr, and *P. cubaensis* subsp. *wilmsi* Forel). As a consequence, he based his interpretation on the original, somewhat misleading, descriptions only. Bolton (1973) defined *P. cubaensis* on the basis of specimens he compared with Mayr's description of *P. cubaensis* var. *striolatorugosa* (1893), because the original description of *cubaensis* was too short (in Mayr's own words too) and mostly useless.

Bolton (l.c.) thought the *P. cubaensis* holotype was a worker, yet it is actually a gyne (as one can infer from Mayr's original description, which ends "Wings slightly brownish", and from a comment in the description of var. *striolatorugosa*). One of the main features Bolton (1973: 292, in key) reported for *cubaensis* was the occurrence of a transverse ridge running between the spines which is raised medially into a tooth or tubercle. The holotype gyne lacks this ridge. Mayr (1893) described *P. cubaensis* var. *striolatorugosa* as bearing a ridge between the propodeal

teeth. Consequently, Mayr himself did not carefully compare his var. *striolatorugosa* with *cubaensis* s.str. and overlooked this very important difference, which is consistent in both female castes. The non-conspecificity between *cubaensis* var. *striolatorugosa* and *cubaensis* was therefore not hitherto ascertained. As a consequence, the current interpretation of *cubaensis* must be reviewed as well as its synonymies.

Both *P. gerstaeckeri* Forel and *P. cubaensis* subsp. *wilmsi* Forel have a ridge between the propodeal dorsum and the declivity and cannot be conspecific with *P. cubaensis* Mayr. At present, I cannot find either any synonym of *P. cubaensis* or any worker seemingly conspecific with the type gyne. *Polyrhachis cubaensis* apparently belongs in the *viscosa*-group, but an important feature of the species-group, the strength of the metanotal suture, cannot be inferred from gyne morphology. Among *viscosa*-group species, *P. durbanensis* Forel shares with *cubaensis* the lack of a ridge between the propodeal teeth, but *durbanensis* is definitely larger and has longer appendages. The *P. cubaensis* gyne is superficially similar to the *rufipalpis* gyne, but *rufipalpis* bears long pubescence on most of mesosomal sides and has more slender appendages. Therefore, *P. cubaensis* remains known from the type only and its actual taxonomic position is still doubtful.

The former *cubaensis*' synonyms must be assigned to two distinct species: *P. gerstaeckeri* Forel (senior synonym of *P. cubaensis* var. *striolatorugosa* Mayr) and *P. wilmsi* Forel. They are discussed under their headings.

Polyrhachis decellei **Bolton**

Polyrhachis decellei Bolton, 1973: 349, figs. 46, 54. Holotype worker, GHANA: eastern region, Begoro, 10.vi.1968 (*C.A. Collingwood*) (BMNH) [not seen].

Diagnosis. A medium sized *militaris*-group species with mesosoma lacking standing hairs, but coated with long, dense pubescence, which is distinctly longer than on head and gaster, and with a pair of long standing hairs on the head vertex, and, in profile, relatively small and round eyes.

A single worker from CAS matches the original description and drawings. HL 1.63, HW 1.13, CI 69, SL 1.97, SI 174, FW 0.40, FI 35, PW 1.08, ML 2.18, HTL 2.08.

Material examined. CENTRAL AFRICAN REP., P.N. Dzanga–Ndoki, 38.6 km 173° S Lidjombo, 2°21,60'N 16°03.20'E, 350 m, 22.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0092432 CAR01-S218).

Polyrhachis doudou **n. sp.**
(Figures 2a–c)

Diagnosis. A moderately large species in the *militaris*-group, with somewhat rectangular head, appendages without standing hairs, and moderately abundant short greyish pubescence.

Holotype worker. HL 2.14, HW 1.60, CI 75, SL 2.93, SI 183, FW 0.55, FI 34, PW 1.43, WL 3.03, HTL 2.93.

Clypeus faintly carinate medially, anterior clypeal margin evenly convex. Head in full face view subrectangular with weakly convex sides, broadly rounded posterior corners and slightly medially protruding occiput. Eyes moderately convex, placed relatively posteriorly; behind each eye a very blunt margination separates the head dorsum from the side. Scapes long and thin. Mesosoma moderately stout, in profile forming a broad curvature interrupted at the sutures, of which the metanotal one is the most impressed; all mesosoma segments look flat transversely. Mesonotum twice as wide as long, propodeal dorsum as wide as long. In profile, propodeal dorsum and declivity similar in length. Pronotal spines long, moderately anteriorly divergent and thin. Mesosoma distinctly marginate along its sides, the marginations mostly forming narrow flanges interrupted at the sutures. Propodeal dorsum and declivity separated by a sudden change of sculpturation. Propodeal teeth small and upturned. Petiole bearing a mid pair of long, erect, well separated and moderately divergent spines, and a lateral pair of small sharp teeth, close to the base of the spines. In frontal view petiole flat between the spines. First gastral tergite anteriorly shallowly concave.

Mandibles finely longitudinally striolate and with sparse, small piligerous pits. Clypeus finely reticulate-punctate with sparse rough puncturation giving a scabrous appearance, especially laterally. Most of head dorsum and mesosoma, including the sides, finely and almost regularly longitudinally rugulose, with a finely reticulate-punctate ground sculpture. Propodeal declivity finely reticulate-imbricate. Petiole, gaster and appendages finely reticulate-punctate. The whole body looks dull and with a cinder-like reflection.

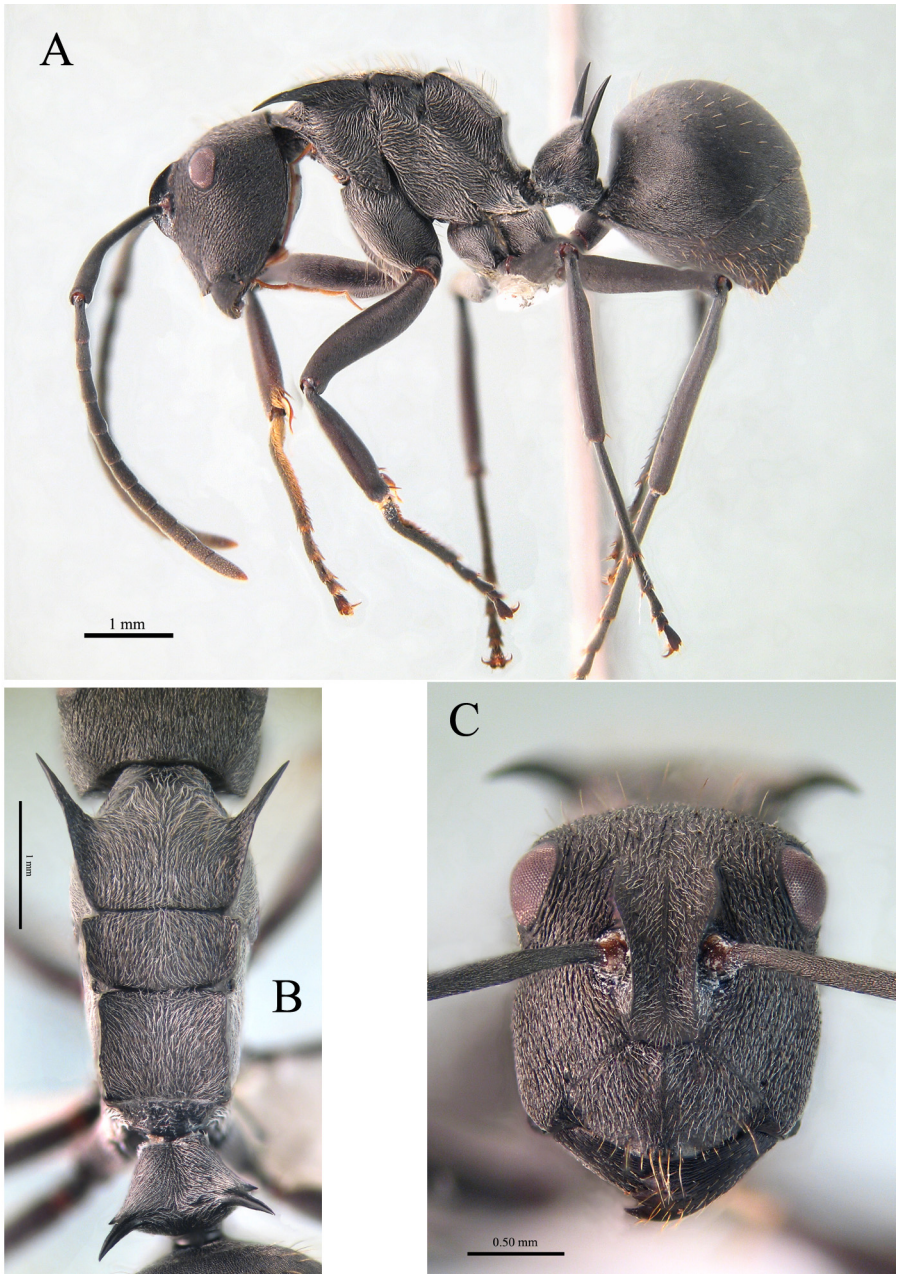

FIGURE 2. *Polyrhachis doudou*, holotype worker: A, body profile; B, dorsum of mesosoma; C, head in full-face view. (Photos by M. Zilioli)

Standing, yellowish/whitish hairs moderately abundant and long on the occiput, dorsum of mesosoma and gaster; shorter and more scattered hairs on frons and clypeus. Head sides in front of the eyes, ventral head surface, petiole and appendages without standing hairs, the whole body and appendages covered with relatively dense, but short, whitish pubescence; longer on mesosomal sides and petiole; denser and shorter on gaster and, especially, appendages.

Colour black throughout, including mandibles, funiculi and tarsi.

Paratype workers (n=2). HL 2.21–2.29, HW 1.63–1.70, CI 74, SL 2.93–2.97, SI 172–182, FW 0.55–0.56, FI 33–34, PW 1.40–1.52, WL 3.00–3.17, HTL 2.98–3.07. Not significantly different from the holotype.

Holotype worker. **GABON**: Prov. Ogoové-Maritime, Réserve des Monts Doudou, 25.2 km 304° NW Doussala, 2°13.63'S 10°23.67'E, 600 m, 15.iii.2000 (*S. van Noort*), sweep, coastal lowland rainforest, undergrowth, low canopy in forest (CAS: GA00 S104-1).

Paratypes. same data as the holotype (1 w, CAS: GA00 S103-1); **GABON**: Prov. Ogoové-Maritime, Réserve

des Monts Doudou, 24.3 km 307° NW Doussala, 2°13.35'S 10°24.35'E, 370 m, 10.iii.2000 (*S. van Noort*), sweep, coastal lowland rainforest, undergrowth, low canopy in forest (1 w, CAS: GA00 S83-9).

Comment. *Polyrhachis doudou* shares with *militaris* the subrectangular head outline in full face view. In addition, *P. doudou* recalls the less brightly coloured *militaris* specimens coated with short pubescence, and main differences between *doudou* and *militaris* are summarized in the key. Because of its size and colour *P. doudou* looks similar to *schistacea*, but the latter has hairy appendages, rounded head and, usually, a lower SI.

***Polyrhachis dubia* n. sp.**
(Figures 3a–c)

Diagnosis. A medium-sized species in the *revoili*-group, with convex anterior clypeal margin, immarginate mesosoma, minute pronotal teeth, very weak propodeal ridges and relatively abundant fine standing hairs on body and appendages.

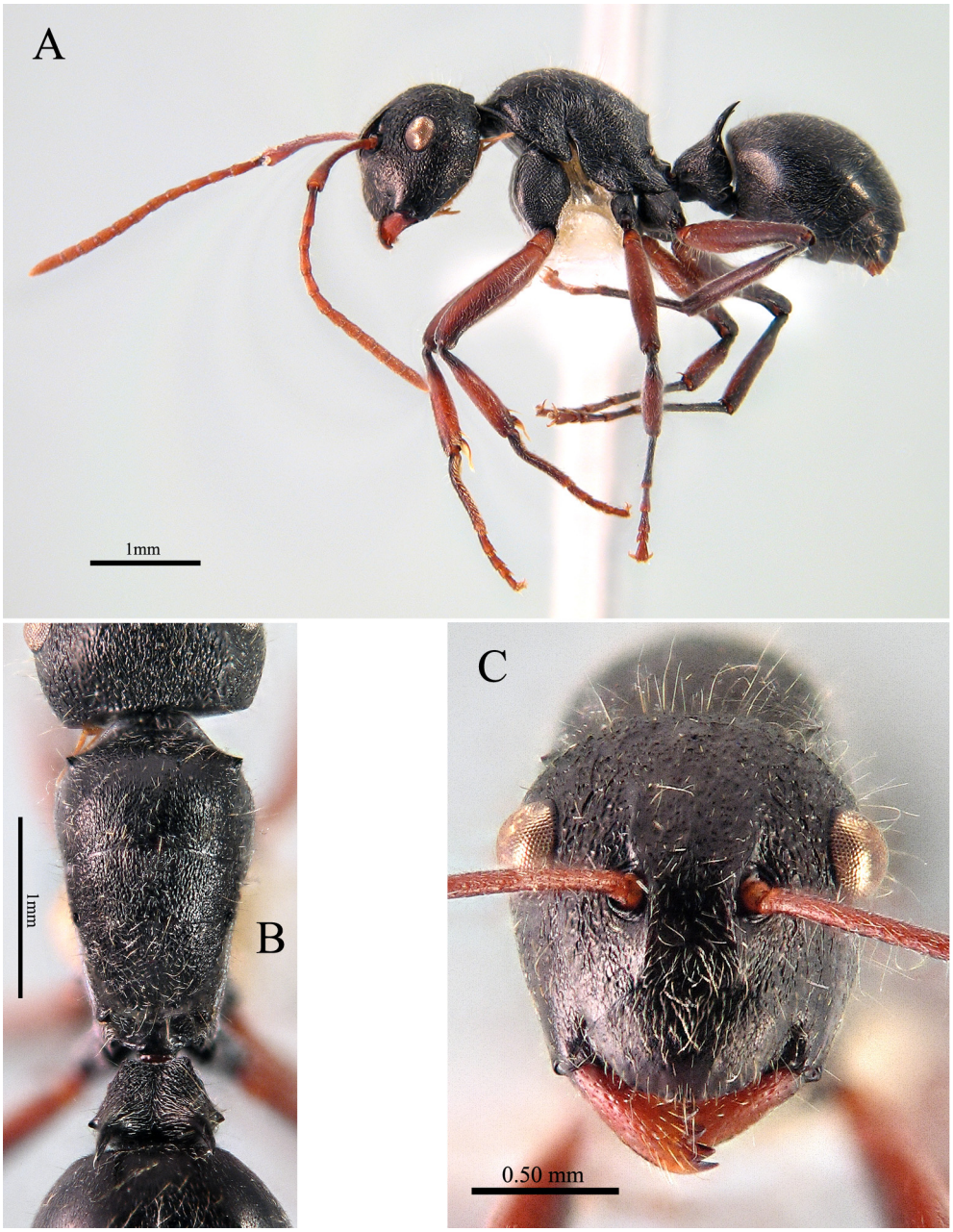

FIGURE 3. *Polyrhachis dubia*, holotype worker: A, body profile; B, dorsum of mesosoma; C, head in full-face view. (Photos by M. Zilioli)

Holotype worker. HL 1.47, HW 1.21, CI 82, SL 1.66, SI 137, FW 0.44, FI 36, PW 0.95, WL 1.88, HTL 1.56.

Clypeus ecarinate and with evenly convex anterior margin. Head in full face view oval, with anteriorly converging sides and convex posterior border. Eyes moderately developed and convex. Mesosoma stout, immarginate, in profile more convex anteriorly than posteriorly. Pronotal teeth minute, their anterior edge perpendicular to the longitudinal axis of the body. Propodeal dorsum posterolaterally bearing a pair of weak ridges. Promesonotal suture visible, metanotal suture hardly so. Petiole with a median pair of moderately long, slightly diverging spines and a lateral pair of small teeth. In frontal (or posterior) view the space between the spines evenly shallowly concave. First gastral tergite anteriorly weakly concave.

Mandibles weakly striolate and with sparse piligerous pits. Head, mesosoma and petiole mostly reticulate-punctate. A superimposed irregular rugosity occurs on the head (except clypeus), and a finer, mostly longitudinal irregular rugulosity on the mesosoma. Appendages finely reticulate-punctate and subopaque. Head and mesosoma feebly shining; gaster superficially sculptured and shining.

Standing, pale, thin and flexuous hairs of uneven length are fairly abundant on body and appendages; on average they are slightly shorter on gaster and even shorter on legs and funiculi. Longest hairs on scapes easily surpass maximum scape width, on the tibiae always shorter than maximum tibial width. Pubescence whitish, relatively dense, especially on mesosoma, petiole and gaster; shorter and more regularly arranged on the latter.

Body and coxae black, antennae, mandibles and remaining leg segments mostly ferrugineous. First funicular joint, legs articulations, femora and, above all, tibiae and tarsi infuscated.

Paratype workers (n=6). HL 1.30–1.51, HW 1.13–1.25, CI 83–88, SL 1.57–1.74, SI 138–140, FW 0.40–0.45, FI 35–39, PW 0.81–0.96, WL 1.70–2.00, HTL 1.46–1.66.

Mostly consistent with the holotype. Some variations occur in the degree of darkening of appendages, which, at least partially, keep a ferrugineous or even paler tinge. Smallest specimens lack propodeal ridges and in profile their propodeal dorsum and declivity form a blunt obtuse angle.

Holotype. **CAMEROUN**: Mbalmayo, xi.1993 (*N. Stork*) (BMNH, tagged "F.93 C7/44")

Paratypes. same data as the holotype (6 w, BMNH, two specimens per pin: 4 tagged "F.93 C7/47" and 2 tagged "F.93 C7/48").

Comment. This is a relatively plain species of the *revoili*-group, with no clypeal lobe, no mesosomal margination and relatively weak sculpturation. It is similar to *longiseta* and differences between them are pointed out under the latter. *Polyrhachis lanuginosa* is also alike, but has stronger sculpturation, denser pubescence and more yellowish hairs.

Polyrhachis epinotalis **Santschi stat. n.**

(Figures 4a–c)

Polyrhachis militaris st. *epinotalis* Santschi, 1924: 222 (in key). Lectotype worker and one paralectotype worker (by present designation), DEMOCRATIC REPUBLIC of the CONGO: Elizabethville [= Lubumbashi], ix.1911 (*Miss. Agric Leplae*). [First available use of *Polyrhachis militaris* r. *cupreopubescens* var. *epinotalis* Forel, 1913a: 357; unavailable name (Bolton, 1973b: 313). Junior synonym of *militaris*: Dorow, 1995: 36.] (MHNG) [examined]. **Stat. n.**

Diagnosis. A large species in the *militaris*-group with relatively slender body, oval head, abundant, long and, at least partially, golden pubescence, and upturned propodeal spines.

Lectotype worker. HL 2.68, HW 2.05, CI 76, SL 3.21, SI 157, FW 0.74, FI 36, PW 1.66, WL 3.52, HTL 3.60. Anterior clypeal border medially bearing a laterally obtusely angled shallow lobe. Head in full face view oval, with moderately convex sides strongly converging to the short posterior margin. Eyes moderate in size and strongly convex. Mesosoma strongly, often flange-like marginate along its sides. Promesonotal suture well marked; metanotal suture deeply incised and narrow. Disc of pronotum and mesonotum approximately transverse; propodeal dorsum longer than wide. Pronotal spines long and sharp. Propodeal teeth long, upturned and spine-like; in profile nearly as long as the height of the propodeal declivity. Petiole with four sharp spines, the dorsal pair much longer than the lateral pair.

The entire body mostly reticulate-punctate and dull, longitudinally rugulose on occiput and vertex, including the space between eyes and frontal carinae. Mandibles finely longitudinally striolate. Pubescence abundant throughout, long and golden especially dorsally where it mostly hides the sculpturation. Standing hairs abundant on

body and appendages; relatively short on antennae, longer on the legs and even longer on most of the dorsum of the body.

Integument mostly black, mostly hidden by the long and dense golden pubescence.

Paralectotype worker (same data as the lectotype). HL 2.50, HW 1.92, CI 77, SL 3.05, SI 159, FW 0.71, FI 37, PW 1.58, WL 3.48, HTL 3.40. Very similar to the Lectotype.

Other workers examined (n=12). HL 2.51–2.86, HW 1.90–2.17, CI 72–82, SL 2.95–3.52, SI 143–174, FW 0.67–0.83, FI 34–40, PW 1.54–1.88, WL 3.28–3.92, HTL 3.48–4.00.

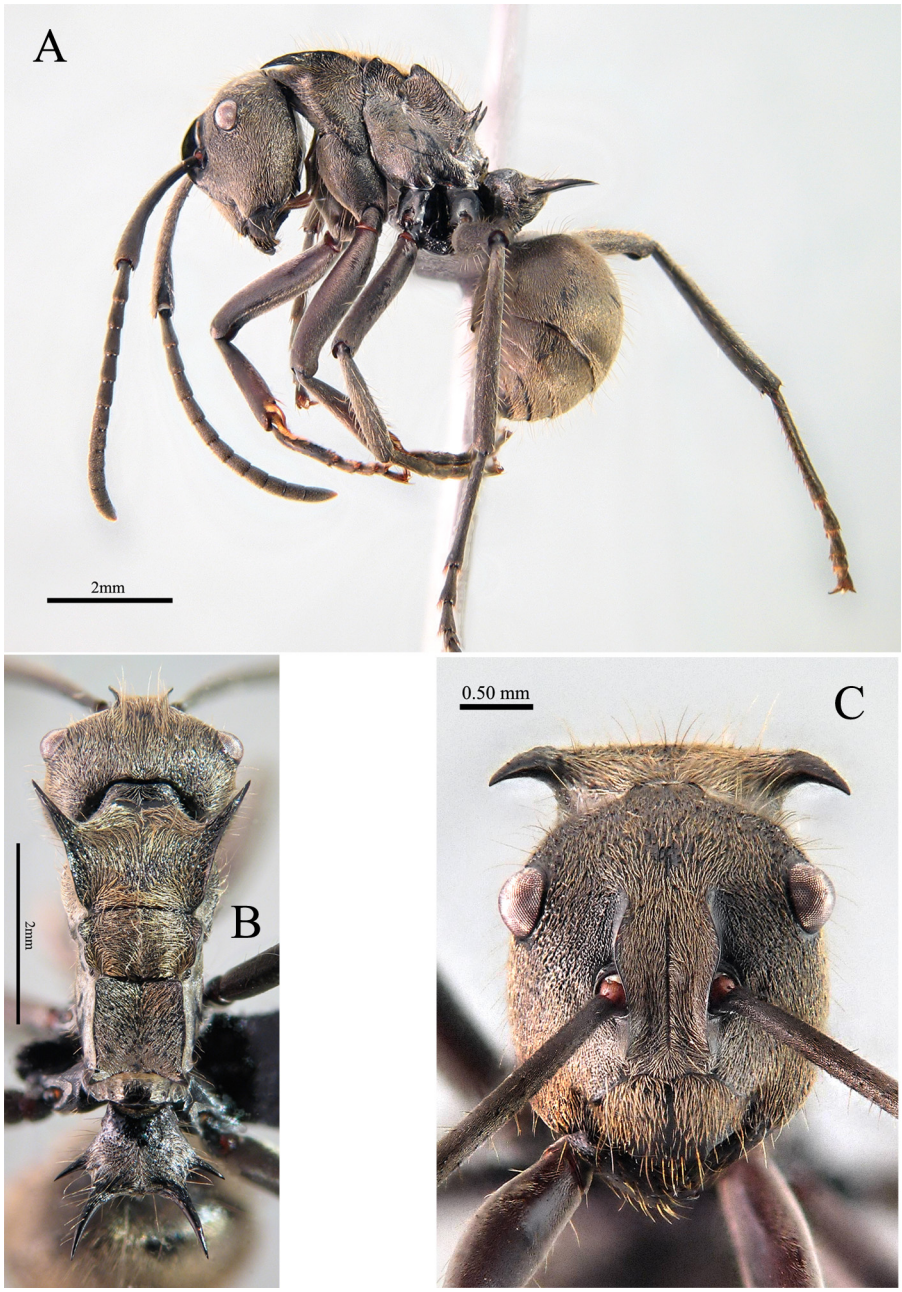

FIGURE 4. *Polyrhachis epinotalis*, worker (CENTRAL AFRICAN REP., P.N.Dzanga-Ndoki, 21.4 km 53° NE, Bayanga, 3°02.01' N 16°24.57' E, 510 m, 6–7.v.2001 (*S. van Noort*), CAR01-M56-CAR01-M66 [CASENT0087003 CAR01-M65]): A, body profile; B, dorsum of mesosoma; C, head in full-face view. (Photos by M. Zilioli)

Comment. Forel described this taxon using an unavailable name combination (a quadrinomen) and later Santschi (1924) made that name available considering *epinotalis* as a subspecies of *militaris*. I have designated as lectotype one of Forel's syntypes at MHNG. The lectotype is in quite good condition, but misses its right foretibia and tarsus. Although considered for many years as a synonym of *P. militaris*, *P. epinotalis* is a distinct species.

Santschi (1924) pointed out the *epinotalis* head shape as its main distinctive feature. Principal differences separating *epinotalis* from *militaris* workers (and, in part, gynes) are as follows:

Polyrhachis epinotalis	*Polyrhachis militaris*
In full face view head distinctly oval, usually wider anteriorly than behind the eyes; sides convex, clearly converging posteriorly	In full face view head subrectangular, about as wide anteriorly as behind the eyes; sides weakly convex, almost parallel
Behind the eye the head dorsum smoothly curves into the side	Behind the eye an obtuse margination runs from the posterior margin of the eye to the posterior head corner separating the dorsum from the side
Sculpture of head dorsum mostly reticulate-granulate, only partially rugulose	Sculpture of the head dorsum mainly longitudinally rugulose throughout
Propodeal teeth upturned and long, spine-like. In profile they usually approach the height of the propodeal declivity	Propodeal teeth upturned and short. In profile, they are much shorter than the height of the propodeal declivity

The size difference of propodeal teeth between *epinotalis* and *militaris* is usually remarkable. Forel (1913a) stated that *epinotalis*' teeth appear as upturned spines, much longer than in *militaris* and other related species. However, this feature is subject to some variability. In addition, *epinotalis* is usually more slender than *militaris*, with only the mesonotum distinctly transverse, but that is not always true. I examined a robust worker from Kenya (Arabuko-Sokoke Forest at HLMD) which looks *militaris*-like, but it has a round head and spiniform, although relatively short, propodeal teeth. Peter Hawkes (pers. comm.) faced the same difficulties with some *epinotalis* specimens (as well as with some slender *militaris*), but confidently identified them using head and propodeal teeth shapes.

Almost all specimens I examined look relatively consistent and the species seems about as widespread as *P. militaris*, with which it probably co-occurs. The golden colour of the pubescence in *P. epinotalis* could be as variable as in *militaris*: some specimens look more or less greyish. The petiolar spines are slightly variable in length and the long and diverging dorsal pair is more or less apically bent backward; the lateral pair is always relatively well developed, varying from sharp teeth to short spines.

Material examined. (except types). **GABON**: La Makandé, Forêt des Abeilles, i–ii.1999 (*A. Dejean*) (1 w, BMNH). **EQUATORIAL GUINEA**: Bioko, 7 km N Luba, 3°27'56"N 8°29'42"E, 14.x1998 (*D. Ubick, D.K. Dabney, R.W. Tomos, M. Boko, J.V. Vindum*) (1 g, CAS). **DEM. REP. of the CONGO**: 75 mi. W of Popokabaka, 2.viii.1957 (*E.S. Ross & R.E. Leech*); 39 km S of Walikale, 700 m, 21.xii.1957 (*E.S. Ross & R.E. Leech*) (1 w, BMNH); 5 mi. S of Fizi, 1320 m, 10.i.1958 (*E.S. Ross & R E. Leech*) (1 w, CAS). **CENTRAL AFRICAN REP.**: P.N. Dzanga-Ndoki, 21.4 km 53° NE Bayanga, 3°02.01'N 16°24.57' E, 510 m, 1–2.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0086054 CAR01-M02); P.N. Dzanga-Ndoki, 21.4 km 53° NE Bayanga, 3°02.01'N 16°24.57' E, 510 m, 6–7.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0087003 CAR01-M65); P.N. Dzanga-Ndoki, 21.4 km 53° NE Bayanga, 3°02.01'N 16°24.57' E, 510 m, 7.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0090853 CAR01-S91); P.N. Dzanga-Ndoki, 38.6 km 173° S Lidjombo, 2°21.60'N 16°03.20'E, 350 m, 21–27.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0094892 CAR01-Y67). **UGANDA**: Kampala Tank Hill, 7–10.vii.1987 (*V. Ferri*) (4 w, MSNM); Entebbe, Entebbe Botanical Gardens, 17–22.viii.2012, 0°03'52.61"N 32°28'40.50"E, 1143 m, on tree (*F. Hita Garcia*) (3 w, HLMD). **RWANDA**: 40 km E of Kigali, 1575 m, 9.xii.1957 (*E.S. Ross & R.E. Leech*) (1 w, BMNH). **KENYA**: Kaimosi Mission, 27 mi. NE of Kisumu, 1650m, 29.xi.1957 (*E.S. Ross & R.E. Leech*) (1 w, BMNH); Kakamega, 28.iii.1976 (*W. Gotwald & R. Schefer*) (2 w, BMNH); Malindi district, Arabuko-Sokoke forest, 3.29°S 39.98°E, 10–15 m el., 31.v.2001, #01-438, 2nd hardwood forest nr "Tree-House", foraging in litter (*R.R. Snelling & D.J. Martins*) (1 w, HLMD); Western Province, Kakamega Forest, Udo's camp, kitchen band, 1650 m, vi.2008, daytime hand collected (*F. Hita Garcia*) (1 g, HLMD); Western Province, Kakamega Forest, Colobus primary forest, 0°21'16"N 34°51'36"E, 1650 m, vii.2008, handcoll. (*G. Fischer*) (1 w, HLMD); Western Province, Kakamega Forest, Mwanzu Trail, 0°14'15.5"N 34°52'03.2"E, 1650 m, prim. Forest, 11.viii.2008, from ground, hand collected (*G. Fischer*) (5 w, HLMD). **ZAMBIA**: North Western Prov., Ikelenge, Hillwood Farm, 11°14'57.45"S 24°18'50.82"E, 1392 m, hand coll., viii.2008 (*R. van den Elzen*) (3 w, HLMD).

Polyrhachis esarata Bolton

Polyrhachis esarata Bolton, 1973: 303, figs. 45, 55. Holotype worker, GHANA: eastern region, Bunso, by pyrethrum knock-down (sample B. 3/8), 7.vii.1969 (*D. Leston*) (BMNH) [not seen].

Diagnosis. A medium sized *militaris*-group species very similar to *decellei* (see above) and separated by the latter mostly because of its comparatively larger and elliptical eyes in profile, and shorter scape (SI < 170 vs. SI > 170).

Polyrhachis esarata was described from a single worker. I consider as conspecific with it one worker and one gyne from Dem. Rep. of the Congo and Equatorial Guinea, respectively. The worker is a little larger than the holotype and lacks the distinctive couple of hairs on the head dorsum, but the corresponding hair pits are present. Also, the eyes are only moderately convex and not strongly protruding as in the type.

Worker. HL 1.65, HW 1.30, CI 79, SL 2.13, SI 164, FW 0.38, FI 29, PW 1.08, WL 2.27, HTL 2.19.

Gyne. HL 1.72, HW 1.40, CI 81, SL 2.08, SI 149, FW 0.42, FI 30, ScW 1.57, MnL 1.97, WL 2.87, HTL 2.34.

Material examined. EQUATORIAL GUINEA: Bioko, Moka, 3°21'36"N 8°39'49"E, 1300 m, 1–11.x.1998, at lights (*D. Ubick, D.K. Dabney, R.C. Drewes, J.V. Vindum, L. Henwood, R.W. Tomos, M. Boko, M.P. Ndung*) (1 g, CAS). **DEM. REP. of the CONGO**: 56 km N Matadi, 28.vii.1957 (*E.S. Ross & R.E. Leech*) (1 w, CAS).

Polyrhachis fisheri n. sp.

(Figures 5a–c)

Diagnosis. A large, relatively slender species in the *militaris*-group with elongate oval head, bulging eyes, longitudinally striate sculpture on most of head and mesosoma and very long and abundant standing hairs.

Holotype worker. HL 2.50, HW 1.87, CI 75, SL 2.98, SI 159, FW 0.98, FI 52, PW 1.53, WL 3.57, HTL 3.33.

Clypeus with a blunt longitudinal median carina, its anterior margin evenly convex and shallowly notched in the middle. Head in full face view elongate oval, strongly convex behind the eyes. Eyes placed relatively posteriorly and strongly bulging. Mesosoma moderately elongate, in profile broadly convex and interrupted by the sutures; metanotal suture more impressed than the promesonotal one. Pronotal spines long, mostly anteriorly directed. Pronotum and mesonotum almost flat transversely; propodeal dorsum weakly convex. Mesosoma distinctly marginate along its sides, the margination runs as narrow flanges along pronotum and mesonotum. In dorsal view mesonotum about 1.5 times as wide as long, propodeal dorsum slightly longer than wide. Propodeal dorsum and declivity separated by a sudden change of sculpturation. Propodeal teeth relatively long, upturned and spine-like, almost as long as the propodeal declivity. Petiole with four long spines, the dorsal pair almost parallel, upward and slightly backward directed and about 1.5 times as long as the lateral pair. First gastral tergite anteriorly flat.

Mandibles mostly finely longitudinally striolate and with sparse, small piligerous pits. Head dorsum and dorsum and sides of the mesosoma mostly distinctly longitudinally rugose. This sculpturation is regular, except anteriorly on the head, including clypeus, and below the eyes, where it is prevailingly reticulate-rugose. Propodeal declivity superficially and finely reticulate-imbricate with few weak superimposed longitudinal rugulae. Petiole rugose: the rugae encircling most of the tergite, irregular on the anterior face; space between the mid pair of spines longitudinally rugose. Ground sculpture weak on most of the body. Gaster finely reticulate-punctate, almost all of the anterior half of the dorsum of the first gastral tergite with a superimposed fine, posteriorly vanishing, longitudinal rugulation. Scapes and legs mostly roughly reticulate-punctate with distinct piligerous pits; forelegs more finely and superficially sculptured.

Standing hairs yellowish, abundant throughout and very long: the longest hairs on the appendages are about as long as thrice the scape diameter at midlength and twice the maximum tibial width. Pubescence inconspicuous on the body, minute and very sparse on the gaster.

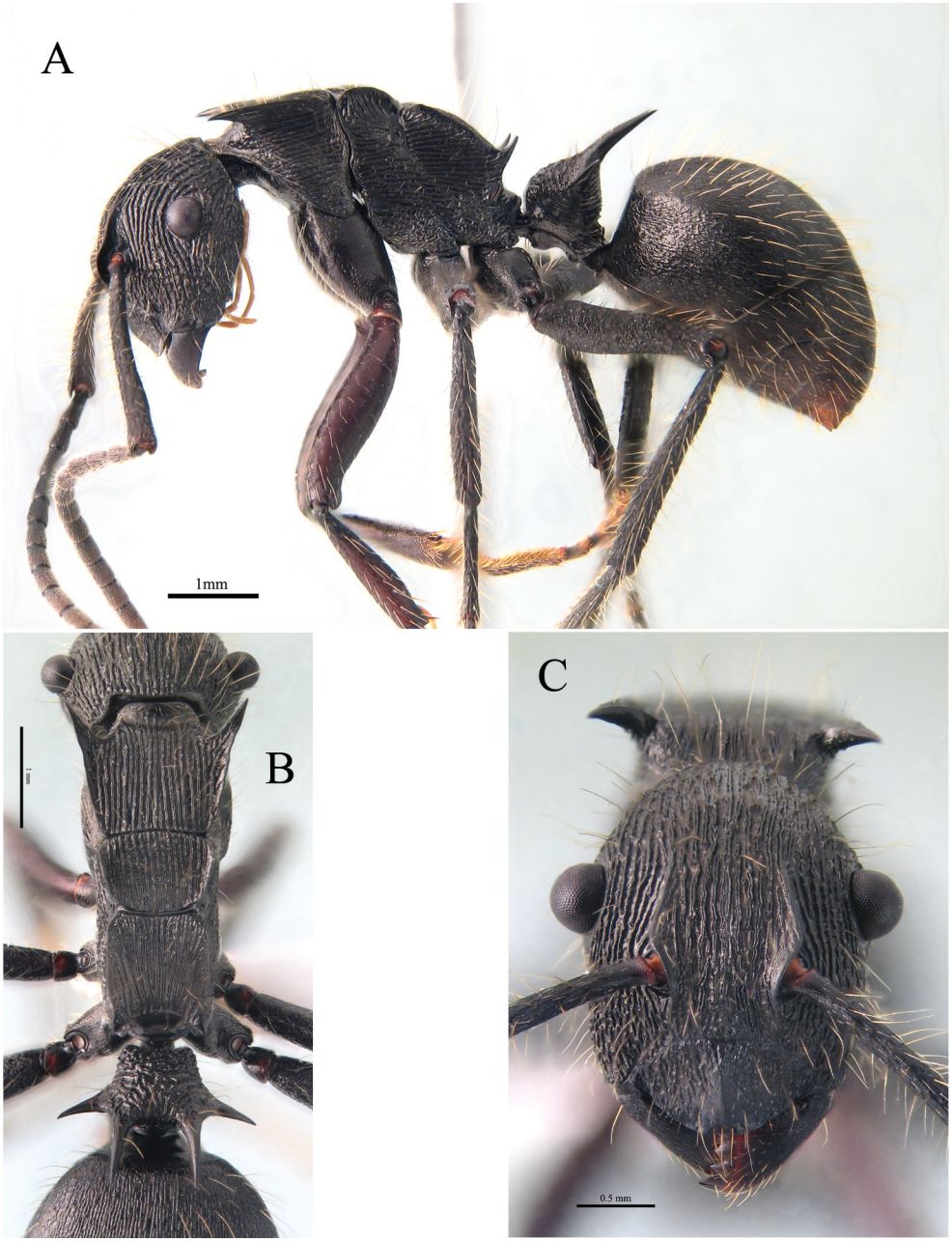

FIGURE 5. *Polyrhachis fisheri*, holotype worker: A, body profile; B, dorsum of mesosoma; C, head in full-face view. (Photos by M. Zilioli)

Colour mostly black throughout, mandibular apices, except the black teeth, ferrugineous.

Holotype. **GABON**: Prov. Woleu-Ntem, 31.3 km 108° ESE Minvoul, 2°04,8'N 12°24.4'E, 600 m, 12.ii.1998 (*B.L. Fisher*) #1693-2 (CAS).

Comment. *Polyrhachis fisheri* looks very similar to *latispina*, with which it may be confused. The main differences between them are listed below. *Polyrhachis sulcata* André looks also similar, but it has a fully immarginate propodeum and a stronger rugosity covering the whole body:

Polyrhachis fisheri	*Polyrhachis latispina*
In full face view head distinctly elongate oval, strongly convex posteriorly; frons wider. CI 75, FI > 50	In full face view head relatively short, broadly curved posteriorly; frons narrower. CI > 80, FI < 45
In dorsal view pronotal spines more than twice as long as their basal width	In dorsal view pronotal spines no more than 1.5 as long as their basal width
Sides of mesosoma mostly distinctly longitudinally rugose throughout	Sides of mesosoma with distinct longitudinal rugosity on pronotum, anepisternum and propodeum only; the remaining surfaces roughly irregularly rugulose and reticulate-punctate
Propodeal dorsum and declivity separated by a sudden interruption of the strong rugosity of the dorsum, forming a weakly arched margin	Propodeal dorsum and declivity separated by a well defined and strongly arched edge running between the base of the propodeal teeth
Appendages both absolutely and relatively longer, SL ≈ 3.00, SI > 150, HTL >> 3.00	Appendages both absolutely and relatively shorter, SL< 2.50, SI < 130, HTL ≈ 2.50
Standing pilosity longer. Longest hairs on scapes and tibiae about as long as thrice and twice the scape and tibial width at midlength respectively	Standing pilosity shorter. Longest hairs on scapes and tibiae at most slightly longer or slightly shorter than scape and tibial width at midlength respectively

Polyrhachis gerstaeckeri **Forel**
(Figures 6a–c)

Polyrhachis gerstaeckeri Forel, 1886: 197. Holotype worker, TANZANIA: Zanzibar (*M. Hildebrandt*) (MNHU) [examined].
Polyrhachis cubaensis var. *striolatorugosa* Mayr, 1893: 195. Holotype worker, TANZANIA: Zanzibar (*F. Stuhlmann*) [not seen, not at NHMW]. **Syn. n.**

Diagnosis. A species in the *viscosa*-group with this distinctive character combination: 1) propodeal dorsum and declivity separated by a thin, medially arched ridge; 2) petiole quadrispinose (the mid-pair of spines longer); 3) all mesosomal segments distinctly transverse in dorsal view; 4) sculpture finely reticulate-punctate with an ill-defined longitudinal rugulation on mesosomal dorsum and cephalic vertex.

Holotype worker. HL 1.60, HW 1.43, CI 89, SL 1.70, SI 119, FW 0.45, FI 31, PW 1.47, WL 2.08, HTL 1.72. (N.B.: gaster missing from the holotype)

Clypeus faintly carinate, its anterior margin evenly convex. Head in full face view oval, wider behind than in front; sides and posterior margin weakly convex. Eyes placed close to posterior corners and moderately protruding. Scapes moderately long. Mesosoma stout, in profile pronotum anteriorly and propodeum slightly convex, mesonotum almost flat. In dorsal view pronotum, mesonotum and propodeum distinctly wider than long. Pronotal teeth mostly anteriorly directed, well developed and strong. Pronotum and mesonotum transversely weakly convex, propodeum more arched. Mesosoma distinctly marginate along its sides, the marginations not forming flanges or lobes. Promesonotal and metanotal sutures distinct, but not impressed. Propodeal dorsum and declivity separated by a distinct margin, medially more raised and almost toothlike. Propodeal teeth small, upturned and blunt. Petiole with four spines: dorsal pair almost parallel, upward directed and moderately bent backward, distinctly longer than the lateral pair. In frontal (or posterior) view the space between the dorsal pair very weakly concave, almost straight.

Mandibles mostly finely shagreened. The whole body finely reticulate-punctate with superimposed fine and moderately developed rugulosity especially on cephalic and mesosomal dorsum. Head mostly reticulate-rugulose; mesosomal dorsum with longitudinal rugulosity. Propodeal declivity superficially finely reticulate.

Standing hairs almost absent, except for those fringing the anterior clypeal margin. Pubescence on the body very short and sparse.

Colour black throughout.

A recently collected worker from Zanzibar (figs. 6a-c), the type locality of *gerstaeckeri*, has the following data:

HL 1.50, HW 1.38, CI 92, SL 1.66, SI 120, FW 0.42, FI 30, PW 1.37, WL 1.93, HTL 1.63.

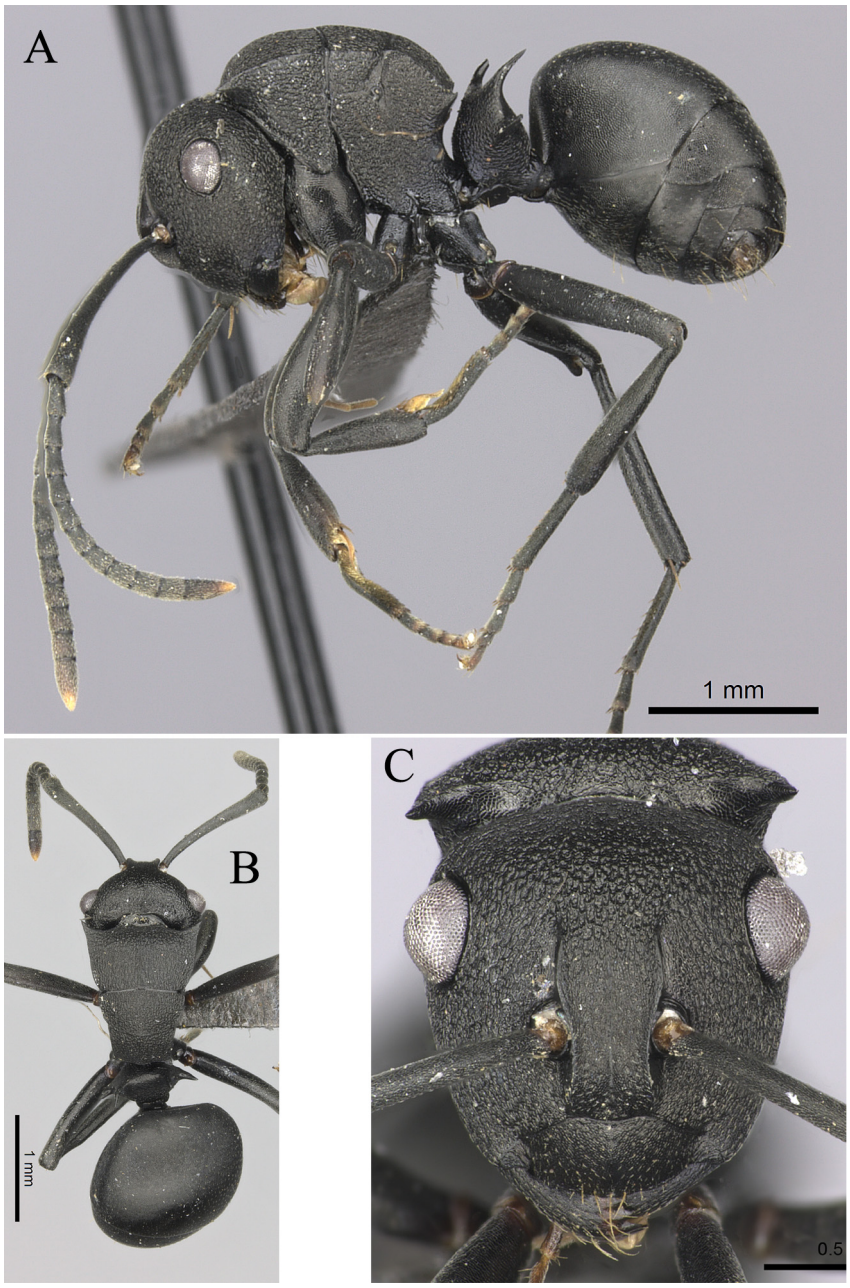

FIGURE 6. *Polyrhachis gerstaeckeri*, worker (TANZANIA: Unguga Region, Jozani Forest Res. Zanzibar, 19 m, 6.26755 S 39.41111 E, 30.x–4.xi.2007, CEPF-TZ-10.4-F25, ground water forest, hand collected (*P. Hawkes, M. Bhoke, U. Richard*) [AFRC: ANTWEB CASENT0235679]): A, body profile; B, dorsum of mesosoma; C, head in full-face view. (Photos by Estella Ortega, provided by www.AntWeb.org)

Very similar to *gerstaeckeri* holotype, except that the margin between propodeal dorsum and declivity is more evenly convex and less medially pronounced.

Also, it bears the following features, which cannot be seen in the gasterless holotype:

First gastral tergite finely reticulate-punctate and faintly shining, widely and slightly concave anteriorly. Scattered standing hairs occurring on gastral tergites IV-V and all sternites. Gastral pubescence very short, sparse and inconspicuous (distance between adjacent hairlets at least twice the pubescence length).

Also, I assign to *gerstaeckeri* 3 workers from coastal continental Tanzania and 1 from coastal Kenya: HL 1.45–1.58, HW 1.31–1.47, CI 87–95, SL 1.60–1.76, SI 118–123, FW 0.38–0.43, FI 29–31, PW 1.15–1.36, WL 1.85–2.08, HTL 1.52–1.72. (n=4)

Comment. Bolton (1973) thought *P. gerstaeckeri* Forel was a synonym of *P. cubaensis* Mayr (see above); yet, for the reasons reported under *cubaensis*, and after the examination of the *gerstaeckeri* type, I consider *gerstaeckeri*

as a distinct species and senior synonym of *striolatorugosa* Mayr. Both *gerstaeckeri* and *striolatorugosa* types come from Zanzibar and the original description of *striolatorugosa* (whose type has not been found) well matches the type of *gerstaeckeri*.

However, *P. gerstaeckeri* does not correspond to the description of *P. cubaensis* provided by Bolton (1973). *Polyrhachis gerstaeckeri* differs for its transverse propodeal dorsum, less developed median prominence of the propodeal ridge between the propodeal teeth (Bolton also reported propodeal spines instead of teeth for "*cubaensis*"), a weaker longitudinal rugosity, and absence of standing hairs from the dorsum of the body (some hairs are mentioned as occurring on head and gastral dorsum of the specimen described by Bolton, 1973).

I examined the specimens Bolton used to describe *cubaensis* Mayr (whose type he did not see) and I think they correspond to *P. cubaensis* subsp. *wilmsi* Forel. Forel's short description of *wilmsi* points out some important diagnostic features. Hence, I remove the subsp. *wilmsi* from the synonymy with *cubaensis* and raise it to species rank (see *Comment* under *wilmsi*).

Polyrhachis gerstaeckeri shares several features with *P. wilmsi*, but the latter has a better defined margination between the propodeal dorsum and the declivity, with a stronger median prominence, and a more conspicuous rugulation on the head.

The main differences between *P. gerstaeckeri* and *P. wilmsi* can be summarized as follows:

Polyrhachis gerstaeckeri	*Polyrhachis wilmsi*
Size smaller, HL ≤ 1.60, HW < 1.50.	Size larger, HL ≥ 1.70, HW > 1.50
Frons narrower, FI ca. 30	Frons wider, FI ca. 35
Frons and vertex devoid of standing hairs.	Frons and vertex bearing a few pairs of standing hairs.
Propodeal dorsum and declivity separated by a more or less arched ridge, medially at most hardly forming a toothlike prominence. Propodeal dorsum bearing upturned small teeth at its posterior corners.	Propodeal dorsum and declivity separated by a strongly arched ridge, medially forming a distinct toothlike prominence. Propodeal dorsum bearing stout upturned spines at its posterior corners.
Propodeal dorsum about 1.5 times as wide as long	Propodeal dorsum about as wide as long
Gastral pubescence more sparse. Each element is at least about twice as distant as its own length from the closest one	Gastral pubescence denser. Each element is at most about as distant as its own length from the closest one

Material examined. TANZANIA: Unguga Region, Jozani Forest Res. Zanzibar, 19 m, 6.26755 S 39.41111 E, 30.x–4.xi.2007, CEPF-TZ-10.4-F25 ground water forest, hand collected (*P. Hawkes, M. Bhoke, U. Richard*) (1 w, AFRC: AntWeb code CASENT0235679); Tanga, Maxamba, 29.v.1990, 72 A, on Citrus (*Löhr*) (3 w, BMNH). **KENYA**: Coastal province, Arabuko Sokoke forest, 50 m ca., 39°55'45.1" E 3°19'16.1" S, vi.2009, hand coll. (*F. Hita Garcia & G. Fischer*) (1 w, HLMD).

***Polyrhachis gibbula* n. sp.**
(Figures 7a–c)

Diagnosis. A species in the *viscosa*-group well characterised by its trapezoidal head with bulging eyes, dorsum of head and mesosoma with distinct longitudinal rugulosity and strongly transversely-arched propodeum.

Holotype worker. HL 1.49, HW 1.29, CI 87, SL 1.58, SI 122, FW 0.44, FI 34, PW 1.39, WL 1.9, HTL 1.57.

Clypeus subcarinate, with an evenly convex anterior margin. Head in full face view subtrapezoidal, wider behind than in front, with distinct, rounded posterior corners and weakly convex posterior margin. Eyes placed posteriorly and strongly bulging. Scapes moderately long. Mesosoma stout; in dorsal view all of its segments distinctly wider than long. In profile mesosoma convex at the level of anterior pronotum and postero-dorsal propodeum, and almost flat medially. Pronotal spines relatively well developed and strong, mostly anteriorly directed. Pronotum and mesonotum transversely evenly and weakly convex; propodeal dorsum humped medially and forming a stronger transverse convexity. Mesosoma distinctly marginate along its sides, the marginations not forming flanges or lobes. Promesonotal and metanotal sutures distinct but not impressed. Propodeal dorsum and declivity separated by a distinct margin. Propodeal teeth small, upturned and sharp. Petiole with four spines, the dorsal pair weakly diverging, directed upward and backward and about twice as long as the lateral pair; in frontal (or posterior) view the space between the dorsal spines almost straight with a very shallow convexity in the middle. First gastral tergite anteriorly concave.

Mandibles mostly finely shagreened and with sparse, small piligerous pits. Integument weakly shining, finely reticulate-punctate throughout (including appendages), gaster more superficially so. Dorsum of head and mesosoma with superimposed fine and dense longitudinal rugulation. Mesosoma laterally roughly reticulate-rugose. Propodeal declivity superficially finely reticulate.

Scattered, thin, yellowish and relatively short standing hairs occur on clypeus, head dorsum (3 pairs from the level of antennal insertions to the vertex), and all gastral tergites and sternites. Pubescence inconspicuous on head and mesosoma, minute and very sparse on the gaster.

Colour black, appendages brown; articulations, scapes and coxae darker.

Paratype workers (n=2). HL 1.38–1.54, HW 1.27–1.32, CI 86–92, SL 1.48–1.62, SI 117–123, FW 0.45–0.47, FI 34–37, PW 1.17–1.43, WL 1.72–2.0, HTL 1.53–1.59. The Kenyan specimen is very similar to the holotype. The specimen from Tanzania is smaller and with slightly different indices. It also has shorter, toothlike pronotal spines, shorter lateral pair of petiolar spines, a less humped propodeum with a weakly convex margination between dorsum and declivity and almost lacks propodeal teeth; yet all of the remaining features well match those of the Kenyan specimens.

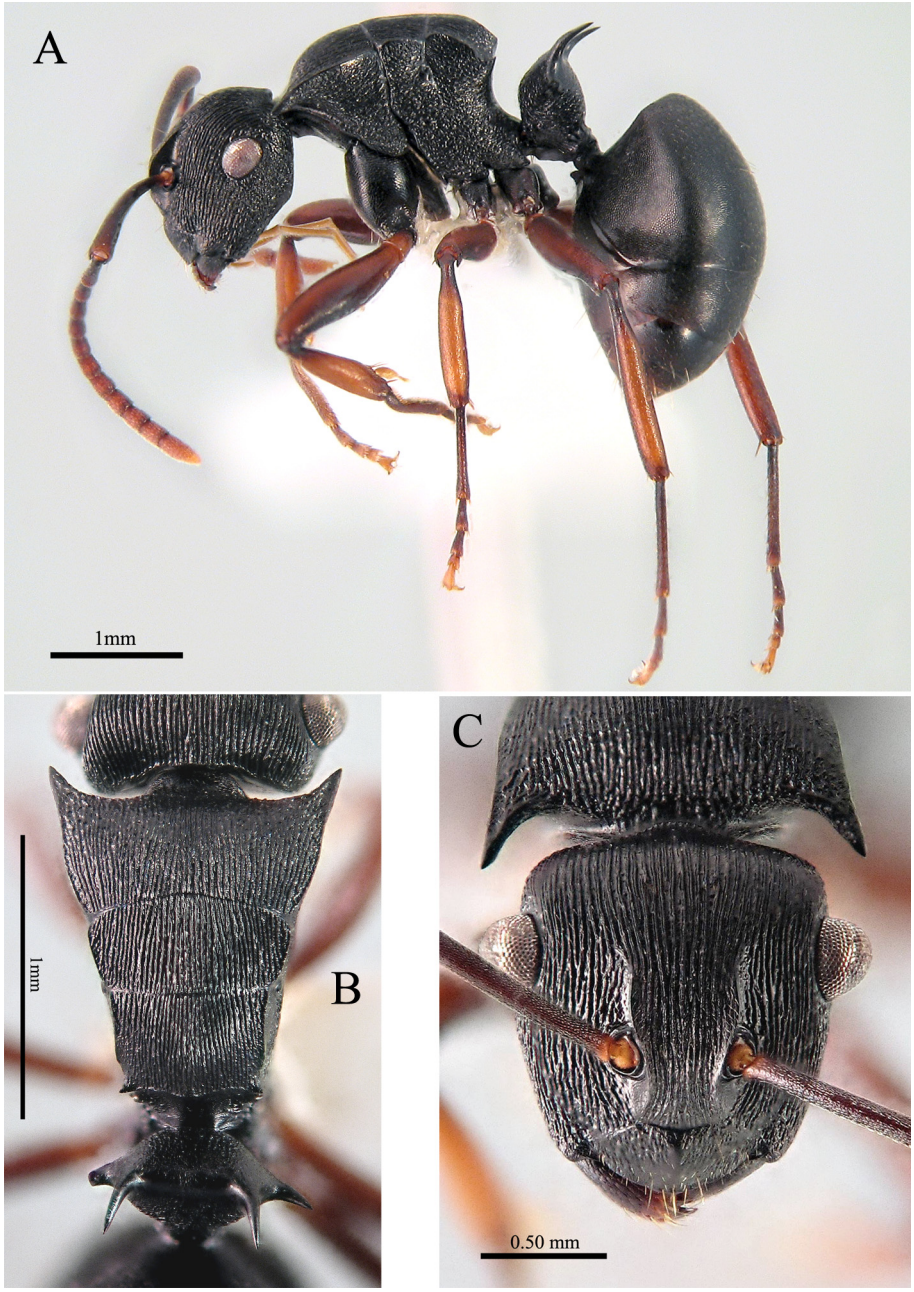

FIGURE 7. *Polyrhachis gibbula*, holotype worker: A, body profile; B, dorsum of mesosoma; C, head in full-face view. (Photos by M. Zilioli)

Holotype. **KENYA**: 20 km WSW Malindi, 20 m, 3°18' S, 39°58' E, 16.xii.1990 (*P.S. Ward*) # 11167, semideciduous forest, ex dead twig (BMNH).

Paratypes. 1 worker with the same data as the holotype (BMNH).

Non-type specimens. **TANZANIA**: Lindi Region, Mbarawala Plateaux, 270 m, 9.03957 S 39.12010 E, 29.ii–4.iii.2008, CEPF-TZ-12.1-F50 primary forest, pitfall trap (*P. Hawkes, Y Mlacha, F. Ninga*) (1 w, AFRC: AntWeb CASENT0235680).

Comment. This taxon looks superficially similar to *P. gerstaeckeri*, but *gibbula* has a distinctive trapezoidal head, bulging eyes, and well developed dorsal longitudinal rugosity.

Polyrhachis kohli **Forel**

Polyrhachis kohli Forel, 1916: 454. Lectotype worker [AntWeb photo: CASENT0910954], two paralectotype worker and one paralectotype gyne (by present designation), DEMOCRATIC REPUBLIC of the CONGO (*H. Kohl*). (MHNG) [examined].

Diagnosis. A hairy, moderately large *revoili*-group species with immarginate mesosoma, propodeal dorsum distinctly longer than wide, and long and sinuous standing hairs on the appendages.

Lectotype worker: HL 1.37, HW 0.99, CI 72, SL 1.74, SI 175, FW 0.37, FI 37, PW 0.88, WL 1.87–, HTL 1.70.

Clypeus with relatively narrow protruding rectangular anterior lobe at its anterior margin. Head in full face view elongate oval, with anteriorly converging sides and convex posterior margin. Eyes moderately large and protruding. Mesosoma slender, fully immarginate, both transversely and longitudinally convex. In dorsal view, pro- and mesonotum look weakly transverse and the propodeum twice as long as wide, when considering as a reference width the outer ends of the propodeal ridges. In profile, propodeal dorsum a little longer than the declivity. Pronotal teeth small, their anterior edge almost perpendicular to the longitudinal axis of the body. Propodeal dorsum and declivity separated by two moderately developed ridges, leaving a narrow gap between them; the gap is slightly narrower than each ridge. Promesonotal and metanotal sutures weak. Petiole with a dorsal pair of moderately long, diverging spines and a lateral pair of small sharp teeth; the dorsal margin of the petiole almost straight and about 1.5 times as long as each spine. First gastral tergite anteriorly concave.

Mandibles weakly sculptured: proximally subopaque and shagreened and becoming apically smoother. Clypeus superficially reticulate. Head dorsum mostly irregularly longitudinally rugulose. Mesosoma and petiole reticulate-punctate, mesosomal dorsum with a more or less developed superimposed longitudinal rugulation. Appendages finely reticulate-punctate. Gaster finely reticulate and weakly shining.

Standing hairs fine, abundant and mostly pale and flexuous throughout. Longest hairs on tibiae approaching the maximum tibial width; longest hairs on scapes about thrice as long as the scape diameter. Pubescence whitish, moderately long and dense on most body surfaces, but never hiding sculpturation.

Body black, mandibles brown, becoming almost testaceous apically. Legs mostly piceous, with tibiae, except basally, and apical tarsal segments ferrugineous. Antennae with mostly piceous scape; funiculus ferrugineous, except the darkened base of its basalmost 4-5 joints.

Paralectotype workers (n=2): HL 1.28–1.40, HW 0.94–1.02, CI 73, SL 1.65–1.70, SI 167–176, FW 0.35–0.37, FI 36–37, PW 0.83–0.87, WL 1.76–1.83, HTL 1.43–1.62.

Paralectotype gyne: HL 1.63, HW 1.15, CI 71, SL 2.05, SI 178, FW 0.42, FI 37, ScW 1.45, MnL 1.87, WL 2.63, HTL 2.05.

Comment. Bolton's description (1973) of *P. volkarti* must be referred to *kohli.* The latter is a valid species and not a synonym of *P. volkarti* Forel as proposed by Bolton (1973). The main distinctive features of gynes (*P. volkarti* was described on a single gyne only) are as follows:

Polyrhachis kohli (paralectotype gyne)	*Polyrhachis volkarti* (type gyne)
Standing hairs longer and often sinuous. Length of longest standing hairs on extensor tibial surface approaching the tibial width at midlength. Scutum and scapes with long, flexuous hairs, often more than twice as long as scape diameter.	Standing hairs shorter, straight to uniformly curved. Length of longest standing hairs on extensor tibial surface at most approaching half of the tibial width at midlength. Scutum and scapes with relatively short and straight hairs, at most about 1.5 as long as scape diameter.
Propodeal ridges much closer to one another, they are separated by a space slightly larger than the length of a single ridge. The distance between ridges' outer ends is less that the length of the propodeal dorsum.	Propodeal ridges widely separated, the space between them much larger than the length of a single ridge. The distance between ridges' outer ends is larger than the length of the propodeal dorsum.
In profile, propodeal dorsum about as long as the declivity.	In profile, propodeal dorsum distinctly shorter than the declivity.

The three workers of the type series of *P. kohli* are evidently conspecific with the gyne and their propodea appear unusually narrow and elongate in dorsal view when compared to similar species (see also under *submarginata*).

Polyrhachis latharis Bolton

Polyrhachis latharis Bolton, 1973: 348, figs. 49, 60. Holotype worker, GHANA: eastern region, Mt. Atewa, primary forest, by pyrethrum knock-down, sample A5/7, 12.vii.1969 (*D. Leston*) (BMNH) [not seen. AntWeb pictures under the code CASENT0903460].

Diagnosis. Among *alexisi*-group species it is distinctive for its somewhat trapezoidal elongate head, whose sides are faintly concave in front of the eyes, quadrispinose petiole, and marginate pronotum and propodeum. Lateral propodeal margins run much closer to each other than the actual propodeal width.

Bolton's figures (1973) show a 4-toothed clypeal lobe; yet the holotype's lobe is actually 5-toothed as well as in a single worker recently collected in the Republic of the Congo, whose measurements are: HL 1.34, HW 1.15, CI 86, SL 1.50, SI 130, FW 0.36, FI 31, PW 1.28, WL 1.83, HTL 1.48.

Material examined. REP. of the CONGO: Niari Region, 2.31614 S 12.80933 E, 666 m, 4.vii.2013, primary forest, canopy fogging (*L. Niemand*). (1 w, AFRC: LN-RC1 038, CASENT0250035).

Polyrhachis lestoni Bolton

Polyrhachis lestoni Bolton, 1973: 349, figs. 48, 61. Holotype worker, GHANA: eastern region, Mt. Atewa, primary forest, by pyrethrum knock-down, sample A5/1, 12.vii.1969 (*D. Leston*) (BMNH) [not seen; Antweb pictures under the code CASENT0903459].

Diagnosis. An easily recognizable *alexisi*-group species, whose petiole is armed just with a pair of lateral teeth.

This species was known from Ghana only. Yet, some recently collected material strongly increases its known range. It must be pointed out that the weak transverse ridge separating the propodeal dorsum from declivity may be virtually absent in some specimens. In such cases dorsum and declivity are differently sculptured: the dorsum is longitudinally, posteriorly convergently striolate, the declivity superficially reticulate-punctate.
HL 1.25–1.35, HW 1.12–1.19, CI 86–90, SL 1.28–1.35, SI 112–121, FW 0.29–0.34, FI 26–30, PW 1.08–1.11, WL 1.45–1.60, HTL 1.19–1.30. (n=6)

Material examined. CENTRAL AFRICAN REP., P.N. Dzanga–Ndoki, 21.4 km 53° NE Bayanga, 3°02,01'N 16°24.57'E, 510 m, 4.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0088927 CAR01-S15). **REP. of the CONGO**: Niari Region, 2.30757 S 12.82985 E, 660 m, 3.vii.2013, primary forest, canopy fogging (*L. Niemand*) (3 w, AFRC: LN-RC1-087, -088, -034; CASENT0250009, -10, -30); Niari Region, 2.30921 S 12.82224 E, 754 m, 4.vii.2013, primary forest, canopy fogging (*L. Niemand*) (1 w, AFRC: LN-RC1-089 CASENT0250011). **KENYA**: Kakamega Distr., Yala, Kakamega Forest, 0.10°N 34.52°E, 1600 m, x.2002, T. n. # 127, fogging *Teclea nobilis* (*W. Freund*) (1 w, HLMD: M 00023); Busumbuli, Kakamega Forest, 0.27°N 34.88°E, 1600 m, i.2003, T. n. # 135, fogging ex *Teclea nobilis* (*W. Freund*) (2 w, HLMD: M 00162, M 00878).

Polyrhachis limitis Santschi

Polyrhachis alexisi st. *limitis* Santschi, 1939: 12. Holotype worker, DEMOCRATIC REP. of the CONGO: Pale (*Gérard*) (NHMB) [examined].
Polyrhachis limitis Santschi: Bolton 1973:350.

Diagnosis. An *alexisi*-group species identifiable by: pronotum and propodeum laterally marginate, petiole quadrispinose, head oval, with moderately convex sides, and eyes somewhat slightly breaking the head outline in full face view.

The following data refer to the recently collected second known worker of this species. This Tanzanian specimen differs from the type only by its smaller size; yet I could not detect any significant difference from the type.

HL 1.34, HW 1.16, CI 87, SL 1.47, SI 127, FW 0.37, FI 32, PW 1.14, WL 1.66, HTL 1.40.

Material examined. TANZANIA: Kigoma Region, Gombe Stream N.P., 4°42'S 29°37'E, thickset woodland, from trail, 798–1115 m, ix.2009–i.2010 (*R. O'Malley*) (1 w, HLMD: RO 09-1253).

Polyrhachis longiseta n. sp.
(Figures 8a–c)

Diagnosis. A small species in the *revoili*-group with evenly convex anterior clypeal margin, reduced pronotal teeth, unarmed propodeum, and abundant long standing hairs on body and appendages.

Holotype worker. HL 1.22, HW 1.02, CI 84, SL 1.44, SI 141, FW 0.37, FI 36, PW 0.74, WL 1.51, HTL 1.20.

Clypeus medially weakly carinate and with its anterior margin evenly convex. Head in full face view oval, with anteriorly converging sides and convex posterior margin. Eyes moderately developed and convex. Mesosoma stout, fully immarginate, evenly convex in profile. Pronotal teeth minute, their anterior edge perpendicular to the longitudinal body axis. Propodeal dorsum and declivity in profile meeting at a blunt obtuse angle, without teeth or ridges. Promesonotal suture clearly visible, metanotal suture faint. Petiole with a dorsal pair of moderately long, slightly diverging spines and a lateral pair of small teeth; the space between dorsal spines evenly and shallowly concave. First gastral tergite anteriorly weakly concave.

Mandibles smooth and shining with sparse piligerous pits. Head, mesosoma and petiole mostly irregularly reticulate-punctate. Head, except clypeus, with a superimposed mostly longitudinal rugosity. Mesosomal dorsum mostly finely longitudinally rugulose. Appendages finely reticulate-punctate. Head, mesosoma and appendages moderately shining. Gaster superficially reticulate and shining.

Standing hairs of uneven length, pale, flexuous and abundant on body and appendages. Longest hairs on tibiae exceed the maximum tibial width; longest hairs on scapes are four times as long as the scape diameter at mid-length, or even longer. Pubescence whitish, moderately long and dense on most body surfaces.

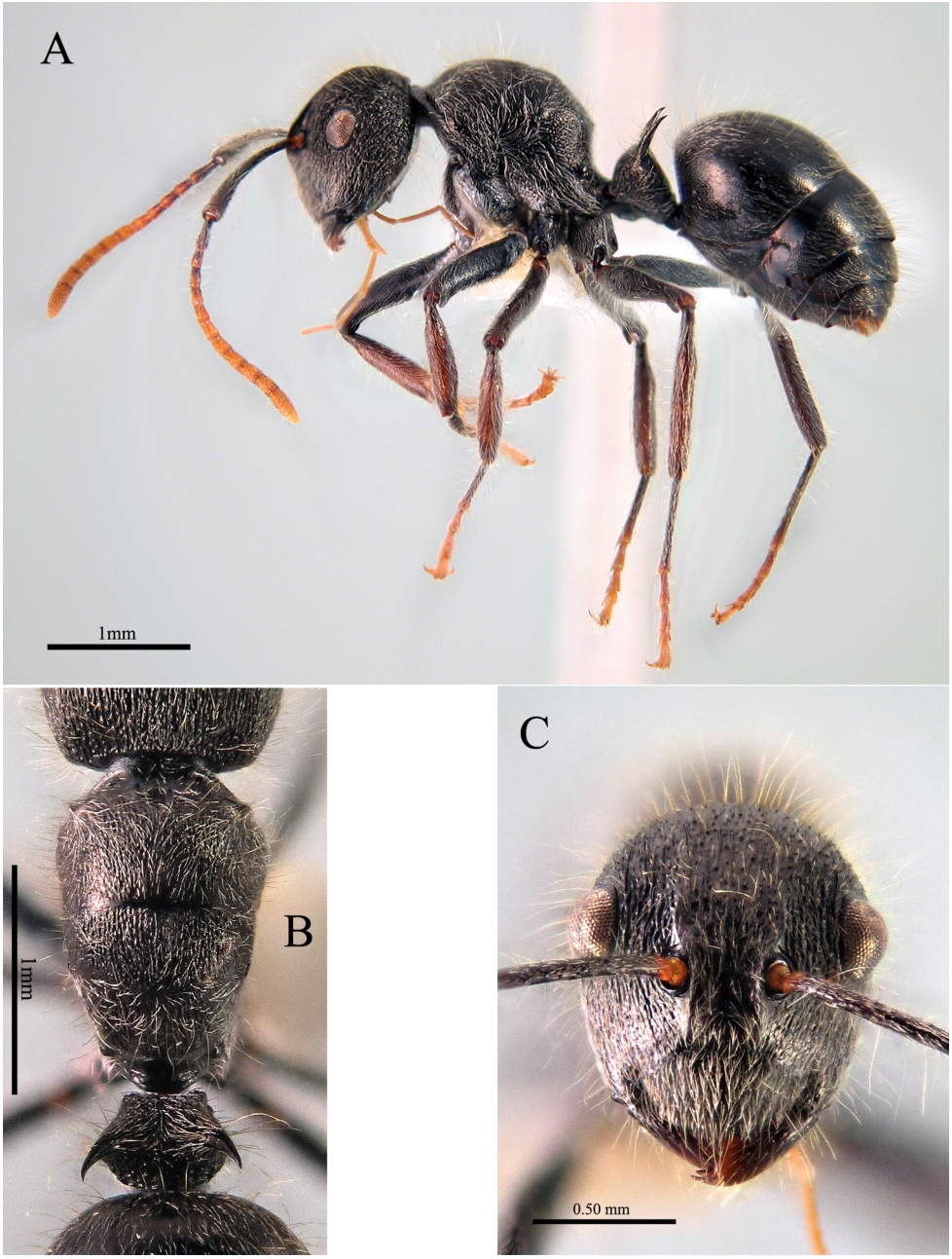

FIGURE 8. *Polyrhachis longiseta*, holotype worker: A, body profile; B, dorsum of mesosoma; C, head in full-face view. (Photos by M. Zilioli)

Body black, mandibles, legs and scapes mostly piceous, mandibles apically ferrugineous. Funiculus almost entirely testaceous, except its proximally darkened basalmost joints.

Paratype. HL 1.19, HW 0.95, CI 80, SL 1.30, SI 137, FW 0.38, FI 40, PW 0.73, WL 1.42, HTL 1.15. A single worker from the Rep. of the Congo shares all main feature with the holotype.

Holotype. **CAMEROUN**: Mbalmayo, xi.1993 (*N. Stork*) (BMNH, specimen tagged "B.Mec, 1 (2)").

Paratype. **REP. of the CONGO**: Niari Region, 2.30921 S 12.82224 E, 754 m, 4.vii.2013–9.vii.2013, primary forest, canopy fogging (*L. Niemand*) (1 w, AFRC: LN-RC1-045, CASENT0250168).

Comment. *Polyrhachis longiseta* comes from the same locality as *P. dubia* and these species look very similar; the relative length of standing hairs is a good feature to separate them. In *P. longiseta* the longest hairs on tibiae clearly exceed the maximum tibial width and this feature distinguishes it from *P. dubia* and other species in the *revoili*-group with a convex anterior clypeal margin and immarginate mesosoma, i.e. *lanuginosa*, *revoili* and *weissi*. All of these are also more strongly sculptured than *longiseta*.

***Polyrhachis luteipes* n. sp.**
(Figures 9a–c)

Diagnosis. A small, thickset species in the *revoili*-group, with a lobed clypeal margin, minute pronotal teeth, a virtually unarmed propodeum, shining integument and testaceous legs.

Holotype worker. HL 1.09, HW 0.90, CI 83, SL 1.30, SI 144, FW 0.34, FI 38, PW 0.68, WL 1.40, HTL 1.16.

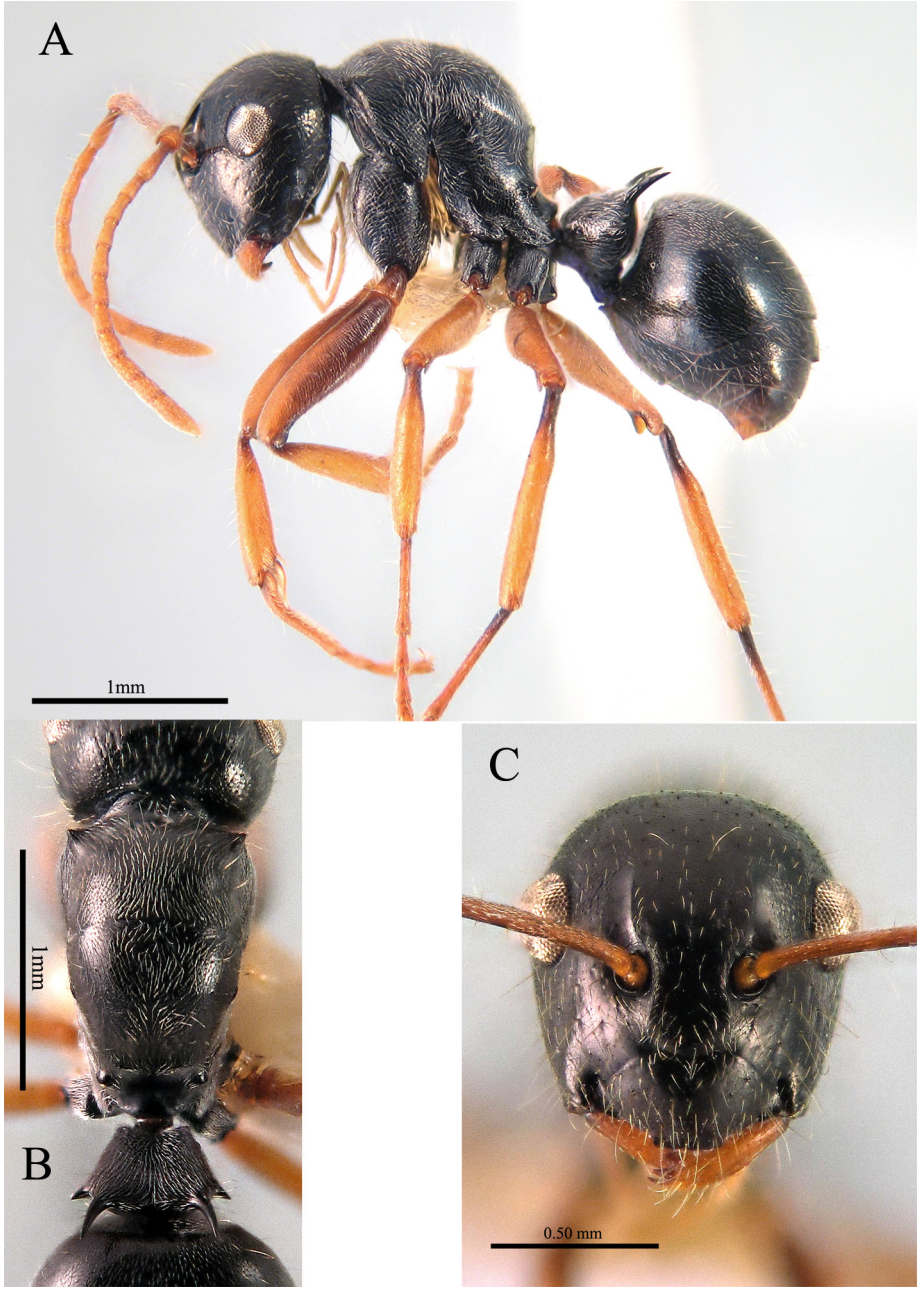

FIGURE 9. *Polyrhachis luteipes*, holotype worker: A, body profile; B, dorsum of mesosoma; C, head in full-face view. (Photos by M. Zilioli)

Clypeus ecarinate and with its anterior margin bearing a distinct protruding rectangular lobe, whose lateral corners are right-angled. Head in full face view oval, wider behind than in front, posteriorly widely convex. Eyes moderately large and convex. Mesosoma evenly convex in profile and immarginate. Pronotal humeri armed with two minute, diverging teeth. Propodeal dorsum with two faint ridges at its posterior corners. Propodeal dorsum and declivity confluent and forming a blunt obtuse angle in profile. Promesonotal suture clearly visible, metanotal suture faint. Petiole with a dorsal pair of moderately long and diverging spines and a pair of lateral sharp teeth; the space between dorsal spines straight. First gastral tergite anteriorly concave.

Mandibles at most superficially shagreened/striolate with sparse piligerous pits. The whole body mostly superficially reticulate, shining.

Standing hairs thin and pale, moderately abundant on body and appendages, relatively long especially on the head; longest hairs on scapes about four times as long as scape diameter at midlength. Longest standing hairs on tibiae about as long as maximum tibial width. Pubescence moderately long and sparse on the head, longer and fairly dense on the mesosoma, short and fairly sparse on the gaster.

Body and coxae black, mandibles, antennae and legs mostly testaceous; forefemurs mostly brown.

Paratype workers (n=2). HL 1.22, HW 0.98–1.00, CI 80–82, SL 1.47–1.49, SI 147–152, FW 0.40–0.41, FI 41, PW 0.85, WL 1.57–1.59, HTL 1.32–1.36.

They mostly differ from the holotype by their completely unarmed propodeum, without any trace of teeth or ridges. Moreover, scape and first funicular joint mostly brown.

Holotype. **CAMEROUN**: Mbalmayo, xi.1993 (*N. Stork*) (BMNH, specimen tagged: "F.93.6/1").

Paratypes. **CAMEROUN**: Minko Meyos, 15 S of Yaoundé, iii.1997, mango (*J.L. Mercier*) (2 w, BMNH).

Comment. *Polyrhachis luteipes* shows a variable development of propodeal ridges, as well as *P. dubia* and, maybe, *P. longiseta*. *Polyrhachis luteipes* is similar to *P. khepra*, which is slightly larger, lacks an evident promesonotal suture, is more hairy, has a more sculptured head and darker appendages.

Polyrhachis militaris **(Fabricius)**

(Figures 10a–c)

Formica militaris Fabricius, 1782: 493. Holotype gyne, "Tropical Africa" (BMNH) [not seen]

Polyrhachis militaris (Fabricius); F. Smith, 1858: 72, pl. 3, fig. 5 and pl. 4, fig. 35. [Combination in *Polyrhachis*]

Polyrhachis militaris subsp. *cupreopubescens* Forel, 1879: 120. Holotype gyne, "Tropical Africa" (*Sauss*) (MHNG) [not seen]. [Synonymy by Bolton, 1973: 313]

Polyrhachis militaris subsp. *striativentris* Emery, 1892: 566. Syntype workers, IVORY COAST: Assinie (*Ch. Alluaud*) (MSNG) [not seen]. [Synonymy by Bolton, 1973: 313]

Polyrhachis militaris subsp. *cupreopubescens* var. *transversaria* Forel, 1901: 77. Holotype gyne, LIBERIA (*Hadler*) (MHNG) [not seen]. [Unavailable name, referred to *militaris* by Bolton, 1973: 313]

Polyrhachis militaris var. *calabarica* Forel, 1907: 38. Syntype workers, NIGERIA: Old Calabar, vi.1892 (*Luke*) (MHNG) [examined]. [Synonymy by Bolton, 1973: 313]

Polyrhachis militaris var. *ssibangensis* Forel, 1907: 38. Holotype worker, GABON: Ssibange (*Soyaux*) (MHNG) [examined]. [Synonymy by Bolton, 1973: 313]

Polyrhachis militaris subsp. *cupreopubescens* var. *argentatus* Stitz, 1910: 150. Syntype workers, CAMEROUN: Bibundi (*Tessmann*) (MNHU) [not seen]. [Unavailable name, referred to *militaris* by Bolton, 1973: 313]

Polyrhachis militaris subsp. *bruta* Santschi, 1912: 166. Holotype gyne, "CONGO" (*Bondroit*) (NHMB) [not seen]. [Synonymy by Bolton, 1973: 313]

Polyrhachis militaris subsp. *cupreopubescens* var. *sankisiana* Forel, 1913b: 348. Syntype workers, DEM. REP. of the CONGO: Katanga, Sankisia, (*J. Bequaert*) (MHNG) [examined]. [Unavailable name, referred to *militaris* by Bolton, 1973: 313]

Polyrhachis militaris subsp. *cupreopubescens* var. *dido* Wheeler, 1922: 261. [Proposed as a replacement name for *Polyrhachis militaris* subsp. *cupreopubescens* var. *argentatus* Stitz, preoccupied by *Polyrhachis argentatus* F.Smith, 1858]. [Unavailable name, referred to *militaris* by Bolton, 1973: 313]

Polyrhachis militaris var. *nkomoensis* Santschi, 1924: 222. [First available use of *Polyrhachis militaris* subsp. *cupreopubescens* var. *nkomoensis* Forel, 1916: 447. Syntype workers, gynes and males, DEM. REP. of the CONGO (*H. Kohl*) (MHNG) [not seen]. (Unavailable name, referred to *militaris* in Bolton, 1973: 313)]. [Junior synonym of *militaris* by Dorow, 1995: 37]

Polyrhachis militaris subsp. *cupreopubescens* var. *pleurata* Santschi, 1924: 223. Syntype workers, DEM. REP. of the CONGO: Yambata (*di Giorgi*) (NHMB) [not seen]. [Unavailable name, referred to *militaris* by Bolton, 1973: 313]

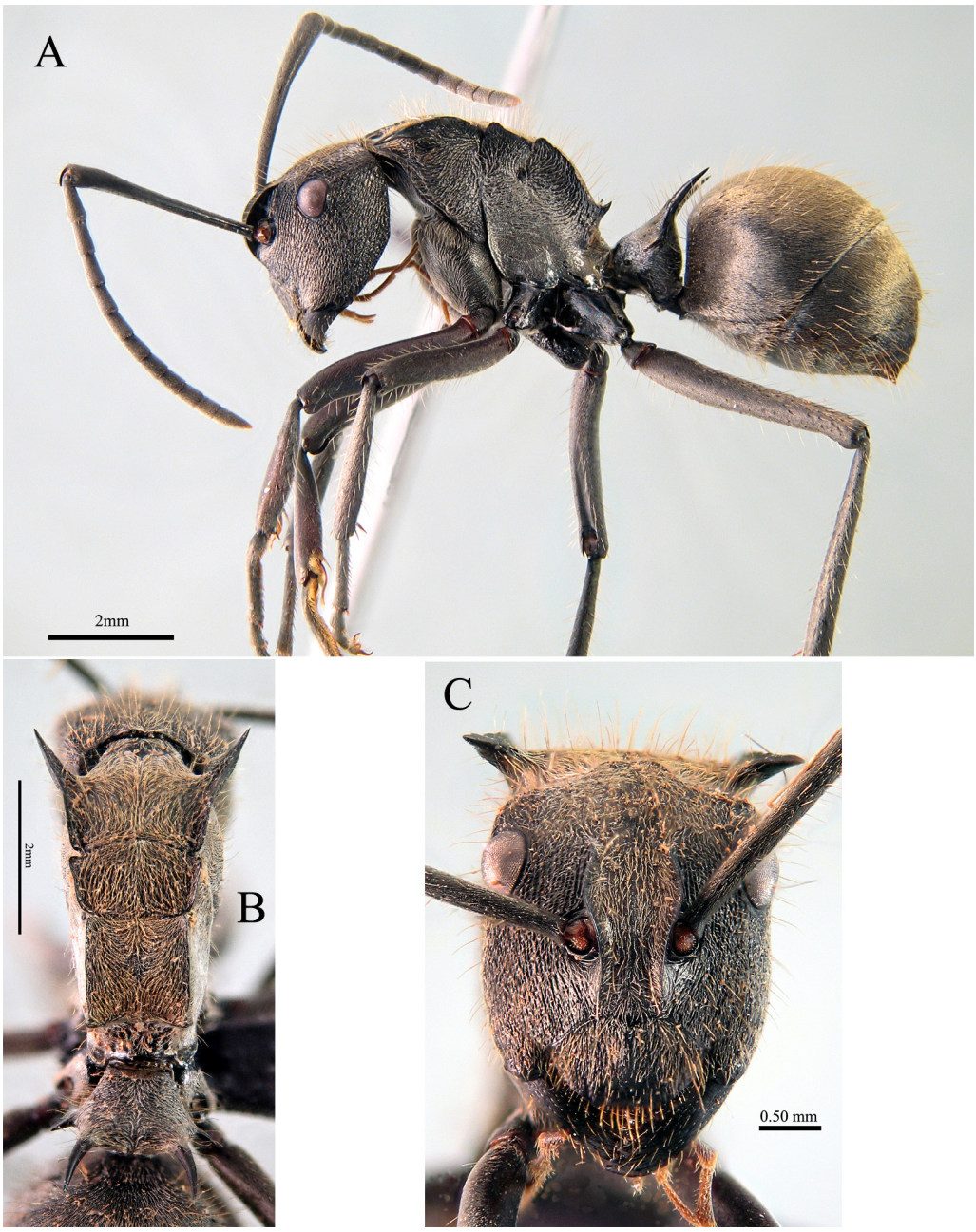

FIGURE 10. *Polyrhachis militaris*, worker: A, body profile (CENTRAL AFRICAN REP., P.N.Dzanga-Ndoki, 38.6 km 173° S, Lidjombo, 2°21.60' N 16°03.20' E, 350 m, 21-27.v.2001 (*S. van Noort*), CAR01-Y51-CAR01-Y75 [CASENT0094443 CAR01-Y71]); B, dorsum of mesosoma; C, head in full-face view (CENTRAL AFRICAN REP., P.N.Dzanga-Ndoki, 21.4 km 53° NE, Bayanga, 3°02.01' N 16°24.57' E, 510 m, 1-7.v.2001 (*S. van Noort*), CAR01-Y01-CAR01-Y25 [CASENT0093840 CAR01-Y10]). (Photos by M. Zilioli)

Diagnosis. A large member of the *militaris*-group with a somewhat rectangular head, hairy body and appendages, and long, usually at least partially golden pubescence, which hides most of the body sculpture.

As *militaris* measurements provided by Bolton (1973) included *epinotalis*, I give the following measurements obtained from 'true' *militaris* workers:

HL 2.37–3.24, HW 1.76–2.51, CI 70–80, SL 3.08–3.92, SI 152–176, FW 0.63–0.82, FI 31–37, PW 1.52–2.32, WL 3.37–4.45, HTL 3.40–4.60. (n=32)

Comment. The head of *Polyrhachis militaris* (and *doudou* n. sp. as well, see above) is subrectangular and clearly different from the rounded outline of similar species, i.e. *epinotalis*, *gagates*, *medusa* and *schistacea*. These species have a more or less elongate, oval or suboval head, mostly with a widely convex posterior margin and

usually (except most *epinotalis*) the head is slightly wider behind than in front of the eyes. Moreover, *militaris* and *doudou* have a blunt margination behind each eye delimiting head dorsum from the sides.

Material examined. GUINEA-BISSAU: Rio Cassine, xii.1899–iv.1900 (*L. Fea*) (31 w, MSNG). **EQUATORIAL GUINEA**: Bioko [= Fernando Poo Island], Basilé, 400–600 m, viii–ix.1901 (*L. Fea*) (14 g, 17 m, 18 w, MSNG); Bioko [= Fernando Poo Island], Punta Frailes, x–xi.1901 (*L. Fea*) (8 g, 5 w, MSNG); Bioko [= Fernando Poo Island], Musola, 500–800 m, i–iii.1902 (*L. Fea*) (2 w, MSNG); Bioko [= Fernando Poo Island], Musola, 500–800 m, iii.1902 (*L. Fea*) (2 w, MSNG); Bioko, road to Pico Basile, 1700 m, 3°37'38"N 8°48'15"E, 27–29.ix.1998 (*D. Ubick et al.*) (3 g, CAS); Bioko, Moka Malabo, 3°21'46"N 8°39'52"E, ca. 1400 m, 6.x.1998 (*D. Ubick & D.K. Dabney*) (1 w, 1 g, CAS); Bioko, Moka, 1300 m, 3°21'36"N 8°39'49"E, 1–11.x.1998 (*D. Ubick et al.*) (6 g, CAS); Bioko, 3.5 km N Luba, 3°28'54"N 8°34'58"E, 13.x.1998, swampy forest (*D. Ubick et al.*) (2 g, CAS); **GABON**: Fernand-Vaz, ix–x.1902 (*L. Fea*) (11 w, MSNG); Lambarene, xi–xii.1902 (*L. Fea*) (2 g, MSNG); Ndjolé, xi–xii.1902 (*L. Fea*) (1g, 4 w, MSNG); Nkogo, xi–xii.1902 (*L. Fea*) (1 w, MSNG); Port Gentil, 12.vii.1957 (*E.S. Ross & B.E. Leech*) (1 w, CAS); Prov. Ogoové-Maritime, Réserve des Monts Doudou, 25.2 km 304° NW Doussala, 2°13.63'S 10°23.67'E, 600 m, 15.iii.2000 (*S. van Noort*), sweep, coastal lowland rainforest, undergrowth, low canopy in forest (2 w, CAS: GA00S100-6, GA00S106-1). **DEM. REP. of the CONGO**: 39 km S of Walikale, 700 m, 25.xii.1957 (*E.S. Ross & B.E. Leech*) (5 w, CAS); 27 mi. SE of Kienge, 22.i.1958 (*E.S. Ross & B.E. Leech*) (1 w, CAS); N. Shaba, Mbalula, 23.x.1980 (*W.H. Whitcomb*) (1 w, HLMD). **CENTRAL AFRICAN REP.**: P.N. Dzanga-Ndoki, 21.4 km 53° NE Bayanga, 3°02.01'N 16°24.57 E, 510 m, 1–7.v.2001 (*S. van Noort*) (9 w, CAS: CASENT0093758 CAR01-Y01, CASENT0093763 CAR01-Y02, CASENT0093787 CAR01-Y04, CASENT0093803 CAR01-Y06, CASENT0093809 CAR01-Y07, CASENT0093830 CAR01-Y09, CASENT0093840 CAR01-Y10, CASENT0093926 CAR01-Y21, CASENT0093948 CAR01-Y24); P.N. Dzanga-Ndoki, 21.4 km 53° NE Bayanga, 3°02.01'N 16°24.57 E, 510 m, 1–2.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0085828 CAR01-M06); P.N. Dzanga-Ndoki, 21.4 km 53° NE Bayanga, 3°02.01'N 16°24.57 E, 510 m, 4.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0085991 CAR01-S12); P.N. Dzanga-Ndoki, 21.4 km 53° NE Bayanga, 3°02.01'N 16°24.57 E, 510 m, 5–6.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0086866 CAR01-M49); Res. Dzanga-Sangha, 12.7 km 326° NW Bayanga, 3°00'N 16°12'E, 420 m, 10–17.v.2001 #4083 (*B.L. Fisher*) (2 w, CAS: CASENT0008084); Res. Dzanga-Sangha, 12.7 km 326° NW Bayanga, 3°00'N 16°12'E, 420 m, 10–17.v.2001 #4084 (*B.L. Fisher*) (1 w, CAS: CASENT0009150); Res. Dzanga-Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 11–17.v.2001 (*S. van Noort*) (7 w, CAS: CASENT0093971 CAR01-Y26, CASENT0093982 CAR01-Y27, CASENT0094018 CAR01-Y30, CASENT0094037 CAR01-Y31, CASENT0094043 CAR01-Y32, CASENT0094199 CAR01-Y47, CASENT0094215 CAR01-Y50); Res. Dzanga-Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 11–12.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0086092 CAR01-M192); Res. Dzanga-Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 12.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0089902 CAR01-S126); Res. Dzanga-Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 12–13.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0087984 CAR01-M100); Res. Dzanga-Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 13.v.2001 (*S. van Noort*) (2 w, CAS: CASENT0091105 CAR01-S156, CASENT0091208 CAR01-S165); Res. Dzanga-Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 13–14.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0088321 CAR01-M112); Res. Dzanga-Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 14–15.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0088748 CAR01-M123); Res. Dzanga-Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 15–16.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0087645 CAR01-M141); Res. Dzanga-Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 16–17.v.2001 (*S. van Noort*) (2 w, CAS: CASENT0087754 CAR01-M146, CASENT0087516 CAR01-M152); P.N. Dzanga-Ndoki, 38.6 km 173° S Lidjombo, 2°21.60'N 16°03.20'E, 350 m, 21–27.v.2001 (*S. van Noort*) (15 w, CAS: CASENT0094223 CAR01-Y51, CASENT0094235 CAR01-Y52, CASENT0094252 CAR01-Y53, CASENT0094260 CAR01-Y54, CASENT0094279 CAR01-Y56, CASENT0094295 CAR01-Y57, CASENT0094346 CAR01-Y62, CASENT0094355 CAR01-Y63, CASENT0094360 CAR01-Y64, CASENT0094371 CAR01-Y65, CASENT0094384 CAR01-Y66, CASENT0094406 CAR01-Y68, CASENT0094420 CAR01-Y69, CASENT0094443 CAR01-Y71, CASENT0094482 CAR01-Y75); P.N. Dzanga-Ndoki, 38.6 km 173° S Lidjombo, 2°22'N 16°03'E, 350 m, 20–28.v.2001 (*B.L.Fisher*) (3 w, CAS: #4125 CASENT0009213–15; 4 w, CAS: #4126 CASENT0008085–86); P.N. Dzanga-Ndoki, 38.6 km 173° S Lidjombo, 2°21.60'N 16°03.20'E, 350 m, 20–21.v.2001 (*S. van Noort*) (4 w, CAS: CASENT0087592 CAR01-M156, CASENT0087616 CAR01-M157,

CASENT0087618 CAR01-M158, CASENT0087429 CAR01-M165); P.N. Dzanga-Ndoki, 38.6 km 173° S Lidjombo, 2°21.60'N 16°03.20'E, 350 m, 21–22.v.2001 (*S. van Noort*) (3 w, CAS: CASENT0087471 CAR01-M168, CASENT0086505 CAR01-M172, CASENT0086545 CAR01-M174); P.N. Dzanga-Ndoki, 38.6 km 173° S Lidjombo, 2°21.60'N 16°03.20'E, 350 m, 22.v.2001 (*S. van Noort*) (1 g, 4 w, CAS: CASENT0092197 CAR01-S200, CASENT0092344 CAR01-S212, CASENT0092387 CAR01-S215, CASENT0092725 CAR01-S238, CASENT0092757 CAR01-S240); P.N. Dzanga-Ndoki, 38.6 km 173° S Lidjombo, 2°21.60'N 16°03.20'E, 350 m, 22–23.v.2001 (*S. van Noort*) (2 w, CAS: CASENT0086341 CAR01-M184, CASENT0086387 CAR01-M187); P.N. Dzanga-Ndoki, 38.6 km 173° S Lidjombo, 2°21.60'N 16°03.20'E, 350 m, 23.v.2001 (*S. van Noort*) (2 w, CAS: CASENT0093738 CAR01-S263, CASENT0093448 CAR01-S277); P.N. Dzanga-Ndoki, 38.6 km 173° S Lidjombo, 2°21.60'N 16°03.20'E, 350 m, 24–25.v.2001 (*S. van Noort*) (3 w, CAS: CASENT0086229 CAR01-M200, CASENT0088066 CAR01-M205, CASENT0088102 CAR01-M209); P.N. Dzanga-Ndoki, 38.6 km 173° S Lidjombo, 2°21.60'N 16°03.20'E, 350 m, 25.v.2001 (*S. van Noort*) (6 w, CAS: CASENT0094975 CAR01-S283, CASENT0095042 CAR01-S285, CASENT0094511 CAR01-S288, CASENT0094555 CAR01-S291, CASENT0094625 CAR01-S297, CASENT0093126 CAR01-S300); P.N. Dzanga-Ndoki, 38.6 km 173° S Lidjombo, 2°21.60'N 16°03.20'E, 350 m, 25–26.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0088164 CAR01-M220); P.N. Dzanga-Ndoki, 38.6 km 173° S Lidjombo, 2°21.60'N 16°03.20'E, 350 m, 26–27.v.2001 (*S. van Noort*) (2 w, CAS: CASENT0088224 CAR01-M224, CASENT0088273 CAR01-M228). **UGANDA**: Budongo Forest Reserve, 1.75°N 31.5833°E, 900 m, 30.vi.2004 (*M. Peters*) (HLMD); Kibale National Park, Kanyawara Biological Station, 0.56437°N 30.36059°E, ±300 m 1510 m, 6–16.viii.2012, rainforest (*F. Hita Garcia*) (HLMD); Entebbe, Entebbe Botanical Gardens, 0°03'52.61"N 32°28'40.50"E, 1143 m, 17–22.viii.2012, on tree (*F. Hita Garcia*) (HLMD). **TANZANIA**: Amani, 850 m, 9.xi.1957 (*E.S. Ross & B.E. Leech*) (1 g, 2 w, CAS); Tanga, E Usambara Mtns., Amani, 900–1000 m, 28.x–9.xi.1995 (*D. Ubick*) (1 g, CAS); Amani Hills, 23–24.vi.2001, ANTC1275 (*D. Quick*) (1 g, 6 w, CAS: CASENT0007990–93). **ZAMBIA**: 5 mi. N of Kapiri Mposhi, 9.ii.1958 (*E.S. Ross & B.E. Leech*) (1 w, CAS).

***Polyrhachis omissa* n. sp.**
(Figures 11a–c)

Diagnosis. A stout species in the *viscosa*-group, with strongly reduced pilosity, opaque integument, propodeal dorsum and declivity separated by a medially protruding transverse ridge, and petiole armed with a lateral pair of spines and a dorsal pair of teeth. Very similar to *P. viscosa*, but with ordinary shaped scape and first funicular joint.

Holotype worker. HL 1.62, HW 1.49, CI 92, SL 1.80, SI 121, FW 0.41, FI 28 PW 1.33, WL 2.10, HTL 1.70.

Clypeus ecarinate, its anterior margin evenly convex and medially crenulate. Head widely oval, distinctly wider around the level of the eyes and much narrower at the level of mandibular insertions. Frons relatively narrow, frontal carinae sinuous. Antennae moderately long. Eyes large and flat, placed close to the posterior corners of the head. Mesosoma stout, nearly flat in profile, mesonotum more than twice as wide as long. Promesonotal suture narrow, but well marked, metanotal suture faint, hardly visible. Pronotal teeth well developed and slightly diverging. Propodeal dorsum bearing an upturned small tooth at each posterior corner; propodeal dorsum and declivity separated by a thin ridge strongly medially raised as an antero-posteriorly flattened lobe. Petiolar scale wide, armed with 4 equidistant spines and teeth: a lateral pair of spines and a dorsal pair of sharp teeth; the space between dorsal teeth straight. First gastral tergite anteriorly concave.

Integument matt; ground sculpture finely reticulate-punctate all over the body and more superficially so on appendages. A superimposed, irregular reticulate rugulosity covers most of head and mesosoma in a somewhat areolate pattern.

Standing hairs almost lacking: occurring only at the anterior clypeal margin and on gastral tergites III–V and all sternites. Pubescence very short and sparse, hardly visible on the body.

Colour black throughout.

Paratype gynes (n=12). HL 1.76–1.99, HW 1.49–1.72, CI 82–88, SL 1.81–2.13, SI 116–128, FW 0.42–0.50, FI 28–30, ScW 1.73–2.05, MnL 2.13–2.63, WL 2.93–3.50, HTL 1.85–2.21, Anterior wing length 8.1-9.3.

With the usual caste differences from the worker and with weakly convex eyes. Wings moderately infuscated.

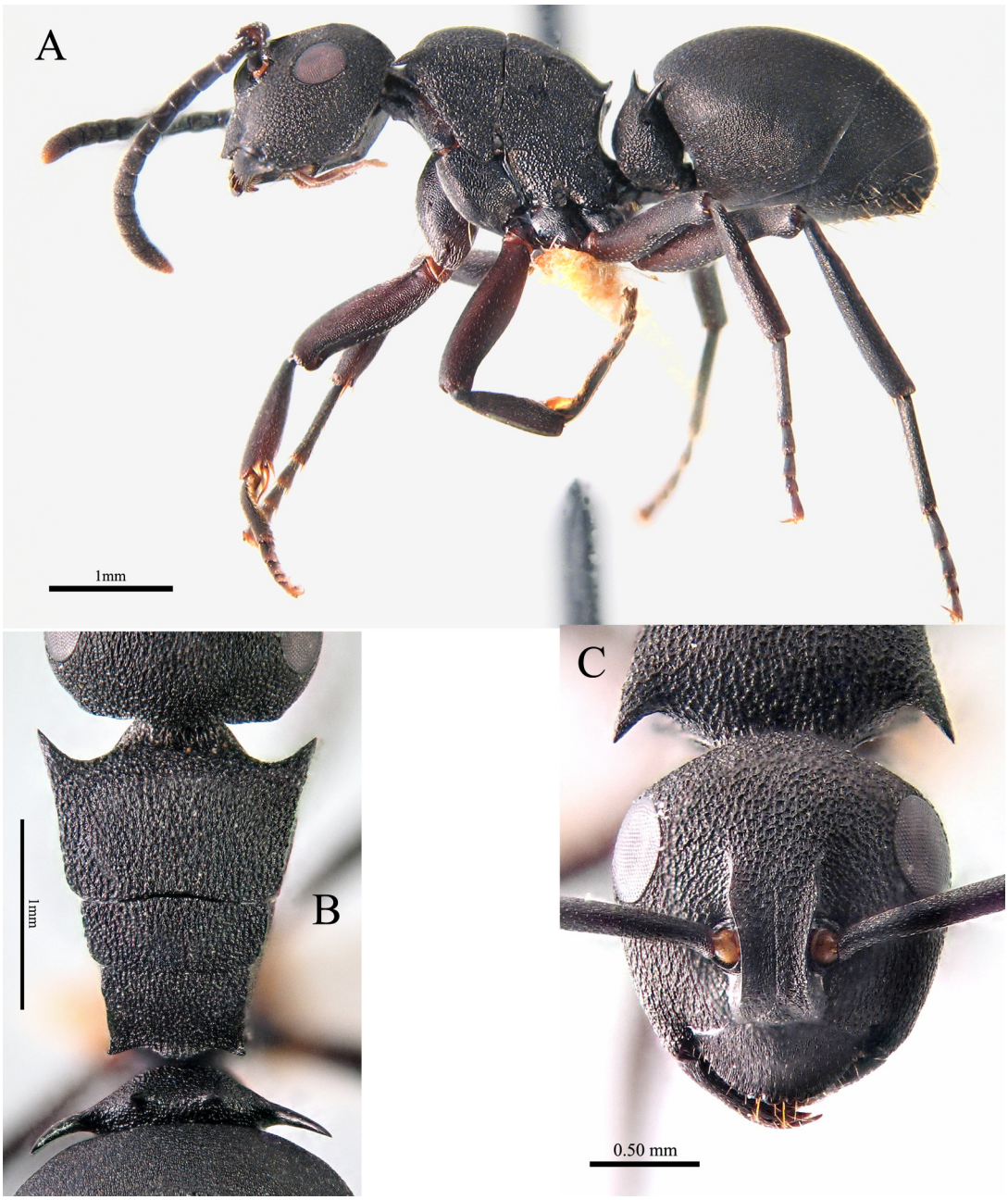

FIGURE 11. *Polyrhachis omissa*, holotype worker: A, body profile; B, dorsum of mesosoma; C, head in full-face view. (Photos by M. Zilioli)

Paratype male. HL 1.24, HW 1.10, CI 89, SL 1.40, SI 127, ScW 1.53, MnL 2.16, WL 2.87, HTL 1.95. (I confidently assign to this taxon a single male collected together with several gynes in Yemen).

Mandibles narrow, almost unarmed, with a short masticatory margin bearing a blunt apical cleft tooth and 1 or 2 minute blunt denticles. Anterior clypeal margin entire, evenly convex. Head round with relatively small eyes (maximum eye length: 0.47), Ocelli well developed: MOD (mid-ocellus diameter): 0.18; distance between mid ocellus and each lateral one < MOD. Distance between lateral ocelli: 0.46. Length of anterior wing: approx. 7.4. Petiolar scale thick, wide and low; in frontal view the petiolar dorsum is evenly weakly convex and is separated from sides by a weak blunt angle.

Integument subopaque, finely reticulate-punctate; only the head dorsum bears a trace of rugulo-reticulation recalling that of female castes.

Pilosity reduced, mostly as in female castes.

Body and antennae blackish; legs dark brown, mandibles and most articulations slightly paler. Wings as in gyne.

Paratype workers (n=10). HL 1.56–1.80, HW 1.39–1.64, CI 88–92, SL 1.68–2.00, SI 118–127, FW 0.35–0.44, FI 25–28, PW 1.20–1.56, WL 1.90–2.32, HTL 1.56–1.98. Mostly consistent with the holotype, but with some minute variations. Eyes more or less slightly convex, metanotal suture sometimes completely lacking dorsally, and median lobe of propodeum reduced to a low convexity.

Holotype worker. **SOMALIA**: Balad, 28.ix.1986 (*L. Bartolozzi*) (MSNM).

Paratypes. **YEMEN**: Sokna (Tihama), m 200, 20.viii.1965 (*G. Scortecci*) (17 g, 1 m, MSNM). **ETHIOPIA**: "da Dimé al Bass Narok", viii–ix.1896 (*Bottego*) (1 g, MSNG) [misidentified by Emery (1899) as *P. viscosa*]; Banno, Sagan-Omo, 10.v.1939 (*E. Zavattari*) (1 w, MSNG); Caschei, Sagan-Omo, 6.vii.1939 (*E. Zavattari*) (3 g, MSNG). **SOMALIA**: "M. Umberto I", iii.1892–93 [?] (*E. Ruspoli*) (1 g, MSNG); Ganana, iii.1892–93 [?] (*E. Ruspoli*) (2 g, MSNG); "Boran Galla, Medio Ganale", vi.1893 (*V.* Bottego) (1 w, MSNG); "Basso Ganana", vii–viii.1893 (*V.* Bottego) (3 w, MSNG); Eil (Nogal), iii–iv.1938 (*S. Venzo*) (2 g, MSNM); Eil (*A. Falzoni*) (1 g, MSNM); Gardo, 810m, 21.x.1957 (*G. Scortecci*) (2 g, MSNM); same data, but 22.x.1957 (2 g, MSNM); Afgoi, v.1972 (*L. Masutti*) (2 g, MSNM); Afgoi, 2.x.1986 (*L. Bartolozzi*) (1 w, MSNM). **KENYA**: Mackinnon (30 km ca. N-NW of Mombasa), ix.1946 (*Meneghetti*) (1 w, 1 g, MSNM); Malindi, xii.1993 (*R. Regalin*) (3 w, MSNM); Archer's Post, Uaso Nyiro river, 2300', 6.xii.1969 (*M.E. Irwin & E.S. Ross*) (4 g, CAS).

Comment. I often found specimens of *P. omissa* labelled as *P. viscosa* and mixed with it, but *omissa* always lacks the distinctive antennal features that separate *viscosa* from all other African *Polyrhachis* known so far. *Polyrhachis viscosa* has a strongly widened apex of the scape and a strongly depressed first funicular joint (see Fig. 22 in Bolton, 1973). This feature is unique to *viscosa* and seemingly constant. Although I found several gynes assignable to *P. omissa* collected in Yemen, Collingwood and Agosti (1996) in their survey of Arabian ants mentioned *P. viscosa* and *P. lacteipennis* F. Smith only. *Polyrhachis lacteipennis* superficially recalls *viscosa* and *omissa*, but belongs to the non-African subgenus *Myrmhopla* and has a slender and immarginate mesosoma and other very distinctive features.

I also examined the types of *P. antinorii* Emery, which Bolton (l.c.) did not see and synonymised with *P. viscosa*. I can confirm that *antinorii* is conspecific with *viscosa*; therefore no old available names are assignable to *omissa*.

The main features separating *omissa* from *viscosa* workers can be summarized as follows:

Polyrhachis omissa	*Polyrhachis viscosa*
Scape and first funicular joint of usual shape	Scape strongly widened apically and first funicular joint strongly flattened proximally
Head apperaring almost round, CI 88 or more	Head appearing somewhat elongate, CI 86 or less
Anterior clypeal margin entire, medially crenulate and at most faintly notched	Anterior clypeal margin usually with a small, but distinct, median notch
Frons narrower, FI 28 or less	Frons wider, FI 30 or more
Mesosoma stouter: pronotum about twice as wide as propodeum; mesonotum in dorsal view about 2.5 times as wide as long	Mesosoma more slender: pronotum about 1.5 times as wide as propodeum; mesonotum in dorsal view about twice as wide as long

In addition, most *omissa* specimens have a few standing setae on the second gastral tergite, while all of the approximetely 20 *viscosa* specimens I examined have no erect hairs on the second gastral tergite; but this difference might be due to population differences, age or degree of abrasion of specimens.

Among the *viscosa*-group species listed by Bolton only *viscosa* itself and *nigrita* share the same arrangement of petiolar spines as in *omissa*: a long lateral pair, and a much shorter, often tooth-like, dorsal pair. Moreover, *nigrita* differs from *viscosa* and *omissa* especially by its longer propodeal teeth and by the propodeal dorsum evenly rounding into the declivity.

Polyrhachis otleti **Forel**

Polyrhachis otleti Forel, 1916: 449. Syntype workers, gyne and male, DEM. REP. of the CONGO: St. Gabriel (*H. Kohl*) (MHNG) [examined].

Diagnosis. A hairy, moderately large *revoili*-group species with marginate pronotum and propodeal dorsum delimited posteriorly by a pair of well developed ridges.

Two workers from CAS collection are very similar to the types, but have a shining gaster (subopaque in types), due to more superficial sculpturation and much sparser gastral pubescence. The distance between adjacent pubescence elements is much larger than their length; while in types gastral pubescence is much denser (the distance between adjacent hairlets is shorter than their length). Because of the paucity of available material and variability of these features in other *Polyrhachis*, I consider all of them as conspecific.

Measurements (n=6: 4 syntype workers + 2 workers from CAS). HL 1.40–1.68, HW 1.19–1.39, CI 81–86, SL 1.68–1.98, SI 140–146, FW 0.47–0.51, FI 36–39, PW 1.07–1.29, WL 1.84–2.25, HTL 1.67–2.00.

Material examined. (except types). **CENTRAL AFRICAN REP.**: Res. Dzanga–Sangha, 12.7 km, 326° NW Bayanga, 3°00.27' N 16°11.55' E, 420 m, 10–11.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0087178, CAR01-M88); Res. Dzanga–Sangha, 12.7 km, 326° NW Bayanga, 3°00.27' N 16°11.55' E, 420 m, 11–12.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0087978, CAR01-M99).

Polyrhachis phidias Forel

Polyrhachis phidias Forel, 1910a: 450. Syntype workers, Equatorial Africa (locality unknown) (MHNG) [examined].

Diagnosis. A small *militaris*-group species with trapezoidal head, the lateral pair of petiolar spines a little longer than the dorsal pair, and scape devoid of standing hairs.

Bolton (1973) saw the two syntype workers only. I could study a long series of workers and gynes that match the type specimens very well. Their measurements are as follows:

Worker (n=20). HL 1.13–1.30, HW 0.97–1.13, CI 83–91, SL 1.15–1.28, SI 109–119, FW 0.42–0.47, FI 40–44, PW 1.08–1.24, WL 1.37–1.66, HTL 1.11–1.30.

Gyne (n=6). HL 1.30–1.40, HW 1.15–1.20, CI 83–89, SL 1.27–1.35, SI 110–117, FW 0.46–0.52, FI 40–44, ScW 1.30–1.37, MnL 1.57–1.70, WL 2.13–2.21, HTL 1.32–1.50.

Material examined. CENTRAL AFRICAN REP.: P.N. Dzanga–Ndoki, Mabéa Bai 21.4 km 53° NE Bayanga, 3°02'N 16°25'E, 510 m, 1–7.v.2001 (*B.L. Fisher*) #4004 (2 w, CAS: CASENT0415811, CASENT0415829); Res. Dzanga–Sangha, 12.7 km 326° NW Bayanga, 3°00'N 16°12'E, 420 m, 10–17.v.2001 #4123 (*B.L. Fisher*) (1 g, CAS: CASENT0403726); Res. Dzanga–Sangha, 12.7 km 326° NW Bayanga, 3°00'N 16°12'E, 470 m, 10–17.v.2001 #4087 (*B.L. Fisher*) (3 g, 9 w, CAS: CASENT0403844, CASENT0403878, CASENT0403902, CASENT0403922, CASENT0403939, CASENT0403944, CASENT0403982, CASENT0403990, CASENT0403991, CASENT0403996, CASENT0403997, CASENT0404033); Res. Dzanga–Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 11.v.2001 (*S. van Noort*) (1 g, CAS: CASENT0090716 CAR01-S105); Res. Dzanga–Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 12.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0090832 CAR01-S120); Res. Dzanga–Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 15–16.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0087662 CAR01-M142); Res. Dzanga–Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 16–17.v.2001 (*S. van Noort*) (1 g, CAS: CASENT0087540 CAR01-M153); P.N. Dzanga–Ndoki, 37.9 km 169° S Lidjombo, 2°22'N 16°10'E, 360 m, 21.v.2001 #4128 (*B.L. Fisher*) (CAS: 2 w CASENT403504, 1 w CASENT0403545, 3 w CASENT403589); P.N. Dzanga–Ndoki, 38.6 km 173° S Lidjombo, 2°21.60'N 16°03.20'E, 350 m, 22.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0092631 CAR01-S232). **TANZANIA**: Kigoma Region, Gombe Stream N.P., 4°42'S 29°37'E, thickset woodland, from trail, 798–1115 m, ix.2009–i.2010 (*R. O'Malley*) (1 w, HLMD: RO 09-1240).

Polyrhachis revoili André

Polyrhachis revoili E. André, 1887: 285. Holotype gyne, SOMALIA (*Revoil*) (MNHN) [examined].

Holotype gyne. HL 1.52, HW 1.25, CI 82, SL 1.81, SI 145, FW 0.46, FI 37, MnL 1.85, ScW 1.48, WL 2.52, HTL 1.89.

Clypeus bearing a slightly protruding, wide lobe, whose anterior margin is slightly arcuate and limited laterally by right angled corners. Head in full face view oval, wider behind than in front, posterior margin evenly convex without posterior corners; sides in front of the eyes anteriorly converging and straight. Eyes relatively large and convex. Ocelli small. Pronotal and propodeal sides immarginate. Pronotal teeth small and robust. Propodeal dorsum in dorsal view strongly transverse (at its widest point it is more the thrice as wide as medially long), arched both longitudinally and transversely. Propodeal dorsum posterolaterally with a pair of weak, distant propodeal ridges; between the ridges the propodeal dorsum smoothly merges into the declivity. Petiole with a median pair of diverging and slightly backward bent spines, whose reciprocal distance is somewhat twice the length of each spine, and a pair of shorter lateral spines, which are about half as long as the dorsal pair. First gastral tergite anteriorly concave.

Mandibles mostly smooth and shining, with superimposed elongate hair-bearing pits. Body and appendages reticulate-punctate; the sculpturation is stronger on the opaque head and mesosoma. Frons, vertex and scutum with superimposed longitudinal irregular rugulation.

The whole body and appendages with abundant, pale golden, fine standing hairs; longest hairs occur on cephalic dorsum, scapes, scutellum and gaster. Longest hairs on tibiae at most a little shorter than the maximum tibial width; longest hairs on scapes about twice as long as the maximum scape width. Pubescence pale, relatively short and abundant throughout the body, never hiding the sculpturation; on the gaster it is relatively short and moderately dense.

Body black, appendages chiefly dark brown. Mandibles apically ferrugineous as well as most of the antennal funiculi, whose 3 basalmost joints are proximally darkened.

Comment. The examination of the holotype gyne has shown it is very different from what Bolton (1973) and former authors thought. Bolton (1973) did not see the type and evidently relied on Forel and other authors about the identity of *P. revoili*. Forel himself (1894) described the *revoili* worker on the basis of a specimen from Delagoa (Mozambique) and believed André's assurances about the conspecificity of his specimen with *revoili*. I have seen Forel's worker and can confirm it corresponds to Bolton's description. However, the type of *P. revoili* significantly differs from Forel's specimen as well as from all other infraspecific taxa subsequently assigned to *revoili* or *weissi.* Bolton (1973) synonymized all of them either with *revoili* or with *weissi*. Bolton thought "*revoili"*and *weissi* differed in size, pilosity, and sculpturation. In my opinion, these differences are weak and unreliable (Bolton himself cast some doubts about their separation as distinct species) and I prefer to consider all of them as belonging to *weissi* (see below).

As *P. revoili* auct. does not match *P. revoili* André, the latter remains known from the type only. As a consequence I assign all of the remaining forms to *P. weissi* Santschi (see under that heading).

The main differences between *revoili* André and *weissi* are as follows:

Polyrhachis revoili holotype (gyne)	*Polyrhachis weissi*
Anterior clypeal margin with a shallow and wide lobe, with distinct right-angled corners	Anterior clypeal margin entire, not lobed
Scape abundantly hairy, many hairs are as long as twice the maximum scape width	Scape with standing hairs (when present) at most as long as scape width
Head in full face view elongate oval; its posterior margin uniformly and strongly convex.	Head in full face view distinctly trapezoidal; its posterior margin wide and weakly convex and with distinct posterior corners.
Dorsal cephalic sculpture irregular and mostly reticulate	Dorsal cephalic sculpture regular, longitudinally finely rugulose

P. revoili can be compared to other species of the group bearing a clypeal lobe as well, e.g. *volkarti* and *kohli*; yet, I could not find any worker looking conspecific with the *revoili* type.

Polyrhachis spitteleri Forel

Polyrhachis spitteleri Forel, 1916: 450, fig. 6. Holotype worker, DEMOCRATIC REPUBLIC of the CONGO (locality unknown) (*H. Kohl*) (MHNG) [not seen].

Diagnosis. The *monista*-group species with hardly impressed promesonotal suture and a tubercoliform prominence between the propodeal spines.

I assign to this species a gyne from Central African Rep. It has a weak median prominence between the long propodeal spines as reported for the worker caste (Bolton, 1973). The dorsum of mesosoma is mostly longitudinally rugulose with reticulate-punctate ground sculpture. The remaining of the body is more or less strongly reticulate-punctate and subopaque; mandibles, clypeus and gaster are superficially sculptured and shining.

Measurements. HL 1.42, HW 1.30, CI 92, SL 1.43, SI 110, FW 0.55, FI 42, ScW 1.40, MnL 1.65, WL 2.24, HTL 1.68.

Material examined. CENTRAL AFRICAN REP.: P.N. Dzanga–Ndoki, 21.4 km 53° NE Bayanga, 3°02.01'N 16°24.57'E, 510 m, 1–2.v.2001 (*S. van Noort*) (1 g, CAS: CASENT0086055, CAR01-M02).

Polyrhachis submarginata n. sp.

(Figures 12a–c)

Diagnosis. A relatively large species in the *revoili*-group, with somewhat slender head and appendages, incomplete and weak pronotal margination, and very weak propodeal ridges.

Holotype worker. HL 1.66, HW 1.25, CI 75, SL 2.02, SI 162, FW 0.45, FI 36, PW 1.13, WL 2.17, HTL 1.98.

Clypeus medially subcarinate and with anterior margin bearing a protruding rectangular lobe, whose lateral corners are right angled. Head in full face view moderately elongate, oval, wider behind than in front, posterior margin widely convex. Eyes moderately large and convex. Mesosoma stout and evenly convex in profile. In dorsal view pro- and mesonotum distinctly transverse; propodeal dorsum somewhat longer than wide. Pronotum laterally weakly marginate and armed with two small diverging teeth; the margination incomplete and somewhat difficult to see even because of sculpturation and pubescence. Mesonotum and propodeum immarginate. Propodeal dorsum with two faint posterolateral ridges at its posterior corners, medially propodeal dorsum and declivity confluent in a blunt curvature. Promesonotal suture slightly impressed, metanotal suture faint. Petiole with a dorsal pair of widely separated, moderately long and diverging spines and a pair of lateral sharp teeth; the space between dorsal spines straight. First gastral tergite anteriorly weakly concave.

Mandibles faintly longitudinally striolate and with sparse piligerous pits, mostly shining. The whole body and appendages finely reticulate-punctate. Body opaque, appendages weakly shining. Head and mesosomal dorsum with a superimposed, fine, irregular longitudinal rugulation.

Standing hairs abundant everywhere and longer on head and mesosoma. Hairs on scapes at most a little longer than scape diameter at midlength; hairs on tibiae at most about as long as half the maximum tibial width. Body and appendages coated with dense, short and silvery to slightly golden pubescence, not masking the sculpturation and longer on mesosoma and petiole.

Colour black, most of the funicular joints and mandibular apices ferrugineous.

Paratype worker. HL 1.62, HW 1.22, CI 75, SL 1.98, SI 162, FW 0.47, FI 39, PW 1.19, WL 2.3, HTL 1.98. All main features as in the holotype.

Holotype. **CENTRAL AFRICAN REPUBLIC**: Res. Dzanga–Sangha, 12.7 km, 326° NW Bayanga, 3°00.27' N 16°11.55' E, 420 m, 10–11.v.2001 (*S. van Noort*) (CAS: CASENT0087089 CAR01-M78).

Paratype. **CENTRAL AFRICAN REPUBLIC**: same data as the holotype, except 14–15.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0088752 CAR01-M123).

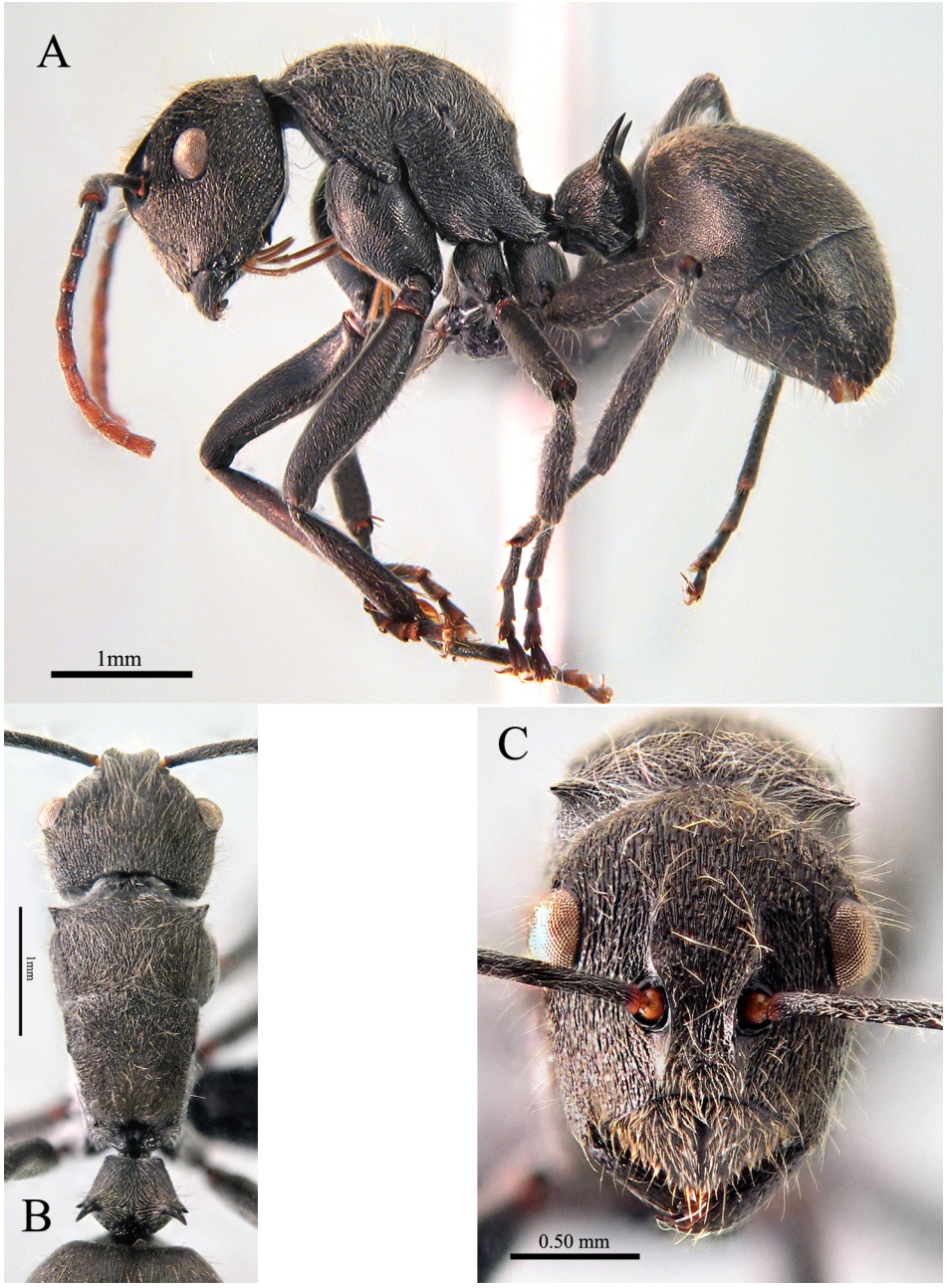

FIGURE 12. *Polyrhachis submarginata*, holotype worker: A, body profile; B, dorsum of mesosoma; C, head in full-face view. (Photos by M. Zilioli)

Comment. *Polyrhachis submarginata* is characterised by weak pronotal margination and propodeal ridges, and a relatively high SI. *Polyrhachis submarginata* is similar to *P. otleti* and the main differences between them are reported in the key. *Polyrhachis submarginata* seems to link *revoili*-group species with immarginate mesosoma and with well defined, although incomplete, margination. *Polyrhachis volkarti* Forel is similar but is smaller, has a usually immarginate pronotum, distinctly more slender mesosoma. well developed propodeal ridges, and a higher SI.

Polyrhachis kohli, *P. submarginata* and *P. volkarti* look very similar, and share some important features: 1) a shallow clypeal lobe; 2) relatively long scapes, SI > 150; 3) abundant pilosity on body and appendages; 4) mesosoma completely immarginate or almost so; 5) propodeal dorsum and declivity separated by a pair of small, more or less developed, ridges; 6) petiole armed with a pair of moderately long median spines and a pair of lateral much shorter teeth; 7) rough, mostly irregularly longitudinal rugulose sculpturation on head and mesosoma; 8)

Body coated with abundant, relatively short and moderately dense greyish pubescence never hiding the sculpturation.

The main differences can be summarized as follows:

P. kohli	*P. submarginata*	*P. volkarti*
SI > 165	SI < 165	SI < 165
HL < 1.50	HL > 1.60	HL ≤ 1.50
Pronotal sides immarginate	Pronotal sides weakly marginate	Pronotal sides rarely anteriorly faintly marginate
In dorsal view propodeum slender, distinctly much longer than wide	In dorsal view propodeum looking hardly longer than wide or as long as wide	In dosal view propodeum stout, distinctly wider than long
Longest standing hairs on tibiae about as long as maximum tibial width	Longest standing hairs on tibiae about as long as half the maximum tibial width	Longest standing hairs on tibiae about as long as half the maximum tibial width

***Polyrhachis terminata* n. sp.**
(Figures 13a–c)

Diagnosis. The largest species of the *revoili*-group known so far, with almost complete lateral marginations of the mesosoma and a continuous well developed ridge separating propodeal dorsum from declivity.

Holotype worker. HL 2.60, HW 2.37, CI 91, SL 2.50, SI 105, FW 0.80, FI 34, PW 2.05, WL 3.5, HTL 2.77.

Clypeus subcarinate, with anterior margin arcuate and medially bearing a faint shallow rounded lobe. Head trapezoidal, wider behind than in front, posterior margin and sides widely convex. Eyes moderately large and convex, close to the posterior corners. Mesosoma in profile evenly weakly convex, mesonotum almost flat. Promesonotal suture well-developed, metanotal suture weak and hardly interrupting the dorsal sculpturation. Pronotum with a pair of strong teeth at its anterior corners and laterally clearly marginate, the margination interrupted just before the promesonotal suture. Mesonotum with a weaker margination, interrupted before the metanotal suture. Lateral margination of propodeal dorsum faint, detectable along about its anterior half. Propodeal dorsum and declivity well-separated by a continuous ridge which is slightly higher medially. Petiole with a dorsal pair of distant, moderately long and diverging spines and a pair of lateral shorter ones; the space between the dorsal spines straight. First gastral tergite anteriorly weakly concave.

Mandibles distinctly longitudinally striolate and with sparse piligerous pits. Clypeus superficially finely reticulate-punctate. Head dorsum prevailingly longitudinally costulate with a faint ground sculpture; head sides and cheeks (malar space) mostly reticulate-rugose with finely reticulate-punctate ground sculpture. Mesosomal dorsum finely longitudinally rugulose with reticulate-punctate ground sculpture. Mesosomal sides mostly finely longitudinally rugulose; mesopleuron less evidently so. Petiole finely reticulate-punctate with superimposed rugulation. Gaster finely reticulate-punctate throughout.

Short to moderately long standing hairs abundant on all body surfaces and appendages. On the legs hairs are shorter than the maximum tibial width. Hairs on scapes are at most slightly longer than scape diameter at midlength. Body and appendages coated with dense, short and greyish pubescence, not masking the sculpturation and sparser on head dorsum and clypeus.

Colour black, except a brown dorsal strip on femurs and tibiae and pale ferrugineous gastral apex.

Holotype. **TANZANIA**: Morogoro, Kilombero, Zoosite 2, 11.3 km ESE Mbingu, 8.20483 S 36.36055 E, 277 m, 23.x.2007, closed miombo woodland, pitfall trap, FRO 2007_2_P (*E. Jew & L. Williams*) (SAM: CASENT0250168).

Comment. *Polyrhachis terminata* is unique for its large size and the complete ridge running between propodeal dorsum and declivity. This ridge is much stronger than the incomplete and weak margination of the propodeal sides.

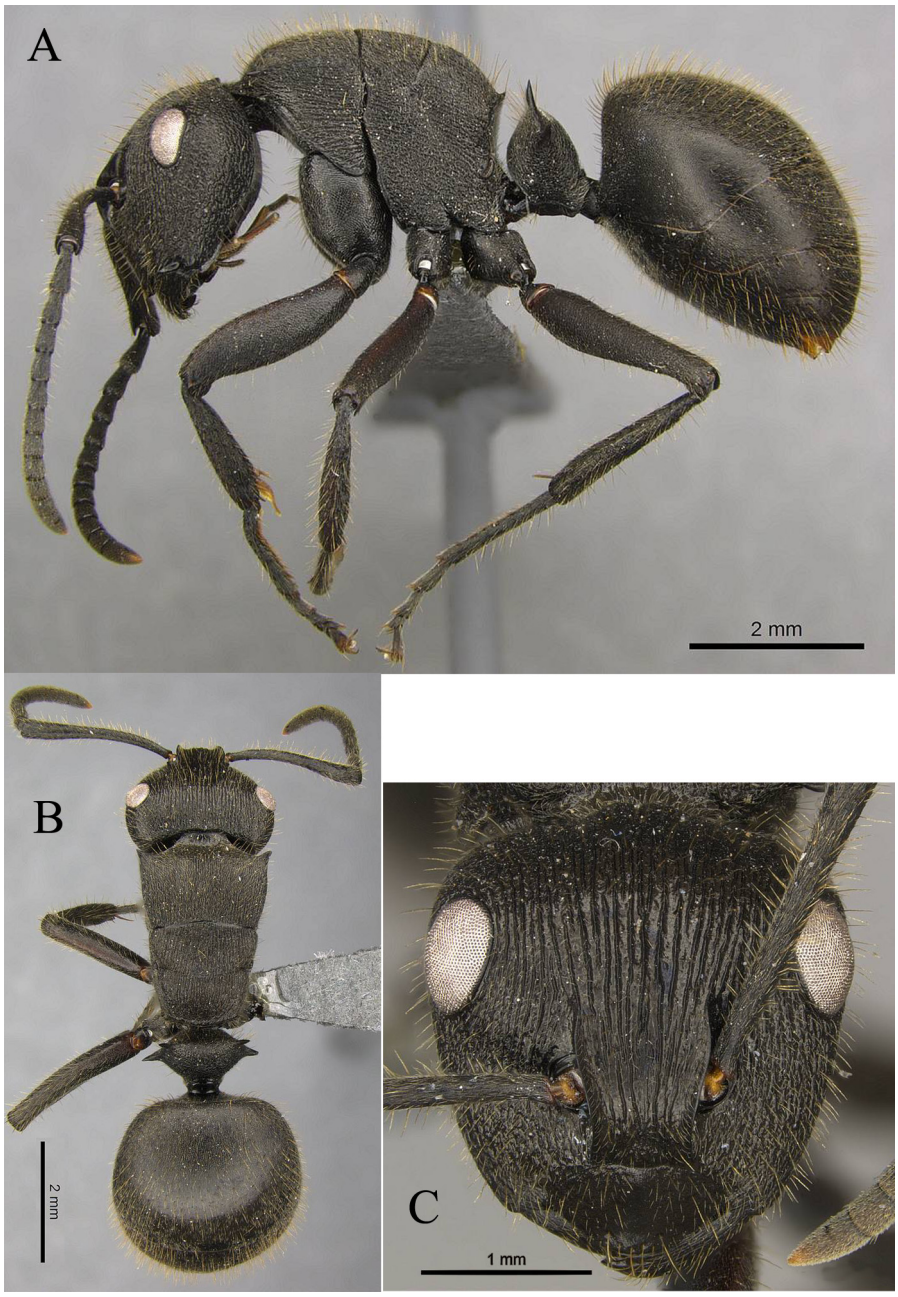

FIGURE 13. *Polyrhachis terminata*, holotype worker (TANZANIA: Morogoro, Kilombero, Zoosite 2, 11.3 km ESE Mbingu, 8.20483 S 36.36055 E, 277 m, 23.x.2007, closed miombo woodland, pitfall trap, FRO 2007_2_P (*E. Jew & L. Williams*) [SAM: ANTWEB CASENT0250168]): A, body profile; B, dorsum of mesosoma; C, head in full-face view. (Photos by Peter Hawkes, provided by www.AntWeb.org)

Polyrhachis viscosa **F. Smith**
(Figures 14a–c)

Polyrhachis viscosa F. Smith, 1858: 71, pl. 4, fig. 41. Holotype worker, SOUTH AFRICA: Natal, Durban (BMNH) [not seen].

Polyrhachis antinorii Emery, 1877: 365. Syntype workers, ERITREA: Sciotel and Keren, 1870 (*O. Beccari*) (MSNG) [examined]. [Synonymy by Dalla Torre, 1893: 271]

Polyrhachis viscosa var. *spretula* Santschi, 1923: 294. Syntype workers and gyne, DEM. REP. of the CONGO: Kasai, Dumbi, 6.x.1921 (*H. Schouteden*) (MRAC) [not seen]. [Synonymy by Bolton, 1973: 330]

Polyrhachis cubaensis subsp. *imatongica* Weber, 1943: 388, pl. 16, fig. 22. Syntype workers, SUDAN: Imatong Mts., east slopes, 3800–4000 ft, 24.vii.1939 (*N.A. Weber*) (MCZ) [not seen]. [Synonymy by Bolton, 1973: 330]

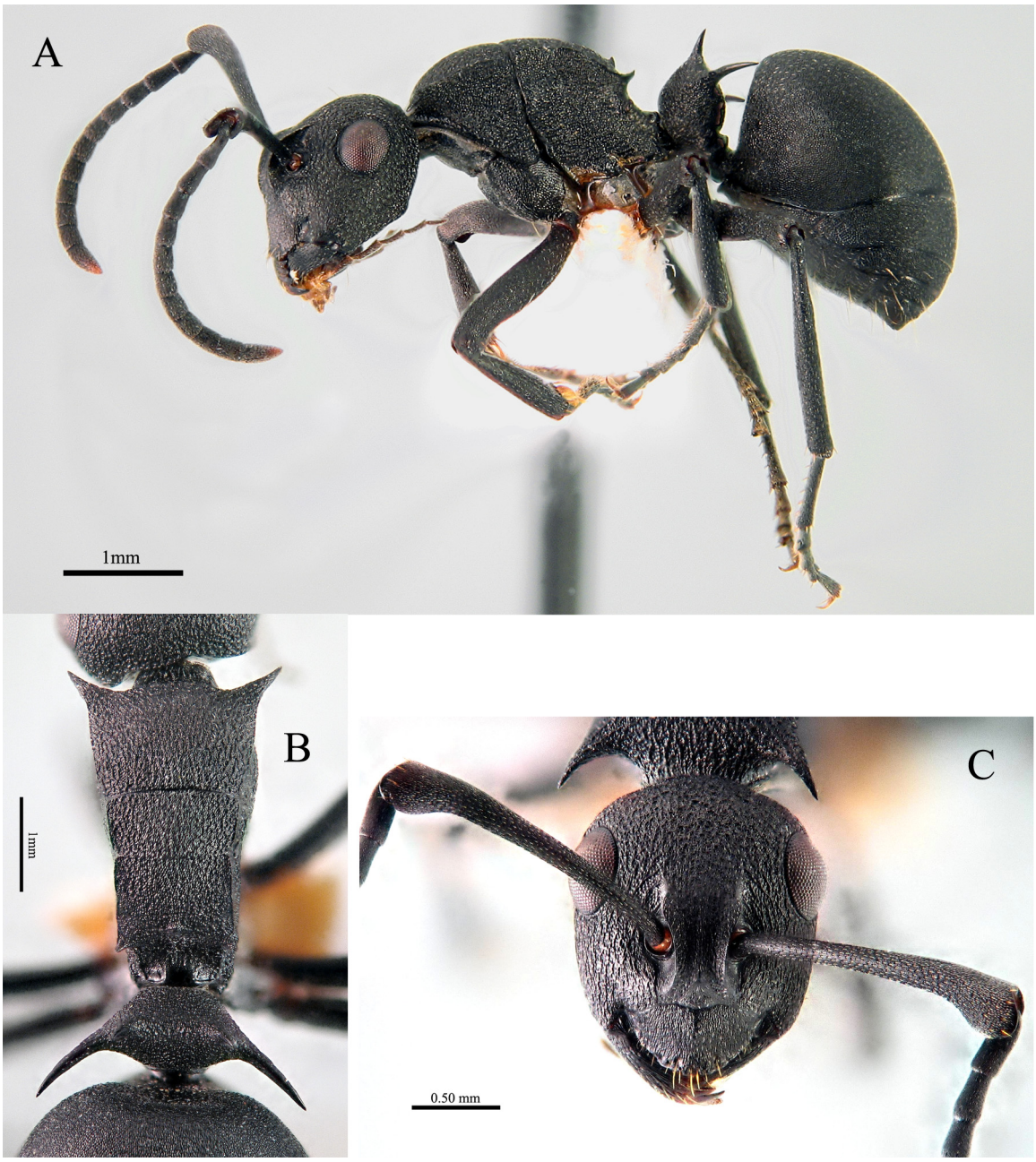

FIGURE 14. *Polyrhachis viscosa*, worker (BURKINA FASO, Tiogo (140 km W of Ouagadougou, IV.1999, (*M. Ouedraogo*) [sample n° 3]): A, body profile; B, dorsum of mesosoma; C, head in full-face view. (Photos by M. Zilioli)

Diagnosis. A *viscosa*-group species with a uniquely (among all African *Polyrhachis*) apically enlarged scape and proximally flattened first funicular joint.

Distinctive features of *P. viscosa* and a comparison with *P. omissa* are discussed under the latter.
In addition, I give measurements of *viscosa* workers I examined (n=16): HL 1.58–1.87, HW 1.30–1.59, CI 79–86, SL 1.70–2.15, SI 125–142, FW 0.40–0.50, FI 30–35, PW 1.11–1.47, WL 1.97–2.50, HTL 1.66–2.20.

Material examined. BURKINA FASO: Tanguen (50 km NNE of Ouagadougou), viii.1996 (*University of Milano*) (1 w, MSNM); Tiogo (140 km W of Ouagadougou), iv.1999 (*M. Ouedraogo*) (4 w, MSNM). **ETHIOPIA**: Coromma, x.1892–93 (*E. Ruspoli*) (7 w, MSNG); Banno, 1.v.1939 (*E. Zavattari, Mission Sagan–Omo*) (1 w, MSNG); Banno, 7.v.1939 (*E. Zavattari, Mission Sagan–Omo*) (2 w, MSNG). **ERITREA**: Bogos, Sciotel, 1870 (*O. Beccari*) (2 w, MSNG); Bogos, Keren, 1870 (*O. Beccari*) (1 w, MSNG). **KENYA**: Laikipia Distr., Mpala Research Centre, 0.28°N 36.87°E, 13.ii.2004, 1600 m (*S. Kamande*) (5 w, HLMD).

Polyrhachis volkarti Forel

Polyrhachis revoili st. *volkarti* Forel, 1916: 453. Holotype gyne, DEMOCRATIC REPUBLIC of the CONGO (*H. Kohl*). (MHNG) [examined]. [AntWeb photo: CASENT0910957]

Diagnosis. A medium sized *revoili*-group species with lobed clypeus, immarginate mesosoma (at most the pronotum bears a trace of lateral margination), and propodeal dorsum wider than long.

Holotype gyne. HL 1.50, HW 1.15, CI 77, SL 1.95, SI 170, FW 0.41, FI 36, MnL 1.78, ScW 1.45, WL 2.52, HTL 1.97.

Clypeus bearing a slightly protruding rectangular lobe at its anterior margin. Head in full face view oval, wider behind than in front, posterior margin evenly convex without distinct posterior corners; sides in front of the eyes straight. Eyes relatively large and convex. Ocelli small. Pronotal and propodeal sides immarginate. Pronotal teeth small and robust. Propodeal dorsum distinctly wider than long, arched both longitudinally and transversely. Propodeal ridges small and far apart, between them the propodeal dorsum smoothly merges into the declivity. Petiole with a mid pair of diverging and slightly backward bent spines, whose reciprocal distance is about twice the length of each spine, and a pair of much shorter lateral teeth raising near the bases of the spines. First gastral tergite anteriorly weakly concave.

Mandibles mostly smooth and shining, weakly shagreened at their insertion. Body and appendages finely reticulate-punctate; sculpturation stronger on the opaque head and mesosoma. Cephalic dorsum, except clypeus, with a superimposed longitudinal fine rugulation.

The whole body and appendages with fairly abundant standing hairs; longest hairs occur on scutellum and cephalic dorsum. Hairs on tibiae short, at most as long as maximum tibial width; hairs on scapes at most 1.5 as long as the maximum scape diameter. Pubescence whitish, moderately long and abundant throughout the body, but never hiding the sculpturation; on the gaster the distance between two adjacent elements is about equal to their length.

Colour mostly black, tibiae dark brown, tarsi apically partially ferrugineous. Funiculi mostly ferrugineous, except the 4 basalmost joints, which are basally darkened. Mandibles apically ferrugineous.

Worker. I assign to this species a series of workers from the Republic of the Congo (n=5).

HL 1.36–1.45, HW 1.11–1.16, CI 80–83, SL 1.74–1.85, SI 151–162, FW 0.40–0.41, FI 35–37, PW 1.00–1.06, WL 1.87–1.99, HTL 1.70–1.81. They look conspecific with the holotype gyne in all main features, even if sometimes an ill-defined trace of pronotal margination appears anteriorly behind the pronotal teeth.

Comment. The *P. volkarti* gyne looks very similar to the *P. kohli* gyne, except for the significant differences concerning pilosity and propodeum summarized under *kohli*. The workers I assigned to *volkarti* have pilosity and propodeal proportions highly comparable to those of the holotype gyne; yet further discoveries could demonstrate such workers to belong to a still undescribed species.

Material examined. REP. of the CONGO: Niari Region, 2.30339S 12.83902E, 705 m, 3.vii.2013, primary forest, canopy fogging, (*L. Niemand*) (5 w, AFRC: LN RC1 42, 90–93/CASENT0250012–15, CASENT0250031).

Polyrhachis weissi Santschi

Polyrhachis weissi Santschi, 1910: 395. Holotype worker, CONGO: Brazzaville (*A. Weiss*) (NHMB).

Polyrhachis natalensis Santschi, 1914: 41. Syntype workers, SOUTH AFRICA: Natal, Stamford Hill, 25.i.1905 (NHMB). **Syn. n.**

Polyrhachis revoili var. *conduensis* Forel, 1915: 351. Syntype workers, DEMOCRATIC REPUBLIC of the CONGO: Kasai, Kondue (*E. Luja*) (MHNG) [synonymy by Bolton, 1973: 342].

Polyrhachis revoili var. *donisthorpei* Forel, 1916: 453. Syntype workers, NORTH RHODESIA [= ZAMBIA] (MHNG) [synonymized with *P. revoili* by Bolton, 1973: 338]. **Syn. n.**

Polyrhachis revoili subsp. *crassa* Emery, 1921: 23. Syntype worker and gyne, CAMEROUN, 1895 (L. Conradt) (MSNG) [synonymy by Bolton, 1973: 342].

Polyrhachis revoili subsp. *crassa* var. *phaenogaster* Emery, 1921: 24. Syntype worker and gyne, CAMEROUN, 1895 (L. Conradt) (MSNG) [referred to *P. weissi* by Bolton, 1973: 342]. [unavailable name]

Polyrhachis revoili subsp. *balli* Santschi, 1939: 10. Syntype workers, DEMOCRATIC REPUBLIC of the CONGO: Gazi, xii.1937 (*Beinaert*) (NHMB) [synonymized by Bolton, 1973: 342 under *P. weissi*].

Diagnosis. *Polyrhachis weissi* looks easily identifiable within the *revoili*-group for this unique combination of features: 1) clypeus with an uniformly rounded anterior margin; 2) head in full face view distinctly trapezoidal with a strongly transverse, weakly convex posterior border; 3) eyes moderately convex and placed close to posterior corners; 4) mesosoma fully immarginate and stout (in dorsal view pronotum and mesonotum strongly transverse, propodeal dorsum trapezoidal, much wider in front than behind and distinctly shorter than its maximum width); 5) propodeal dorsum bearing a pair of small, sharp upturned teeth at its posterior corners; 6) petiole with two pairs of spines, the mid pair slightly curved backward and distinctly longer; 7) body mostly reticulate punctate with superimposed fine longitudinal rugulae on cephalic and mesosomal dorsa (cephalic rugulae tidier); 8) standing hairs moderately long and abundant all over the body and legs, mostly yellowish in colour.

Comment. Bolton (1973: 339) separated *P. weissi* Santschi from *P. revoili* André on "quite trivial" (in Bolton's own words) characters: size, pilosity and sculpturation; he also gave them an allopatric distribution. Bolton's *revoili* has strongly hairy scapes, is larger and more irregularly sculptured and was reported as occurring in eastern and southern Africa. On the contrary, the west and central African *weissi* has hairless or almost hairless scapes, a more regular sculpturation and smaller size. However, it must be pointed out that worker and gyne syntypes of *P. revoili* subsp. *crassa* Emery, synonymized with *weissi* by Bolton (1973), come from Cameroon and have as abundantly hairy scapes as Bolton's *revoili*. Consequently, *crassa* should belong to *revoili* 'sensu Bolton' and its collecting locality also denies the allopatry between *weissi* and *revoili*.

Bolton's *revoili*, *weissi* and all of their synonyms share the diagnostic features reported above and cannot be conspecific with *P. revoili* André (see under that heading). For this reason and because I could not see any consistent difference of size, sculpturation and pubescence, I assign all of them to *weissi*. However, the presence and number of standing hairs on scapes could suggest the existence of two distinct species. Some nest series have 0 to few standing hairs on scapes, whereas other samples have more than 30, without any seemingly intermediate condition. Because of lack of further reliable distinctive characters, I prefer to consider these alternative conditions as a matter of intraspecific variability.

Material examined. Scapes with 0 – <10 standing hairs. **CENTRAL AFRICAN REP.**: P.N. Dzanga-Ndoki, Mabéa Bai, 21.4 km 53° NE Bayanga, 3°02'N 16°25'E, 510 m, 1–7.v.2001 #4004 (*B.L. Fisher*) (1g, CAS: CASENT0415886); Res. Dzanga-Sangha, 12.7 km 326° NW Bayanga, 3°00'N 16°12'E, 420 m, 10–17.v.2001 #4083 (*B.L. Fisher*) (1 w, CAS: CASENT0081187); Res. Dzanga-Sangha, 12.7 km 326° NW Bayanga, 3°00'N 16°12'E, 420 m, 10–17.v.2001 #4123 (*B.L. Fisher*) (1 w, CAS: CASENT0403724); Res. Dzanga-Sangha, 12.7 km 326° NW Bayanga, 3°00'N 16°12'E, 470 m, 10–17.v.2001 #4087 (*B.L. Fisher*) (1 g, 11 w, CAS: CASENT0403857, CASENT0403891, CASENT0403945, CASENT0403958, CASENT0404012, CASENT0404014, CASENT0404030, CASENT0404062, CASENT0404069); Res. Dzanga-Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 11.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0090751 CAR01-S109); Res. Dzanga-Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 13.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0091738 CAR01-S151); Res. Dzanga-Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 15.v.2001 (*S. van Noort*) (3 w, CAS: CASENT0091280 CAR01-S182, CASENT0091342 CAR01-S187, CASENT0092075 CAR01-S190); Res. Dzanga-Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 16–17.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0087509 CAR01-M151); Res. Dzanga-Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 17.v.2001 (*S. van Noort*) (1 g, 1 w, CAS: CASENT0092087 CAR01-S191, CASENT0092184 CAR01-S199).

Scapes with > 30 standing hairs. **REPUBLIC of the CONGO**: Niari Region, 2.30757 S 12.82985 E, 660 m, 3.vii.2013, primary forest, canopy fogging, (*L. Niemand*) (3 w, AFRC: CASENT0250020, CASENT0250023, CASENT0250032); Niari Region, 2.30339 S 12.83902 E, 705 m, 3.vii.2013, primary forest, canopy fogging, (*L. Niemand*) (1 g, AFRC: CASENT0250024); Niari Region, 2.31500 S 12.82488 E, 710 m, 5.vii.2013, primary forest, canopy fogging, (*L. Niemand*) (2 w, AFRC: CASENT0250016, CASENT0250017). **SOUTH AFRICA**: Kwazulu Natal, Umtamvuna Nature Reserve, 31°03.506'S 30°10.392'E, 160 m, 15 16.xi.2000 (S. van Noort) malaise trap, coastal forest (1 w, CAS: CASENT0099660 KW00-M74); Kwazulu Natal, Umtamvuna Nature Reserve, 31°03.506'S 30°10.392'E, 160 m, 17.xi.2000 (S. van Noort) sweep coastal forest (2 g, 6 w, CAS: CASENT0098295 KW00-S21, CASENT0098360 KW00-S30, CASENT0098382 KW00-S33, CASENT0098385 KW00-S34, CASENT0098386 KW00-S34, CASENT0098395 KW00-S35, CASENT0098398 KW00-S36, CASENT0098429 KW00-S39).

Polyrhachis wilmsi Forel stat. n.

Polyrhachis cubaensis subsp. *wilmsi* Forel, 1910b: 30. Holotype worker, MOZAMBIQUE: Lobombo Borges (*F. Wilms*) [not seen, not at MHNG]. [Junior synonym of *P. cubaensis* Mayr: Bolton 1973:325.]

Diagnosis. A *viscosa*-group species with standing hairs on frons and vertex, four similarly long petiolar spines, and a well developed median prominence along the ridge separating propodeal dorsum and declivity.

Comment. The type of *P. cubaensis* subsp. *wilmsi* has not been found in the MHNG collection, where it should have been preserved. Therefore, my interpretation of this taxon is based on the original description and a comparison with some more recently collected material.

Forel (1910b) briefly described *Polyrhachis cubaensis* subsp. *wilmsi* mentioning this important feature: a median triangular tooth ("dreieckigen Zahn") on the ridge running between the propodeal spines ("Dornen" and not "Zähnen" as pointed out by Forel himself). Such a condition exactly matches the Bolton (1973) description of "*P. cubaensis*". In addition, Forel (1910b) stated that *wilmsi* was 6.5 mm long and had a well developed longitudinal rugosity on head and mesosoma. All of these features correspond to Bolton's *cubaensis* as well, and not to *gerstaeckeri* (see under this species), whose full size was reported as 5.4 mm.

As no other African *Polyrhachis* seems to share *wilmsi*'s main features, I think that, in absence of the type, the best way to interpret any specimen with the above mentioned characters is to name them as *P. wilmsi*. Bolton (1973) based his description of *cubaensis* on some South African specimens I could examine and which are very similar to some Somalian specimens at MSNM. All of them well fit Bolton's description, except that the Somalian specimens are slightly smaller, have a lower SI, and lack proximal hairs on the clypeal dorsum (a few ones occur in South African specimens) and on tergites II-III. South African and Somalian specimens look inseparable on the basis of all main features: head shape, mesosomal shape and proportions, propodeal spines and ridge, petiolar structure, sculpturation, pubescence length and density, and I consider them as conspecific. The measurements below refer to Somalian specimens for comparison with South African ones already given by Bolton (1973) (n=3). HL 1.70–1.72, HW 1.52–1.53, CI 89, SL 1.58–1.62, SI 104–106, FW 0.52–0.54, FI 34–36, PW 1.27–1.30, WL 2.08–2.18, HTL 1.70–1.76.

Material examined: SOMALIA: Mogadiscio, Afgoi, 22.iv–5.v.1984 (*R. Mourglia*) (3 w, MSNM). **SOUTH AFRICA**: Zululand (*G. Arnold*) (2 w, BMNH).

New records

The following infrequently collected species have no published records from the countries reported below (N.B.: w = worker(s); g = gyne(s)).

Polyrhachis concava André

IVORY COAST: Abidjan, 17.vi.1958 (*E.S. Ross & R.E. Leech*) (1 g, 1 w, CAS). **EQUAT. GUINEA:** Fernando Poo [currently Bioko], Punta Frailes, x–xi.1901 (*L. Fea*) (1 w, MSNG). **CENTRAL AFRICAN REP.**: P.N. Dzanga–Ndoki, 21.4 km 53° NE Bayanga, 3°02.01'N 16°24.57'E, 510 m, 6.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0089415 CAR01-S49); Res. Dzanga–Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 15–16.v.2001 (*S. van Noort*) (1 g, CAS: CASENT0088637 CAR01-M135); P.N. Dzanga–Ndoki, 38.6 km 173° S Lidjombo, 2°21.60'N 16°03.20'E, 350 m, 21–27.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0094433 CAR01-Y70); P.N. Dzanga–Ndoki, 38.6 km 173° S Lidjombo, 2°21.60'N 16°03.20'E, 350 m, 22.v.2001 (*S. van Noort*) (5 w, CAS: CASENT0092209 CAR01-S201, CASENT0092238 CAR01-S203, CASENT0092328 CAR01-S210, CASENT0092336 CAR01-S211, CASENT0092571 CAR01-S229); P.N. Dzanga–Ndoki, 38.6 km 173° S Lidjombo, 2°21.60'N 16°03.20'E, 350 m, 22–23.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0086392 CAR01-M187).

Polyrhachis latispina **Emery**

EQUAT. GUINEA: Fernando Poo [currently Bioko], Musola, 500-800 m, i–iii.1902 (*L. Fea*) (1 w, MSNG). **CAMEROUN**: Ottotomo (*A. Dejean*) (1 w, BMNH). **CENTRAL AFRICAN REP.**: P.N. Dzanga–Ndoki, 38.6 km 173° S Lidjombo, 2°22'N 16°03'E, 350 m, 20–28.v.2001 #4125 (*B.L. Fisher*) (2 w, CAS: CASENT0009201, CASENT0009212). **UGANDA**: Kibale Forest N.P., Kanyawara Makerere University Biological Field Station, viii.2002 (*D. Quicke & N. Laurenne*) (1 w, CAS: CASENT0094704 ANTC2665). **KENYA**: Busumbuli, Kakamega Forest, 0.27°N 34.88°E, 1600 m, ix–x.2002, T.n. #136, fogging ex *Teclea nobilis* (*W. Freund*) (1 w, HLMD); Kakamega Distr., Isecheno, Kakamega Forest, 0.24°N 34.86°E, 1600 m, 25.iii.2003, #03-026, equatorial rainforest: ex dead, hollow vine (*R.R. Snelling*) (2 w, HLMD); Western Province, Kakamega Forest, Salesar, 0°19'36"N 34°52'15"E, 1650 m, primary forest, 4.vii.2009, handcoll. (*G. Fischer*) (1 w, HLMD). **TANZANIA:** Amani, 5°06'S 38°38'E, 950 m, 20.xii.1990, rainforest edge ex dead twig (*P.S. Ward*) (1 w, CAS).

Polyrhachis regesa **Bolton**

REP. of the CONGO: Niari Region, 2.30757 S 12.82985 E, 660 m, 3.vii.2013, primary forest, canopy fogging (*L. Niemand*) (5 w, AFRC: LN-RC1 43, 103–106/CASENT0250025–28, CASENT0250034).

Polyrhachis rufipalpis **Santschi**

CENTRAL AFRICAN REP.: P.N. Dzanga–Ndoki, 21.4 km 53° NE Bayanga, 3°02.01'N 16°24.57'E, 510 m, 3.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0089317 CAR01-S09); P.N. Dzanga–Ndoki, 21.4 km 53° NE Bayanga, 3°02.01'N 16°24.57'E, 510 m, 4.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0088995 CAR01-S17); P.N. Dzanga–Ndoki, Mabéa Bai, 21.4 km 53° NE Bayanga, 3°02'00"N 16°24'36"E, 510 m, 4.v.2001 (*S. van Noort*) (2 w, CAS: CASENT0089148 CAR01-S20, CASENT0090110 CAR01-S27); P.N. Dzanga–Ndoki, 21.4 km 53° NE Bayanga, 3°02.01'N 16°24.57'E, 510 m, 5.v.2001 (*S. van Noort*) (2 w, CAS: CASENT0089692 CAR01-S34, CASENT0089755 CAR01-S38); P.N. Dzanga–Ndoki, 21.4 km 53° NE Bayanga, 3°02.01'N 16°24.57'E, 510 m, 6.v.2001 (*S. van Noort*) (4 w, CAS: CASENT0089353 CAR01-S45, CASENT0089427 CAR01-S50, CASENT0089668 CAR01-S66, CASENT0090374 CAR01-S67); P.N. Dzanga–Ndoki, 21.4 km 53° NE Bayanga, 3°02.01'N 16°24.57'E, 510 m, 7.v.2001 (*S. van Noort*) (2 w, CAS: CASENT0090961 CAR01-S99, CASENT0089956 CAR01-S100); Res. Dzanga–Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 11–17.v.2001 (*S. van Noort*) (1 g, CAS: CASENT0093989 CAR01-Y28); Res. Dzanga–Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 11.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0090715 CAR01-S105); Res. Dzanga–Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 12.v.2001 (*S. van Noort*) (2 g, 4 w, CAS: CASENT0093093 CAR01-S114, CASENT0089854 CAR01-S122, CASENT0089895 CAR01-S125, CASENT0089917 CAR01-S128, CASENT0090991 CAR01-S135, CASENT0091037 CAR01-S139); Res. Dzanga–Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 13.v.2001 (*S. van Noort*) (2 g, 5 w, CAS: CASENT0091626 CAR01-S146, CASENT0091737 CAR01-S151, CASENT0091773 CAR01-S152, CASENT0091083 CAR01-S155, CASENT0091101 CAR01-S156, CASENT0091130 CAR01-S158, CASENT0091147 CAR01-S159); Res. Dzanga–Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 15.v.2001 (*S. van Noort*) (2 g, 2 w, CAS: CASENT0092067 CAR01-S171, CASENT0091295 CAR01-S183, CASENT0091319 CAR01-S185, CASENT0092826 CAR01-S86); Res. Dzanga–Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 17.v.2001 (*S. van Noort*) (1 g, CAS: CASENT0092128 CAR01-S194); P.N.. Dzanga–Ndoki, 38.6 km 173° S Lidjombo, 2°21.60'N 16°03.20'E, 350 m, 21–27.v.2001 (*S. van Noort*) (1 w, CAS: CASENT0094229 CAR01-Y52); P.N. Dzanga–Ndoki, 38.6 km 173° S Lidjombo, 2°21.60'N 16°03.20'E, 350 m, 22.v.2001 (*S. van Noort*) (10 g, 16 w, CAS: CASENT0092220 CAR01-S202, CASENT0092251 CAR01-S204, CASENT0092276 CAR01-S206, CASENT0092287 CAR01-S207, CASENT0092302 CAR01-S208, CASENT0092319 CAR01-S209, CASENT0092335 CAR01-S211, CASENT0092342 CAR01-S212, CASENT0092365 CAR01-S213, CASENT0092378 CAR01-S214, CASENT0092402 CAR01-S216, CASENT0092413 CAR01-S217, CASENT0092451 CAR01-S220, CASENT0092495 CAR01-S223, CASENT0092508 CAR01-S224, CASENT0092523 CAR01-S225, CASENT0092539 CAR01-S226,

CASENT0092557 CAR01-S228, CASENT0092570 CAR01-S229, CASENT0092582 CAR01-S230, CASENT0092583 CAR01-S230, CASENT0092599 CAR01-S231, CASENT0092709 CAR01-S237, CASENT0092756 CAR01-S240, CASENT0093531 CAR01-S246, CASENT0093559 CAR01-S248); P.N. Dzanga–Ndoki, 38.6 km 173° S Lidjombo, 2°21.60'N 16°03.20'E, 350 m, 23.v.2001 (*S. van Noort*) (2 g, 7 w, CAS: CASENT0093635 CAR01-S255, CASENT0093670 CAR01-S258, CASENT0093346 CAR01-S273, CASENT0093347 CAR01-S273, CASENT0093369 CAR01-S274, CASENT0093370 CAR01-S274, CASENT0093447 CAR01-S277, CASENT0094854 CAR01-S278, CASENT0094877 CAR01-S279); P.N. Dzanga–Ndoki, 38.6 km 173° S Lidjombo, 2°21.60'N 16°03.20'E, 350 m, 25.v.2001 (*S. van Noort*) (1 g, 4 w, CAS: CASENT0094958 CAR01-S282, CASENT0094526 CAR01-S289, CASENT0092987 CAR01-S90, CASENT0094554 CAR01-S291, CASENT0094571 CAR01-S293). **UGANDA**: Kibale NP, Kanyawara Biol. Stn., 0.56164°N 30.35655°E, 1500 m ± 200 m, 6–16.viii.2012, Ant Course 2012, field station clearing (*G. Fischer*) (1 w, HLMD).

***Polyrhachis sulcata* André**

EQUATORIAL GUINEA, Bioko, Moka, 1300 m, 3°21'36" N 8°39'49"E, 1–11.x.1998 at lights (*D. Ubick, D.K. Dabney, R.C. Drewes, J.V. Vindum, L. Henwood, R.W. Tomos, M. Boko, M.P. Ndung*) (3 g, CAS).

***Polyrhachis wellmani* Forel**

ZAMBIA [N. Rhodesia on the labels]: 12 mi. E of Rufunsa, 1060 m, 2.iii.1958 (*E.S. Ross & R.E. Leech*) (5 w, CAS).

Acknowledgments

I am deeply grateful to Barry Bolton (Isle of Wight, UK) for his encouragement; he also patiently went through an earlier version of the manuscript, improving the language and providing some useful suggestions and data as well. Peter Hawkes too gave useful advice on the manuscript, especially about some misleading features he found among several specimens he examined. Further I am indebted to Michele Zilioli (MSNM) for most of digital photographs for which he spent a lot of time, making them worthy of publication, and to Michela Mura (MSNM), for her careful pictures pagination. Rudy Kohout (Queensland Museum, Australia) kindly shared data and pieces of information, and John Longino (University of Utah, UT, USA) provided some good advice in order to improve this paper. Moreover, this work could not have been published without the support of the following colleagues, who kindly loaned most specimens: Conrad Gillett and Suzanne Ryder (BMNH), Francisco "Paco" Hita-Garcia (HLMD), Brian Fisher and Robert Zuparko (CAS), Peter Hawkes (AFRC), Frank Koch & Viola Richter (MNHU), Bernhard Merz and Bernard Landry (MHNG), Fabio Penati and Roberto Poggi (MSNG), Agnièle Touret-Alby (MNHN), and Dominique Zimmermann (NHMW). Some very interesting specimens from the Rep. of Congo were collected by Lukas Niemand (Pretoria, South Africa). Generously Brian Fisher (CAS) let me also use some photos taken from www.AntWeb.org pages. Lastly, the collection of specimens by Peter Hawkes et al. in Tanzania was funded by the Critical Ecosystem Partnership Fund (CEPF), which is a joint initiative of Conservation International, the Global Environment Facility, the Government of Japan, the MacArthur Foundation and the World Bank. A fundamental goal of CEPF is to ensure civil society is engaged in biodiversity conservation.

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