

An updated checklist of Dryinidae, Embolemidae and Sclerogibbidae (Hymenoptera) of Kenya and Burundi, with descriptions of thirteen new species

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Abstract. An updated checklist of Dryinidae, Embolemidae and Sclerogibbidae from Burundi and Kenya is presented. The following new species of Dryinidae are described from Burundi: *Anteon nkubayei* sp. nov. (Anteoninae); from Kenya: *Aphelopus severancei* sp. nov. (Aphelopinae); *Conganteon lymanorum* sp. nov. (Conganteoninae); *Anteon alteri* sp. nov., *A. blacki* sp. nov., *A. crowleydelmanorum* sp. nov., *A. mcguirkae* sp. nov., *Deinodryinus musingilai* sp. nov. (Anteoninae); *Bocchus johanssoni* sp. nov. (Bocchinae); *Dryinus digo* sp. nov., *Thaumatomyia overholtsi* sp. nov., *T. tuukkaraski* sp. nov. (Dryininae); from Kenya and Uganda: *Anteon semajanna* sp. nov. (Anteoninae). The following species have been found for the first time in Kenya: Embolemidae: *Ampulicomorpha madecassa* Olmi, 1999b, *Embolemus ambrensis* Olmi, 2004; Dryinidae: *Conganteon vulcanicum* Benoit, 1951b, *Anteon afrum* Olmi, 1984, *A. canabense* (Benoit, 1951a), *A. cautum* Olmi, 1994b, *A. emeritum* Olmi, 1984, *A. evertsi* Olmi, 1989, *A. jacksoni* Olmi, 2011, *A. kivuanum* (Benoit, 1951b), *A. kwazuluense* Olmi, 2007, *A. maritimum* (Turner, 1928), *A. sanyatense* Olmi, 2009, *A. ugandanum* Olmi, 1984, *A. xericum* Olmi & Harten, 2006, *Deinodryinus paulyi* Olmi, 1987, *Bocchus bini* Olmi, 1984, *B. botswanensis* Olmi, 1991, *B. brooksi* Olmi, 2003, *B. confusus* Olmi & Harten, 2006, *B. hyalinus* Olmi, 1998, *B. madagascolus* Olmi, 1994b, *B. whiteleyi* Olmi, 2007, *Dryinus cariniceps* Cameron, 1906, *D. erraticus* (Turner, 1928), *Echthrodelphax migratorius* Benoit, 1954, *E. tauricus* Ponomarenko, 1970. The following species of Dryinidae have been found for the first time in Burundi: *Aphelopus mediocarinatus* (Benoit, 1951a), *Anteon maritimum* (Turner, 1928), *Dryinus shimbanus* Olmi, 2011. *Dryinus turneri* nom. nov., is proposed in place of *Dryinus ampuliciformis* Turner, 1928 (preoccupied by *Dryinus* (= *Campylonyx*) *ampuliciformis* (Westwood, 1835)),

already known from Kenya. With the above new records, 76 species of Dryinidae (previously 39) and six species of Embolemidae (previously four) are now known from Kenya. Regarding the Sclerogibbidae of Kenya, the 12 species listed by OLMÍ & COPELAND (2011) are confirmed. In Burundi, six species of Dryinidae (previously two) are recognized. The three species of Embolemidae and one species of Sclerogibbidae previously listed from Burundi are confirmed. Additional new faunistic records are given from Cameroon, Central African Republic, Ethiopia, Gambia, Ivory Coast, Madagascar, Mali, Mozambique, Republic of South Africa, Senegal, Tanzania, Uganda, Yemen, Zambia and Zimbabwe.

Key words. Hymenoptera, Chrysidoidea, Dryinidae, Embolemidae, Sclerogibbidae, new species, new records, taxonomy, biogeography, Burundi, Kenya, Uganda, Afrotropical Region

Introduction

Dryinidae and Embolemidae (Hymenoptera: Chrysidoidea) are parasitoids of Auchenorrhyncha (Hemiptera) (GUGLIELMINO et al. 2013, OLMÍ 1996, OLMÍ et al. 2014). Sclerogibbidae (Hymenoptera: Chrysidoidea) are parasitoids of Embiidina (OLMÍ 2005b). Our recent paper on Dryinidae, Embolemidae and Sclerogibbidae of Kenya and Burundi provided a checklist of these families (OLMÍ & COPELAND 2011), and included the descriptions of the following new species: Dryinidae from Kenya: *Anteon bytebieri*, *A. copelandi*, *A. shimbanum*, *A. whartoni*; *Dryinus copelandi*, *D. shimbanus*; *Gonatopus baginei*; Embolemidae: *Ampulicomorpha nzigidaherai* from Burundi and Kenya, and *Embolemus burundensis* from Burundi. According to OLMÍ & COPELAND (2011), 39 species of Dryinidae, four species of Embolemidae and 12 species of Sclerogibbidae were recognized from Kenya, and two species of Dryinidae, three species of Embolemidae and one species of Sclerogibbidae were known from Burundi.

In the last three years, one of the above authors (RSC) continued to run a programme of Malaise-trapping in diverse habitats in Kenya and Burundi. The study of this material has resulted in the discovery of 13 new species described herein and, along with new distributional data for previously described species of these three families, has provided the opportunity to update the checklist of dryinids, embolemids and sclerogibbids known from Kenya and Burundi.

Material and methods

Townes-style Malaise traps (TOWNES 1972) were run in 76 different locations in Kenya (2005–2013) and 5 locations in Burundi (2009–2010). In addition, six-meter Malaise traps with collecting jars at both ends were used in some sites in Kenya. Examples of a six-meter trap and a Townes-style trap in use in the field are shown in Figures 7A and 7B respectively. Generally, traps were maintained in the field for about 6–12 months, with collection bottles changed every two weeks. Specimens were preserved in 75 % ethanol.

Species descriptions follow the terminology used by OLMÍ (1984, 1994a, 1999a), XU et al. (2013) and OLMÍ & VIRLA (2014). The measurements reported are relative, except for the

total length (head to abdominal tip, without the antennae), which is expressed in millimetres. In the figures of male genitalia the right half is not included. The following abbreviations are used in the descriptions:

POL	distance between the inner edges of the two lateral ocelli;
OL	distance between the inner edges of a lateral ocellus and the median ocellus;
OOL	distance from the outer edge of a lateral ocellus to the compound eye;
OPL	distance from the posterior edge of a lateral ocellus to the occipital carina;
TL	distance from the posterior edge of the eye to the occipital carina.

All types of the Afrotropical species of Dryinidae, Embolemidae and Sclerogibbidae have been examined. The material studied in this paper is deposited in the following collections:

AEIC	American Entomological Institute, Gainesville, Florida, USA;
BMNH	The Natural History Museum, London, United Kingdom;
CASC	California Academy of Sciences, San Francisco, USA;
DJBC	Denis J. Brothers collection, c/o School of Life Sciences, University of KwaZulu-Natal, Pietermaritzburg, KwaZulu-Natal, South Africa;
FSAG	Faculté des Sciences Agronomiques de l'État, Gembloux, Belgium;
HTC	Hubert Tussac collection, Cahors, France;
INECN	Institut National pour l'Environnement et la Conservation de la Nature, Bujumbura, Burundi;
IRSN	Institut Royal de Sciences Naturelles de Belgique, Bruxelles, Belgium;
MOLC	Massimo Olmi collection, c/o Department of Plant Protection, University of Tuscia, Viterbo, Italy;
MRAC	Musée Royal de l'Afrique Centrale, Tervuren, Belgium;
MTC	Michael von Tschirnhaus collection, c/o Fakultät Biologie, Universität Bielefeld, Bielefeld, Germany (now partly deposited in Zoologische Staatssammlung, München, Germany);
NMKE	National Museums of Kenya, Nairobi, Kenya;
NTM	Natal Museum, Pietermaritzburg, KwaZulu-Natal, South Africa;
OOLL	Oberösterreichisches Landesmuseum, Linz, Austria;
RSC	Robert Copeland collection, Nairobi, Kenya;
SAMC	South African Museum, Capetown, South Africa;
USNM	National Museum of Natural History, Washington, DC, USA;
UKC	Department of Entomology, University of Kentucky, Lexington, Kentucky, USA;
USU	Department of Biology, Utah State University, Logan, Utah, USA;
ZIL	Zoological Institute, Lund, Sweden.

The systematics of the Dryinidae is based on both sexes (OLMI 1994a, 1999a; XU et al. 2013; OLM & VIRLA 2014). The only exceptions are in the subfamilies Gonatopodinae and Dryininae, in which the characters of the males are not completely reliable given the present state of knowledge. For this reason, descriptions of new species based on males of Gonatopodinae and Dryininae should be avoided, whereas in other subfamilies they are acceptable. It is possible that the pronounced sexual dimorphism of most dryinids may lead to the description of a new species based on characters of male specimens while the same species has already been described based on characters of the female. This risk can be reduced by a comparison of the males with species based on females because some morphologic characters, sometimes inconspicuous, are in fact present in both sexes. The new species based on males and described in this paper were compared with all congeneric species present in the Afrotropical Region, so that, on the basis of the experience and knowledge of the authors, the risk that they are males of species already described from female specimens is considered unlikely.

The descriptions of most of the new species are based on the study of a single specimen. The authors are aware that descriptions of new taxa should normally be based on more individuals. However, on the basis of the experience and knowledge of the authors, the new species are sufficiently characterized to justify their descriptions.

Checklist of Dryinidae, Embolemidae and Sclerogibbidae from Kenya and Burundi

An asterisk (*) indicates that specimens are known only from Kenya or Burundi, double asterisk (***) indicates the species is newly recorded from Kenya or Burundi.

Family DRYINIDAE

Subfamily Aphelopinae

Genus *Aphelopus* Dalman, 1823

1. *Aphelopus himyarita* Olmi & Harten, 2006

Material examined. New records. KENYA: COAST: Taita Hills, Ngangao Forest, 3.36100°S 38.34186°E, 1848 m, 10–24.i.2012, Malaise trap, indigenous forest, R. Copeland leg., 1 ♀ (RSC); Taita Hills, Mwatate area, 3.48444°S 38.33251°E, 1011 m, 27.vii–10.viii.2011, Malaise trap, below Bura Bluff, riverine forest, R. Copeland leg., 1 ♀ (RSC); Boni Forest area, near Bodhei Village, 1.85602°S 40.69880°E, 31 m, 6–18.vi.2013, 2 m Malaise trap, mixed grass and woodland, J. Bukhebi & R. Copeland leg., 1 ♀ (NMKE); Boni Forest area, near Bodhei Village, 1.84752°S 40.69307°E, 29 m, 6–18.vi.2013, six-meter Malaise trap, open canopy forest patch, J. Bukhebi & R. Copeland leg., 3 ♀♀ (2 in RSC, 1 in MOLC). EASTERN: Kasaala area, 2.07846°S 38.22530°E, 740 m, 28.xi–4.xii.2013, six-meter Malaise trap, just inside isolated woodland patch, J. Bukhebi & R. Copeland leg., 1 ♂ (RSC); Kiboko Sanctuary, 2.20331°S 37.71430°E, 925 m, 22.ix–6.x.2011, Malaise trap, edge of indigenous forest, R. Copeland leg., 1 ♂ (NMKE). RIFT VALLEY: Olgorgesailie National Monument, 1.57930°S 36.44566°E, 982 m, 13–27.xi.2011, Malaise trap, *Acacia-Commiphora* savannah, R. Copeland leg., 8 ♂♂ (4 in NMKE, 3 in RSC, 1 in MOLC), 1 ♀ (NMKE); same locality label, 11–25.xii.2011, 3 ♂♂ (2 in RSC, 1 in MOLC), 1 ♀ (RSC); Oloitokitok, 2.94456°S 37.50714°E, 1853 m, 19.viii–2.ix.2011, Malaise trap, edge of indigenous forest, R. Copeland leg., 1 ♀ (NMKE); same locality label, 11–25.xi.2011, 1 ♀ (RSC); same locality label, 25.xi–9.xii.2011, 1 ♀ (NMKE). WESTERN: Kakamega District, Kakamega Forest, Kisere Forest, 00°23.73'N 34°53.165'E, 5400 ft., 2002, Manfred Kraemer leg., ex Michael von Tschirnhaus collection, 1 ♂ (MTC). CENTRAL AFRICAN REPUBLIC: SANGHA-MBAËRÉ PREFECTURE: Dzanga-Ndoki National Park, Mabéa Bai, 21.4 Km 53° NE Bayanga, 03°02'01"N 16°24'57"E, 510 m, 5–6.v.2001, Malaise trap, lowland rainforest, marsh clearing, S. van Noort leg., 2 ♂♂ (SAMC); same locality label, 3–4.v.2001, 2 ♂♂ (SAMC); same locality label, 1–2.v.2001, 1 ♂ (SAMC); Dzanga-Ndoki National Park, Mabéa Bai, 21.4 km 53° NE Bayanga, 3°02.01'N 16°24.57'E, 510 m, 7–8.v.2001, Malaise trap, lowland rainforest, marsh clearing, S. van Noort leg., 9 ♂♂ 3 ♀♀ (SAMC); Dzanga-Ndoki National Park, 38.6 km 173° S Lidjombu, 2°21.60'N 16°03.20'E, 350 m, 22.v.2001, sweep, lowland rainforest, S. van Noort leg., 1 ♀ 2 ♂♂ (SAMC). IVORY COAST: VALLÉE DU BANDAMA REGION: Bouaké, Mbe. WARDA, Malaise in rice field, 31.xii.1991, A. Polaszek leg., 1 ♂ (BMNH). UGANDA: WESTERN REGION: Kabarole District, Kibale National Park, Kanyawara, Makerere University Biological Field Station, 0°33.871'S 30°21.355'E, 1495 m, 12–26.viii.2008, Malaise trap, secondary mid-altitude rainforest, S. van Noort leg., 2 ♂♂ 1 ♀ (SAMC); same locality label, 0°33.408'S 30°22.603'E, 1587 m, Malaise trap, degraded mid-altitude rainforest, S. van Noort leg., 3 ♀♀ 1 ♂ (SAMC); same locality label, 2–12.viii.2008, 0°33.784'S 30°22.617'E, 1500 m, Malaise trap, primary mid-altitude rainforest, S. van Noort leg., 2 ♀♀ 2 ♂♂ (SAMC); same locality label, 12–26.viii.2008, 0°33.823'S 30°21.490'E, 1505 m, Malaise trap, primary mid-altitude rainforest, S. van Noort leg., 1 ♂ (SAMC).

Published records. OLMI & COPELAND (2011): KENYA: NYANZA: Ungoye Field Station, (00°36.91'S 34°05.52'E). WESTERN: Kakamega Forest North (00°22.175'N 34°53.297'E).

Distribution. Afrotropical, recorded from Cameroon, Kenya, Madagascar, Nigeria, South Africa and Yemen (OLMI & COPELAND 2011), newly recorded here from Central African Republic, Ivory Coast and Uganda (see above).

2. *Aphelopus incisus* Olmi, 1984

Material examined. New records. KENYA: COAST: Taita Hills, Ngangao Forest, 3.36100°S 38.34186°E, 1848 m, 22.viii–5.ix.2012, Malaise trap, indigenous forest, R. Copeland leg., 1 ♀ (RSC).

Published records. OLMI & COPELAND (2011): **KENYA: CENTRAL:** Mt Kenya, Ragati.

Distribution. Afrotropical, recorded from Kenya, Nigeria and South Africa (OLMI & COPELAND 2011).

3. *Aphelopus mediocarinatus* (Benoit, 1951a)

Material examined. New records. BURUNDI: Bururi National Forest, 3.93022°S 29.61697°E, 1955 m, 19.x–2.xi.2010, Malaise trap, indigenous forest, near stream, R. Copeland leg., 1 ♀ (RSC). **KENYA: COAST:** Muhaka Forest, 4.32530°S 39.52345°E, 52 m, 27–30.v.2013, six-meter Malaise trap, indigenous forest, R. Copeland leg., 1 ♂ (NMKE); Taita Hills, Mwatate area, 3.48444°S 38.33251°E, 1011 m, 24.viii–7.ix.2011, 1 ♂ (RSC); same locality label, 21.ii–7.iii.2012, 1 ♀ (RSC).

Published records. OLMI & COPELAND (2011): **KENYA: WESTERN:** Kakamega Forest (00°23.73'N 34°53.165'E).

Distribution. Afrotropical, recorded from almost all sub-saharian countries, from Senegal to Somalia, in addition to Madagascar and Yemen (OLMI & HARTEN 2006, OLMI & COPELAND 2011).

4. *Aphelopus severancei* sp. nov.*

(Figs 1A)

Type material. HOLOTYPE: ♂, **KENYA: COAST:** Taita Hills, Vuria Forest, 3.41428°S 38.29178°E, 2162 m, 12–26.vi.2011, Malaise trap just inside indigenous forest, R. Copeland leg. (NMKE).

Diagnosis. Male with head and scutum almost completely black, notauli reaching about 0.5 length of scutum, basivolsella with lateral medial process and not fused with paramere.

Description. Male. Fully winged; length 2.4 mm. Head black, except mandible testaceous; antenna brown; mesosoma black; metasoma brown; legs brown. Antenna filiform; antennal segments in following proportions: 6 : 5 : 6.5 : 6.5 : 7 : 8 : 7 : 7 : 7 : 9. Head dull, granulated; frontal line only shortly present near clypeus; occipital carina complete; POL = 7; OL = 4; OOL = 4; OPL = 4; TL = 4; greatest breadth of posterior ocelli shorter than OPL (2 : 4). Scutum, scutellum and metanotum dull, granulated. Notauli incomplete, reaching about 0.5 length of scutum. Propodeum reticulate rugose. Forewing hyaline, without dark transverse bands; stigmal vein regularly curved. Basivolsella (Fig. 1A) with lateral medial process and two subdistal bristles. Tibial spurs 1/1/2.

Female. Unknown.

Differential diagnosis. Based on the characters summarized in the above diagnosis, in the Afrotropical Region the new species is similar to *Aphelopus vernonensis* Olmi, 2009 (see keys of OLMI 1984, 2009). The main difference regards the position of the lateral process of the basivolsella (medial in *A. severancei* (Fig. 1A), distal in *A. vernonensis* (Fig. 1B)). The shape of the basivolsella is the most important character used for differentiating males of *Aphelopus* (OLMI 1994a, 1999a; XU et al. 2013; OLMI & VIRLA 2014).

Etymology. This species is named after my (RSC) college mate and rediscovered friend David Severance.

Hosts. Unknown.

Distribution. Only known in the type locality.

5. *Aphelopus wittei* Benoit, 1951b

Material examined. New records. BURUNDI: Rusizi National Park, 3.34364°S 29.27246°E, 774 m, 13–20.iv.2010, Malaise trap near three small trees, degraded bush/grassland, R. Copeland leg., 1 ♂ (RSC); Bururi National Forest, 3.93022°S 29.61697°E, 1955 m, 24.viii–7.ix.2010, Malaise trap, indigenous forest, near stream, R. Copeland leg., 1 ♀ (RSC). **KENYA: COAST:** Taita Hills, Vuria Forest, 3.41428°S 38.29178°E, 2162 m, 11–25.i.2012, Malaise trap, just inside indigenous forest, R. Copeland leg., 1 ♀ (RSC); Taita Hills, Chawia Forest, 3.47901°S 38.34134°E, 1617 m, 21–25.viii.2012, Malaise trap, next to fallen tree, R. Copeland leg., 1 ♂ (RSC); Funzi Island, 4.57776°S 39.43825°E, near sea level, 4–10.vii.2012, Malaise trap, near Funzi workshop, ICIPE/NMKE Funzi Island Expedition, 2 ♀♀ (1 in NMKE, 1 in MOLC); same locality label, 24–28.vii.2012, Malaise trap, mixed grass– woodland, R. Copeland leg., 1 ♀ (RSC); Kasigau Mtn., 3.82700°S 38.64875°E, 1065 m, 5–19.x.2011, Malaise trap, next to campsite in forest, R. Copeland leg., 1 ♀ (RSC). **EASTERN:** Nyambene Hills, Itieni Forest, at bottom, 0.24433°N 37.87016°E, 2142 m, 7–21.viii.2011, Malaise trap, edge of indigenous forest, near forest station, R. Copeland leg., 1 ♀ (NMKE); same locality label, 18.ix–2.x.2011, 1 ♀ (RSC); same locality label, 26.vi–10.vii.2011, 1 ♂ (NMKE); Kasaala area, 2.07846°S 38.22530°E, 740 m, 28.xi–4.xii.2013, six-meter Malaise trap, just inside isolated woodland patch, J. Bukhebi leg., 1 ♂ 1 ♀ (NMKE). **RIFT VALLEY:** Molo, Turi, 25.x.1998, A. Polaszek leg., 1 ♂ (BMNH); Saiwa Swamp National Park, near campsite, 1.09417°N 35.11833°E, 1882 m, 26.ii–12.iii.2006, Malaise trap, next to permanent upland swamp, 1 ♀ (NMKE); Mt. Elgon National Park, top of Endeless Bluff, 1.06117°N 34.75383°E, 2630 m, 16–30.i.2006, Malaise trap, forest edge near small stream, R. Copeland leg., 1 ♀ (RSC); Olorgesailie National Monument, 1.57930°S 36.44566°E, 982 m, 27.xi–11.xii.2011, Malaise trap, *Acacia-Commiphora* savannah, R. Copeland leg., 1 ♀ (RSC); Oloitokitok, 2.94456°S 37.50714°E, 1853 m, 19.viii–2.ix.2011, Malaise trap, edge of indigenous forest, R. Copeland leg., 1 ♀ (RSC); same locality label, 22.vii–5.viii.2011, 3 ♀♀ (NMKE). **WESTERN:** Kakamega District, Kakamega Forest, Kisere Forest, Calebs Campground, 00°22.175'N 34°53.297'E, 1580 m, Manfred Kraemer leg., ex Michael von Tschirnhaus collection, 1 ♀ (MTC).

Published records. OLMI & COPELAND (2011): **BURUNDI:** Muyange, 2100 m, 11.viii.1948 (IRSN). **KENYA: NYANZA:** 15 mls. NE of Kisumu. **WESTERN:** Kisere Forest Reserve, (00°23.73'N 34°53.165'E); Kakamega Forest (00°14.13'N 34°51.87'E); Isecheno Nature Reserve, Isecheno (00°24'N 34°87'E); 27 mi. NE of Kisumu, Kaimosi Mission.

Distribution. Afrotropical, recorded from almost all sub-saharian countries, from Senegal to Somalia and Sudan, in addition to Madagascar and Yemen (OLMI & HARTEN 2000, OLMI & COPELAND 2011).

Subfamily Conganteoninae

Genus *Conganteon* Benoit, 1951

6. *Conganteon lymanorum* sp. nov.*

(Figs 1C)

Type material. HOLOTYPE: ♀, **KENYA: EASTERN:** Kasaala area, 2.07486°S 38.22530°E, 740 m, 28.xi–4.xii.2013, six-meter Malaise trap, woodland and grass, J. Bukhebi & R. Copeland leg. (NMKE).

Diagnosis. Female almost completely testaceous-whitish, with notauli reaching about 0.5 length of scutum.

Description. Female. Fully winged; length 2.7 mm. Testaceous-whitish, except petiole black, one small brown spot on dorsal surface of propodeum near metanotum, brown teeth

of mandible and brown borders of ocelli. Antenna clavate; antennal segments in following proportions: 9 : 4 : 12 : 9 : 7 : 7 : 6 : 6 : 5 : 6. Head dull, granulated, sculptured by many hardly visible longitudinal and irregular striae also present behind ocellar triangle; frontal line complete; occipital carina complete; POL = 6; OL = 4; OOL = 6; OPL = 6; TL = 7; greatest breadth of posterior ocelli shorter than OL (3 : 4). Pronotum short, transverse, rugose; pronotal tubercle reaching tegula. Scutum with anterior half reticulate rugose and remaining surface unsculptured. Notauli incomplete, reaching approximately 0.5 length of scutum. Scutellum unsculptured. Metanotum rugose (sculpture hardly visible). Propodeum reticulate rugose, without transverse or longitudinal keels. Forewing hyaline, without dark transverse bands; distal part of stigmal vein longer than proximal part (11 : 7). Protarsal segments in following proportions: 14 : 3 : 3.5 : 7.5 : 13. Enlarged claw (Fig. 1C) with one small preapical tooth. Segment 5 of protarsus (Fig. 1C) with one row of approximately 37 short and small lamellae; distal apex with group of about 5 small lamellae. Tibial spurs 1/1/2.

Male. Unknown.

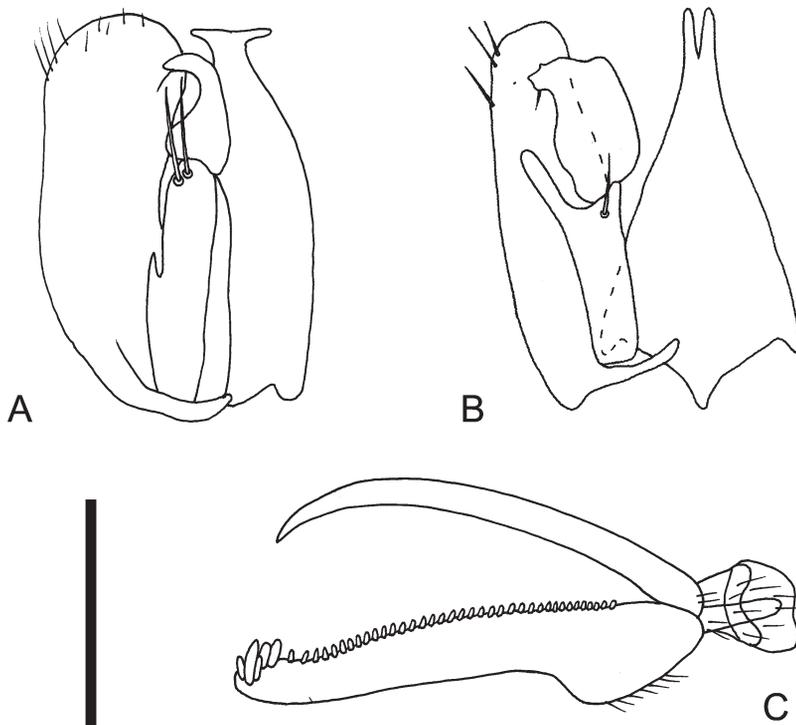


Fig. 1. A–B – male genitalia (right half removed): A – *Aphelopus severancei* sp. nov. (holotype); B – *A. vernonensis* Olmi, 2009 (holotype); C – *Conganteon lymanorum* sp. nov., chela (holotype). Scale bar: 0.14 mm for A and C; 0.09 mm for B.

Differential diagnosis. *Conganteon lymanorum* is the only species of the genus with female almost completely testaceous. It is easily recognizable, because the females of all other known world species of *Conganteon* are almost completely black.

Etymology. This species is named after Tim and Mike Lyman, longtime friends of the collector (RSC).

Hosts. Unknown.

Distribution. Only known in the type locality.

7. *Conganteon vulcanicum* Benoit, 1951b**

Material examined. New records. KENYA: EASTERN: Kibwesi Forest, 2°27.90'S 37°54.91'E, 13–20.xi.1999, Malaise trap, R. Copeland leg., 1 ♂ (RSC); Kasaala area, 2.07846°S 38.22530°E, 740 m, 28.xi–4.xii.2013, six-meter Malaise trap, just inside isolated woodland patch, J. Bukhebi & R. Copeland leg., 1 ♂ 1 ♀ (RSC). Rift Valley: Oloitokitok, 2.94456°S 37.50714°E, 1853 m, 30.ix–14.x.2011, Malaise trap, edge of indigenous forest, R. Copeland leg., 1 ♀ (NMKE). **WESTERN:** Kakamega District, Kisere Forest, 28.vi–19.vii.2001, Manfred Kraemer leg., ex Michael von Tschirnhaus collection, 1 ♀ (MOLC). **UGANDA: WESTERN REGION:** Kibale National Park, Kanyawara, Makerere University Biological Field Station, 0°33.891'N 30°21.468'E, 1506 m, 4–26.viii.2008, yellow pan trap, primary mid-altitude rainforest, S. van Noort leg., 1 ♀ (SAMC).

Distribution. Afrotropical, recorded from Democratic Republic of the Congo, Madagascar and Rwanda (OLMI 1984, 1994b), newly recorded here from Kenya and Uganda.

Subfamily Anteoninae

Genus *Anteon* Jurine, 1807

8. *Anteon afrum* Olmi, 1984**

Material examined. New record. KENYA: NYANZA: Ungoye, ICIPE Field Station, 0.61517°S 34.09200°E, 1147 m, 12–26.ii.2005, Malaise trap, inside seasonally swampy forest, R. Copeland leg., 1 ♀ (RSC).

Distribution. Afrotropical, recorded from Democratic Republic of the Congo, Mozambique, Namibia and South Africa (OLMI et al. 2012).

9. *Anteon agile* Olmi, 1984

Material examined. Published record. OLMI & COPELAND (2011): KENYA: WESTERN: 27 mi. NE Kisumu, Kaimosi Mission.

Distribution. Afrotropical, recorded from Cameroon, Democratic Republic of the Congo, Kenya and South Africa (OLMI & COPELAND 2011).

10. *Anteon alteri* sp. nov.*

(Figs 4C)

Type material. HOLOTYPE: ♀, **KENYA: NYANZA:** Ruma National Park, near Kamato Gate, 0.64725°S 34.33595°E, 1264 m, 18.xii.2005–1.i.2006, Malaise trap, in open grass woodland, R. Copeland leg. (NMKE).

Diagnosis. Female fully winged; head with OL shorter than POL; mesosoma black; scutum rugose and irregularly striate, except median region smooth, punctate, unsculptured among punctures, with anterior third reticulate rugose; posterior surface of propodeum with two longitudinal keels, with median area as rugose as lateral areas; forewing hyaline, without

dark transverse bands, with distal part of stigmal vein much shorter than proximal part (4 : 12); segment 4 of protarsus less than 0.5 as long as basal part of segment 5.

Description. Female. Fully winged; length 3.5 mm. Head black, except mandible testaceous; antenna brown, except segments 1–3 testaceous; mesosoma black; gaster brown; tegulae testaceous; legs testaceous, except basal region of metacoxa brown. Antennal segments in following proportions: 14 : 7 : 8 : 6 : 7 : 7 : 8 : 7 : 7 : 9. Head dull, completely reticulate rugose; frontal line complete; occipital carina complete; POL = 8; OL = 5; OOL = 6; OPL = 8; TL = 5; greatest breadth of posterior ocelli shorter than TL (3 : 5). Pronotum shiny, reticulate rugose, except posterior margin smooth; posterior surface much shorter than scutum (5 : 20); pronotal tubercle reaching tegula. Scutum shiny, rugose and irregularly striate, except median region smooth, punctate, unsculptured among punctures, with anterior third reticulate rugose. Notauli incomplete, hardly visible, reaching about 0.5 length of scutum. Scutellum and metanotum shiny, punctate, unsculptured among punctures. Propodeum with strong transverse keel between dorsal and posterior surface; dorsal surface reticulate rugose; posterior surface reticulate rugose, with two longitudinal keels and median area as rugose as lateral areas. Forewing hyaline, without dark transverse band beneath pterostigma; distal part of stigmal vein much shorter than proximal part (4 : 12). Protarsal segments in following proportions: 12 : 2 : 3 : 3 : 12; segments 3 and 4 of protarsus produced into hooks; segment 4 of protarsus less than 0.5 as long as basal part of segment 5 (3 : 9). Enlarged claw (Fig. 4C) slightly longer than segment 5, with proximal prominence bearing one long bristle. Segment 5 of protarsus (Fig. 4C) with basal part much longer than apical part (9 : 3), with some proximal and medial bristles in addition to one lamella; distal apex with 5 lamellae. Tibial spurs 1/1/2.

Male. Unknown.

Differential diagnosis. With reference to the characters summarized in the above diagnosis, in the Afrotropical Region the new species is similar to *Anteon rufonigrum* Olmi, 1984 and *A. shimbanum* Olmi, 2011 in OLMÍ & COPELAND (2011). The main difference among these species regards the forewing: with one dark transverse band beneath the pterostigma in *A. rufonigrum* and *A. shimbanum*; hyaline, without dark transverse bands, in *A. alteri*. Other differences regard the colour (head and mesosoma mostly testaceous-reddish in *A. rufonigrum*, black in *A. alteri* and *A. shimbanum*) and the notauli (absent in *A. rufonigrum* and *A. shimbanum*, reaching about 0.5 length of scutum in *A. alteri*).

Etymology. This species is named after the collector's (RSC) longtime friend, the noted psychologist Robert (Bobby) Alter.

Hosts. Unknown.

Distribution. Only known from the type locality.

11. *Anteon blacki* sp. nov.*

(Figs 2B)

Type material. HOLOTYPE: ♂, KENYA: EASTERN: Nyambene Hills, Itieni Forest, at bottom, 0.24433°N 37.87016°E, 2142 m, 27.xi–11.xii.2011, Malaise trap, edge of indigenous forest, near forest station, R. Copeland leg. (NMKE).

Diagnosis. Male with head reticulate rugose and granulated; scutum rugose; posterior surface of propodeum without longitudinal keels; paramere (Fig. 2B) with one large distal inner process showing many transverse folds; distal apex of distal inner process of paramere situated far from distal apex of paramere (Fig. 2B).

Description. Male. Fully winged; length 2.4 mm. Head black, except distal half of mandible testaceous; antenna brown; mesosoma black; metasoma brown-black; legs brown. Antenna filiform; antennal segments in following proportions: 12 : 7 : 6 : 7 : 7 : 7 : 7 : 7 : 10. Head dull, reticulate rugose and granulated; frontal line complete (irregular in front of anterior ocellus); occipital carina complete; POL = 5; OL = 3; OOL = 5; OPL = 2.5; TL = 4; greatest breadth of posterior ocellus about as long as OPL. Scutum shiny, irregularly rugose. Notauli incomplete, reaching about 0.3 length of scutum. Scutellum shiny, smooth, unsculptured. Metanotum rugose. Propodeum with transverse keel between dorsal and posterior surface; dorsal surface reticulate rugose; posterior surface completely reticulate rugose, without longitudinal keels. Forewing hyaline, without dark transverse bands or spots; distal part of stigmal vein much shorter than proximal part (3 : 8). Paramere (Fig. 2B) with one large distal inner process showing many transverse folds. Tibial spurs 1/1/2.

Female. Unknown.

Differential diagnosis. Based on the characters summarized in the above diagnosis, in the Afrotropical Region the new species is similar to *Anteon cautum* Olmi, 1994b, *A. inane* Olmi, 2004 and *A. maritimum* (Turner, 1928). However, in *A. blacki* the scutum is completely rugose, whereas in the other three species it is completely granulated and not rugose. In addition, in *A. blacki* the inner distal process of the paramere shows many transverse folds (Fig. 2B) not present in the other three species.

Etyymology. This species is named after my (RSC) oldest friend, Mr. Chester Black.

Hosts. Unknown.

Distribution. Only known in the type locality.

12. *Anteon bytebieri* Olmi, 2011 in OLMI & COPELAND (2011)*

Material examined. Published record. OLMI & COPELAND (2011): KENYA: COAST: Mbololo Forest (03°20.00'S 38°26.85'E), ♀ holotype (NMKE).

Distribution. Recorded only from Kenya (OLMI & COPELAND 2011).

13. *Anteon canabense* (Benoit, 1951b)**

Material examined. New record. KENYA: RIFT VALLEY: road to Nguruman Town, 1.83216°S 36.08156°E, 676 m, 27–29.iii.2013, six-meter Malaise trap, edge of indigenous forest, R. Copeland leg., 1 ♀ (RSC). SENEGAL: TAMBA-
COUNDA REGION: Niokolo Koba National Park, 13°01.1'N 13°18.5'W, 15.vii.2004, Marek Halada leg., 2 ♀♀ (OOLL)

Distribution. Afrotropical, recorded from Botswana, Democratic Republic of the Congo, Nigeria, Sierra Leone, South Africa and Yemen (OLMI 1984, OLMI & HARTEN 2006), newly recorded from Kenya and Senegal here.

14. *Anteon cautum* Olmi, 1994b**

Material examined. New records. KENYA: COAST: Taita Hills, Chawia Forest, 3.47908°S 38.34162°E, 1614 m, 24.vii–7.viii.2011, Malaise trap, next to small forest pond, R. Copeland leg., 1 ♂ (RSC); same locality label, 28.xi–12.xii.2011, 1 ♂ (NMKE); same locality label, 4–18.ix.2011, 1 ♂ (RSC); Taita Hills, Vuria Forest, 3.41428°S 38.29178°E, 2162 m, Malaise trap just inside indigenous forest, 5–19.ix.2012, R. Copeland leg., 1 ♂ (RSC); same

locality label, 21.viii–4.ix.2011, R. Copeland leg., 2 ♂♂ (1 in NMKE, 1 in MOLC); same locality label, 7–21.viii.2011, 1 ♂ (NMKE). **EASTERN:** Kasaala area, 2.07846°S 38.22530°E, 740 m, 28.xi–4.xii.2013, Malaise trap, just inside isolated woodland patch, J. Bukhebi & R. Copeland leg., 9 ♂♂ (4 in NMKE, 4 in RSC, 1 in MOLC). **WESTERN:** Kakamega District, Kakamega Forest, 19.v–4.vi.2000, Manfred Kraemer leg., ex Michael von Tschirnhaus collection, 3 ♂♂ (1 in MOLC, 2 in MTC).

Distribution. Afrotropical, recorded from Madagascar and South Africa (OLMI 1994b, 2009).

15. *Anteon copelandi* Olmi, 2011 in OLMÍ & COPELAND (2011)*

Material examined. Published record. OLMÍ & COPELAND (2011): **KENYA: COAST:** Arabuko–Sokoke Forest (03°25.21'S 39°53.81'E), ♀ holotype (NMKE).

Distribution. Recorded only from Kenya (OLMI & COPELAND 2011).

16. *Anteon crowleydelmanorum* sp. nov.*

(Figs 2C)

Type material. HOLOTYPE: ♀, **KENYA: WESTERN:** Kakamega Forest, near Rondo Guesthouse, 0.22767°N 34.88533°E, 1630 m, 17–31.xii.2006, Malaise trap, set across small permanent stream, R. Copeland leg. (NMKE).

Diagnosis. Female fully winged, almost completely black, with head reticulate rugose; posterior surface of pronotum much shorter than scutum (3 : 15); scutum and scutellum completely reticulate rugose; posterior surface of propodeum reticulate rugose, without longitudinal keels, with areolae very small, smaller than areolae of head; forewing with two dark transverse bands; segment 4 of protarsus at most 0.5 as long as basal part of segment 5.

Description. Female. Fully winged; length 2.6 mm. Head black, except mandibles testaceous; antenna brown, except segment 1 testaceous; mesosoma and metasoma black; legs brown. Antenna clavate; antennal segments in following proportions: 14 : 6 : 4.5 : 3.5 : 4 : 4.5 : 4.5 : 4 : 5 : 7. Head convex, dull, strongly reticulate rugose; frontal line complete; face without lateral keels near orbits directed towards antennal toruli; occipital carina complete; POL = 7; OL = 5; OOL = 6; OPL = 4; TL = 3; greatest breadth of posterior ocellus about as long as TL. Pronotum anteriorly crossed by a slight transverse impression, dull, rugose; posterior surface rugose, much shorter than scutum (3 : 15); pronotal tubercle reaching tegula. Scutum, scutellum and metanotum dull, completely strongly reticulate rugose. Notauli absent. Propodeum with strong transverse keel between dorsal and posterior surface; dorsal surface dull, reticulate rugose; posterior surface dull, reticulate rugose, without longitudinal keels, with areolae very small, smaller than areolae of head. Forewing with two dark transverse bands; distal part of stigmal vein much shorter than proximal part (3 : 8). Protarsal segments in following proportions: 8 : 2 : 2 : 3 : 10. Enlarged claw (Fig. 2C) with proximal prominence bearing one long bristle. Segment 5 of protarsus (Fig. 2C) with basal region much longer than distal region (8 : 2), with many proximal and medial bristles (some bristles are thicker than others); distal apex with one lamella. Tibial spurs 1/1/2.

Male. Unknown.

Differential diagnosis. In reference to the characters summarized in the above diagnosis, in the Afrotropical Region the new species is similar to *Anteon felice* Olmi & Harten, 2006. The

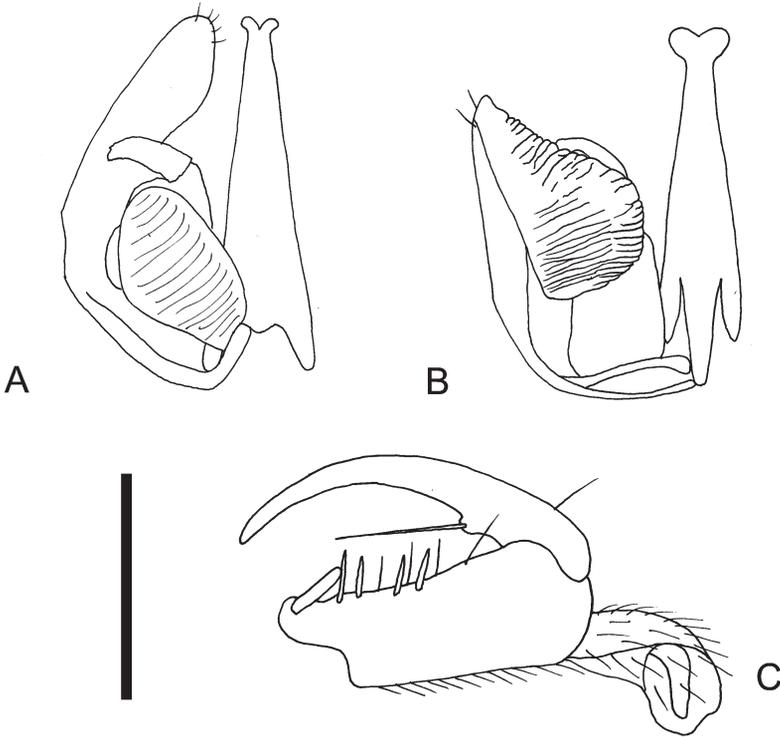


Fig. 2. A–B – male genitalia (right half removed): A – *Anteon nkubayei* sp. nov. (holotype); B – *A. blacki* sp. nov. (holotype); C – *Anteon crowleydelmanorum* sp. nov., chela (holotype). Scale bar: 0.16 mm for A and C; 0.15 mm for B.

main difference regards the sculpture of the scutellum: reticulate rugose in *A. crowleydelmanorum* and weakly granulated in *A. felice*. In addition, the areolae of the posterior surface of the propodeum are as large as those of the head in *A. felice*, smaller in *A. crowleydelmanorum*.

Etymology. This species is named after my (RSC) friends Maureen Crowley, the noted urban environmentalist, and Peter Delman, the exceptional teacher and artist, who also has a place in his heart for insects.

Hosts. Unknown.

Distribution. Only known from the type locality.

17. *Anteon emeritum* Olmi, 1984**

(Fig. 3B)

Material examined. New records. KENYA: COAST: Mirima Hill Forest, 4.48576°S 39.25845°E, 212 m, 17–31.x.2011, Malaise trap, indigenous forest edge, R. Copeland leg., 1 ♂ (RSC); Muhaka Forest, 4.32530°S 39.52345°E, 52 m, 30.v–19.vi.2013, six-meter Malaise trap, indigenous forest, R. Copeland leg., 6 ♂♂ (2 in NMKE, 3 in RSC, 1 in MOLC).

Distribution. Afrotropical, recorded from Namibia and South Africa (OLMI 1984, 2006), in addition to Madagascar (AZEVEDO et al. 2010).

18. *Anteon evertsi* Olmi, 1989**

Material examined. New records. KENYA: COAST: Taita Hills, Mwatate area, 3.48444°S 38.33251°E, 1011 m, 24.i–7.ii.2012, Malaise trap, below Bura Bluff, riverine forest, R. Copeland leg., 1 ♂ (RSC). **WESTERN:** Kakamega District, Kakamega Forest, 19.v–4.vi.2000, Manfred Kraemer leg., ex Michael von Tschirnhaus collection, 1 ♀ (MOLC). **CAMEROON:** Messabengondo, 15–30.iii.2003, M. Tussac leg., 1 ♂ (HTC). **GAMBIA:** Bakau, Cape St. Mary, 5.xi.1977 (ZIL)

Distribution. Afrotropical, recorded from Ivory Coast (OLMI 1989), newly recorded from Kenya, Cameroon and Gambia here.

19. *Anteon fiorii* Olmi, 1984

Material examined. New records. KENYA: NYANZA: Gwasi Hill, Ungoye side, 0.6167°S 34.1017°E, 1500 m, 26.viii–9.ix.2005, Malaise trap, near hilltop next to indigenous forest, R. Copeland leg., 2 ♀♀ (1 in NMKE, 1 in MOLC); same locality label, 3–17.xi.2005, 1 ♀ (RSC). **RIFT VALLEY:** Saiwa Swamp National Park, near campsite, 1.09417°N 35.11833°E, 1882 m, 26.ii–12.iii.2006, Malaise trap, next to permanent upland swamp, R. Copeland leg., 1 ♀ (RSC). **ETHIOPIA: OROMIA REGION:** Abijata Shala Lake National Park, 1–10.x.2012, yellow pan trap, Alain Pauly leg., 1 ♀ (FSAG).

Published records. OLMI & COPELAND (2011): KENYA: EASTERN: Tsavo East National Park (02°38.51'S 38°21.98'E).

Distribution. Afrotropical, recorded from Botswana, Kenya and South Africa (OLMI & COPELAND 2011), newly recorded from Ethiopia here.

20. *Anteon gutturnium* (Benoit, 1951a)

Material examined. New records. KENYA: COAST: Taita Hills, Ngangao Forest, 3.36100°S 38.34186°E, 1848 m, 10–24.i.2012, Malaise trap, indigenous forest, R. Copeland leg., 1 ♂ (RSC); Taita Hills, Mwatate area, 3.48444°S 38.33251°E, 1011 m, 21.ii–7.iii.2012, Malaise trap, below Bura Bluff, riverine forest, R. Copeland leg., 1 ♂ (NMKE).

Published records. OLMI & COPELAND (2011): KENYA: COAST: Diani Beach.

Distribution. Afrotropical, recorded from Democratic Republic of the Congo, Madagascar, Senegal, South Africa, Tanzania and Uganda (OLMI & COPELAND 2011).

21. *Anteon jacksoni* Olmi, 2011**

Material examined. New record. KENYA: COAST: Funzi Island, 4.57749°S 39.43825°E, near sea level, 4–10.vii.2012, Malaise trap, near Funzi workshop, ICIPE/NMKE Funzi Island Expedition coll., 1 ♂ (RSC).

Distribution. Afrotropical, recorded only from Cameroon (OLMI 2011).

22. *Anteon kenyanum* Olmi, 1991

Material examined. Published record. OLMI & COPELAND (2011): KENYA: WESTERN: 27 mi. NE Kisumu, Kaimosi Mission, ♂ holotype (CASC).

Distribution. Recorded from Kenya and Ethiopia (OLMI & COPELAND 2011).

23. *Anteon kivuanum* (Benoit, 1951b)**

Material examined. *New records.* **KENYA: COAST:** Kaya Kinondo, 4.39382°S 39.54567°E, 10 m, 22.viii–5.ix.2011, indigenous forest, Malaise trap, coral rag canopy forest, R. Copeland leg., 1 ♂ (RSC). **WESTERN:** Kakamega District, Kakamega Forest, Kisere Forest, Calebs Campground, 00°22.175'N 34°53.297'E, 1580 m, Manfred Kraemer leg., ex Michael von Tschirnhaus collection, 1 ♀ (MTC).

Distribution. Afrotropical, recorded from Democratic Republic of the Congo, Madagascar, South Africa, Uganda and Yemen (OLMI 1984, 2006; OLMI & HARTEN 2006).

24. *Anteon kwazuluense* Olmi, 2007**

Material examined. *New record.* **KENYA: COAST:** Kasigau Mtn., 3.82700°S 38.64875°E, 1065 m, 19.x–2.xi.2011, Malaise trap, indigenous forest, next to campsite in forest, R. Copeland leg., 1 ♂ (RSC).

Distribution. Afrotropical, recorded from South Africa (OLMI 2007).

25. *Anteon maritimum* (Turner, 1928)**

Material examined. *New records.* **BURUNDI:** Rusizi National Park, 3.34364°S 29.27246°E, 774 m, 13–20.iv.2010, Malaise trap near three small trees, degraded bush/grassland, R. Copeland leg., 1 ♂ (RSC). **KENYA: RIFT VALLEY:** Tsavo West National Park, Riverine woodland, 2.99615°S 38.45988°E, 464 m, 9–23.ix.2008, Malaise trap, bank of Tsavo River, R. Copeland leg., 1 ♀ (MOLC); Nguruman, near Sampu River, 1.90117°S 36.05040°E, 723 m, 5–19.xi.2011, Malaise trap, near base of Nguruman Escarpment, R. Copeland leg., 1 ♀ (RSC).

Distribution. Afrotropical, recorded from Democratic Republic of the Congo, Gabon, Madagascar, South Africa and Zimbabwe (OLMI 1984, 2006).

26. *Anteon mcguirkae* sp. nov.*

(Figs 3C)

Type material. HOLOTYPE: ♀, **KENYA: NYANZA:** Ruma National Park, near Kamato Gate, 0.64725°S 34.33595°E, 1264 m, 10–18.xii.2005, Malaise trap in open grass-woodland, R. Copeland leg. (NMKE).

Diagnosis. Female fully winged, with head granulated, not reticulate rugose; face without two lateral keels along orbits directed towards antennal toruli; mesosoma black, except prothorax completely yellow-testaceous; posterior surface of pronotum with lateral sharp carinae separating disc from lateral regions; scutum granulated, with posterior third and part of lateral regions reticulate rugose; notauli very shortly visible near anterior margin of scutum; posterior surface of propodeum without longitudinal keels; forewing hyaline, without dark transverse bands, with distal part of stigmal vein less than 0.5 as long as proximal part; segment 4 of protarsus longer than basal part of segment 5 (7 : 5); segment 5 of protarsus with inner side curvilinear and with distinct apical region (Fig. 3C).

Description. *Female.* Fully winged; length 2.3 mm. Head brown-ferruginous, except mandible testaceous; antenna testaceous-brown, except segments 1–2 testaceous; propleura and pronotum yellow-testaceous; rest of mesosoma black; metasoma testaceous-brown; legs testaceous, except stalk of hind femur brown. Antenna clavate; antennal segments in following proportions: 8 : 4.5 : 6 : 5 : 5 : 5 : 4.5 : 4.5 : 4.5 : 5.5. Head convex, dull, almost completely hairless, strongly granulated; frontal line complete; face without lateral keels around orbits directed towards antennal toruli; occipital carina complete; POL = 5.5; OL = 3; OOL = 4; OPL = 4.5; TL = 5;

greatest breadth of posterior ocellus shorter than OL (3 : 2). Pronotum anteriorly crossed by weak transverse impression, dull, granulated; posterior surface granulated, dull, slightly shorter than scutum (10 : 11); posterior surface of pronotum with lateral sharp carinas separating disc from lateral regions; pronotal tubercle reaching tegula. Scutum dull, completely granulated, with some rugosities near posterior margin and on lateral regions. Notauli very shortly visible near anterior margin of scutum. Scutellum dull, granulated. Metanotum shiny, rugose. Propodeum with strong transverse keel between dorsal and posterior surface; dorsal surface dull, reticulate rugose; posterior surface dull, reticulate rugose, without longitudinal keels. Forewing hyaline, without dark transverse bands; distal part of stigmal vein much shorter than proximal part (2 : 8). Protarsal segments in following proportions: 6 : 2 : 3 : 7 : 15. Segment 4 of protarsus longer than basal part of segment 5 (7 : 5). Enlarged claw (Fig. 3C) with one proximal prominence bearing one long bristle. Segment 5 of protarsus (Fig. 3C) with basal part much shorter than distal part, with 2 rows of 10 + 13 lamellae; distal apex with 4 lamellae. Tibial spurs 1/1/2.

Male. Unknown.

Differential diagnosis. Based on the characters summarized in the above diagnosis, in the Afrotropical Region the new species is similar to *Anteon variegatum* Olmi, 2006. The main differences between these two species can be summarized in the following key:

- 1 Face with two lateral keels along orbits directed towards antennal toruli; scutum completely granulated; posterior surface of pronotum with lateral borders rounded; prothorax black, except some regions testaceous. *A. variegatum* Olmi, 2006
- Face without two lateral keels along orbits directed towards antennal toruli; scutum granulated, with posterior third and part of lateral regions reticulate rugose; posterior surface of pronotum with lateral sharp carinas separating disc from lateral regions; prothorax completely yellow-testaceous. *A. mcguirkae* sp. nov.

Hosts. Unknown.

Etymology. This species is named after my (RSC) dear friend Mary Ellen (Mellen) McGuirk.

Distribution. Only known in the type locality.

27. *Anteon ngoyense* Olmi, 2009

Material examined. Published record. OLMI & COPELAND (2011): KENYA: RIFT VALLEY: Mount Elgon National Park, Top of Endeless Bluff (01.06117°N 34.75383°E). CENTRAL AFRICAN REPUBLIC: SANGHA-MBAÉRÉ PREFECTURE: Dzanga-Ndoki National Park, Mabéa Bai, 21.4 km NE Bayanga, 03°02'01"N 16°24'57"E, 510 m, 4–5.v.2001, Malaise trap, lowland rainforest, marsh clearing, S. van Noort leg., 1 ♂ (SAMC).

Distribution. Recorded from Kenya and South Africa (OLMI & COPELAND 2011), newly recorded from the Central African Republic here.

28. *Anteon nkubayei* sp. nov.*

(Fig. 2A)

Type material. HOLOTYPE: ♂, BURUNDI: Rusizi National Park, 3.34364°S 29.27246°E, 774 m, 13–20.iv.2010, Malaise trap near three small trees, degraded bush/grassland, R. Copeland leg. (MRAC).

Diagnosis. Male with head and scutum granulated and reticulate rugose; OPL about as long as OOL; propodeum provided of strong transverse keel between dorsal and posterior surface;

posterior surface of propodeum not provided with longitudinal keels; paramere about as long as penis, without distal inner pointed or rounded process (Fig. 2A).

Description. Male. Fully winged; length 2.5 mm. Head black, except mandible testaceous; antenna testaceous; mesosoma black; metasoma brown; legs testaceous, except proximal extremity of metacoxa darkened. Antenna filiform; antennal segments in following proportions: 11 : 7 : 5 : 5 : 5 : 6 : 6 : 7 : 7 : 10. Head dull, completely granulated and reticulate rugose; frontal line complete; face with two lateral keels directed towards antennal toruli; occipital carina complete; POL = 9; OL = 4; OOL = 5; OPL = 5; TL = 5; greatest breadth of posterior ocellus shorter than OPL (3 : 5). Scutum dull, completely strongly granulated and reticulate rugose, with tracks of notauli reaching about 0.5 length of scutum. Scutellum and metanotum shiny, smooth, punctate, without sculpture among punctures. Propodeum with strong transverse keel between dorsal and posterior surface; dorsal surface reticulate rugose, dull; posterior surface dull, reticulate rugose, without longitudinal keels, with areolae much smaller than those of dorsal surface. Forewing hyaline, without dark transverse bands; distal part of stigmal vein much shorter than proximal part (2 : 8). Paramere (Fig. 2A) without distal inner pointed process. Tibial spurs 1/1/2.

Female. Unknown.

Differential diagnosis. With reference to the characters summarized in the above diagnosis, in the Afrotropical Region the new species is similar to *Anteon harinhalai* Olmi, 2010, known from Madagascar, but it differs in the ratio OPL/OOL (head with OPL about 0.5 as long as OOL in *A. harinhalai*, OPL about as long as OOL in *A. nkubayei*). In addition, the notauli are absent in *A. nkubayei*, incomplete and reaching about 0.5 length of scutum in *A. harinhalai*.

Hosts. Unknown.

Etymology. This species is named after Evariste Nkubaye of the Institut des Sciences Agronomique du Burundi who helped greatly with our collecting of Dryinidae and other insects.

Distribution. Only known from the type locality.

29. *Anteon sanyatense* Olmi, 2009**

Material examined. New records. KENYA: Coast: Mrima Hill Forest, 4.48576°S 39.25845°E, 212 m, 17–31.v.2011, Malaise trap, indigenous forest edge, R. Copeland leg., 1 ♂ (NMKE); same locality label, 27.vi–11.vii.2011, 1 ♂ (RSC); Taita Hills, Ngangao Forest, 3.36100°S 38.34186°E, 1848 m, 24.vii–7.viii.2001, Malaise trap, indigenous forest, R. Copeland leg., 2 ♂♂ (RSC); Taita Hills, Chawia Forest, 3.47908°S 38.34162°E, 1614 m, 24.vii–7.viii.2011, Malaise trap, next to small forest pond, R. Copeland leg., 1 ♂ (RSC); same locality label, 16–30.x.2011, 1 ♂ (NMKE); Funzi Island, 4.57749°S 39.43825°E, near sea level, 4–10.vii.2012, Malaise trap, near Funzi workshop, ICIPE/NMKE Funzi Island Expedition coll., 4 ♂♂ (NMKE); Muhaka Forest, 4.32530°S 39.52345°E, 52 m, 30.v–19.vi.2013, six-meter Malaise trap, indigenous forest, R. Copeland leg., 8 ♂♂ (3 in NMKE, 4 in RSC, 1 in MOLC); Kasigau Mtn., 3.82700°S 38.64875°E, 1065 m, 19.x–2.xi.2011, Malaise trap, indigenous forest, next to campsite in forest, R. Copeland leg., 2 ♂♂ (RSC); Kasigau Mtn., 3.82080°S 38.64178°E, 737 m, 7–21.ix.2011, Malaise trap, woodland with grass, R. Copeland leg., 2 ♂♂ (NMKE). **EASTERN:** Kirimiri Forest, near top of hill, 0.42563°S 37.54460°E, 1664 m, 12–26.v.2011, Malaise trap, indigenous forest, R. Copeland leg., 1 ♂ (RSC); Ngaia Forest, 0.32442°N 38.05038°E, 1057 m, bottom of forest, 3–17.ix.2011, Malaise trap, inside indigenous forest, R. Copeland leg., 1 ♂ (NMKE).

Distribution. Recorded from South Africa (OLMI 2009).

30. *Anteon semajanna* sp. nov.*

(Fig. 3A)

Type material. HOLOTYPE: ♂, **KENYA: Coast:** Muhaka Forest, 4.32530°S 39.52345°E, 52 m, 30.v–19.vi.2013, six-meter Malaise trap, indigenous forest, R. Copeland leg. (NMKE). PARATYPES: **KENYA: Coast:** 5 ♂♂, same locality label as holotype (3 in RSC, 2 in NMKE); 1 ♂ Kasigau Mtn., 3.82700°S 38.64875°E, 1065 m, 19.x–2.xi.2011, Malaise trap, indigenous forest, next to campsite in forest, R. Copeland (MOLC); 1 ♂ Mrima Hill Forest, 4.48576°S 39.25845°E, 212 m, 17–31.x.2011, Malaise trap, indigenous forest edge, R. Copeland (NMKE); 3 ♂♂ Gede Forest, 3.30946°S 40.01941°E, 19 m, 27.xi–11.xii.2011, indigenous forest, Malaise trap, secondary forest, R. Copeland (1 in NMKE, 1 in RSC, 1 in MOLC). **UGANDA:** Kibale National Park, Kanyawara Makerere University Biological Field Station, 0°33.871'S 30°21.355'E, 1495 m, 12–26.viii.2008, Malaise trap, secondary mid-altitude rainforest, S. van Noort leg., 2 ♂♂ (SAMC).

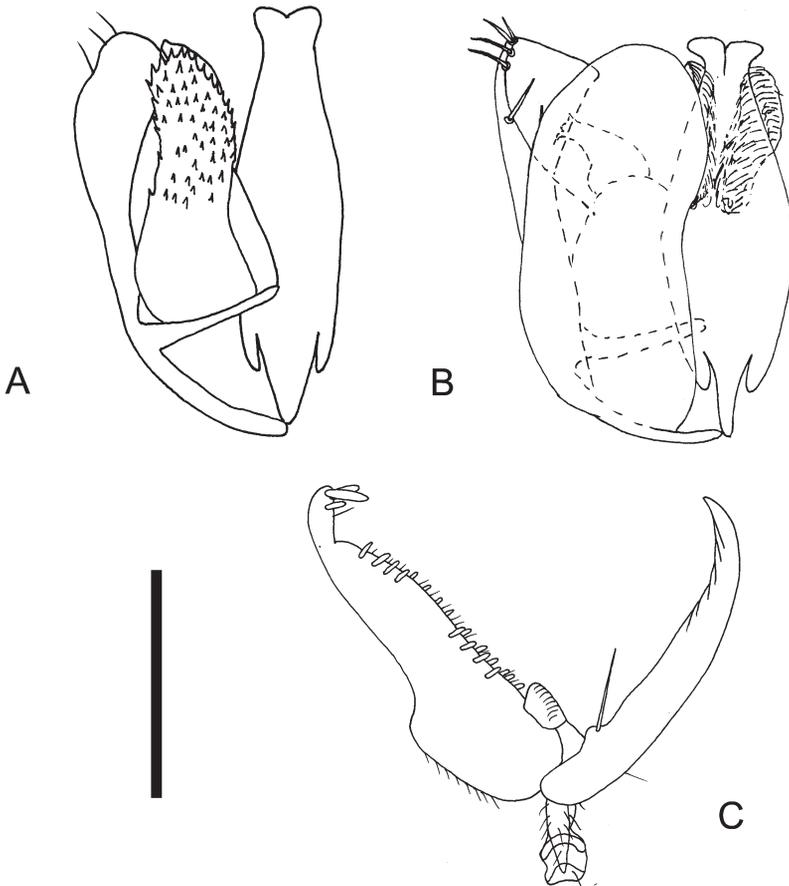


Fig. 3. A–B – male genitalia (right half removed): A – *Anteon semajanna* sp. nov. (holotype); B – *A. emeritum* Olmi, 1984 (holotype); C – *Anteon mcguirkae* sp. nov., chela (holotype). Scale bar: 0.12 mm for A; 0.10 mm for B; 0.15 mm for C.

Diagnosis. Male with clypeus not sculptured by longitudinal and parallel keels; posterior surface of propodeum without longitudinal keels; distal apex of distal inner process of paramere located near distal apex of paramere (Fig. 3A); paramere with distal inner pointed process; dorsal membranous process of paramere with many sensorial setae (Fig. 3A).

Description. Male. Fully winged; length 1.2–2.3 mm (holotype 2.3 mm). Head black, except mandible testaceous; antenna testaceous; mesosoma black; metasoma brown; legs testaceous. Antenna filiform; antennal segments in following proportions: 8 : 4 : 4 : 4 : 4 : 5 : 5 : 5 : 5 : 7. Head granulated and reticulate rugose (rugosity little visible); frontal line complete; face with two hardly visible lateral keels along orbits directed towards antennal toruli; occipital carina complete; POL = 5; OL = 3; OOL = 3.5; OPL = 2.5; TL = 2.5; greatest breadth of posterior ocellus slightly shorter than OPL (2 : 2.5). Scutum shiny, alutaceous, with lateral regions and occasionally also median region of scutum granulated; area near anterior margin rugose. Notauli incomplete, reaching about 0.4 length of scutum. Scutellum and metanotum shiny, unsculptured. Propodeum completely reticulate rugose, with strong transverse keel between dorsal and posterior surface; posterior surface without longitudinal keels, with areolae smaller than those of the dorsal surface. Forewing hyaline, without dark transverse bands or spots; distal part of stigmal vein much shorter than proximal part (2 : 6). Paramere (Fig. 3A) with distal inner pointed process; proximal membranous process long, with mosaic sculpture and many sensorial setae (Fig. 3A). Tibial spurs 1/1/2.

Female. Unknown.

Differential diagnosis. Based on the characters summarized in the above diagnosis, in the Afrotropical Region the new species is similar to *Anteon emeritum* Olmi, 1984. Both have male genitalia with long dorsal membranous process of paramere, but in *A. semajanna* this process has many sensorial setae (Fig. 3A) that are missing in *A. emeritum* (Fig. 3B). This character is very important in the systematics of *Anteon* males (XU et al. 2013, OLMI & VIRLA 2014).

Etymology. This species is named after the son and daughter, James Quinn and Anna Leigh Taylor-Copeland of the collector (RSC) of the Kenyan types; semajanna joins their first names, spelled backwards.

Hosts. Unknown.

Distribution. Only known from Uganda and Kenya (Coast Province).

31. *Anteon shimbanum* Olmi, 2011 in OLMI & COPELAND (2011)*

Material examined. New records. KENYA: COAST: Kasigau Mtn., 3.82080°S 38.64178°E, 737 m, 7–21.ix.2011, Malaise trap, woodland with grass, R. Copeland leg., 1 ♀ (MOLC); Taita Hills, Mwatate area, 3.48444°S 38.33251°E, 1011 m, 10–24.i.2012, Malaise trap, below Bura Bluff, riverine forest, R. Copeland leg., 1 ♀ (RSC).

Published record. OLMI & COPELAND (2011): **KENYA: COAST:** Shimba Hills National Park (04.22752° S 39.43197° E), ♀ holotype (NMKE).

Distribution. Recorded only from Kenya (OLMI & COPELAND 2011).

32. *Anteon ugandanum* Olmi, 1984**

Material examined. New records. KENYA: COAST: Muhaka Forest, 4.32490°S 39.52349°E, 44 m, 28–30.v.2013, yellow pan trap, next to indigenous forest, R. Copeland leg., 1 ♀ (RSC); Muhaka Forest, 4.32530°S 39.52345°E, 52 m, 27–30.v.2013, six-meter Malaise trap, indigenous forest, R. Copeland leg., 1 ♀ (NMKE); Kaya Kinondo,

4.39382°S 39.54567°E, 10 m, 8–22.viii.2011, Malaise trap, coral rag canopy forest, R. Copeland leg., 1 ♀ (RSC); same locality label, 22.viii–5.ix.2011, 1 ♀ (NMKE); Taita Hills, Mwatate area, 3.48444°S 38.33251°E, 1011 m, 7–21.ii.2012, Malaise trap, below Bura Bluff, riverine forest, R. Copeland leg., 1 ♀ (RSC); same locality label, 21.ii–7.iii.2012, 1 ♀ (NMKE). **EASTERN:** Ngaia Forest, 0.32442°N 38.05038°E, 1057 m, bottom of forest, 15–29.X.2011, Malaise trap, inside indigenous forest, R. Copeland leg., 1 ♂ (RSC). **WESTERN:** Kakamega District, Kakamega Forest, Kisere Forest, Calebs Campground, 00°22.175'N 34°53.297'E, 1580 m, Manfred Kraemer leg., ex Michael von Tschirnhaus collection, 1 ♀ (MTC).

Distribution. Afrotropical, recorded from many countries, from Senegal and Mali to South Africa and Uganda (OLMI 1984, 2006).

33. *Anteon whartoni* Olmi, 2011 in OLMI & COPELAND (2011)*

Material examined. New records. KENYA: COAST: Taita Hills, Chawia Forest, 3.47908°S 38.34162°E, 1614 m, 27.v–10.vi.2012, Malaise trap, next to small forest pond, R. Copeland leg., 1 ♂ (MOLC); same locality label, 15–29.v.2011, 1 ♂ (RSC); same locality label, 10–24.vii.2011, 1 ♂ (NMKE); same locality label, 3.47901°S 38.34134°E, 1617 m, 21–25.viii.2012, Malaise trap, next to fallen tree, R. Copeland leg., 1 ♂ (RSC). **WESTERN:** Kakamega District, Kakamega Forest, 00°20.56'N 34°52.12'E, 22.v–3.vi.2000, Manfred Kraemer leg., ex Michael von Tschirnhaus collection, 1 ♂ (MOLC). **CENTRAL AFRICAN REPUBLIC: SANGHA-MBAËRÉ PREFECTURE:** Reserve Special de Forêt dense de Dzanga-Sangha, 12.7 km 326° NW Bayanga, 3°00.27'N 16°11.55'E, 420 m, 17.v.2001, sweep, lowland rainforest, S. van Noort leg., 6 ♂♂ (5 in SAMC, 1 in MOLC); Dzanga-Ndoki National Park, Mabéa Bai, 21.4 km 53° NE Bayanga, 3°02.01'N 16°24.57'E, 510 m, 4.v.2001, sweep, lowland rainforest, marsh clearing, S. van Noort leg., 2 ♂♂ (SAMC).

Published record. OLMI & COPELAND (2011): **KENYA: WESTERN:** Kakamega Forest (00°14.13'N 34°51.87'E), ♂ holotype (USNM).

Distribution. Recorded only from Kenya (OLMI & COPELAND 2011), here newly recorded for the Central African Republic.

34. *Anteon xericum* Olmi & Harten, 2006**

Material examined. New record. KENYA: EASTERN: base of Ukasi Hill, 0.82103°S 38.54443°E, 613 m, 21.xi–5.xii.2011, Malaise trap, *Acacia-Commiphora* savannah, R. Copeland leg., 1 ♂ (RSC).

Distribution. Afrotropical, recorded from Madagascar, South Africa, Tanzania and Yemen (OLMI & HARTEN 2006, OLMI 2006).

35. *Anteon zairensis* Benoit, 1951c

Material examined. New records. KENYA: COAST: Taita Hills, Vuria Forest, 3.41428°S 38.29178°E, 2162 m, Malaise trap just inside indigenous forest, 21.viii–4.ix.2011, R. Copeland leg., 1 ♂ (MOLC); Taita Hills, Chawia Forest, 3.47908°S 38.34162°E, 1614 m, 24.vii–7.viii.2011, Malaise trap, next to small forest pond, R. Copeland leg., 1 ♂ (RSC); Taita Hills, Ngangao Forest, 3.36930°S 38.34495°E, 1736 m, 26.vi–10.vii.2011, Malaise trap, indigenous forest, R. Copeland leg., 1 ♂ (RSC); same locality label, 3.36100°S 38.34186°E, 1848 m, 13–27.v.2012, 2 ♂♂ (NMKE); Mrima Hill Forest, 4.48576°S 39.25845°E, 212 m, 17–31.x.2011, Malaise trap, indigenous forest edge, R. Copeland leg., 1 ♀ (RSC). **EASTERN:** Kasaala area, 2.07846°S 38.22530°E, 740 m, 28.xi–4.xii.2013, Malaise trap, just inside isolated woodland patch, J. Bukhebi & R. Copeland leg., 1 ♂ (NMKE); Ngaia Forest, 0.32442°N 38.05038°E, 1057 m, bottom of forest, 26.x–10.xii.2011, Malaise trap, inside indigenous forest, R. Copeland leg., 1 ♂ (RSC).

Published record. OLMI & COPELAND (2011): **KENYA: WESTERN:** Kisere Forest Reserve (00°23.73'N 34°53.165'E).

Distribution. Afrotropical, recorded from Democratic Republic of the Congo, Gabon, Kenya, Madagascar, South Africa and Zimbabwe (OLMI 1984, 2006).

Genus *Deinodryinus* Perkins, 1907

36. *Deinodryinus musingilai* sp. nov.*

(Figs 4A)

Type material. HOLOTYPE: ♂, KENYA: EASTERN: Kasaala area, 2.07846°S 38.22530°E, 740 m, 28.xi–4.xii.2013, Malaise trap, just inside isolated woodland patch, J. Bukhebi & R. Copeland leg. (NMKE).

Diagnosis. Male with clypeus yellow-whitish; propodeum without transverse keel between dorsal and posterior surface; distal part of stigmal vein shorter than proximal part; paramere about as long as penis, with one inner proximal branch wrapping penis (Fig. 4A).

Description. Male. Fully winged; length 2.1 mm. Head black; mandible testaceous; clypeus yellow-whitish; antenna testaceous; mesosoma and metasoma black; legs testaceous, except metacoxa brown. Antenna filiform, with hairs shorter than breadth of segments; antennal segments in following proportions: 7 : 4 : 5.5 : 6 : 6 : 6 : 5 : 6 : 5 : 7. Head shiny, smooth, punctate, unsculptured among punctures; frontal line absent; face with longitudinal median furrow; occipital carina complete; POL = 5; OL = 3; OOL = 5; OPL = 4; TL = 3; greatest breadth of posterior ocellus about as long as OL. Scutum shiny, smooth, punctate, unsculptured among punctures. Notauli incomplete, reaching approximately 0.5 length of scutum. Scutellum and metanotum shiny, unsculptured. Propodeum completely reticulate rugose, without longitudinal or transverse keels, with posterior surface partly sculptured by areolae smaller than those of dorsal surface. Forewing hyaline, without dark transverse bands; distal part of stigmal vein much shorter than proximal part (5 : 7.5). Paramere (Fig. 4A) with large inner distal branch wrapping penis. Tibial spurs 1/1/2.

Female. Unknown.

Differential diagnosis. Based on the characters summarized in the above diagnosis, in the Afrotropical Region the new species is similar to *Deinodryinus danielssoni* Olmi, 1998 and *D. paulyi* (Olmi, 1987). The main character distinguishing *D. musingilai* from the other species is the colour of the clypeus: yellow-whitish in *D. musingilai*, black or brown in *D. danielssoni* and *D. paulyi*. In addition, the inner branch of the paramere is distal in *D. musingilai* (Fig. 4A), proximal in the other two species (Fig. 7D in OLMI 1991, Fig. 6 in OLMI 1998).

Etymology. This species is named after Mr. Mulu Musingila, who kindly allowed us to collect on his land, on which the species was collected.

Hosts. Unknown.

Distribution. Only known from the type locality.

37. *Deinodryinus paulyi* (Olmi, 1987)**

Material examined. New records. KENYA: EASTERN: base of Ukasi Hill, 0.82103°S 38.54443°E, 613 m, 21.xi–5.xii.2011, Malaise trap, *Acacia-Commiphora* savannah, R. Copeland leg., 2 ♂♂ (NMKE); same locality label, 7–21.xi.2011, 3 ♂♂ (RSC). RIFT VALLEY: Olorgesailie National Monument, 1.57930°S 36.44566°E, 982 m, 27.xi–11.xii.2011, Malaise trap, *Acacia-Commiphora* savannah, R. Copeland leg., 1 ♂ (RSC); same locality label, 11–25.xii.2011, 4 ♂♂ (2 in NMKE, 2 in RSC); same locality label, 1.57962°S 36.44730°E, 979 m, 7–21.v.2011, Malaise trap, near Ol Keju Nyiro River, R. Copeland leg., 1 ♂ (MOLC).

Distribution. Afrotropical, recorded from the Cape Verde Islands, Namibia, Niger and Senegal (OLMI 1987, 2007).

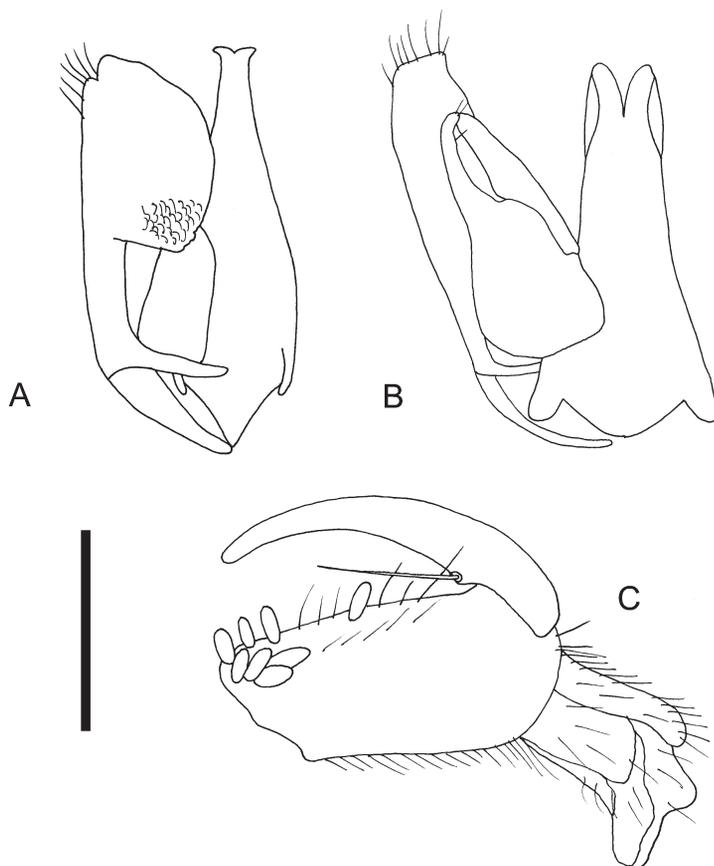


Fig. 4. A–B – male genitalia (right half removed): A – *Deinodryinus musingilai* sp. nov. (holotype); B – *Bocchus johanssoni* sp. nov. (holotype); C – *Anteon alteri* sp. nov., chela (holotype). Scale bar: 0.10 mm for A; 0.13 mm for B; 0.20 mm for C.

Subfamily Bocchinae

Genus *Bocchus* Ashmead, 1893

38. *Bocchus bini* Olmi, 1984**

Material examined. New records. KENYA: COAST: Boni Forest area, near Bodhei Village, 1.85602°S 40.69880°E, 31 m, 6–18.vi.2013, 2 m Malaise trap, mixed grass- and woodland, J. Bukhebi & R. Copeland leg., 1 ♂ (MOLC). RIFT VALLEY: Lake Nakuru National Park, 0.47203°S 36.06388°E, 1908 m, 6–20.i.2006, Malaise trap, mixed *Olea*, *Cussonia*, *Vepris*, R. Copeland leg., 1 ♂ (RSC).

Distribution. Afrotropical, recorded from many Afrotropical countries, from Ghana to Somalia and Yemen (OLMI 1984, 2006; OLMÍ & HARTEN 2006), in addition to Madagascar (AZEVEDO et al. 2010).

39. *Bocchus botswanensis* Olmi 1991**

Material examined. New records. KENYA: EASTERN: base of Ukasi Hill, 0.82103°S 38.54443°E, 613 m, 5–10.xii.2011, Malaise trap, *Acacia-Commiphora* savannah, R. Copeland leg., 2 ♂♂ (1 in NMKE, 1 in RSC); same locality label, 10–17.xii.2011, 1 ♂ (RSC).

Distribution. Afrotropical, recorded from Botswana, Madagascar and South Africa (OLMI 1991, 2006, 2009).

40. *Bocchus brooksi* Olmi, 2003**

Material examined. New records. KENYA: EASTERN: Ngaia Forest, 0.32442°N 38.05038°E, 1057 m, bottom of forest, 23.vii–6.viii.2011, Malaise trap, inside indigenous forest, R. Copeland leg., 1 ♀ (RSC); same locality label, 3–17.ix.2011, 1 ♀ (NMKE); same locality label, 8–22.vi.2011, 1 ♀ (MOLC); same locality label, 9–23.vii.2011, 1 ♀ (RSC).

Distribution. Recorded from Madagascar (OLMI 2003).

41. *Bocchus confusus* Olmi & Harten, 2006**

Material examined. New record. KENYA: COAST: Muhaka Forest, 4.32530°S 39.52345°E, 52 m, 30.v–19.vi.2013, six-meter Malaise trap, indigenous forest, R. Copeland leg., 1 ♂ (RSC).

Distribution. Recorded from Yemen (OLMI & HARTEN 2006).

42. *Bocchus hyalinus* Olmi, 1998**

Material examined. New record. KENYA: EASTERN: base of Ukasi Hill, 0.82103°S 38.54443°E, 613 m, 21.xi–5.xii.2011, Malaise trap, *Acacia-Commiphora* savannah, R. Copeland leg., 1 ♀ (RSC).

Distribution. Recorded from Oman (OLMI 1998) and the United Arab Emirates (OLMI 2008).

43. *Bocchus johanssoni* sp. nov.*

(Figs 4B, 7B)

Type material. HOLOTYPE: ♂, **KENYA: COAST:** Kasigau Mtn., 3.82080°S 38.64178°E, 737 m, bottom of forest, woodland with grass, Malaise trap, 7–21.ix.2011, R. Copeland leg. (NMKE).

Diagnosis. Male with scutum strongly reticulate rugose; notauli incomplete, reaching approximately 0.5 length of scutum; posterior surface dull, with two complete longitudinal keels, median area crossed by numerous transverse keels and lateral areas rugose.

Description. Male. Fully winged; length 2.5 mm. Head black, except mandible testaceous; antenna brown, except segments 1–2 and ventral side of 3–5 testaceous; mesosoma and metasoma black; legs brown, except articulations, tarsi and protibiae testaceous. Antenna filiform; antennal segments in following proportions: 11 : 7 : 9 : 9 : 8 : 8 : 8 : 8 : 7 : 9; antennal segment 8 less than three times as long as broad (8:3). Head convex, dull, covered with short hairs, completely strongly reticulate rugose; frontal line complete, weakly convex between antennal toruli; occipital carina complete; POL = 7; OL = 3; OOL = 9; OPL = 4; TL = 6; greatest breadth of posterior ocelli about as long as OL. Scutum dull, completely strongly reticulate rugose. Notauli incomplete, reaching approximately 0.5 length of scutum. Scutellum dull,

with anterior half granulated and posterior half rugose. Metanotum rugose. Mesopleuron dull, strongly reticulate rugose. Metapleuron dull, sculptured by numerous strong transverse keels. Propodeum with strong transverse keel between dorsal and posterior surface; dorsal surface dull, reticulate rugose; posterior surface dull, with two complete longitudinal keels, median area crossed by numerous transverse keels and lateral areas rugose. Forewing hyaline, without dark transverse bands; distal part of stigmal vein shorter than proximal part (8 : 15); marginal cell open. Genitalia in Fig. 4B. Tibial spurs 1/1/2.

Female. Unknown.

Differential diagnosis. Based on the characters summarized in the above diagnosis, in the Afrotropical Region the new species is similar to *Bocchus fynbosensis* Olmi, 2006 and *B. incompletus* Olmi, 2005a. The main difference among these species regards the sculpture of the scutum: strongly reticulate rugose in *B. johanssoni*; completely granulated or granulated and sculptured by weak or strong irregular keels or areolae in *B. fynbosensis* and *B. incompletus*. In addition, the median area of the posterior surface of the propodeum is crossed by transverse keels in *B. johanssoni*, reticulate rugose in the other two species.

Etymology. This species is named after Tino Johansson, director of the CHIESA project, funded by the people of Finland, that is examining the effects of climate change on agro-ecosystems in the Taita Hills, Kenya, of which Kasigau Mountain is an outlier.

Hosts. Unknown.

Distribution. Only known from the type locality.

44. *Bocchus madagascolus* Olmi, 1994b**

Material examined. *New record.* KENYA: RIFT VALLEY: Lake Nakuru National Park, 0.47203°S 36.06388°E, 1908 m, 6–20.i.2006, Malaise trap, mixed *Olea*, *Cussonia*, *Vepris*, R. Copeland leg., 1 ♂ (RSC).

Distribution. Recorded from Madagascar (OLMI 1994b).

45. *Bocchus simoni* Olmi, 2005a

Material examined. *New records.* KENYA: NYANZA: Gembe Hills, 00°29'36"S 34°14'60"E, 1362 m, 12–26.ii.2005, Malaise trap, R. Copeland leg., 1 ♀ (MOLC). RIFT VALLEY: Nguruman, near Sampu River, 1.90103°S 36.04804°E, 753 m, Malaise trap, base of Nguruman Escarpment, 8–22.xii.2007, R. Copeland coll., 1 ♀ (RSC); Olorgesailie National Monument, 1.57962°S 36.44730°E, 979 m, 4–18.vi.2011, Malaise trap near Ol Keju Nyiro River, R. Copeland leg., 1 ♀ (NMKE).

Published record. OLMI & COPELAND (2011): KENYA: NYANZA: Ruma National Park (00°64.725'S 34°33.595'E).

Distribution. Recorded from Tanzania (OLMI 2005a).

46. *Bocchus whiteleyi* Olmi, 2007**

Material examined. *New records.* KENYA: COAST: Muhaka Forest, 4.32530°S 39.52345°E, 52 m, 30.v–19.vi.2013, six-meter Malaise trap, indigenous forest, R. Copeland leg., 2 ♂♂ (1 in NMKE, 1 in RSC); Mrima Hill Forest, 4.48576°S 39.25845°E, 212 m, 19.ix–3.x.2011, Malaise trap, indigenous forest edge, R. Copeland leg., 1 ♂ (RSC); Kasigau Mtn., 3.82700°S 38.05038°E, 1065 m, 5–19.x.2011, Malaise trap, inside indigenous forest, R. Copeland leg., 7 ♂♂ (3 in NMKE, 4 in RSC). EASTERN: Ngaia Forest, 0.32442°N 38.05038°E, 1057 m, bottom of forest, Malaise trap, inside indigenous forest, 22.vi–6.vii.2011, R. Copeland leg., 2 ♂♂ (NMKE); same locality label, 11–25.v.2011, 3 ♂♂ (RSC); same locality label, 12–26.xi.2011, 2 ♂♂ (NMKE); same locality label, 8–22.

vi.2011, 15 ♂♂ (7 in NMKE, 7 in RSC, 1 in MOLC); same locality label, 24.xii.2011–7.i.2012, 11 ♂♂ (5 in NMKE, 4 in RSC, 2 in MOLC); same locality label, 13–27.iv.2011, 4 ♂♂ (NMKE); same locality label, 7–21.i.2012, 2 ♂♂ (RSC); same locality label, 10–24.xii.2011, 1 ♂ (NMKE).

Distribution. Recorded from South Africa (OLMI 2007, 2009).

Subfamily Dryininae

Genus *Dryinus* Latreille, 1804

47. *Dryinus aethiopicus* (Olmi, 1984)

Material examined. Published record. OLMI & COPELAND (2011): **KENYA: NYANZA:** Ungoye, ICIPE Field Station (00.61517°S 34.09200°E).

Distribution. Recorded from Central African Republic, Kenya and Sierra Leone (OLMI & COPELAND 2011).

48. *Dryinus botswanensis* (Olmi, 1991)

Material examined. Published record. OLMI & COPELAND (2011): **KENYA: COAST:** Shimba Hills National Park (04.23783°S 39.39567°E).

Distribution. Recorded from Botswana and Kenya (OLMI & COPELAND 2011).

49. *Dryinus cariniceps* Cameron, 1906**

Material examined. New record. **KENYA: COAST:** Funzi Island, 4.53577°S 39.46042°E, near Mliani, near sea level, by sweeping, 6.vii.2012, ICIPE/NMKE, Funzi Island Expedition leg., 1 ♀ (RSC).

Distribution. Afrotropical, recorded from Democratic Republic of the Congo, Gabon, Ivory Coast, South Africa, Yemen (OLMI 1984, 2006; OLMI & HARTEN 2000).

50. *Dryinus copelandi* Olmi, 2011 in OLMI & COPELAND (2011)*

Material examined. Published record. OLMI & COPELAND (2011): **KENYA: COAST:** Arabuko-Sokoke Forest (03°25.21'S 39°53.81'E), ♀ holotype (NMKE).

Distribution. Recorded only from Kenya (OLMI & COPELAND 2011).

51. *Dryinus digo* sp. nov.*

(Figs 5C)

Type material. HOLOTYPE: ♀, **KENYA: COAST:** Kaya Kinondo, 4.39382°S 39.54567°E, 10 m, 25.xii.2011–8.i.2012, indigenous forest, Malaise trap, coral rag, canopy forest, R. Copeland leg. (NMKE).

Diagnosis. Female with frontal line absent; head granulated, with some hardly visible irregular keels on face; occipital carina incomplete; head with POL slightly longer than OL; posterior ocelli not touching occipital carina, placed in front of imaginary straight line joining posterior edges of eyes; temple absent; posterior margin of vertex excavated; mesosoma black; posterior collar of pronotum present; scutum granulated and reticulate rugose; dorsal surface of propodeum about as long as posterior surface; forewing with distal part of stigmal vein less

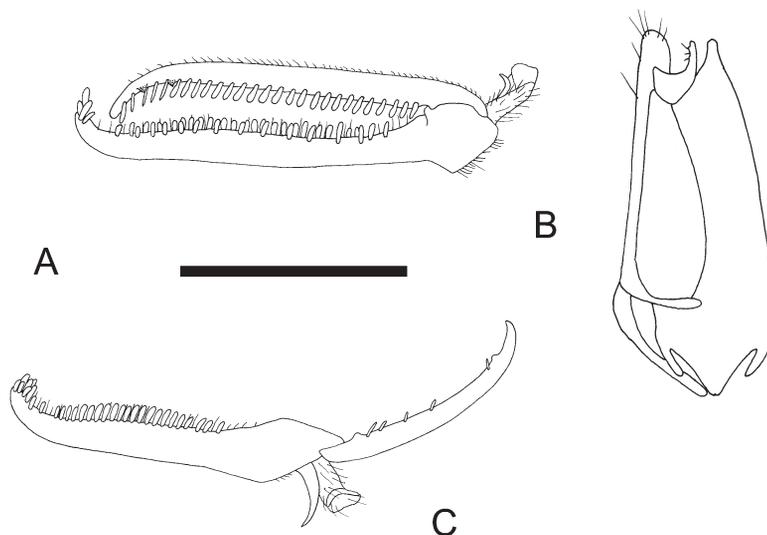


Fig. 5. A, C – chelae: A – *Thaumatomyrmex tuukkaraski* sp. nov. (holotype); C – *Dryinus digo* sp. nov. (holotype); B – *Thaumatomyrmex overholtii* sp. nov., male genitalia (right half removed) (holotype). Scale bar: 0.20 mm for A; 0.13 mm for B; 0.56 mm for C.

than three times as long as proximal part; segment 1 of protarsus slightly longer than segment 4; enlarged claw about as long as segment 5 of protarsus, with big subapical tooth (Fig. 5C). **Description. Female.** Fully winged; length 5.9 mm. Head black, except mandible testaceous, clypeus and gena ferruginous-dark and testaceous striae along orbits; antenna brown, except segments 7–10 and distal region of 6 whitish; mesosoma black; metasoma brown; legs brown, except tarsi testaceous-dark. Antenna clavate; antennal segments in following proportions: 12 : 6 : 29 : 10 : 9 : 8 : 6 : 7 : 7 : 10. Rhinaria present in antennal segments 5–10. Head convex, dull, granulated, with some hardly visible irregular keels on face; frontal line absent; occipital carina incomplete, only present behind and on sides of posterior ocelli, laterally not reaching eyes; posterior ocelli situated in front of virtual straight line joining posterior edges of eyes; posterior margin of vertex weakly excavated; POL = 5; OL = 4; OOL = 8; OPL = 3; temple absent; greatest breadth of posterior ocellus about as long as OPL. Pronotum crossed by strong anterior transverse impression and strong posterior transverse furrow; disc humped; posterior collar very short; pronotum dull, granulated and sculptured by numerous longitudinal keels and striae; pronotal tubercle not reaching tegula. Scutum dull, granulated and reticulate rugose, with areolae very small, larger near posterior margin. Notauli apparently complete and posteriorly separated, hardly visible among areolae situated near posterior margin of scutum; minimum distance between notauli longer than POL (8 : 5). Scutellum and metanotum granulated. Propodeum dull, without transverse keels, with dorsal and posterior surface reticulate rugose, not sculptured by longitudinal keels; dorsal surface of propodeum slightly longer than posterior surface (24 : 22). Forewing with two dark transverse bands; distal part of stigmal

vein longer than proximal part (20 : 11). Protarsal segments in following proportions: 21 : 3 : 6 : 18 : 26. Enlarged claw (Fig. 5C) with one large subdistal tooth and one row of 5 very slender lamellae. Segment 5 of protarsus (Fig. 5C) with one row of 21 lamellae; distal apex with about 11 lamellae. Tibial spurs 1/1/2.

Male. Unknown.

Differential diagnosis. Based on the characters summarized in the above diagnosis, in the Afrotropical region the new species is similar to *Dryinus shimbanus* Olmi, in OLMI & COPELAND (2011). The main differences between these two species regards the frontal line, complete in *D. shimbanus*, absent in *D. digo*. In addition, rhinaria are present in antennal segments 5–10 in *D. digo*, 6–10 in *D. shimbanus*.

Etymology. This species is named in honor of the Digo people of coastal Kenya, guardians of the type locality, Kaya Kinondo; noun in apposition.

Hosts. Unknown.

Distribution. Only known from the type locality.

52. *Dryinus erraticus* (Turner, 1928)**

Material examined. New records. KENYA: COAST: Kasigau Mtn., 3.82080°S 38.64178°E, 737 m, bottom of forest, Malaise trap, woodland with grass, 28.xii.2011–11.i.2012, R. Copeland leg., 1 ♀ (RSC). **RIFT VALLEY:** Marich Pass field station, 1.53633°N 35.45800°E, 917 m, 20.iii–4.iv.2005, Malaise trap, low canopy riverine forest, R. Copeland leg., 1 ♀ (NMKE); Nguruman, near Sampu River, 1.90117°S 36.05040°E, 723 m, 27.viii–10.ix.2011, Malaise trap, near base of Nguruman Escarpment, R. Copeland leg., 1 ♀ (RSC). **UGANDA:** Kibale National Park, Kanyawara, Makerere University Biological Field Station, 0°33.823'N 30°21.490'E, 1505 m, 4–26.viii.2008, yellow pan trap, primary mid-altitude rainforest, S. van Noort leg., 1 ♀ (SAMC).

Distribution. Afrotropical, recorded from Angola, Democratic Republic of the Congo, Eritrea, Namibia, Somalia, South Africa, Swaziland, Tanzania, Zimbabwe (OLMI 1984, 2006, 2009). Newly recorded from Kenya and Uganda in this paper.

53. *Dryinus hova* (Ceballos, 1936)

Material examined. Published record. OLMI & COPELAND (2011): **KENYA: EASTERN:** Tsavo National Park (02°38.51'S 38°21.98'E).

Distribution. Recorded from Kenya (OLMI & COPELAND 2011) and Madagascar (CEBALLOS 1936).

54. *Dryinus orophilus* (Benoit, 1950)

Material examined. Published records. OLMI & COPELAND (2011): **KENYA: COAST:** Shimba Hills National Park (04.23456°S 39.41687°E). **EASTERN:** Umani Springs camp (02°27.97'S 37°54.80'E); Njuki-ini Forest (00.51660°S 37.41843°E); Samburu National Reserve (00.56797°N 37.53563°E). **NYANZA:** Ungoye, ICIPE Field Station (00.61517°S 34.09200°E). **RIFT VALLEY:** Masai Mara National Reserve (01.54638°S 35.30672°E); Marich Pass field station (01.53633°N 35.45800°E).

Distribution. Recorded from many Afrotropical countries, from Ghana to South Africa and Kenya, in addition to Yemen and Oman (OLMI & COPELAND 2011).

55. *Dryinus shimbanus* Olmi, 2011 in OLMÍ & COPELAND (2011)

Material examined. New records. BURUNDI: Ruvubu National Park, 2.98144°S 30.45531°E, 1382 m, 20.i–4.ii.2010, Malaise trap, near Ruvubu River, R. Copeland leg., 1 ♀ (RSC). **KENYA: COAST:** Mrima Hill Forest, 4.48576°S 39.25845°E, 212 m, 13–27.vi.2011, Malaise trap, indigenous forest edge, R. Copeland leg., 1 ♀ (RSC); Gede Forest, 3.30946°S 40.01941°E, 19 m, 31.x–13.xi.2011, Malaise trap, secondary forest, 1 ♀ (NMKE); Kaya Kinondo, 4.39382°S 39.54567°E, 10 m, 17–31.v.2011, indigenous forest, Malaise trap, coral rag, canopy forest, R. Copeland leg., 1 ♀ (RSC); Muhaka Forest, 4.32530°S 39.52345°E, 52 m, 30.v–19.vi.2013, six-meter Malaise trap, indigenous forest, R. Copeland leg., 3 ♀♀ (1 in NMKE, 1 in RSC, 1 in MOLC). **CENTRAL AFRICAN REPUBLIC: SANGHA-MBAËRÉ PREFECTURE:** Dzanga-Sangha Dense Forest Special Reserve, 12.7 Km 326° NW Bayanga, 03°00'27"N 16°11'55"E, 420 m, 14–15.v.2001, Malaise trap, lowland rainforest, S. van Noort leg., 1 ♀ (SAMC). **ZAMBIA: COPPERBELT PROVINCE:** Kitwe, Chati, 6.iii.1980, K. Loytyniemi leg., 1 ♀ (BMNH).

Published records. OLMÍ & COPELAND (2011): **KENYA: COAST:** Shimba Hills National Park (04.22752°S 39.43197°E), ♀ holotype (NMKE).

Distribution. Recorded from Kenya (OLMÍ & COPELAND 2011), newly recorded here from Burundi, the Central African Republic and Zambia.

56. *Dryinus spangleri* Olmi, 1984

Material examined. New record. MADAGASCAR: ANTSIRANANA PROVINCE: Diana Region, Orangea dry forest, Ramena, Baie de dune, 900 m E of Camp Minier, 12°13.97'S 49°21.99'E, 152 m, 1–8.vi.2011, Malaise trap, dry forest, M. Irwin & R. Harin'Hala leg., 1 ♀ (CASC).

Published records. OLMÍ & COPELAND (2011): **KENYA: COAST:** Mombasa.

Distribution. Recorded from many Afrotropical countries, from Guinea-Bissau to South Africa and Kenya (OLMÍ & COPELAND 2011), here recorded from Madagascar for the first time.

57. *Dryinus turneri* nom. nov.

Lestodryinus ampuliciformis Turner, 1928: 148; preoccupied by *Campylonyx ampuliciformis* Westwood, 1835.

Mesodryinus ampuliciformis (Turner): BENOIT (1953: 144).

Tridryinus ampuliciformis (Turner): OLMÍ (1984: 937).

Dryinus ampuliciformis (Turner): OLMÍ (2006: 41, 2009: 458), OLMÍ & COPELAND (2011: 194).

Material examined. New records. KENYA: NYANZA: Ungoye Field Station, 0°36.91'S 34°05.52'E, 1147 m, 27.ii–6.iii.2005, Malaise trap, R.S. Copeland leg., 1 ♀ (RSC); same locality label, 6–13.iii.2005, 1 ♀ (NMKE). **RIFT VALLEY:** Marich Pass, 1°32.18'N 35°27.48'E, 917 m, 23.i–6.ii.2005, Malaise trap, R.S. Copeland leg., 1 ♀ (NMKE); Nguruman, near Sampu River, 1.90117°S 36.05040°E, 723 m, 27.viii–10.ix.2011, Malaise trap, near base of Nguruman Escarpment, R. Copeland leg., 1 ♀ (RSC); same locality label, 13–27.viii.2011, 1 ♀ (NMKE). **WESTERN:** Kakamega District, Kakamega Forest, Kisere Forest, Calebs Campground, 00°22.175'N 34°53.297'E, 1580 m, Manfred Kraemer leg., ex Michael von Tschirnhaus collection, 1 ♀ (MTC).

Published records. OLMÍ & COPELAND (2011): **KENYA: CENTRAL:** Nairobi, Karen. **EASTERN:** At Athi R. (02°38.51'S 38°21.98'E); Samburu National Reserve (00.56797°N 37.53563°E).

Etymology. The new substitute name hereby proposed is *Dryinus turneri*, after the famous British entomologist Mr R. E. Turner.

Distribution. Recorded from many Afrotropical countries, from Nigeria to Somalia (OLMÍ & COPELAND 2011).

Comment. *Dryinus ampuliciformis* (Turner, 1928) is preoccupied by *Campylonyx ampuliciformis* Westwood, 1835 (now junior synonym of *Dryinus collaris* Linnaeus, 1767), because

Campylonyx Westwood, 1835 is junior synonym of *Dryinus* Latreille, 1804 (synonymized by OLMI 1984).

58. *Dryinus undulatus* (Benoit, 1950)

Material examined. *New record.* CENTRALAFRICAN REPUBLIC: 150 km NWW Mbaiki, 04°03'N 17°02'E, 620 m, 14.vi.2009, J. Halada leg., 1 ♀ (OOLL).

Published records. OLMI & COPELAND (2011): BURUNDI: Bururi. KENYA: RIFT VALLEY: Ol Pejeta Conservancy (00.04364°N 36.97554°E).

Distribution. Afrotropical, recorded from Burundi, Democratic Republic of the Congo, Kenya, Mozambique and Uganda (OLMI & COPELAND 2011). New for the Central African Republic.

Genus *Thaumatodryinus* Perkins, 1905

59. *Thaumatodryinus overholtii* sp. nov.*

(Figs 5B, 7A)

Type material. HOLOTYPE: ♂, KENYA: COAST: Gede Forest, 3.30946°S 40.01941°E, 19 m, 22.viii–5.ix.2011, Malaise trap, secondary Forest, R. Copeland leg. (NMKE). Paratype: KENYA: COAST: 1 ♂ Muhaka Forest, 4.32530°S 39.52345°E, 52 m, 27–30.v.2013, six-meter Malaise trap, indigenous forest, R. Copeland leg. (MOLC).

Diagnosis. Male with head and mesosoma mostly brown, except testaceous areas; notauli incomplete; inner side of paramere without mosaic sculpture (Fig. 5B).

Description. *Male.* Fully winged; length 2.1–2.8 mm (holotype 2.1 mm). Head brown, except mandible, clypeus and anterior half of face testaceous; antenna testaceous-dark; mesosoma brown, except pronotum and a small area behind hind tegula testaceous (small area behind fore tegula and hind tegula testaceous in paratype); metasoma brown; legs testaceous. Antenna filiform; antennal segments in following proportions: 6 : 6 : 7 : 9 : 11 : 11 : 10 : 9 : 8 : 10. Head shiny, convex, punctate and granulated; frontal line absent; occipital carina complete; POL = 5; OL = 2; OOL = 4.5; OPL = 0.5; TL = 2; greatest breadth of posterior ocellus as long as TL. Scutum dull, granulated. Notauli incomplete, reaching about 0.7–0.8 length of scutum (0.8 in holotype). Scutellum granulated and punctate. Metanotum shiny, unsculptured. Propodeum reticulate rugose, without strong transverse keel between dorsal and posterior surface; dorsal and posterior surface with tracks of two median longitudinal keels. Forewing hyaline, without dark transverse bands; distal part of stigmal vein longer than proximal part (18 : 13). Inner side of paramere without mosaic sculpture (Fig. 5B). Tibial spurs 1/1/2.

Female. Unknown.

Differential diagnosis. Based on the characters summarized in the above diagnosis, in the Afrotropical Region the new species can be easily recognized from the other males of Afrotropical *Thaumatodryinus* by the incomplete notauli. In all other species in fact the notauli are complete.

Hosts. Unknown.

Etymology. This species is named after my (RSC) friend, Dr. William A. Overholt, the internationally known expert in the use of wasp parasitoids for the biological control of insect pests.

Distribution. Only known from Coast Province (Kenya).

60. *Thaumatomydryinus sokokensis* Olmi, 2007*

Material examined. New records. KENYA: COAST: Taita Hills, Chawia Forest, 3.47908°S 38.34162°E, 1614 m, 24.vii–7.viii.2011, Malaise trap, next to small forest pond, R. Copeland leg., 1 ♂ (RSC); same locality label, 7–21. viii.2011, 1 ♂ (NMKE); same locality label, 27.v–10.vi.2012, 1 ♂ (MOLC); Taita Hills, Vuria Forest, 3.41428°S 38.29178°E, 2162 m, 11–25.i.2012, Malaise trap just inside indigenous forest, R. Copeland leg., 1 ♂ (RSC); Kaya Kinondo, 4.39382°S 39.54567°E, 10 m, 22.viii–5.ix.2011, indigenous forest, Malaise trap, coral rag canopy forest, R. Copeland leg., 1 ♂ (NMKE).

Published records. OLMÍ & COPELAND (2011): KENYA: COAST: Sokoke Forest, ♂ holotype (AEIC).

Distribution. Recorded only from Kenya (OLMI 2007, OLMÍ & COPELAND 2011).

61. *Thaumatomydryinus tuukkaraski* sp. nov.*

(Figs 5A, 6, 11)

Type material. HOLOTYPE: ♀, **KENYA: COAST:** Taita Hills, Vuria Forest, 3.41428°S 38.29178°E, 2162 m, 28.xii.2011–11.i.2012, Malaise trap, just inside indigenous forest, R. Copeland leg. (NMKE).

Diagnosis. Female with occipital carina incomplete; forewing crossed by dark transverse band; hind wing hyaline.

Description. Female. Fully winged; length 3.4 mm. Head black, except mandible testaceous and clypeus partly testaceous and brown; antenna testaceous; mesosoma black, except disc and lateral regions of pronotum, including pronotal tubercles, testaceous; petiole black;



Fig. 6. *Thaumatomydryinus tuukkaraski* sp. nov., female habitus, lateral view. Length 3.4 mm.



Fig. 7. A – Six-meter Malaise trap operating in Muhaka Forest, one of the collection sites of *Thaumatodryinus overholti* sp. nov. B – Townes-style Malaise trap operating at Kasigau Mountain, collection site of *Bocchus johanssoni* sp. nov.

metasoma brown; legs testaceous-whitish, except clubs of femora brown. Antenna clavate; antennal segments in following proportions: 14 : 7 : 26 : 29 : 35 : 34 : 25 : 14 : 11 : 13. Head dull, granulated and reticulate rugose; occipital carina incomplete, only present behind ocellar triangle and on sides of posterior ocelli, laterally not reaching eyes; POL = 8; OL = 3; OOL = 12; OPL = 2; temple absent; greatest breadth of posterior ocellus about as long as OL. Pronotum dull, crossed by one transverse furrow, granulated and transversely striate; posterior tubercle reaching tegula. Scutum dull, completely granulated and slightly reticulate rugose. Notauli complete, posteriorly separated; minimum distance between notauli slightly longer than POL (9 : 8). Scutellum shiny, slightly reticulate rugose. Metanotum shiny, unsculptured. Propodeum reticulate rugose. Forewing with one dark transverse band beneath pterostigma; distal part of stigmal vein longer than proximal part (32 : 15). Hindwing hyaline, without brown transverse bands. Protarsal segments in following proportions: 23 : 3 : 7 : 24 : 37. Segment 3 of protarsus produced into hook. Enlarged claw (Fig. 5A) with two subapical teeth and one row of 27 lamellae. Segment 5 of protarsus (Fig. 5A) with two rows of approximately 38 lamellae; distal apex with approximately six lamellae. Tibial spurs 1/1/2.

Male. Unknown.

Differential diagnosis. With reference to the characters summarized in the above diagnosis, in the Afrotropical Region the new species is similar to *Thaumatomyia dentatus* Benoit, 1954 and *T. migratorius* Benoit, 1954. The main differences regard the forewing (crossed by one dark transverse band in *T. tuukkaraski*; hyaline in *T. dentatus* and *T. migratorius*) and OPL/OL ratio (OPL < OL in *T. tuukkaraski*; OPL = OL in *T. migratorius*; OPL > OL in *T. dentatus*). In addition, the mesosoma of *T. migratorius* is completely testaceous-reddish, whereas it is partly black in the other two species.

Etymology. This species is named after Tuukka Rask, the acrobatic goaltender for the Finnish National ice hockey team and the Boston Bruins, whose glove hand is as tenacious as the raptorial fore tarsus of this dryinid species.

Hosts. Unknown.

Distribution. Only known from the type locality.

Subfamily Gonatopodinae

Genus *Adryinus* Olmi, 1984

62. *Adryinus cerrutii* (Benoit, 1951b)

Material examined. *Published record.* OLMÍ & COPELAND (2011): KENYA: CENTRAL: Nairobi, ♀ holotype (MRAC).

Distribution. Recorded from Kenya and Zimbabwe (OLMI & COPELAND 2011).

Genus *Echthrodelphax* Perkins, 1903

63. *Echthrodelphax migratorius* Benoit, 1954**

Material examined. *New records:* KENYA: COAST: Kasigau Mtn., 3.82667°S 38.64982°E, 1117 m, indigenous forest, Malaise trap next to spring in forest, 30.vi–13.vii.2011, R. Copeland leg., 1 ♀ (RSC); Boni Forest area, near Bodhei Village, 1.85551°S 40.69889°E, 30 m, 6–18.vi.2013, 2 m Malaise trap, mixed grass- and woodland, J. Bukhebi & R. Copeland leg., 1 ♀ (RSC). EASTERN: Ngaia Forest, bottom of forest, 0.32442°N 38.05038°E, 1057 m, 24.xii.2011–7.i.2012, Malaise trap, inside indigenous forest, R. Copeland leg., 2 ♀♀ (1 in NMKE, 1 in RSC).

Distribution. Recorded from many Afrotropical countries, from the Cape Verde Islands, Niger and Senegal to Madagascar and Somalia, in addition to Oman and Egypt (OLMI 1984, 1994b, 2006).

64. *Echthrodelphax tauricus* Ponomarenko, 1970**

Material examined. *New record.* KENYA: COAST: Kasigau Mtn., 3.82667°S 38.64982°E, 1117 m, 16–30.vi.2011, Malaise trap, indigenous forest, next to spring in forest, R. Copeland leg., 1 ♀ (RSC).

Distribution. Recorded from many Afrotropical countries (from the Cape Verde Islands to Somalia, including Madagascar and South Africa), in addition to many European countries, Oman, Yemen and the United Arab Emirates (OLMI 1999a, 2008; OLMI & HARTEN 2006; AZEVEDO et al. 2010).

Genus *Gonatopus* Ljungh, 1810

65. *Gonatopus acuminatus* Olmi, 1984

Material examined. *Published record.* OLMI & COPELAND (2011): KENYA: COAST: Shimba Hills National Park (04.23456°S 39.41687°E).

Distribution. Recorded from Democratic Republic of the Congo and Kenya (OLMI & COPELAND 2011).

66. *Gonatopus baginei* Olmi, 2011 in OLMI & COPELAND (2011)*

Material examined. *Published record.* OLMI & COPELAND (2011): KENYA: NYANZA: Ungoye Field Station (00°36.91'S 34°05.52'E).

Distribution. Only known in Kenya.

67. *Gonatopus bekilyanus* (Benoit, 1953)

Material examined. *Published record.* OLMI & COPELAND (2011): KENYA: CENTRAL: Mt Kenya.

Distribution. Recorded from Kenya, Madagascar, Mozambique and South Africa (OLMI & COPELAND 2011).

68. *Gonatopus communis* Olmi, 1984

Material examined. *Published record.* OLMI & COPELAND (2011): KENYA: WESTERN: Kakamega Forest (00°22.12'N 34°51.48'E).

Distribution. Recorded from Democratic Republic of the Congo, Ethiopia, Kenya, Madagascar, Mozambique, South Africa and Tanzania (OLMI & COPELAND 2011).

69. *Gonatopus hyalinus* Olmi, 1984

Material examined. *New record.* UGANDA: Kawanda, vi.1943, T. H. C. Taylor leg., 1 ♀ (BMNH).

Published record. OLMI & COPELAND (2011): KENYA: CENTRAL: Nairobi, Embakasi Forest.

Distribution. Recorded from Kenya and South Africa (OLMI & COPELAND 2011), newly recorded for Uganda.

70. *Gonatopus luteipes* (Benoit, 1951b)

Material examined. Published record. OLMÍ & COPELAND (2011): KENYA: RIFT VALLEY: Olgasalic (= Oolge-sailie), ♀ holotype (MRAC).

Distribution. Recorded from Kenya and Namibia (OLMI & COPELAND 2011).

71. *Gonatopus meridionalis* (Benoit, 1953)

Material examined. Published records. OLMÍ & COPELAND (2011): KENYA: CENTRAL: Gatamayu Forest (00°58.68'S 36°41.62'E); Nairobi, ICIPE Research Station (01°17'S 36°49'E).

Distribution. Recorded from Democratic Republic of the Congo, Ethiopia, Kenya, Madagascar, Rwanda and South Africa (OLMI & COPELAND 2011).

72. *Gonatopus nearcticus* (Fenton, 1927)

Material examined. Published records. OLMÍ & COPELAND (2011): KENYA: CENTRAL: Nairobi; Mount Kenya Safari Club. RIFT VALLEY: Subukia (00°0.429'N 36°14.523'E); Olgasalic (= Ologesailie).

Distribution. Recorded from many countries of the Palaearctic, Afrotropical and Nearctic Regions (OLMI & COPELAND 2011); in Africa recorded from many sub-saharian countries, from Benin to South Africa and Ethiopia (OLMI 1984, 2006).

73. *Gonatopus patrizii* Benoit, 1951b

Material examined. Published records. OLMÍ & COPELAND (2011): KENYA: CENTRAL: Nairobi, ♀ holotype (MRAC). EASTERN: Kimeri Hill (00°25.45'S 37°32.71'E).

Distribution. Recorded from Kenya and South Africa (OLMI & COPELAND 2011).

74. *Gonatopus similis* Brues, 1906

Material examined. Published record. OLMÍ & COPELAND (2011): KENYA: RIFT VALLEY: Nguruman, Oloibortoto River irrigation scheme (01°48'S 36°04'E).

Distribution. Afrotropical, recorded from The Gambia to South Africa, Réunion, Mauritius and Kenya (OLMI 2006, OLMÍ & COPELAND 2011).

75. *Gonatopus somerseti* (Olmi, 1984)

Material examined. Published record. OLMÍ & COPELAND (2011): KENYA: NORTH EASTERN: Kora.

Distribution. Recorded from Kenya and South Africa (OLMI & COPELAND 2011).

76. *Gonatopus taylori* Olmi, 1984

Material examined. Published record. OLMÍ & COPELAND (2011): KENYA: EASTERN: Kibwezi, 1 ♀ paratype (CASC).

Distribution. Recorded from Botswana, Ethiopia, Kenya, South Africa and Uganda (OLMI & COPELAND 2011).

77. *Gonatopus upembanus* Olmi, 1984

Material examined. Published record. OLMI & COPELAND (2011): **KENYA: EASTERN:** near Ewaso Ngiro River (00°38.1'N 37°40.4'E).

Distribution. Recorded from Democratic Republic of the Congo and Kenya (OLMI & COPELAND 2011).

Family EMBOLEMIDAE

Genus *Ampulicomorpha* Ashmead, 1893

ACHTERBERG & KATS (2000) considered *Ampulicomorpha* Ashmead, 1893, and *Embolemus* Westwood, 1833 (Embolemidae), synonyms. We agree that it is sometimes difficult to assign a male to *Ampulicomorpha* or *Embolemus*, because the length and the pigmentation of the veins enclosing the 1SDC cell (and mainly the posterior vein, near 1A vein) are sometimes variable (1SDC closed or open is the only character used for separating the males of the two above genera). However, females are not a problem, because they are brachypterous or micropterous in *Embolemus* and macropterous in *Ampulicomorpha*. For the present, we prefer to continue to consider both genera valid, because in most cases they are easily separated and a recent paper by OLMI et al. (2014), based on biology and fossils of Embolemidae, seems to confirm the separation of the two above genera. We agree with ACHTERBERG & KATS (2000) that ‘certainty about this problem will be gained after a thorough analysis of both sexes of the species involved, preferably including DNA analysis’.

1. *Ampulicomorpha madecassa* Olmi, 1999b**

Material examined. New record. **KENYA: EASTERN:** Kiboko Sanctuary, 2.20331°S 37.71430°E, 925 m, 8–22.ix.2011, Malaise trap, edge of indigenous forest, R. Copeland leg., 1 ♀ (RSC). **REPUBLIC OF SOUTH AFRICA: KwaZULU-NATAL:** Louwsberg, Sanyati Farm, 1090 m, 27°34'S 31°17.9'E, 30.x–18.xii.2005, MTR, M. Mostovski leg., 1 ♀ (NTM).

Distribution. Previously recorded from Madagascar (OLMI 1999b). Newly recorded for Kenya and South Africa here.

2. *Ampulicomorpha magna* Olmi, 1996

Material examined. Published record. OLMI & COPELAND (2011): **KENYA: CENTRAL:** Nairobi, NMK compound.

Distribution. Recorded from Gabon, Kenya, Malawi, South Africa, Zambia and Zimbabwe (OLMI & COPELAND 2011).

3. *Ampulicomorpha nzigidaherai* Olmi, 2011 in OLMI & COPELAND (2011)

Material examined. New records. **BURUNDI:** Bururi National Forest, 3.93022°S 29.61697°E, 1955 m, 7–21.ix.2010, Malaise trap, indigenous forest, near stream, 1 ♂ (RSC); same locality label, 24.viii–7.ix.2010, 1 ♂ (MOLC). **KENYA: COAST:** Taita Hills, Vuria Forest, 3.41428°S 38.29178°E, 2162 m, 16–30.x.2011, Malaise trap just inside indigenous forest, R. Copeland leg., 1 ♂ 1 ♀ (RSC); Taita Hills, Ngangao Forest, 3.36100°S 38.34186°E, 1848 m, 4–18.ix.2011, Malaise trap, indigenous forest, R. Copeland leg., 1 ♀ (RSC); same locality label, 24.vii–7.viii.2001, 2 ♂♂ (1 in NMKE, 1 in RSC); Kasigau Mtn., 3.82700°S 38.64875°E, 1065 m, 5–19.x.2011, Malaise trap, indigenous

forest, next to campsite in forest, R. Copeland leg., 1 ♀ (RSC). **EASTERN:** Nyambene Hills, Itieni Forest, at bottom, 0.24433°N 37.87016°E, 2142 m, 30.x–13.xi.2011, Malaise trap, edge of indigenous forest, near forest station, R. Copeland leg., 1 ♀ (RSC); same locality label, 7–21.viii.2011, 2 ♀♀ (1 in NMKE, 1 in RSC); same locality label, 10–24.vii.2011, 1 ♀ (MOLC); same locality label, 15–27.xi.2011, 1 ♀ (NMKE); same locality label, 27.xi–11.xii.2011, 2 ♀♀ (RSC). **NAIROBI:** Karura Forest, 1.23587°S 36.82435°E, 1666 m, 9–23.v.2011, Malaise trap, indigenous forest, near stream, 2 ♀♀ (NMKE). **RIFT VALLEY:** Oloitokitok, 2.94456°S 37.50714°E, 1853 m, 19.viii–2.ix.2011, Malaise trap, edge of indigenous forest, R. Copeland leg., 1 ♀ (RSC); same locality label, 22.vii–5.viii.2011, 1 ♀ (NMKE).

Published records. OLMÍ & COPELAND (2011): **BURUNDI:** Kibira National Park (02.93315°S 29.50583°E), ♀ holotype (MRAC). **KENYA: COAST:** Mbololo Forest (03°20.00'S 38°26.85'E), 1 ♀ paratype (NMKE); Fururu Forest (03°25.78'S 38°20.30'E), 1 ♀ paratype (RSC); Ngangao Forest (03°21.239'S 38°17.985'E), 1 ♀ paratype (MOLC); Macha Forest (03°26.81'S 38°21.76'E), 1 ♂ paratype (RSC); Sagalla Forest (03°30'S 38°35'E), 2 ♂♂ paratypes (NMKE, MOLC).

Distribution. Recorded only from Burundi and Kenya (OLMI & COPELAND 2011).

Genus *Embolemus* Westwood, 1833

4. *Embolemus ambrensis* Olmi, 2004**

Material examined. New records. KENYA: COAST: Kaya Kinondo, 4.39382°S 39.54567°E, 10 m, 3–17.x.2011, Malaise trap, coral rag canopy forest, R. Copeland leg., 1 ♂ (RSC); same locality label, 8–22.viii.2011, 2 ♂♂ (NMKE); Mrima Hill Forest, 4.48576°S 39.25845°E, 212 m, 17–31.x.2011, Malaise trap, indigenous forest edge, R. Copeland leg., 2 ♂♂ (1 in NMKE, 1 in MOLC); same locality label, 31.x–13.xi.2011, 3 ♂♂ (NMKE); Gede Forest, 3.30946°S 40.01941°E, 19 m, 22.viii–5.ix.2011, indigenous forest, Malaise trap, secondary forest, R. Copeland leg., 1 ♂ (RSC). **EASTERN:** Nyambene Hills, Itieni Forest, at bottom, 0.24433°N 37.87016°E, 2142 m, 13–27.xi.2011, Malaise trap, edge of indigenous forest, near forest station, R. Copeland leg., 1 ♂ (RSC); same locality label, 16–30.x.2011, 1 ♂ (MOLC); same locality label, 18.ix–2.x.2011, 1 ♂ (NMKE).

Distribution. Recorded from Madagascar (OLMI 2004) and South Africa (OLMI 2006).

5. *Embolemus burundensis* Olmi, 2011 in OLMÍ & COPELAND (2011)*

Material examined. Published records. OLMÍ & COPELAND (2011): **BURUNDI:** Kibira National Park (02.93315°S 29.50583°E), ♂ holotype (MRAC), 2 ♂♂ paratypes (INECN, MOLC).

Distribution. Only known in the type locality of Burundi.

6. *Embolemus capensis* Olmi, 1997

Material examined. New records. KENYA: COAST: Taita Hills, Ngangao Forest, 3.36100°S 38.34186°E, 1848 m, 4–18.ix.2011, Malaise trap, indigenous forest, R. Copeland leg., 2 ♂♂ (RSC); same locality label, 21.viii–4.ix.2001, 1 ♂ (NMKE); same locality label, 8–22.viii.2012, 1 ♂ (NMKE); Taita Hills, Vuria Forest, 3.41428°S 38.29178°E, 2162 m, 29.v–12.vi.2011, Malaise trap just inside indigenous forest, R. Copeland leg., 1 ♂ (RSC). **EASTERN:** Kiboko Sanctuary, 2.20331°S 37.71430°E, 925 m, 11–25.viii.2011, Malaise trap, edge of indigenous forest, R. Copeland leg., 1 ♂ (RSC); Nyambene Hills, Itieni Forest, at bottom, 0.24433°N 37.87016°E, 2142 m, 2–16.x.2011, Malaise trap, edge of indigenous forest, near forest station, R. Copeland leg., 1 ♂ (RSC); same locality label, 27.xi–11.xii.2011, 1 ♂ (NMKE); same locality label, 7–21.viii.2011, 2 ♂♂ (1 in NMKE, 1 in MOLC).

Published records. OLMÍ & COPELAND (2011): **BURUNDI:** Kibira National Park (02.93315°S 29.50583°E). **KENYA: CENTRAL:** Gatamayu Forest (00°58.68'S 36°41.62'E); Nairobi, Runda Estate. **RIFT VALLEY:** Saiwa Swamp National Park (01°09.417'N 35°11.833'E).

Distribution. Recorded from Burundi, Kenya, Madagascar, São Tomé and Príncipe, South Africa (OLMI 1997, OLMÍ & COPELAND 2011).

7. *Embolemus harteni* Olmi, 1997

Material examined. New records. KENYA: NAIROBI: Karura Forest, 1.23587°S 36.82435°E, 1666 m, 11–25.iv.2011, Malaise trap, indigenous forest, near stream, 3 ♂♂ (2 in NMKE, 1 in MOLC); same locality label, 23.v–7.vi.2011, 1 ♂ (RSC); same locality label, 9–23.v.2011, 2 ♂♂ (1 in NMKE, 1 in RSC). REPUBLIC OF SOUTH AFRICA: KWAZULU-NATAL: Ashburton, 29°39'23"S 30°27'41"E, 11.v–24.vii.2006, Malaise trap, G. Whiteley leg., 1 ♂ (DJBC).

Published records. OLMI & COPELAND (2011): KENYA: NYANZA: Ungoye Field Station (00°36.91'S 34°05.52'E); Gwasi Hill (00°61.67'S 34°10.17'E). RIFT VALLEY: Nguruman (01°90,103'S 36°04.804'E).

Distribution. Recorded from Yemen (OLMI 1997) and Kenya (OLMI & COPELAND 2011), here newly recorded for Republic of South Africa.

Family SCLEROGIBBIDAE

Genus *Caenosclerogibba* Yasumatsu, 1958

1. *Caenosclerogibba probethyloides* Olmi, 2005b

Material examined. Published record. OLMI & COPELAND (2011): KENYA: COAST: 10 mi. NW Mombasa. MADAGASCAR: TOLIARA PROVINCE: Berenty Private Reserve, De Bealoka Forest, Mandraré River, 14.6 km 329° NNW Amboasary, 24°57.25'S 46°16.17'E, 35 m, 3–8.ii.2002, Fisher, Griswold et al. leg., 1 ♀ (CASC).

Hosts in Kenya. *Oligotoma saundersii* (Westwood, 1837) (Embiidina) (OLMI 2005b).

Distribution. Recorded from many Afrotropical countries (Cameroon, Ivory Coast, Kenya, Liberia, Tanzania, Uganda), in addition to Yemen (OLMI 2005b) and Madagascar (new record published here).

Genus *Probethylus* Ashmead, 1902

2. *Probethylus callani* Richards, 1939

Material examined. New record. NIGERIA: OSUN STATE: Ile-Ife, v.1973, J. T. Medler leg., 2 ♂♂ (BMNH).

Published record. OLMI & COPELAND (2011): KENYA: RIFT VALLEY: Nguruman, S. Pukare farm.

Distribution. Recorded from many Nearctic, Neotropical and Afrotropical countries (OLMI 2005b). In Africa known from Angola, Democratic Republic of the Congo, Kenya, South Africa and Tanzania (OLMI 2005b, OLMI & COPELAND 2011). Here newly recorded from Nigeria.

Genus *Sclerogibba* Riggio & De Stefani-Perez, 1888

3. *Sclerogibba berlandi* Benoit, 1963

Material examined. New record. MOZAMBIQUE: NIASSA PROVINCE: Cuamba, Mituque, 22.v–3.vi.2008, Malaise trap, M. Olmi leg., 1 ♂ (MOLC).

Published record. OLMI & COPELAND (2011): KENYA: EASTERN: at Athi R. (02°38.51'S 38°21.98'E).

Distribution. Recorded from many Palaearctic, Afrotropical and Oriental countries (OLMI 2005b). In Africa known from Angola, Cameroon, Democratic Republic of the Congo, Kenya, Madagascar, Namibia, South Africa, Tanzania, Zimbabwe and Northern Africa (OLMI 2005b, OLMI & COPELAND 2011), here newly recorded for Mozambique.

4. *Sclerogibba crassifemorata* Riggio & De Stefani-Perez, 1888

Material examined. New records. KENYA: COAST: Funzi Island, 4.57776°S 39.44127°E, near sea level, 24–28.vii.2012, Malaise trap, mixed grass- woodland, R. Copeland leg., 1 ♂ (RSC); Funzi Island, 4.57776°S 39.43825°E, near sea level, 4–10.vii.2012, Malaise trap, near Funzi workshop, ICIPE/NMKE Funzi Island Expedition, 4 ♂♂ (NMKE). **EASTERN:** Samburu Nat. Res., near Ewaso Ng'iro R., 00.56797°N 37.53563°E, 874 m, 7–21.viii.2006, riverine forest, near Hdqtrs., Malaise trap, R. Copeland, 1 ♂ (RSC); Simisi area, 2.01477°S 38.32618°E, 653 m, 1–4.xii.2013, Malaise trap, shrubland near Kwandula Hill, J. Bukhebi & R. Copeland leg., 1 ♂ (NMKE); Kasaala area, 2.07846°S 38.22530°E, 740 m, 28.xi–4.xii.2013, six-meter Malaise trap, just inside isolated woodland patch, J. Bukhebi & R. Copeland leg., 1 ♂ (RSC); Ngaia Forest, 0.32442°N 38.05038°E, 1057 m, 3–17.ix.2011, Malaise trap, inside indigenous forest, R. Copeland leg., 2 ♂♂ (1 in NMKE, 1 in RSC). **RIFT VALLEY:** Ologesailie National Monument, 1.57930°S 36.44566°E, 982 m, 21.v–4.vi.2011, Malaise trap, *Acacia-Commiphora* savannah, R. Copeland leg., 1 ♂ (RSC); same locality label, 10–24.VII.2011, 1 ♂ (MOLC); same locality label, 18.ix–2.x.2011, 1 ♂ (NMKE); Ologesailie National Monument, 1.57962°S 36.44730°E, 979 m, 18.vi–2.vii.2011, Malaise trap, near Ol Keju Nyiro River, R. Copeland leg., 4 ♂♂ (2 in NMKE, 2 in RSC).

Published records. OLMÍ & COPELAND (2011): **KENYA: EASTERN:** Tsavo National Park, Nutter's Farm (02°38.51'S 38°21.98'E); Samburu National Reserve (00.56797°N 37.53563°E); base of Ukasi Hill (0.82103°S 38.54443°E). **NYANZA:** Gembe Hills (00.4893°S 34.2433°E); Ruma National Park (00.64725°S 34.33595°E). **RIFT VALLEY:** Marich Pass (01°32.18'N 35°27.48'E); Marich Pass field station (1.53633°N 35.45800°E); Chyulu Hills (02.50222°S 37.75343°E); Tsavo West National Park (02.99615°S 38.45988°E).

Distribution. Recorded from many Palaearctic and Afrotropical countries (OLMI 2005b). In Africa known from Central African Republic, Kenya, Niger and Northern Africa (OLMI 2005b, OLMÍ & COPELAND 2011).

5. *Sclerogibba impressa* Olmi, 2005b

Material examined. Published record. OLMÍ & COPELAND (2011): **KENYA: EASTERN:** Tsavo East National Park (02°38.51'S 38°21.98'E).

Distribution. Recorded from Afrotropical and Oriental countries (OLMI 2005b). In Africa known only from Kenya and Uganda (OLMI 2005b, OLMÍ & COPELAND 2011).

6. *Sclerogibba madegassa* Benoit, 1952

Material examined. New records. MOZAMBIQUE: MANICA PROVINCE: 55 Km NW Chimoio, 13°44'S 33°15'E, 550 m, 28.xi.2005, J. Halada leg., 1 ♂ (OOLL). **TANZANIA:** SHINYANGA REGION: Old Shinyanga, 6.viii.1951, ex Embiid jar, E. Burt leg., 1 ♀ (BMNH)

Published records. OLMÍ & COPELAND (2011): **KENYA: EASTERN:** Marsabit. **NYANZA:** Gembe Hills (00°29.36'S 34°14.60'E).

Hosts in Kenya. Unidentified Teratembiiidae (Embiidina) (OLMI 2005b).

Distribution. Recorded from many Afrotropical and Oriental countries (OLMI 2005b). In Africa known from Angola, Cameroon, Democratic Republic of the Congo, Gabon, Kenya, Liberia, Madagascar, Nigeria and Rwanda (OLMI 2005b, OLMÍ & COPELAND 2011), in addition to Mozambique and Tanzania.

7. *Sclerogibba magrettii* (Kieffer, 1913)

Material examined. New records. KENYA: EASTERN: base of Ukasi Hill, 0.82103°S 38.54443°E, 613 m, 21.xi–5.xii.2011, Malaise trap, *Acacia-Commiphora* savannah, R. Copeland leg., 1 ♂ (RSC); same locality label, 5–10.

xii.2011, 1 ♂ (NMKE); same locality label, 7–21.xi.2011, 1 ♂ (RSC); Kasaala area, 2.07846°S 38.22530°E, 740 m, 28.xi–4.xii.2013, six-meter Malaise trap, just inside isolated woodland patch, J. Bukhebi & R. Copeland leg., 2 ♂♂ (1 in NMKE, 1 in MOLC). **RIFT VALLEY:** Olorgesailie National Monument, 1.57930°S 36.44566°E, 982 m, 18.ix–2.x.2011, Malaise trap, *Acacia-Commiphora* savannah, R. Copeland leg., 4 ♂♂ (2 in NMKE, 2 in RSC); same locality label, 16–30.x.2011, 1 ♂ (NMKE).

Published records. OLMI & COPELAND (2011): **KENYA:** NYANZA: Got Rabour (00.49298°S 34.18918°E). **RIFT VALLEY:** Tsavo West National Park (02.99615°S 38.45988°E); Chyulu Hills (02.50222°S 37.75343°E).

Distribution. Recorded from many Palaearctic, Afrotropical and Oriental countries (OLMI 2005b). In Africa known from Eritrea, Kenya, Nigeria, Tanzania and Northern Africa (OLMI 2005b, OLMI & COPELAND 2011).

8. *Sclerogibba rapax* Olmi, 2005b

Material examined. Published records. OLMI & COPELAND (2011): **KENYA:** COAST: 10 mi. S Maktau. **NYANZA:** Gembe Hills (00.4893°S 34.2433°E).

Hosts in Kenya. *Embia burensis* (Rimsky-Korsakov, 1927) (Embiidina) (OLMI 2005b).

Distribution. Recorded from many Afrotropical and Oriental countries (OLMI 2005b). In Africa known from Angola, Cameroon, Democratic Republic of the Congo, Ghana, Kenya and Malawi (OLMI 2005b, OLMI & COPELAND 2011).

9. *Sclerogibba rufithorax* (Cameron, 1904)

Material examined. New records. **KENYA:** EASTERN: Samburu National Reserve, near Ewaso Ng'iro River, 0.56797°N 37.53563°E, 874 m, 7–21.viii.2006, Malaise trap, riverine forest, next to headquarters, R. Copeland leg., 1 ♂ (RSC); base of Ukasi Hill, 0.82103°S 38.54443°E, 613 m, 21.xi–5.xii.2011, Malaise trap, *Acacia-Commiphora* savannah, R. Copeland leg., 6 ♂♂ (3 in NMKE, 3 in RSC); same locality label, 17–20.xii.2011, 3 ♂♂ (NMKE); same locality label, 5–10.xii.2011, 2 ♂♂ (RSC); same locality label, 7–21.xi.2011, 6 ♂♂ (3 in NMKE, 3 in RSC); same locality label, 27.xii.2011–1.i.2012, 1 ♂ (NMKE); same locality label, 1–6.i.2012, 1 ♂ (RSC); Ngaia Forest, 0.32442°N 38.05038°E, 1057 m, 23.vii–6.viii.2011, Malaise trap, inside indigenous forest, R. Copeland leg., 2 ♂♂ (1 in NMKE, 1 in MOLC); same locality, 3–17.ix.2011, 8 ♂♂ (4 in NMKE), 4 in RSC; same locality, 20.viii–3.ix.2011, 1 ♂ (NMKE); same locality, 24.xii.2011–7.i.2012, 1 ♂ (NMKE); same locality, 17.ix–1.x.2011, 5 ♂♂ (3 in NMKE, 2 in RSC); same locality, 1–15.x.2011, 2 ♂♂ (NMKE); same locality, 9–23.vii.2011, 2 ♂♂ (NMKE); same locality, 15–29.x.2011, 3 ♂♂ (NMKE); Kasaala area, 2.07846°S 38.22530°E, 740 m, 28.xi–4.xii.2013, six-meter Malaise trap, just inside isolated woodland patch, J. Bukhebi & R. Copeland leg., 1 ♂ (RSC).

Published record. OLMI & COPELAND (2011): **KENYA:** EASTERN: Tsavo National Park (02°38.51'S 38°21.98'E).

Distribution. Recorded from many Afrotropical, Oriental and Australian countries (OLMI 2005b). In Africa known from Kenya, Namibia, South Africa and Zimbabwe (OLMI 2005b, OLMI & COPELAND 2011).

10. *Sclerogibba talpiformis* Benoit, 1950

Material examined. New records. **KENYA:** COAST: Taita Hills, Ngangao Forest, 3.36930°S 38.34495°E, 1736 m, 26.vi–10.vii.2011, Malaise trap, indigenous forest, R. Copeland leg., 1 ♂ (RSC); Funzi Island, 4.57776°S 39.43825°E, near sea level, 4–10.vii.2012, Malaise trap, near Funzi workshop, ICIPE/NMKE Funzi Island Expedition, 10 ♂♂ (7 in NMKE, 3 in RSC). **RIFT VALLEY:** Olorgesailie National Monument, 1.57930°S 36.44566°E, 982 m, 16–30.x.2011, Malaise trap, *Acacia-Commiphora* savannah, R. Copeland leg., 1 ♂ (RSC); same locality label, 11–25.xii.2011, 1

♂ (NMKE); same locality label, 27.xi–11.xii.2011, 6 ♂♂ (3 in NMKE, 3 in RSC); same locality label, 21.viii–4.ix.2011, 2 ♂♂ (NMKE); same locality label, 21.v–4.vi.2011, 1 ♂ (NMKE); same locality label, 10–24.vii.2011, 1 ♂ (RSC); same locality label, 13–27.xi.2011, 4 ♂♂ (NMKE); same locality label, 7–21.viii.2011, 3 ♂♂ (RSC); same locality label, 30.x–13.xi.2011, 4 ♂♂ (3 in NMKE, 1 in MOLC); same locality label, 4–18.vi.2011, 2 ♂♂ (NMKE); same locality label, 27.xi–11.xii.2011, 2 ♂♂ (NMKE); same locality label, 18.ix–2.x.2011, 2 ♂♂ (RSC); Olorgesailie National Monument, 1.57962°S 36.44730°E, 979 m, 21.v–4.vi.2011, Malaise trap, near Ol Keju Nyiro River, R. Copeland leg., 3 ♂♂ (NMKE); same locality label, 7–21.v.2011, 5 ♂♂ (3 in NMKE, 2 in RSC); same locality label, 4–18.vi.2011, 4 ♂♂ (NMKE). **CAMEROON: SOUTH REGION:** near Ebolowa, Nkoemvon, ix.1980, D. Jackson leg., 1 ♂ (BMNH). **CENTRAL AFRICAN REPUBLIC:** SANGHA-MBAÉRÉ PREFECTURE: Parc National de Dzanga-Ndoki, 38.6 Km 173°S Lidjombo, 02°21.60'N 16°03.20'E, 350 m, 24–25.v.2001, lowland rainforest, Malaise trap, S. van Nort leg., 1 ♂ (UKC). **MALI: KOULIKORO REGION:** Katibougou, 2008, Malaise trap, D. Somaggio leg., 1 ♂ (MOLC). **MOZAMBIQUE: NIASA PROVINCE:** Cuamba, Mituque, 22.vii–5.viii.2008, Malaise trap, M. Olmi leg., 1 ♂ (MOLC). **UGANDA:** Kibale National Park, Kanyawara, Makerere University Biological Field Station, 0°34.405'N 30°21.646'E, 1484 m, 16–26.viii.2008, Malaise trap, primary mid-altitude rainforest, near stream, S. van Noort leg., 1 ♂ (SAMC). **ZIMBABWE:** Salisbury, Chishawasha, xi.1978, A. Watsham leg., 16 ♂♂ (BMNH). **YEMEN:** Usaifira, 1 mile N of Ta'izz, about 4500 ft., 21.xii.1937, H. Scott & E. B. Britton leg., 1 ♂ (BMNH). Western Aden, Jebel Jihaf, about 7000 ft., 7.x.1937, at edge of cultivation, H. Scott & E. B. Britton leg., 1 ♂ (BMNH).

Published records. OLMI & COPELAND (2011): **KENYA: NYANZA:** Got Rabour (00.49298°S 34.18918°E). **RIFT VALLEY:** Lake Nakuru National Park (00.47203°S 36.06388°E); Marich Pass field station (01.53633°N 35.45800°E).

Distribution. Recorded from many countries of the world, excluding the Australian region (OLMI 2005b). In Africa known from Botswana, Burkina Faso, Democratic Republic of the Congo, Gabon, Ivory Coast, Kenya, Madagascar, Namibia, South Africa, Zambia and Northern Africa (OLMI 2005b, AZEVEDO et al. 2010, OLMI & COPELAND 2011), newly recorded here from Cameroon, Central African Republic, Mali, Mozambique, Uganda, Zimbabwe and Yemen.

11. *Sclerogibba turneri* Richards, 1939

Material examined. Published records. OLMI & COPELAND (2011): **KENYA: COAST:** 9 mi. E Tävetä; Kwale; Kwale, Cha Shimba Forest. **RIFT VALLEY:** 23 mi. E Namanga.

Hosts in Kenya. *Embia sjoestedti* Silvestri, 1908, and *E. vossleri* Enderlein, 1909 (Embiidina) (OLMI 2005b).

Distribution. Recorded from Angola, Botswana, Kenya and South Africa (OLMI 2005b, OLMI & COPELAND 2011).

12. *Sclerogibba vagabunda* (Bridwell, 1919)

Material examined. Published records. OLMI & COPELAND (2011): **BURUNDI:** 13 mi. SE Burufi. **KENYA: COAST:** 10 mi. S Maktau. **EASTERN:** Tsavo East National Park (02°38.51'S 38°21.98'E); 10 mi. N Laisamis; 5 mi. S Isiolo; 7 mi. S Isiolo. **NYANZA:** Gembe Hills (00°29.36'S 34°14.60'E).

Hosts in Kenya. *Cephalembia* sp., *Chirembia* sp., *Gnathembia* sp., *Navasiella* sp. (Embiidina) (OLMI 2005b).

Distribution. Recorded from many countries of the world, excluding the Neotropical Region (OLMI 2005b). In Africa known from Burundi, Kenya, Madagascar, Somalia, Tanzania, Togo, Uganda and Northern Africa (OLMI 2005b, OLMI & COPELAND 2011). Known also in Yemen (OLMI 2005b).

Table 1. Dryinidae recorded from Burundi and Kenya and their worldwide distribution. Species known only from Kenya or Burundi indicated in bold. Notes: ¹ also known from Oman and the United Arab Emirates; ² also known from Europe; ³ also known from the Palearctic and Nearctic; ⁴ also known from Reunion and Mauritius.

Species	Burundi	Kenya	widespread Afrotropical	East Africa, e×cl. Kenya	Central Africa, incl. D.R. Congo	Southern Africa, including RSA	West Africa	Madagascar	Yemen
Anteoninae									
<i>Anteon afrum</i>		×			×	×			
<i>A. agile</i>		×			×	×			
<i>A. alteri</i>		×							
<i>A. blacki</i>		×							
<i>A. bytebieri</i>		×							
<i>A. canabense</i>		×	×				×		×
<i>A. cautum</i>		×				×		×	
<i>A. copelandi</i>		×							
<i>A. crowleydelmanorum</i>		×							
<i>A. emeritum</i>		×				×		×	
<i>A. evertsi</i>		×					×		
<i>A. fiorii</i>		×				×			
<i>A. gutturnium</i>		×	×	×	×	×	×	×	
<i>A. jacksoni</i>		×			×				
<i>A. kenyanum</i>		×		×					
<i>A. kivuanum</i>		×	×	×	×	×		×	×
<i>A. kwazuluense</i>		×				×			
<i>A. maritimum</i>	×	×	×		×	×		×	
<i>A. mcguirkae</i>		×							
<i>A. ngoyense</i>		×	×			×			
<i>A. nkubaye</i>	×								
<i>A. sanyatense</i>		×				×			
<i>A. semajanna</i>		×		×					
<i>A. shibanum</i>		×							
<i>A. ugandanum</i>		×	×	×		×	×		
<i>A. whartoni</i>		×			×				
<i>A. xericum</i>		×		×		×		×	×
<i>A. zairensis</i>		×	×		×	×		×	
<i>Deinodryinus musingilai</i>		×							
<i>D. paulyi</i>		×				×	×		
Aphelopinae									
<i>Aphelopus himyarita</i>		×	×		×	×	×	×	×
<i>A. incisus</i>		×				×	×		
<i>A. mediocarيناتus</i>	×	×	×					×	×
<i>A. severancei</i>		×							
<i>A. wittei</i>	×	×	×					×	×
Bocchinae									
<i>Bocchus bini</i>		×	×	×			×		
<i>B. botswanensis</i>		×				×		×	
<i>B. brooksi</i>		×						×	
<i>B. confusus</i>		×							×
<i>B. hyalinus</i> ¹		×							
<i>B. johanssoni</i>		×							
<i>B. madagascolus</i>		×						×	
<i>B. simoni</i>		×		×					
<i>B. whitelevi</i>		×				×			
Conganteoninae									
<i>Conganteon lymanorum</i>		×							
<i>C. vulcanicum</i>		×			×			×	

(continues on the next page)

Species	Burundi	Kenya	widespread Afrotropical	East Africa, excl. Kenya	Central Africa, incl. D.R.Congo	Southern Africa, including RSA	West Africa	Madagascar	Yemen
Dryininae									
<i>Dryinus aethiopicus</i>		×			×		×		
<i>D. botswanensis</i>		×				×			
<i>D. cariniceps</i>		×	×		×	×	×		×
<i>D. copelandi</i>		×							
<i>D. erraticus</i>		×	×	×	×	×			
<i>D. hova</i>		×						×	
<i>D. digo</i>		×							
<i>D. orophilus</i> ¹		×	×						×
<i>D. shimbanus</i>	×	×		×					
<i>D. spangleri</i>		×	×						
<i>D. turneri</i>		×	×	×			×		
<i>D. undulatus</i>	×	×	×	×		×			
<i>Thaumatomydrius overholti</i>		×							
<i>T. sokokensis</i>		×							
<i>T. tuukkaraski</i>		×							
Gonatopodinae									
<i>Adryinus cerrutii</i>		×				×			
<i>Echthrodelphax migratorius</i> ¹		×	×	×			×	×	
<i>E. tauricus</i> ^{1,2}		×	×						×
<i>Gonatopus acuminatus</i>		×			×				
<i>G. baginei</i>		×							
<i>G. bekilyanus</i>		×				×		×	
<i>G. communis</i>		×	×	×	×	×		×	
<i>G. hyalinus</i>		×				×			
<i>G. luteipes</i>		×				×			
<i>G. meridionalis</i>		×	×	×	×	×		×	
<i>G. nearcticus</i> ³		×	×						
<i>G. patrizii</i>		×				×			
<i>G. similis</i> ⁴		×	×						
<i>G. somerseti</i>		×				×			
<i>G. taylori</i>		×		×		×			
<i>G. upembanus</i>		×			×				
Total number of species	6	76	23	16	17	32	12	19	10

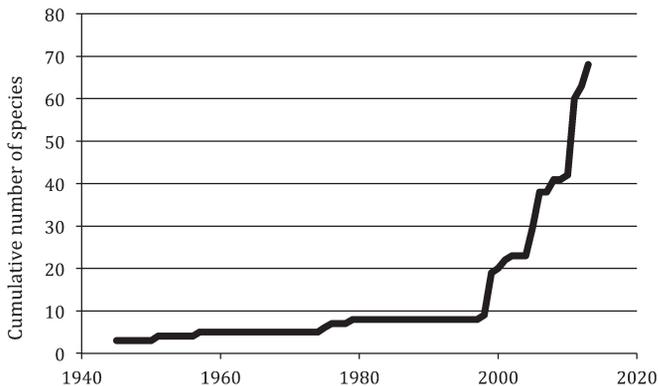


Fig. 8. Species accumulation curve of Kenyan Dryinidae from 1945 to 2014.

Discussion

The checklist of the Dryinidae, Embolemidae and Sclerogibbidae of Kenya and Burundi presented in this paper includes 76 species of Dryinidae, six species of Embolemidae and 12 species of Sclerogibbidae known from Kenya; six species of Dryinidae, three species of Embolemidae and one species of Sclerogibbidae known from Burundi. Two species of Embolemidae were added to the Kenyan fauna by OLMI & COPELAND (2011), bringing the total for this uncommon family to six. No previously unreported sclerogibbid species were added to the 12 listed in OLMI & COPELAND (2011). In Kenya, the most pronounced increase in species diversity was seen in the Dryinidae. With over 1750 species worldwide (OLMI & VIRLA 2014), Dryinidae is one of the three largest families in the Chrysidoidea, the others being Chrysididae and Bethyridae. With the possible exception of South Africa, the dryinid fauna of the Afrotropical Region, like that of many families of micro-Hymenoptera, is poorly known. Through 1997 only 12 species of Dryinidae had been reported from Kenya and only one of those was known only from it. Recent Malaise trap collecting has seen rapid growth in descriptions of new dryinid species from Kenya and in new Kenyan records for previously described species. With the data generated by these collections plus some previously unpublished earlier records, OLMI & COPELAND (2011) added an additional 27 dryinid species to the 12 already known from Kenya, a 225% increase. Here we report 37 more species, a further increase of 95%. A complete list of Dryinidae currently known from Kenya and Burundi and their worldwide distribution is provided in Table 1.

Examination of the species-accumulation curve of Kenyan Dryinidae (Fig. 8) reveals two features of interest. First, had a similar graph been plotted in 1997 it would have been nearly flat suggesting that the accumulation of new dryinid records was nearly complete (i.e. nearly all Kenyan dryinid species had been collected). Data collected recently, however, show the flat part of the present curve to be an artifact of inadequate sampling during the years in question. As can be seen from the steep rise in the right hand side of the curve many species remained to be recorded from Kenya and there is no hint in the data that the curve is approaching an asymptote. It is probable that many more species of Dryinidae will be discovered in Kenya, particularly in the more rugged northern and eastern parts of the country that have experienced little faunal exploration.

OLMI & COPELAND (2011) reported a single species of *Bocchus* (*B. simoni*) from Kenya, the first record of this dryinid genus from Kenya. The eight new records of *Bocchus* species recorded in the present paper represent the most pronounced increase in species richness for a dryinid genus previously known from Kenya. Two species of *Bocchus*, *B. brooksi* and *B. madagascolus*, were known previously only from Madagascar (AZEVEDO et al. 2010) and two others, *B. confusus* and *B. hyalinus*, only from western Asia. Their occurrence in Kenya represents the first record from continental Africa of each of these species. Similarly, among Embolemidae, *Ampulicomorpha madecassa* is newly recorded from continental Africa, being previously known only from Madagascar. Overall, the Kenyan dryinid fauna shows its closest affinity to that of southern Africa, with 32 species (42%) also known from that region (see Table 1). Nineteen species (25%) are shared with Madagascar while the 12 Kenyan species

Table 2. Generic summary of Kenyan Dryinidae, Embolemidae, and Sclerogibbidae. Names in bold indicate supraspecific taxa newly recorded for Kenya.

Family	Subfamily	Genus	Kenyan species: current state	Kenyan species: OLMI & COPE- LAND (2011)	new species described here	new Kenyan records of pre- viously descri- bed species	
Dryinidae	Aphelopinae	<i>Aphelopus</i>	5	4	1	0	
	Anteoninae	<i>Anteon</i>	27	10	5	12	
		<i>Deinodryinus</i>	2	0	1	1	
	Conganteoninae	<i>Conganteon</i>	2	0	1	1	
	Bocchinae	<i>Bocchus</i>	9	1	1	7	
		Dryininae	<i>Thaumatodryinus</i>	3	1	2	0
	<i>Dryinus</i>		12	9	1	2	
	Gonatopodinae	<i>Adryinus</i>	1	1	0	0	
		<i>Echthrodelphax</i>	2	0	0	2	
		<i>Gonatopus</i>	13	13	0	0	
	Total number of Dryinidae species:			76	39	12	25
	Embolemidae		<i>Ampulicomorpha</i>	3	2	0	1
			<i>Embolemus</i>	3	2	0	1
Total number of Embolemidae species:			6	4	0	2	
Sclerogibbidae		<i>Caenosclerogibba</i>	1	1	0	0	
		<i>Probethylus</i>	1	1	0	0	
		<i>Sclerogibba</i>	10	10	0	0	
Total number of Sclerogibbidae species:			12	12	0	0	

also collected in Yemen, Oman and the UAE provide further evidence supporting the inclusion of the southern part of the Arabian Peninsula in the Afrotropical Region.

In addition to producing the 13 new species described herein, the recent Malaise trap collections also produced the first Kenyan records for one subfamily (Conganteoninae) and three genera (*Conganteon*, *Deinodryinus* and *Echthrodelphax*) of Dryinidae (Table 2). These discoveries are not surprising considering the great diversity of habitat and the broad range of elevation that characterize Kenya. The country is particularly rich in areas of high conservation value including numerous coastal forest patches known for their high percentage of animal and plant endemics (BURGESS 2000: 235). Kenya also contains the northernmost representatives (Taita Hills and Kasigau Mountain) of the ancient, uplifted Eastern Arc Mountains, also known for their unique flora and fauna (BURGESS et al. 2007). Half of the 12 new dryinid species described from Kenya in this paper were collected in the Eastern Arc Mountains (three species) and the coastal forests of Kenya (three species).

Including previous studies, a total of 17 dryinid species are presently known only from Kenya. Their distributions within the country are illustrated in Fig. 9, and their conservation status is summarized in Table 3. The majority of these species have been collected in protected National Forests and National Parks, or in coastal “kayas”, small patches of indigenous forest of cultural importance to the Mijikenda people of the Kenyan coast, and protected by them. Many kayas, including Muhaka (one species), Mrima Hill (one species) and Kinondo (one species) are forests that have been gazetted as National Monuments under the protection of

Table 3. Collection site, habitat type and conservation status of Dryinidae species known only from Kenya.

Collection site	Species	Habitat type	Responsible for protection ¹	Conservation status
1. Arabuko-Sokoke Forest National Park	<i>Anteon copelandi</i>	forest	KWS	robust
	<i>Dryinus copelandi</i>	forest	KWS	robust
	<i>Thaumatodryinus sokokensis</i>	forest	KWS	robust
2. Gede Forest	<i>Thaumatodryinus overholti</i>	forest	NMK/KFS	robust
3. Itieni Forest	<i>Anteon blacki</i>	forest	KFS	robust
4. Kakamega Forest	<i>Anteon crowleydelmanorum</i>	forest	KFS/KWS	robust
	<i>Congateon lymanorum</i>	dry-forest patch	–	robust
5. Kasaala	<i>Deinodryinus musingilai</i>	dry-forest patch	–	robust
	<i>Anteon shibanum</i>	forest edge	KFS	robust
6. Kasigau Mountain Forest	<i>Bocchus johannsoni</i>	forest	KFS	robust
	<i>Dryinus digo</i>	forest	Digo, NMK	vulnerable
7. Kaya Kinondo Forest	<i>Thaumatodryinus sokokensis</i>	forest	Digo, NMK	robust
	<i>Thaumatodryinus overholti</i>	forest	Digo, NMK	robust
8. Kaya Muhaka Forest	<i>Anteon mcguirkae</i>	grass/woodland	KWS	robust
	<i>Anteon alteri</i>	grass/woodland	KWS	robust
10. Shimba Hills Nat. Park	<i>Anteon shibanum</i>	forest	KWS	robust
11. Taita Hills, Chawia Forest	<i>Thaumatodryinus sokokensis</i>	forest	KFS	robust
12. Taita Hills, Mbololo Forest	<i>Anteon bytebieri</i>	forest	KFS	vulnerable
13. Taita Hills, Mwatate area	<i>Anteon shibanum</i>	riverine forest	–	robust
14. Taita Hills, Vuria Forest	<i>Aphelopus severancei</i>	forest	KFS	vulnerable
	<i>Thaumatodryinus sokokensis</i>	forest	KFS	robust
	<i>Thaumatodryinus tuukkaraski</i>	forest	KFS	vulnerable
15. Ungove	<i>Gonatopus baginei</i>	forest	–	threatened

¹ Abbreviations: Digo – Digo community, a Mijikenda tribal group; KFS – Kenya Forest Service; KWS – Kenya Wildlife Service; NMK – National Museums of Kenya.

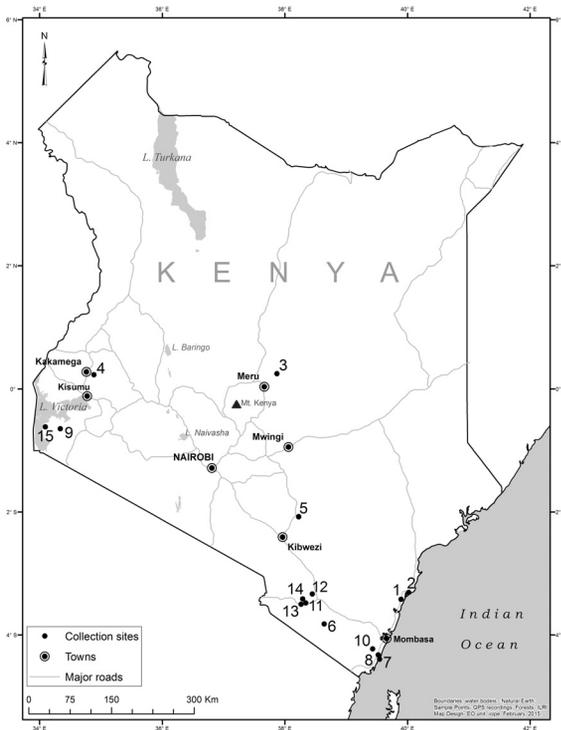


Fig. 9. Map of collecting sites on which the 17 species known only from Kenya were sampled (see Table 3 for the site name, conservation status and species recorded).

the National Museums of Kenya (NMK). Most kayas encompass very small tracts of land and species known only from them must be considered vulnerable simply because of habitat size. Probably all kayas and other small forest-patches experience creeping habitat loss due to sporadic tree poaching by the surrounding farming communities. This is particularly true for Kaya Muhaka (R. Pasquet, pers. comm.) and the forest at Ungoye, type locality of *Gonatopus baginei*. The Ungoye site, a small stand of indigenous forest located next to Lake Victoria in Nyanza Province, is the only remaining patch of mid-altitude lacustrine forest in Kenya. Kaya Mrima, home to some very interesting Kenyan endemics (e.g. MUKÓ et al. 2014) has recently incurred substantial degradation due to the activities of an international mining company in that forest. It is hoped that publicizing the discovery of new species in these forests will help spur more robust efforts to protect these vulnerable habitats.

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