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The ants of Mali (Hymenoptera: Formicidae) – a historical review and new records

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Abstract

A compilation of historical records of 35 species and 5 subspecies of ants is presented together with new records from collections in the internal delta of the River Niger, the Dogon Plateau (October-November 2010), in the environs of Bamako (July 2007), and Timbuktu (2009). The recently collected material includes 26 new records for the territory of Mali. These are Cerapachyinae: *Cerapachys similis* (SANTSCHI 1930), Dolichoderinae: *Tapinoma modestum* SANTSCHI, 1932a, Dorylinae: *Dorylus (Dorylus) sudanicus* SANTSCHI, 1917, new status, *Dorylus (Rhogmus) leo* SANTSCHI, 1919, Formicinae: *Camponotus (Myrmosericus) cinctellus* (GERSTAECKER, 1859), *Camponotus (Myrmosericus) vestitus* (F SMITH, 1858), *Camponotus (Tanaemyrmex) maculatus* (FABRICIUS, 1782), *Camponotus (Tanaemyrmex) oasisium* FOREL, 1890, *Lepisiota canescens* (EMERY, 1897), *Lepisiota monardi* (SANTSCHI, 1930), *Paratrechina longicornis* (LATREILLE, 1802), Myrmicinae: *Cardiocondyla emeryi* FOREL, 1881, *Crematogaster (Cr.) senegalensis* ROGER 1863, *Crematogaster (Sphaerocrema) chlorotica* EMERY, 1899, *Monomorium pharaonis* (LINNAEUS, 1758), *Pheidole cicatricosa* STITZ, 1917, *Pheidole minima* MAYR, 1901, *Pheidole rugaticeps* EMERY, 1877, *Pheidole termitophila* FOREL 1904, *Tetramorium lucayanum* WHEELER, 1905, Ponerinae: *Anochetus* MAYR, 1861 sp. males, *Bothroponera* MAYR, 1862 sp. male, *Brachyponera sennaarensis* (MAYR, 1862), *Megaponera analis* (LATREILLE, 1802) subspecies *amazon* (SANTSCHI, 1935), *Odontomachus troglodytes* SANTSCHI, 1914.

Key words: Formicidae, Hymenoptera, Mali, interior delta of River Niger, Dogon Plateau, West Africa.

Zusammenfassung

Eine Zusammenstellung von historischen Aufzeichnungen von 35 Ameisen-Arten und 5 Unterarten, ergänzt mit neuen Funddaten aus Aufsammlungen des Binnendeltas des Niger, dem Dogon-Plateau (Oktober-November 2010), in der Umgebung von Bamako (Juli 2007), und Timbuktu (2009).

Das erst kürzlich gesammelte Material enthält 26 Neufunde für Mali. Diese sind Cerapachyinae: *Cerapachys similis* (SANTSCHI, 1930), Dolichoderinae: *Tapinoma modestum* SANTSCHI, 1932a, Dorylinae: *Dorylus (Dorylus) sudanicus* SANTSCHI, 1917 stat.nov., *Dorylus (Rhogmus) leo* SANTSCHI, 1919, Formicinae: *Camponotus (Myrmosericus) cinctellus* (GERSTAECKER, 1859), *Camponotus (Myrmosericus) vestitus* (F. SMITH, 1858), *Camponotus (Tanaemyrmex) maculatus* (FABRICIUS, 1782), *Camponotus (Tanaemyrmex) oasisium* FOREL, 1890, *Lepisiota canescens* (EMERY, 1897), *Lepisiota monardi* (SANTSCHI, 1930), *Paratrechina longicornis* (LATREILLE, 1802), Myrmicinae: *Cardiocondyla emeryi* FOREL, 1881, *Crematogaster (Cr.) senegalensis* ROGER, 1863, *Crematogaster (Sphaerocrema) chlorotica* EMERY, 1899, *Monomorium pharaonis* (LINNAEUS, 1758), *Pheidole cicatricosa* STITZ, 1917, *Pheidole minima* MAYR, 1901, *Pheidole rugaticeps* EMERY, 1877, *Pheidole termitophila* FOREL, 1904, *Tetramorium lucayanum* WHEELER, 1905, Ponerinae: *Anochetus* MAYR, 1861 sp. Männchen, *Bothroponera* MAYR, 1862 sp. Männchen, *Brachyponera sennaarensis* (MAYR, 1862), *Megaponera analis* (LATREILLE, 1802), subspecies *amazon* (SANTSCHI, 1935), *Odontomachus troglodytes* SANTSCHI, 1914.

Introduction

Historic ant collections include: A Chevalier, at Sikasso and Tassakante, in 1900 (SANTSCHI, 1911c, 1915c, 1929b); Andrieu, at Koulouba and Senekou, June to December 1928 (SANTSCHI, 1929f, 1930a, 1937a); Claveau (SANTSCHI, 1930a); M J. de Lépiney, at Sokolo, cercle de Macina [Niona], south-central Mali (SANTSCHI, 1934b); B Malkin, at Gao (BOLTON, 1982, 1987); D R Reynold at Macina (BOLTON, 1980); P Room, at Anefis, Bourem, Gao, Labezang and Tessalit (BOLTON, 1980, 1982, 1987); de Zeltner, July-August 1911, at Timbuktu (SANTSCHI, 1923e). The type localities in the Santschi papers mostly appear as Soudan Français, that is the French African Territories, south of the Sahara. This has led to an error by some authors, e.g. *Aenictus soudanicus* in BOLTON (1995: 60), where the translation is "Sudan", that is the former Anglo-Egyptian Sudan. De Lépiney "Puits d'El Aloum el Kohol" in SANTSCHI (1934b) = Aïoun el Kohol in Mauritania. Some thirty-five species appear in these records, which are summarized in Table 1. Almost all the locations, together with those we report below, are shown on Fig. 1.

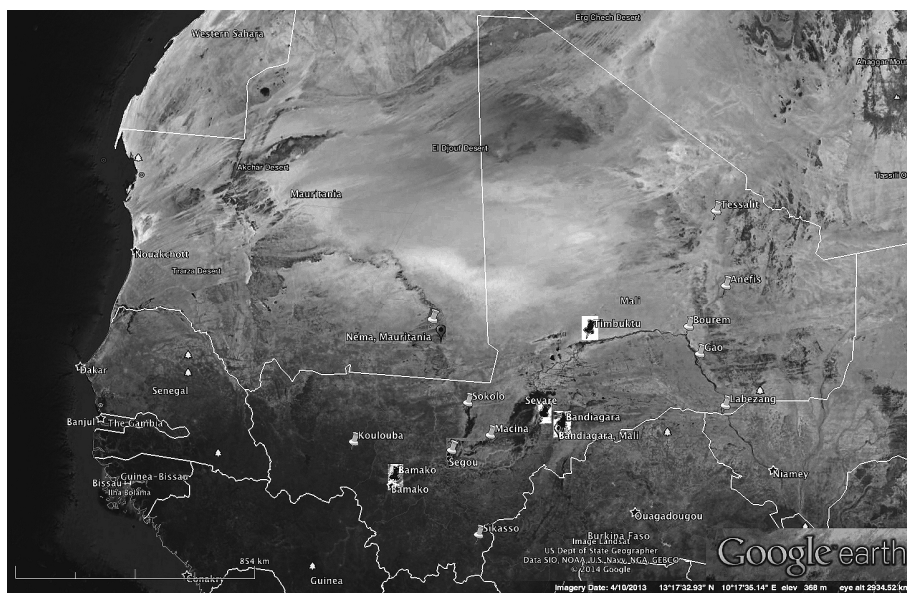


Fig. 1: Locations of ant collecting areas. Light pins for historical records and dark pins for present sites, compiled by Brian Taylor.

Materials and Methods

We report two sets of material. The first was collected at the end of the rainy season in October and November of 2010 by the authors. The material was collected in Central Mali see map (Fig. 1). Specimens were collected by sweep netting grasses and tree foliage and by hand from the ground and tree trunks. Additionally some foraging ants were collected from Malaise traps. Specimens were stored in vials in 75% alcohol. Thirty-five locations were sampled in the Inner Delta of the Niger (Fig. 2) and 32 on the Dogon Plateau (Fig. 4). The material will be in part deposited in the Oxford University Museum of Natural History, Oxford, UK and in the National Collection of Insects, Zoological Museum, Department of Zoology, Tel Aviv University, Tel Aviv, Israel (TAUI).

The second set of material was collected by David M. King (private collector from California USA), mainly in and around Bamako and Timbuktu during July 2007 and February 2009. All the ants came from ad hoc hand collections, with field notes and photographs of some of the environs (Figs 3, 5). They are listed as King 01, King 02. The material will be deposited in the Oxford University Museum of Natural History, Oxford, UK.



Fig. 2-5: (2) Inland Delta of the Niger River. (3) Outskirts of Bamako, photograph by D M King. (4) Dogon Plateau, photograph by V D Kravchenko. (5) Environs of Timbuktu, photograph by D M King.

The material was identified with the help of images of type specimens published by the California Academy of Sciences Antweb project. In the lists given below the reference images are denoted by a code consisting of numbers mostly preceded by CASENT or ANTWEB. Photographs of the collected species will be incorporated in a section of the website www.antsofafrica.org. The website is archived by the UKWebArchive under the auspices of the British Library.

Results

Ant species from the new collections

Subfamily *Cerapachyinae*

Cerapachys similis (SANTSCHI, 1930).

Matches type description and drawing. Type location Ivory Coast. No prior record from Mali. Compared with type images (CASENT0911264) and appears to be a close match.

M a t e r i a l e x a m i n e d : Sevare, 14°32' N, 04°06' W, Niger River, bank of lagoon, 25.xii.2010, Malaise trap (Z Yefremova & V Kravchenko, 95451, 95462), two alate males.

Subfamily *Dolichoderinae*

Tapinoma modestum SANTSCHI, 1932

Compared with type images (CASENT0911574). Type location Zimbabwe. Others from Benin, Gabon and Tanzania held by BT.

M a t e r i a l e x a m i n e d : Bamako; 12.37.481' N 8.00.27' W; 323 m asl; 25.viii.2007 (King 47); foraging on wall of outside stairwell. No prior records of any *Tapinoma* from Mali.

Subfamily *Dorylinae*

Dorylus (Dorylus) sudanicus SANTSCHI, 1917, new status.

Compared with type images (CASENT0911334). Type location Chad or Congo, at Fort Sibut, Darbenda meridional. Santschi gave the distribution as "Soudan, Bassin du Niger". Possible prior record is as *D. affinis denudatus*, SANTSCHI (1937a), from Koulouba, collector Andrieu. The type of *denudatus* (CASENT0911323, from Senegal), as its name denotes, has very little pilosity anywhere on the body. *D. sudanicus* as denoted here has dense pilosity on the alitrunk dorsum and to a lesser extent on the gaster.

M a t e r i a l e x a m i n e d : Bamako; 12.34.51' N 7.56.25' W; 363 m asl; 30.viii.2007 (King 33); alate male; hotel room, 6th Floor; found dead on bathroom floor. Bamako; 12.37.47' N 8.00.28' W; 363 m asl; 2.ix.2007 (King 34); alate male; building compound near outskirts of city; attracted to floodlights.

Dorylus (Rhogmus) leo SANTSCHI, 1919.

Compared with type images (CASENT0911334). Type location, Ivory Coast, no other published records.

M a t e r i a l e x a m i n e d : Bamako; 12,34.52' N 7.56.24' W; 363 m asl; 5.ix.2007 (King 32); alate male; in building compound near outskirts of the city; attracted to floodlights.

Subfamily **F o r m i c i n a e**

***Camponotus (Myrmosericus) cinctellus* (GERSTAECKER, 1859)**

Compared with type images (CASENT0905349) and others held by BT. Type location Mozambique but many records from sub-Saharan Africa. No prior record from Mali.

M a t e r i a l e x a m i n e d : Sevare, 14°32' N, 04°06' W, Niger River, bank of lagoon, xii.2010, Malaise trap (Z Yefremova & V Kravchenko, 95477), one minor worker.

***Camponotus (Myrmosericus) vestitus* (F. SMITH, 1858)**

Minor workers. Compared with type images but this is a taxonomic quandary. The F Smith holotype is a queen (CASENT0903234), posted on line mid-2014, and almost certainly is not a *Camponotus* but an *Anoplolepis*. Although a redefinition of the long-held workers could be done here, the situation is complicated by the mess of subspecies and varieties in the literature. Type images now are available for some of those and suggest two or three groups within the blanket *vestitus* species name. One of those groups, including the workers reported here, seems to consist of forms found in the Soudano-savannah. *Camponotus vestitus comptus* was described by SANTSCHI (1926b) from "Soudan Français" which might be a Mali record but no collector was given.

M a t e r i a l e x a m i n e d : Dogon, Bandiagara, 14°21' N, 03°37' W, xii.2010. Malaise trap (Z Yefremova & V Kravchenko, 95484, 95491), two minor workers.

***Camponotus (Orthonotomyrmex) sericeus* (FABRICIUS, 1798)**

Type location Senegal. Specimens of the holotype appear not to have survived and, as with *Camponotus vestitus*, above, there is some taxonomic confusion needing attention. Our specimens, however, match others of this widespread species. Recorded from Sokolo, collector de Lepiney (SANTSCHI 1934b).

M a t e r i a l e x a m i n e d : Bamako; 12.34.51' N 7.56.39' W; 363 m asl; 25.viii.2007 (King 38). Workers; foraging by day in building compound near outskirts of city.

***Camponotus (Tanaemyrmex) maculatus* (FABRICIUS, 1782)**

Original types probably lost but well-recognised and authoratively authenticated specimens exist. Type location West Africa). Pan-African but no prior record from Mali.

M a t e r i a l e x a m i n e d : Bandiagara, 14°21' N, 03°37' W; malaise trap, xii.2010 (Z Yefremova & V Kravchenko, 95488, 95498, 95484, 95494), one major worker, one media worker, two minor workers. Bamako; 12.34.51' N 7.56.39' W; 363 m asl; 25.viii.2007 (King 39), major and minor workers; foraging by day in building compound near outskirts of city.

***Camponotus (Tanaemyrmex) oasium* FOREL, 1890**

Holotype queen (CASENT0249885) but no worker images that can be definitively stated to be *oasium*. Type location Algeria. Probably found across the Sahel but no prior record from Mali.

M a t e r i a l e x a m i n e d : Bamako; 12.34.51' N 7.56.39' W; 363 m asl; 25.viii.2007 (King 37); minor workers; foraging by day in building compound near outskirts of city. These match minor workers held by BT from several countries of the Sahel.

***Lepisiota canescens* (EMERY, 1897)**

Worker from the type collection (CASENT0905153), type location Somalia. Common across drier areas of sub-Saharan Africa but no prior record from Mali.

M a t e r i a l e x a m i n e d : Bandiagara, Dogon, 14°21' N, 03°37' W, xii.2010, many workers, malaise trap (Z Yefremova). Sevare, Niger River, bank of lagoon, 14°32' N, 04°06' W, 25.xii.2010, one worker, malaise trap (Z Yefremova & V Kravchenko, 95446).

***Lepisiota monardi* (SANTSCHI, 1930)**

Match original type drawing and images (CASENT091237). Type location Angola but other workers from Benin and Nigeria held by BT. No prior record from Mali.

M a t e r i a l e x a m i n e d : Bamako; 12.37.11 N 08.0056 W, 323 m asl; 9.ii.2009 (King 102), from a residential area near the Niger River; foraging near *Brachyponera sennaarensis* nest.

***Paratrechina longicornis* (LATREILLE, 1802)**

Pan-tropical tramp species also in hot houses in temperate countries; readily recognized, no type specimens surviving, type location Senegal; Pan-African and tramp species but no prior record from Mali.

M a t e r i a l e x a m i n e d : Bamako; 12.37.11 N 08.0056 W; 323 m asl; 9.ii.2009 (King 100), residential area near Niger River. Bamako; 12.34.51' N 7.56.39' W; 363 m asl; 25.viii.2007 (King 41), workers foraging by day in building compound near outskirts of city.

Subfamily M y r m i c i n a e

***Cardiocondyla emeryi* FOREL, 1881**

Type worker (CASENT010216), type location Virgin Islands. Queen of the junior synonym *rasamalae* (CASENT0101776). Widespread tramp species but no prior record from Mali.

M a t e r i a l e x a m i n e d : One alate queen. Bandiagara, Dogon, 14°21' N, 03°37' W, xii.2010, Malaise trap (Z Yefremova & V Kravchenko, 95486).

***Crematogaster (Cr.) senegalensis* ROGER, 1863**

Original types possibly lost but well-recognized and authoratively authenticated specimens exist; including subspecies types, e.g. *devincta* from Guinea (*Crematogaster aegyptiaca* MAYR stirps *senegalensis* ROG. v. *devinctan.* var., SANTSCHI, 1914d, CASENT0192722); BT holds modern specimens from the type location, Senegal. Seemingly widespread across the sub-Saharan savannah but no prior record from Mali.

M a t e r i a l e x a m i n e d : Bandiagara, Dogon Plateau, 14°21' N, 03°37' W, xii.2010, one worker, Malaise trap (Z Yefremova & V Kravchenko, 95496).

***Crematogaster (Sphaerocrema) chlorotica* EMERY, 1899**

Type worker (CASENT0904476), type location Cameroun. Known from Senegal east to Sudan but no prior record from Mali.

Material examined: Bamako; 12.37.481' N 8.00.27' W; 323 m asl; 25.viii.2007 (King 45), foraging on wall of outside stairwell.

***Messor galla* (MAYR, 1904)**

Type major worker (CASENT0904127), type location Ethiopia. Widespread across the Sudan Savannah. A primarily granivorous species with polymorphic workers. Recorded in Mali from Gao and Anefis (BOLTON 1982).

Material examined: Bamako; 12.34.51' N 7.56.39' W; 363 m asl, 25.viii.2007 (King 35a & 35b), nest in soil; active in early and middle of the day, retreated to nest in afternoon thunderstorm.

***Monomorium areniphilum* SANTSCHI, 1911**

Type worker (CASENT0249829), type location Tunisia. Savannah species with records from Senegal east to Sudan and Egypt. Recorded from Gao, Bourem, Tessalit, Anefis and Labezanga (BOLTON 1987).

Material examined: Timbuktu; 16.43.55 N 002.59.52 W; 267 m asl, 7.ii.2009 (King 91), airport, ants excavating a nest in soil at edge of tarmac; nest mounds about 15 X 10 cm, two entrances about 20 cm apart.

***Monomorium pharaonis* (LINNAEUS, 1758)**

Type specimens probably lost but types of junior synonyms as recognized by BOLTON (1987: 356) known (e.g. CASENT0008625). Type location Egypt. Widespread pan-tropical tramp, also in hot houses in temperate countries; readily recognized; workers held by BT from several countries of the Sahel but no prior record from Mali.

Material examined: Bamako; 12.37.11 N 08.0056 W; 323 m asl, 9.ii.2009 (King 101), residential area near Niger River; foraging near *Brachyponera sennaarensis* nest.

***Pheidole cicatricosa* STITZ, 1917**

Name is the primary homonym of *Pheidole pallidula* NYL. var. *tristis* FOREL. Matches type images of minor worker of the junior synonym *Pheidole pallidula* NYL. var. *recticeps* MENOZZI, 1932 (CASENT0907791). Type images of *P. cicatricosa* not on Antweb but sent to BT (GBIF-D/FoCoI 1293). Known records all North African. Present finding perhaps attributable to transport on trans-Saharan trade.

Material examined: Bamako; 12_37.481' N 8_00.27' W; 323 m asl; 25.viii.2007 (King 46), foraging on wall of outside stairwell. Exactly matches type minor.

***Pheidole minima* MAYR, 1901**

Type location Cameroun, subspecies *catella* from Nigeria, *faurei* from Gabon, and *malelana* from Congo DR. Type images not available but those of subspecies *faurei* SANTSCHI 1920 are (CASENT0913355). Other records from Ghana and Guinea but no prior record from Mali.

Material examined: Bamako; 12.37.481' N 8.00.27' W; 323 m asl, 25.viii.2007 (King 43), foraging on palm leaves in later afternoon.

***Pheidole rugaticeps* EMERY, 1877**

Type images (major CASENT0904214, minor CASENT0904215), type location Eritrea. BT has others from Senegal and Sudan. No prior records from Mali.

M a t e r i a l e x a m i n e d : Bandiagara, Dogon, 14°21' N, 03°37' W, xii.2010, Malaise trap (Z Yefremova & V Kravchenko, 95489, 95499, 95492), major worker, two minor workers. Sevare, Niger River, bank of lagoon, 14°32' N, 04°06' W, xii.2010, CDC trap (Z Yefremova & V Kravchenko, 95469, 94474), two minor workers. Bamako: 12.34.51' N 7.56.39' W; 363 m asl; 25.viii.2007, (King 36), major and minor workers; foraging by day in building compound near outskirts of city.

***Pheidole termitophila* FOREL, 1904**

Type images (major CASENT0907853, minor CASENT0907854), type location South Sudan. Known from across Sahel. Recorded from S n kou, Dioro, Cercle de Segou, collector Andrieu (SANTSCHI, 1930a).

M a t e r i a l e x a m i n e d : Bamako: 12.37.481' N 8.00.27' W; 323 m asl; 25.viii.2007, (King 48), nest in soil in hotel grounds, four minor workers; Bamako: 12.37.11 N 08.0056 W; 323 m asl; 9.ii.2009 (King 103), residential area near Niger River; one minor worker; foraging near *Brachyponera sennaarensis* nest.

***Tetramorium lucayanum* WHEELER, 1905**

Type images not available but this matches the original description and drawing, also the junior synonym *waelbroeki* (CASENT0915025). Type location Bahamas but a tramp species and a number of other African specimens are held by BT. No prior records from Mali.

M a t e r i a l e x a m i n e d : Sevare, Niger River. Bank of lagoon, 14°32' N, 04°06' W, xii.2010, CDC trap (Z Yefremova & V Kravchenko, 95464), two workers.

Subfamily P o n e r i n a e

***Anochetus* sp. males undefined**

Anochetus males are not well known. From Africa only for *A. africanus* (no males on Antweb); *A. bequaerti* (male CASENT0902452), uniform light brown, head darker, petiole profile a narrow scale; *A. rothschildi* (no males on Antweb), TL 6.0 mm, uniform pale yellow ochre (Forel, 1907c, not collected with workers); and, *A. sedilloti* (no males on Antweb), male described as having TL 4.5-5.0 mm, black except for apical brownish band on gaster segments, appendages pale, petiole surmounted with a long spine almost as long as half the height of the scale (from SANTSCHI 1907). Antweb also has a male labeled *A. katonae* (CASENT0178259) unicolourous dark brown, petiole profile a low acute triangle; and, *A. punctaticeps*, South Africa male associated with non-type workers (SAM-HYM-C0072206B); uniform yellow, petiole profile a low triangle.

These specimens have the head shape and wing venation matching the genus form, as shown in the Antweb images, but are clearly very different to any described male, including *A. sedilloti*, the sole *Anochetus* recorded from Mali. In the absence of associate workers or queens, further description or definition as a new species is not justifiable.

M a t e r i a l e x a m i n e d : Sevare, 14°32' N, 04°06' W, Niger River, bank of lagoon, 25.xii.2010, Malaise trap (Z Yefremova & V Kravchenko, 95443, 95449), 2 alate males.

***Bothroponera* MAYR, 1862 sp. male**

The genus was revived from synonymy with *Pachycondyla* by SCHMIDT & SHATTUCK (2014). Males of the genus are poorly known, with descriptions of only five of the 27 African species, three of those being from southern Africa. This is similar to the male of *P. soror* as drawn by MENOZZI (1944) but is smaller and the head a different shape, being convex behind the eyes in frontal view and not weakly concave. Males have been described for only four of the sub-Saharan members of the genus. Three of those are known only from South Africa and, therefore, this specimen is unlikely to be one of those. The fourth *B. pumicosa* has a wider distribution but the male again was described from a South African collection; the reported colour was testaceous yellow, TL 9.5 mm. SCHMIDT & SHATTUCK (2014, Figure 8) refer to WHEELER (1922: 69) for a description of the male; their map (Figure 8) with *Bothroponera* denoted as absent from Mali appears to be based on that of Wheeler.

That reads: "Male nearly the same size as worker. Head short, rounded behind; eyes and ocelli very large; mandibles, small, flat and edentate. Palpi long, the labial pair 3-jointed, the maxillary pair 5-jointed. Frontal carinae short. Antennae very long, filiform, 13-jointed; the scape short scarcely twice as long as broad; the first funicular segment not longer than broad, the remaining joints long and cylindrical. Pronotum transverse, truncated in front; mesonotum without Mayrian furrows; scutellum very convex. Gaster (abdomen) strongly constricted behind the basal segment (postpetiole); pygidium terminating in a downwardly directed spine. In some species the penultimate sternalite of the gaster is notched and prolonged on each side as a prominent lobe. Genitalia retracted." Note: In his Catalog (1922: 769 ff) of African species, Wheeler gave only *B. pumicosa* and *B. berthoudi* (ARNOLD, 1915: 62) as having known males.

M a t e r i a l e x a m i n e d : Sevare, 14°32' N, 04°06' W, 25.xii.2010, Niger River, bank of lagoon, malaise trap (Z Yefremova & V Kravchenko, 95453), one alate male. TL ca 6.6 mm, colour of head and alitrunk dark brown-black, petiole and gaster lighter reddish-brown.

Overall morphology similar to the larger *B. kruegeri* (Antweb number SAM-HYM-C001059) but size and colour indicative of closer similarity to *Euponera sjostedti* (MAYR 1896: 233). Mayr's description of the male had TL 4.3-5.0 mm; dark brown to blackish-brown, gaster and legs lighter. Antweb has only the type worker from Mayr's collection (CASENT0915670). In dealing with *Euponera*, SCHMIDT & SHATTUCK (2014, 85) state erroneously "Male. Not described" but the male of *Euponera brunoi* was described by ARNOLD (1915: 54) and is on Antweb (CASENT0902475). A male of *Euponera wroughtoni* (Antweb number SAM-HYM-C0011627B) has very different wing venation and overall morphology, notably a domed scutellum and all the scape segments are elongated.

***Brachyponera sennaarensis* (MAYR, 1862)**

The genus was revived from synonymy with *Pachycondyla* by SCHMIDT & SHATTUCK (2014). Type location Sudan. Type images (CASENT0902474). A very widely distributed and common species but no prior records from Mali.

M a t e r i a l e x a m i n e d : Bamako; 12.37.47' N 8.00.28' W; 323 m asl; 31.viii.2007 (King 40), workers and sexuals; building compound near outskirts of city; nest under a rock; primarily nocturnal and retreated into nest under torchlight, although aggressively defensive. Bamako; 12.37.11 N 08.0056 W; 323 m asl; 9.ii.2009 (King 99), residential area near Niger River; foragers returning to nest with grass seeds, nest in a gap between paving blocks.

***Megaponera analis* (LATREILLE, 1802)**

The genus was revived from synonymy with *Pachycondyla* by SCHMIDT & SHATTUCK (2014). There are no type images on Antweb. Original types possibly lost but well-recognized and authoritatively authenticated specimens exist. Type location Ghana; BT has many modern specimens from all across Africa but no prior records from Mali.

M a t e r i a l e x a m i n e d : Sevare, Niger River, bank of lagoon, 14°32' N, 04°06' W, xii.2010. CDC trap (Z Yefremova & V Kravchenko, 95465, 95467), two fragmented workers.

***Megaponera analis* (LATREILLE 1802) subspecies *amazon* (SANTSCHI, 1935)**

Male only described. These specimens match the drawing by SANTSCHI (1935b, Fig. 2), TL 11-12 mm. Type location Ethiopia. This form is some 12% smaller than the type male, described by MAYR, 1907, from Ghana, as TL 12 mm (Sudan 2009.25 held by BT) but has wings that are proportionally longer; the head has a very distinctive posterior collar; the propodeum dorsum bears long hairs as does the petiole, which longer but less high and with an angular domed profile; the type form has a glabrous propodeum and petiole, the latter with a triangular profile. The *amazon* form also has notably longer segments in the scape.

M a t e r i a l e x a m i n e d : Sevare, 14°32' N, 04°06' W, Niger River, 25.xii.2010, bank of lagoon. Malaise trap (Z Yefremova & V Kravchenko, 95438, 95448, 95480), one alate males.

***Odontomachus troglodytes* SANTSCHI, 1914**

Type images (worker CASENT0101134), type location Kenya but common through much of sub-Saharan Africa. No prior report from Mali. No type images of the male but these match the description of ARNOLD (1915) and others held by BT.

M a t e r i a l e x a m i n e d : Sevare, Niger River, bank of lagoon, 14°32' N, 04°06' W, 25.xii.2010, Malaise trap (Z Yefremova & V Kravchenko, 95440, 95445), two alate males.

Discussion

A compilation of historical records of 35 species of ants is presented together with new records from collections in the internal delta of the River Niger, the Dogon Plateau (October-November 2010), in the environs of Bamako (July 2007), and Timbuktu (2009). Most of them belong to subfamily Myrmicinae – 15 species, Aenictinae includes 6 species, Formicinae – 5, Ponerinae – 4, Dorylinae – 3 and Cerapachyinae – 2.

The recently collected material includes 27 new records for the territory of Mali. Apart from the three or four possible new species, the majority of the new records make for a

more complete picture of the ants of the sudano-savannah, stretching westwards from modern Sudan to the Atlantic Coast in Senegal. A distinctive record is that of *Pheidole cicatricosa* which is common in North Africa. It seems likely that its arrival is connected with the overland routes across the Sahara.

Summary of Mali ant distribution

The symbol * indicates species with wider distribution outside a zone, "Soudano" elsewhere includes savannah grassland.

Soudano-Guinean: Sikasso - two odd and poorly defined species; *Sphinctomyrex rufiventris* male; *Crematogaster angusticeps* queen.

Soudano: Bamako - *Aenictus humeralis*; *Dorylus affinis**; *Dorylus arcens**; *Dorylus fimbriatus**; *Dorylus leo**; *Dorylus sudanicus*; *Tapinoma modestum**; *Camponotus sericeus*; *Camponotus maculatus**; *Camponotus oasis*; *Lepisiota monardi*; *Paratrechina longicornis** (tramp); *Crematogaster chlorotica** (?); *Messor galla*; *Monomorium pharaonis** (tramp); *Pheidole cicatricosa** (North African tramp); *Pheidole minima**; *Pheidole rugaticeps*; *Pheidole termitophila*; *Brachyponera sennaarensis** (tramp); Koulouba - *Dorylus sudanicus*; *Aenictus furculatus* male; *Aenictus humeralis*; *Aenictus luteus* male; *Sphinctomyrmex chariensis* male; *Camponotus vestitus** (taxonomically confused); *Crematogaster stenocephala* queen; *Monomorium salomonis** (dry region tramp); *Pheidole andrieui*; *Pheidole decarinata*; *Pheidole speculifera**; *Anochetus sedilloti* males; *Bothroponera crassa andrieui*; *Parvaponera darwini* african queens; *Parvaponera darwini* lamarcki worker.

Inland Delta area: Sokolo - *Camponotus sericeus*, *Monomorium areniphilum lepinyei*; *Anochetus sedilloti* males. Segou - *Pheidole termitophila*. Macina - *Tetramorium sericeiventre*. Sevare - *Camponotus cinctellus*; *Lepisiota canescens*; *Tetramorium lucayanum*; *Anochetus* males; *Bothroponera* male; *Megaponera analis* and *M. analis amazon* male; *Odontomachus troglodytes* male.

Sahelian. Riverine: Timbuktu - *Monomorium areniphilum*; *Anochetus sedilloti* males; *Mesoponera ingesta*. Tassakante nr Timbuktu - *Cataglyphis congolensis*. Bourem - *Monomorium areniphilum*. Gao - *Messor galla*; *Monomorium areniphilum*; *Tetramorium sericeiventre** (tramp); Labezanga - *Monomorium areniphilum*. Semi-montane: Dogon, Bandiagara - *Camponotus vestitus** (taxonomically confused); *Camponotus maculatus** (tramp); *Lepisiota canescens* (arboreal on Acacia); *Cardiocondyla emeryi* (queen), *Crematogaster senegalensis* (arboreal on Acacia).

Saharan: Anefis - *Messor galla** (savannah); *Monomorium areniphilum** (savannah); Tessalit - *Messor collingwoodi* (a desert wadi species); *Trichomyrmex mayri* (type locality India but African records all desert or semi-desert); *Monomorium areniphilum*. Djoul & Batem (location uncertain so not mapped) *Cataglyphis bombycinus* (known records all North Africa and Sudan desert); *Monomorium areniphilum pullulium* (a semi-desert and savannah species).

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Table 1. Prior records of ants from Mali, annotated and names updated by BT

Subfamily	Species	Author	year	location	Collector	Habits and type images (CASENT...)
AENICTINAE	<i>Aenictus furculatus</i> SANTSCHI <i>andrieui</i> SANTSCHI	SANTSCHI	1930	Koulouba	Andrieu	new variety, three males, type loc. (CASENT0911426)
AENICTINAE	<i>Aenictus humeralis</i> SANTSCHI	SANTSCHI	1910g	Bamako	?	new species, males only, type loc (CASENT0911428)
AENICTINAE	<i>Aenictus humeralis</i> SANTSCHI	SANTSCHI	1930a	Koulouba	Andrieu	9 males
AENICTINAE	<i>Aenictus luteus</i> EMERY <i>moestus</i> SANTSCHI	SANTSCHI	1930a	Koulouba	Andrieu	new variety, one male, type loc (CASENT0911432)
AENICTINAE	<i>Aenictus soudanicus</i> SANTSCHI	SANTSCHI	1910g	Toukolo [part of Sikorla, Burkina Faso?]	Dr Conan	new species, males only, type location from label (CASENT0915329)
AENICTINAE	<i>Aenictus soudanicus</i> SANTSCHI	SANTSCHI	1930a	Koulouba	Andrieu	4 males, type loc (CASENT0911441)
CERAPACHYIN AE	<i>Sphinctonymex chariensis</i> SANTSCHI	SANTSCHI	1930a	Senenkou, Koulouba valley	Andrieu	3 mates at light (type loc Chad, CASENT0911269)
CERAPACHYIN AE	<i>Sphinctonymex rufiventris</i> SANTSCHI	SANTSCHI	1915c	Sikasso	A Chevallier	2 mates, 1900 (type loc Benin, CASENT0911272)
DORYLINAE	<i>Dorylus (Anomma) arcens</i> (WESTWOOD)	SANTSCHI	1930a	Bamako	Andrieu	soldiers and workers listed as <i>Dorylus burmeisteri nigricans</i> but worker images (CASENT0911305 & 6) match the <i>arcens</i> types (CASENT0901937) type loc. "West Tropical Africa"
DORYLINAE	<i>Dorylus (D.) affinis</i> SHUCKARD <i>denudatus</i> SANTSCHI	SANTSCHI	1937a	Koulouba	Andrieux	2 mates, type loc. (CASENT0911323)

Subfamily	Species	Author	year	location	Collector	Habits and type images (CASENT...)
DORYLINAЕ	<i>Dorylus (Rhogmus) fimbriatus</i> (SHUCKARD)	SANTSCHI	1930a	Koulouba	Andrieu	28 workers (no type images of workers available; type was a male from Gambia)
FORMICINAE	<i>Camponotus (Myrmosericus) vestitus</i> (F SMITH) <i>comptus</i> SANTSCHI	SANTSCHI	1930a	Koulouba	Andrieu	one queen (type from Ivory Coast, CASENT0911783)
FORMICINAE	<i>Camponotus (Orthonotomyrmex) sericeus</i> (FABRICIUS 1798)	SANTSCHI	1934b	Sokolo	M de Lepiney	
FORMICINAE	<i>Camponotus (Ortho.) eichrous</i> SANTSCHI	SANTSCHI	1926b	?	?	new status here, type loc. Soudan Français, worker and queen? (no images)
FORMICINAE	<i>Cataglyphis bombycinus</i> (ROGER)	SANTSCHI	1934b	Djoul & Batem	M de Lepiney	Possibly a misidentification as most records are North African; type loc. Libya
FORMICINAE	<i>Cataglyphis congolensis</i> (Stitz)	SANTSCHI	1929b	Tassakante	A Chevalier	worker; type loc. Chad (CASENT0104614)
MYRMICINAE	<i>Crematogaster (Decacrema) edentula</i> SANTSCHI	SANTSCHI	1930a	Koulouba	Andrieu	queen taken at light; type loc. Guinea (worker CASENT0193954) but no association between queen and worker (SANTSCHI 1915c)
MYRMICINAE	<i>Crematogaster (Sphaerocrema) angusticeps</i> SANTSCHI	SANTSCHI	1911c	Sikasso	A Chevalier	new species, queen, type loc. (CASENT0912793)
MYRMICINAE	<i>Crematogaster (Sphaer.) longiceps</i> SANTSCHI	SANTSCHI	1910c	?	?	new species, holotype queen, not properly described (apparently no images on Antweb)
MYRMICINAE	<i>Crematogaster (Sphaer.) stenocephala</i> EMERY	SANTSCHI	1930a	Koulouba	Andrieu	1 queen at light; type loc Senegal (no images on Antweb)
MYRMICINAE	<i>Messor collingwoodi</i> BOLTON	BOLTON	1982	Tessalit	P Room	workers; type loc. Niger (CASENT0900464)

Subfamily	Species	Author	year	location	Collector	Habits and type images (CASENT...)
MYRMICINAE	<i>Messor galla</i> (MAYR)	BOLTON	1982	Gao & Anefis	B Malkin; P Room	workers; type loc. Ethiopia (CASENT0904127)
MYRMICINAE	<i>Monomorium areniphilum</i> SANTSCHI	BOLTON	1987	Gao, Bourem, Tessalit, Anefis & Labezanga	B Malkin; P Room	workers; type loc. Tunisia (CASENT0249829)
MYRMICINAE	<i>Monomorium areniphilum</i> SANTSCHI <i>lepineyi</i> SANTSCHI	SANTSCHI	1934b	Sokolo	M de Lepiney	new variety, workers, type loc. Mauritania, Nema (CASENT0913554)
MYRMICINAE	<i>Monomorium areniphilum</i> SANTSCHI <i>pullulum</i> SANTSCHI	SANTSCHI	1934b	Djouli & Batem	M de Lepiney	type loc. Senegal (no images on Antweb)
MYRMICINAE	<i>Monomorium micatilis</i> Forel <i>sudanicum</i> SANTSCHI	SANTSCHI	1930a	Koulouba	Claveau	new variety, worker (type form CASENT0101595; no images of <i>sudanicum</i>)
MYRMICINAE	<i>Monomorium satomonis</i> (L.) <i>zanoni</i> SANTSCHI	SANTSCHI	1930a	Koulouba	Andrieu	3 workers; type loc. Libya (no images on Antweb)
MYRMICINAE	<i>Pheidole andrieui</i> SANTSCHI	SANTSCHI	1930a	Koulouba	Andrieu	new species, all forms (CASENT0913264)
MYRMICINAE	<i>Pheidole decarinata</i> SANTSCHI	SANTSCHI	1929f	Koulouba	Andrieu	new species, major and minor workers & queen (CASENT0913301)
MYRMICINAE	<i>Pheidole speculifera</i> EMERY	SANTSCHI	1930a	Koulouba	Andrieu	major worker; type loc. Eritrea (CASENT0281187)
MYRMICINAE	<i>Pheidole termitophila</i> FOREL	SANTSCHI	1930a	Senekou	Andrieu	major & minor workers; type loc. South Sudan (CASENT0907853)
MYRMICINAE	<i>Tetramorium sericeiventre</i> EMERY	BOLTON	1980x	Gao; Macina	P Room; D R Reynold	workers; type loc. Eritrea
MYRMICINAE	<i>Trichomyrmex mayri</i> (FOREL)	BOLTON	1987	Tessalit	P Room	workers; type loc. India (CASENT0249904)
PONERINAE	<i>Anochetus sedilloti</i> EMERY	SANTSCHI	1923e	Timbuktu	de Zeltner	male, July-August 1911; type loc. Tunisia (CASENT0900511)

Subfamily	Species	Author	year	location	Collector	Habits and type images (CASENT...)
PONERINAE	<i>Anochetus sedilloti</i> EMERY	SANTSCHI	1930a	Koulouba	Andrieu	2 males; vi.1928
PONERINAE	<i>Anochetus sedilloti</i> EMERY	SANTSCHI	1934b	Sokolo	M de Lepiney	
PONERINAE	<i>Bothroponera crassa</i> (EMERY) <i>andrieui</i> SANTSCHI	SANTSCHI	1930a	Soluba nr Koulouba	Andrieu	new variety, 2 workers (CASENT0915254)
PONERINAE	<i>Mesoponera ingesta</i> (WHEELER)	SANTSCHI	1930a	Timbuktu	?	1 worker, type loc. Congo DR (CASENT0915262)
PONERINAE	<i>Parvaponera darwini</i> (FOREL) <i>africana</i> FOREL	SANTSCHI	1930a	Koulouba	Andrieu	2 queens; vi.1928; type loc. Congo (no images on Antweb)
PONERINAE	<i>Parvaponera darwini</i> (FOREL) <i>lamarki</i> SANTSCHI	SANTSCHI	1930a	Koulouba	Andrieu	1 worker; xii.1928; type loc. queen Congo/Chad (CASENT0915260) Revision probably would alter the status of this.

Buchbesprechung

ADLBAUER K. & R. BECK, 2015: **Katalog und Fotoatlas der Bockkäfer Äthiopiens (Coleoptera, Cerambycidae)**. Taita Publishers Hradec Králové Tschechische Republik, 312 Seiten, Format 220 x 280 mm, Fester Einband, Text Deutsch. ISBN: 978-80-902734-2-9.

Bockkäfer sind wohl die Käferfamilie, die unzählige Käferforscher, egal ob Profis oder Amateure, mindestens einmal in ihrem Leben in ihren Bann gezogen haben. Mit über 26.000 bisher beschriebenen Arten gehören die Cerambycidae zu den artenreichsten Familien unter den Käfern. Und ständig werden neue Arten entdeckt. Von vielen Regionen der Erde, insbesondere der an Bockkäfern artenreichen Tropen und Subtropen existieren bis heute keine zusammenfassenden monografischen und vor allem gut bebilderten Arbeiten, was den Einstieg in die Erforschung dieser faszinierenden Tiergruppe stark erschwert.

Eine dieser Lücken schließt nun dieses großzügig gestaltete Werk, was alle bisher aus dem Land gemeldeten 561 Arten auf 870 Fotos präsentiert. Karl Adlbauer aus Graz ist ein seit Jahren ausgewiesener Spezialist der afrikanischen Bockkäferfauna und Robert Beck, der einen Großteil der abgebildeten Arten in den letzten 20 Jahren in Äthiopien selbst gesammelt hat, ein seit Jahren engagierter Amateurentomologe aus München.

Das Buch gliedert sich in einen kurzen einführenden Teil, mit dem Verzeichnis der Subtriben, einer Einleitung und dem Sammlungsverzeichnis, und geht dann in den umfangreichen Katalogteil über. Alle Arten werden mit ihrem aktuellen Namen aufgeführt, darunter sind die Angaben zur Synonymie aufgelistet. Von sehr vielen Taxa werden, vor einem leicht grauen Hintergrund, auf gut ausgeleuchteten und tiefenscharfen Fotos, beide Geschlechter vorgestellt. Hier muss man dem Verlag, der auf dem Gebiet der coleopterologischen Bildbände bereits über eine langjährige Erfahrung verfügt, wirklich ein Kompliment machen, da eine solche Reproduktion nicht selbstverständlich ist. Alle Tiere im Katalogteil sind sehr gut präpariert und kommen daher in ihrer Form und Farbe ästhetisch sehr gut zur Geltung. 130 dieser Arten bzw. Unterarten sind für die äthiopische Fauna endemisch und nicht wenige sind bisher nur einmal an einem Fundort gesammelt worden. Es folgen 42 eindrucksvolle Fotos von typischen Lebensräumen, die dem Betrachter die landschaftliche Schönheit und Vielfalt Äthiopiens vor Augen führen. Anschließend findet man eine Fotogalerie aller Arten, von denen die Autoren nur das historische Typenmaterial vorzuliegen hatten, sowie einige Tafeln mit acht Arten, die die Autoren bisher nur den Gattungen zuordnen konnten. Mit weiteren Neubeschreibungen ist also zu rechnen. Das Werk schließt mit zwei Tafeln lebend abgelichteter Arten, einer Liste der nur aus Äthiopien (und Eritrea bzw. Djibouti) bekannten Taxa, dem Literaturverzeichnis und den bebilderten Kurzbiografien der beiden Autoren.

Da Ackerbau, Viehzucht und Rodung gerade in diesem Teil Afrikas auch die Lebensräume holzbewohnender Käfer immer weiter einschränken, bleibt leider zu befürchten, dass man viele dieser Arten in nicht allzu ferner Zukunft nur noch in diesem Buch bewundern kann. Ein sehr schönes Werk, das nicht nur echten Bockkäferspezialisten sondern allen Käferfreunden oder auch allgemein an der Insektenfauna Afrikas interessierten Entomologen zu empfehlen ist.

Dr. Lars Hendrich, Zoologische Staatssammlung München

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