Revisions of the Afrotropical genera of Argidae and species of *Pampsilota* Konow, 1899 (Hymenoptera, Tenthredioidea)

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http://zoobank.org/5015C4B5-9331-42DD-9DCE-1EBDB40FF441

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**Abstract**

The Afrotropical fauna contains five genera of Argidae. These are keyed. New subjective synonyms, followed by the valid name in brackets, are *Calarge* Enslin, 1911 [*Arge* Schrank, 1802], *Calarge africana* Enslin, 1911 [*Arge congrua* Konow, 1907], *Clyparge* Pasteels, 1963 [*Scobina* Lepeletier & Serville, 1828], *Clyparge terminalis* Pasteels, 1963 [*Scobina poecila* (Klug, 1834)], and *Sterictophora* [sic] *afra* Pasteels, 1963 [*Sphacophilus afer* comb. n., species inquirenda near *S. monjarasi* Smith & Morales-Reyes, 2015]. The type material of both *C. terminalis* and *S. afra* was probably collected in the New World, but labelled with the wrong locality “Kamerun”. An introduction of both species to Africa, not followed by long-term establishment, seems less likely. The removal of these taxa from the faunal list of the region is recommended. The nine known Afrotropical species of *Pampsilota* are revised, and an illustrated dichotomous identification key presented, with distribution maps for all species. Four species are here described as new to science: *P. dahomeyanus* Goergen, Koch & Liston, sp. n., *P. nigeriae* Liston & Koch, sp. n., *P. tsavoensis* Liston & Koch, sp. n., and *P. zebra* Liston & Koch, sp. n. Lectotypes are designated for *Pampsilota afer* Konow, 1899, and *Cipdele africana* Mocsáry, 1909. The immature stages and host plant of only one species are known: *P. dahomeyanus* on *Lannea nigritana* (Anacardiaceae). Its larval morphology strongly resembles that of European and North American species of *Arge*. We provisionally retain *Pampsilota* as a valid genus, although it could justifiably be treated as comprising merely a species group, or groups, within *Arge*.

**Key Words**

Taxonomic revision
new synonymy
new species
key
distributions
host
*Lannea*
Anacardiaceae

Introduction

Taeger et al. (2010) catalogued seven valid genera of Argidae as present in the Afrotropical Region. As a result of our studies, we concluded that only five valid genera can be considered to be present there: *Arge* Schrank, 1802, *Cibdela* Konow, 1899, *Pampsilota* Konow, 1899, *Sjoestedtia* Konow, 1907 (Konow 1907a), and *Triarge* Forsius, 1931. With currently 127 valid species, *Arge* is by far the most species-rich sawfly genus in this biogeographic region (Koch et al. 2015). It is also well represented in the Holarctic and Oriental Regions, but makes up a much smaller proportion of the total sawfly fauna there. A total of about 350 valid species of *Arge* worldwide were catalogued by Taeger et al. (2010). The other four Afrotropical genera are comparatively small. Nine species of *Triarge* are known, all endemic to the winter rainfall zone of southern Africa (Koch et. al. 2015). *Sjoestedtia* is only known from the Afrotropical Region, and contains two valid species (Taeger et al. 2010). *Cibdela*, not mentioned from the Afrotropics by Taeger et al. (2010), is represented there only because of the intro-
duction to Réunion, from Sumatra, of C. janthina (Klug, 1834) for control of invasive Rubus alceifolius ILM Poiret (Rosaceae) (Mathieu et al. 2014). The following revision of Pampsilota treats nine Afrotropical species:

- P. africanus Konow, 1899
- P. africanus (Mocsáry, 1909)
- P. brandbergensis Koch, 2006
- P. dahomeyanus sp. n.
- P. luederitensis Koch, 2006
- P. nigeriae sp. n.
- P. tsavoensis sp. n.
- P. zebra sp. n.

Taeger et al. (2010) listed three further Pampsilota species from the East Palaearctic and Oriental Regions: P. cenchrus Wei, 1997, P. interstitialis (Cameron, 1877), and P. scutellis Wei, 1997. They were described or re-described by Wei (1997) and Saini (2009), with illustrations of some body parts, and are not considered further here. No information on the hosts and immature stages of these species has been published. Recent combinations of some other species names with Pampsilota have been proposed, for example by Saini (2009), for several E. Palaearctic and Oriental species group taxa currently placed otherwise mostly in Tanyphathidea Rohwer, 1912 (e.g. Wei 1997, Taeger et al. 2010).

The Afrotropical species of Pampsilota are highly heterogeneous in their appearance and morphology. For example, body length ranges from 5.3 mm to 15.3 mm, and whereas the ovipositor sheath is conspicuously compact in P. afr a (Fig. 5) and P. dahomeyanus (Fig. 16), in P. africanus (Fig. 10) and P. zebra (Fig. 32) it is distinctly pincer-shaped. In other species the valvulae 3 of the ovipositor sheath more or less diverge towards their apices in dorsal view. This high morphological diversity was discussed by Pasteels (1955), who gave as examples the distally conspicuously laterally compressed metatibia and compact valvulae 3 of P. afr a, compared to the distally cylindrical metatibia and pincer-shaped valvulae 3 of P. africanus. However, he concluded that a similarly wide range of character states also occurs in Arge, and that the high degree of heterogeneity in Pampsilota was therefore not remarkable. Additionally, we found such large interspecific differences in the morphology of the ovipositor itself, and sometimes of penis valves, that we have considerable doubts as to whether the genus is monophyletic as presently circumscribed. The treatment here of Pampsilota as distinct from Arge is justified on practical grounds, because it enables the easier identification of a number of species which could otherwise be mixed-up with species of the large and taxonomically difficult genus Arge.

Our study aims to render the rich Afrotropical fauna of Argidae more easily identifiable, using purely morphological methods, and thus make it accessible for further research.

Material and methods

Specimens were studied with Leica MZ12, Olympus SZX12, and Wild M8 binocular microscopes. Lancets and penis valves were examined with a Leitz Laborlux S transmitted-light microscope, and photographed through this with a Leica Wild MPS32 camera. The outlines for the illustrations of the dorsal and ventral parts of the male genital capsule, including the digitus and cusps, were obtained using a Leo 1450VP scanning electron microscope. Details of the genitalia were filled in by hand while constantly cross-checking specimens through the microscope. Habitus photos of adults, and details of larvae, were mostly taken with a Leica DFC295 camera attached to an Olympus SZX12 microscope. Larvae were photographed immersed in ethanol, sometimes held in place with fine pellets of glass. Composite images with an extended depth of field were created using the software CombineZ5 (http://hadleyweb.pwp.blueyonder.co.uk).

Morphological terminology follows Vittasaari (2002).

Abbreviations used in the text

Material examined is deposited in the following institutions:

- HNHM Hungarian Natural History Museum, Budapest, Hungary.
- IITAC International Institute of Tropical Agriculture, Cotonou, Benin.
- MNCN Museo Nacional de Ciencias Naturales, Madrid, Spain.
- MFN Museum für Naturkunde Berlin, Germany.
- MRAC Musée Royal de l’Afrique Centrale, Tervuren, Belgium.
- NNIC Namibian National Insect Collection, Windhoek, Namibia.
- OLML Oberösterreichisches Landesmuseum, Linz, Austria.
- RBINS Royal Belgian Institute of Natural Sciences, Brussels, Belgium.
- SDEI Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany.
- USNM National Museum of Natural History, Smithsonian Institution, Washington D.C., USA.
- UZMT Zoological Museum, University of Turku, Finland.
- ZSM Zoologische Staatssammlung, Munich, Germany.

Other abbreviations

- HT Holotype
- LT Lectotype
- PT Paratype
Results

The identity and status of Calarge Enslin, 1911, and its type species


Enslin (1911) erected Calarge for a single female specimen collected in Cameroon. His main reason for considering this different from Arge, was the lack of pre-apical spurs on the metatibiae. We examined the holotype of C. africana, and found that it has a small pre-apical spur on the right metatibia, and no spur on the left. Pasteels (1953) had already noted this discrepancy, and concluded [translated from French] “It is therefore not possible to characterise this genus, until further specimens should be found”. In fact, apart from the anomalous development of only a single metatibial spur, the specimen is indistinguishable from Arge congrua. Notably, the two nominal taxa share the same distinctively shaped valvulae 3: in dorsal view with a conspicuous, subtriangular median depression; in lateral view wedge-shaped (Pasteels 1953; figs 9a, b). We based our opinion on A. congrua on the female paratype, which is the same specimen studied by Pasteels (1953), and the images of the holotype by A. Taeger.

The identity and status of Clyparge Pasteels, 1963, and its type species

Scobina Lepeletier & Serville, in Latreille et al., 1828: 574. Type species: Hylotoma melanocephala Lepeletier, 1823, by monotypy.


Scobina poecila (Klug, 1834)

Hylotoma poecila Klug, 1834: 239. Described: male (holotype, MFN). Type locality: Mexiko [Mexico].


Syn. n. Clyparge terminalis Pasteels is a junior secondary homonym of Scobina terminalis (Klug, 1814).

The only species included in Clyparge is C. terminalis Pasteels, 1963, known just from the three specimens of the type series. The holotype is labelled “Kamerun 1898. 1899” (Taeger et al. 2014). The photographs made by A. Taeger made it possible to recognise C. terminalis as a Scobina species. Later, we examined the holotype of C. terminalis, which keys without problems in Smith (1992) to S. poecila (holotype examined). The sexual dimorphism described by Pasteels (1963) for C. terminalis exactly matches that described by Smith (1992) for S. poecila. This species is reliably known only from the Neotropical Region: Honduras, north into Mexico (Smith 1992). We suspect that the type material of C. terminalis may have been labelled with the wrong locality, as also the single known specimen of S. afra Pasteels, 1963, held by the same museum, and labelled in the same handwriting with the same locality name and nearly the same date (see below). We were informed by M. Paris (MNCN) that no details of the acquisition of these particular specimens can be traced in the museum’s records. A connection with the collector Leopold Conradt can be suspected, because he is known to have collected Hymenoptera, including sawflies, in Cameroon (Rohlfiien 1975, Horn et al. 1990; but note that the latter work dates the Cameroon expedition to 1896, whereas contemporary publications and the specimen labels consistently give 1898–99), and many such specimens were acquired by the MNCN (M. Paris, personal communication). However, all specimens from Cameroon, leg. Conradt, in MNCN, as well as those in the SDEI, have a standard, printed label: see as an example image by A. Taeger http://dx.doi.org/10.6084/m9.figshare.775716. It is not clear who printed these labels. A large amount of material of various insect orders collected by Conradt in Venezuela, Cameroon and Togo was partly sold through the well-known firm of Staudinger (Horn et al. 1990), whereas further parts were received by Gustav Kraatz, founder of what is now the SDEI (Rohlfiien 1975), and partly passed on to other individuals and institutions. Although the few characters on the handwritten labels of the type specimens in question do not provide an ideal basis for comparison, they seem not to be in the same hand as a letter in the SDEI archive, written by Conradt to Kraatz. If the four Pasteels’ type specimens really were collected by Conradt, then the complicated subsequent history of the material, which was perhaps at first largely unlabelled, would have increased the risk of a mistake in their labelling. Continuing to speculate that Conradt was the collector, then it is possible that they came from Venezuela, where he collected sometime before 1889 (Horn et al. 1990). Although L. Conradt did collect zoological specimens, including Hymenoptera, in Mexico (e.g. Milliron 1973), this was around 1910 (Beolens et al. 2011), several years after his visit to Cameroon, and as far as is known these specimens remained in collections in the New World. Mexico is therefore a less likely provenance. Of course, it cannot be excluded that both these species were introduced to Africa from the Neotropical Region, but did
not permanently establish themselves. Sterictiphora afra, if synonymous with Sphacophilus monjarasi (see below), is known to occur together with Scobina poecila in Chiapas Province, Mexico (Smith 1992). In view of the very imperfectly known ranges of many Neotropical sawflies, it is however easily possible that the range of S. monjarasi is much more extensive, and could extend to Guatemala. That the ranges of the two taxa overlap, offers little help in evaluating whether the Madrid types were obtained during the same collection event in Central America, or were introduced from there to Africa. In either case, because strong corroboratory evidence for their presence in the Afrotropical Region is lacking, we recommend that they should not be considered to currently occur there.

The identity and status of Sterictiphora afra

Sphacophilus afer (Pasteels, 1963), comb. n.


Notes. Sterictiphora afra Pasteels, 1963 has been regarded as the only Afrotropical species of Sterictiphora, an otherwise Holarctic and Oriental genus. The holotype (examined) is the only known specimen of the species. It is labelled “Kamerun 1898”, in the same handwriting as on the label attached to the type of Clypargre terminalis (Taeger et al. 2014: see under that name above. In the keys by Koch (1988) and Smith (1971, 1992), S. afra runs without problem to Sphacophilus Provancher, 1888. This genus contains about 50 valid species, distributed in the Neotropical and Nearctic Regions. Species taxonomy of Sphacophilus is based mainly on females, and males of many species are unknown, or the association of the sexes is problematic (Smith 1992). We were unable to identify the holotype of S. afra to species level, using the keys by Smith (1971, 1992) and reference to several original descriptions. However, the colour pattern of the S. afra holotype is distinctive within this genus. Apart from the recently described S. monjarasi Smith & Morales-Reyes, 2015 (Monjarás-Barrera et al. 2015), no other known species has this combination of completely black head and thorax, including the entire legs, and an almost completely yellow abdomen. Sphacophilus monjarasi is unfortunately only known in the female sex. Its type locality is in Chiapas Province, Mexico. In view of the lack of any other evidence for its presence in the Afrotropics, we recommend that Sphacophilus afer, simultaneously the only representative of the Sterictiphorinae there, should be removed from the list of Afrotropical sawflies.

Key to genera of Afrotropical Argidae

1 Mesotibia and metatibia with preapical spine ................................................................. 2
   – Meta- and mesotibia without preapical spine ............................................................ 3
2 Fore wing without crossvein 2r-m, and cells 1Rs and 2Rs fused, thus only three submarginal cells present, with the second very large; body usually entirely black................................................................. Triage
   – Fore wing with crossvein 2r-m, and cells 1Rs and 2Rs present, thus four submarginal cells present, with the second not conspicuously larger; body usually bicoloured .................................................. Arge
3 Body and legs entirely black, with blue metallic lustre... Cibidela [only C. janthina (Klug, 1834) is present in the Afrotropics, by deliberate introduction to Réunion]
   – Body extensively pale, with or without blue metallic lustre on black parts, or if entirely black at least tibiae pale marked ......................................................................................................................................... 4
4 Interantennal area concave or plane, without interantennal carinae; fore wing with basal anal cell (1A) absent; especially in female head in dorsal view conspicuously narrow, about half as broad as thorax maximum width........... Sjoestedtia
   – Interantennal area with two more or less conspicuously ridged interantennal carinae; fore wing with basal anal cell (1A) present; head in dorsal view not conspicuously narrow, about two thirds as broad as thorax maximum width... Pampisilota

Revision of Afrotropical Pampisilota Konow, 1899

Pampisilota Konow, 1899: 76. Type species: Pampisilota afer Konow, 1899, designated by Rohwer, 1911. Additional images: http://www.waspweb.org/Tenthredinoidea/Argidae/Athermantinae/Pampisilota/index.htm

Description. Antenna has three articles (Fig. 1); scape and pedecel short, flagellum very long and undivided. Clypeus not clearly separated by an epistomal suture from the supraclypeal area, malar space conspicuously present. Meso- and metatibia without preapical spine; tarsal claws simple (Fig. 2). Fore wing with radial crossvein (2r) absent and crossvein 2r-m present, with basal anal cell (1A) closed, and anal cell (2A) long petiolate (Fig. 3); radial cell of hind wing (R1) closed, with anal cell (A) and two middle cells (Rs and M) present (Fig. 3). Tergum 1 with a more or less narrow and deep median split.

Coloration black with more or less blue metallic lustre, and yellowish or yellow-orange markings. Body length from 5.3 to 15.3 mm.

**Host plants.** *Lannea nigritana* (Anacardiaceae): only known for *P. dahomeyanus*.

**Remarks.** Taeger et al. (2010) catalogued three species of *Pampsilota* from the East Palaearctic and Oriental Regions, as well as five valid species from the Afrotropical Region. Only the absence of the preapical spines on the meso- and metatibia distinguishes adults of *Pampsilota* from those of *Arge*.

**Key to Afrotropical *Pampsilota* species**

1. Abdomen entirely yellow or light brown (Figs 47–50, 64–67) ................................................................. 2
   - Abdomen more or less bicolloured; yellow, orange and black, mostly with blue metallic lustre (Figs 38–46, 60–61, 68–71), or nearly entirely black (Figs 62–63) .......................................................... 4
2. Mesopleuron entirely yellow (Figs 48, 50, 65) .................................................................................................. 3
   - Mesopleuron dorsally blackish (Fig. 67)...................................................................................................... P. tsavoensis sp. n.
3. Antenna partly yellow (Fig. 64); propleuron entirely yellow (Fig. 65), stigma conspicuously bicolloured, with basal half and anterior margin whitish, apical half blackish (Figs 64, 65) ........................................................................................................ P. nigeriae sp. n.
   - Antenna entirely black, propleuron dorsally and ventrally blackish margined, stigma unicoloured, black (Figs 47–50) .................................................................................................................. P. dahomeyanus sp. n.
4. Fore legs black with at most small areas of tibia dark brown (Fig. 40); very large species, body length usually more than 10.0 mm ........................................................................................................ P. afer Konow
   - At least protibia light brown (Figs 42, 44, 46, 61, 63, 65); smaller species, body length rarely more than 10.0 mm ... 5
5. Thorax entirely black (Figs 60–63) .................................................................................................................. 6
   - At least lateral parts of pronotum pale (Figs 42–46, 64, 65) ........................................................................ 7
6. All femora mostly black (Fig. 63) .................................................................................................................. P. luederitzensis Koch
   - Meso- and metatibia black (Fig. 61) ............................................................................................................ P. leleupi Pasteels
7. Legs black without blue metallic lustre, only protibia light brown (Fig. 46) ................................................. P. brandbergensis Koch
   - Femora black with blue metallic lustre, tibiae predominantly yellow (Figs 44, 68) ................................. P. zebra sp. n.
8. Costa and subcosta blackish (Figs 68–71); metatarsus entirely black (Figs 69, 71); serrulae (Figs 33, 34); penis valve (Fig. 35) ........................................................................................................ P. afer Konow
   - Costa and anterior of subcosta yellow (Figs 41–44); at least basitarsomere of metatarsus yellow (Figs 42, 44); serrulae (Figs 11, 12); penis valve (Fig. 13) ........................................................................ P. africanus (Mocsáry)

**Pampsilota afer Konow, 1899**

*Pampsilota afer* Konow, 1899: 76–77. Described: female [syntype females; lectotype designated below]. Type locality: Kamerun [Cameroon].

**Female.** Figures 4–7, 38–40

Head, thorax and legs black with blue metallic lustre. Wings strongly infuscate, intercostal area fuscous;

Head enlarged behind eyes. Antenna 1.6× as long as maximum head width; flagellum enlarged towards apex, quadrangular in cross section, interior surface with sharply compressed longitudinal carina, other longitudinal carinae conspicuously more weakly compressed. Interior margins of eyes parallel-sided. Anterior margin of the clypeus circularly emarginate, supraclypeal area gently rounded and protruding up to ventral limit of interantennal carinae. Interantennal carinae obtusely ridged, strongly converging below, extending to the level of ventral margin of torulus. Frons, supraclypeal area and clypeus rugosely sculptured or densely punctate, weakly shiny, vertex and gena sparsely micropunctate, shiny; pubescence light brown. Metatibia distally conspicuously laterally compressed. Mesoscutum nearly impunctate, shiny; pubescence similar to that on head. Abdomen smooth and shiny. Valvulae 3: Figs 4, 5. Lancet with about 24–25 serrulae: Figs 6, 7.
Length: 10.5–15.3 mm.

**Male.** Figure 8

Similarly coloured to female, only tergum 8 and sterna 6–9 yellow-orange. Head very slightly narrowed behind eyes. Antenna 1.8× as long as maximum head width; flagellum not enlarged towards apex, quadrangular in cross section, flattened apically, interior surface with sharply compressed longitudinal carina, other longitudinal carinae more weakly compressed. Supracylpeal area scarcely protruding up to base of interantennal carinae. Interantennal carinae extending about one quarter of way to clypeus. Other characters as for female. Penis valve: Fig. 8.

Length: 10.3 mm.


**Distribution.** Cameroon, Equatorial Guinea, Democratic Republic of the Congo, Sierra Leone (Fig. 36).

**Diagnosis.** By its large size and distinctive coloration (infuscate wings; black body and legs, with only abdomen apically pale), *P. afer* is easily distinguished from all other *Pampsilota* species.

**Remarks.** The coloration of the abdomen varies from the described typical (darker) form to the apical half of the abdomen yellow-orange with terga 5/6 medi ally more or less black. In these pale specimens sterna 2–4 are basally yellow-orange. This form with a more or less entirely yellow-orange apical half of abdomen was described under the name *Pampsilota afer* var. *maynéi* Forsius, 1928. Other morphological differences to the nominate form are not detectable. The holotype (MRAC) of *Pampsilota afer* var. *maynéi* was not examined, but the paratype seems to have been collected on the same date and at the same place as the holotype, and there is no reason to doubt that the specimens are conspecific.

Pasteels (1953) first described the male of *P. afer* and misleadingly referred to the specimen as the allotype (MRAC).

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**Pampsilota africanus** (Mocsáry, 1909)


*Pampsilota africana* Enslin 1913: 322–323.


*Cipdele africana* var. *interrupta*: Pasteels 1953: 119–120.

**Female.** Figures 9–12, 41–42

Head and thorax black with metallic lustre. Pronotum yellow with anterior margin and medially area black. Legs black with blue metallic lustre; pro- and mesotibia entirely yellow, metatibia yellow with narrow blackish apex, basitarsomerses yellow with apex of meso- and metabasitarsomers blackish. Wings including intercostal area flavessen-tyne-hyaline; substigmal spot small and fuscous; stigma black; costa and subcosta yellowish; rest of venation blackish. Abdomen yellow-orange; terga 1–6(7) broadly black with blue metallic lustre; terga 8/9 entirely black, sterna 5–7 more or less black; valvifers 2 of ovipositor sheath black.

Head very slightly enlarged behind eyes. Antenna 1.4× as long as maximum head width; flagellum enlarged towards apex, quadrangular in cross section, interior surface with sharply compressed longitudinal carina, other longitudinal carinae conspicuously weaker compressed. Eyes slightly converging towards clypeus. Anterior margin of the clypeus broadly, shallowly, circularly emarginate. Supracylpeal area gently rounded, protruding up to ventral limit of interantennal carinae. Interantennal carinae obtusely ridged, converging below, extending to about the level of ventral margin of torulus. Frons, vertex, supracylpeal area and clypeus densely punctate, dull. Postocellar area and gena moderately densely micropunctate, shiny; pubescence whitish. Metatibia not distally laterally compressed (nearly circular in cross section). Mesoscutum punctuation similar to gena, shiny; pubescence similar to that on head. Abdomen smooth and shiny. Valvulae 3: Figs 9, 10. Lancet with about 17–18 serrulae: Figs 11, 12.

Length: 8.0–8.7 mm.

**Male.** Figures 13, 43–44

Similarly coloured to female, except narrow posterior margin of tergum 9 yellow, and tibiae entirely yellow.

Antenna 1.7× as long as maximum head width; flagellum not enlarged towards apex, about oval in cross section, interior surface with sharply compressed longitudinal carina, outer carinae conspicuously more weakly compressed, other carinae negligible. Supracylpeal area gently rising up to ventral limit of interantennal carinae. Other characters as for female. Penis valve: Fig. 13.

Length: 7.3–8.3 mm.

**Type material examined.** *Cipdele africana*; Lectotype, hereby designated: ♂. Labels: “Kilimanjaro [Kilimanjaro], Bornemissza [Tanzania]”; “Africa, or,


**Distribution.** Tanzania, Kenya (Fig. 36).

**Diagnosis.** *Pampsilota africanus* resembles *P. zebra* in having pincer-shaped valvulae 3 (compact or diverging in all other species), metatibia distally nearly circular in cross section, and in the main colour characters (thorax black except for pronotum and sometimes tegulae, legs partly pale, and abdomen at least ventrally partly pale). *P. africanus* has a yellow costa and anterior of subcosta, whereas in *P. zebra* costa and subcosta are black. The tegulae of *P. africanus* are sometimes bicoloured, but in *P. zebra* always black. The hind tibia of *P. africanus* is nearly unicolorous
pale, and in *P. zebra* broadly ringed apically with blackish. The serrulae of these species are very differently shaped (Figs 12, 34), but their penis valves are quite similar (Figs 13, 35).

**Remarks.** *Pampsilota africanus* varies especially in the coloration of the abdomen. Sometimes the black on terga 2/3 is reduced to a small median spot, or as in *P. africanus* var. *interruptus* terga 2–4 are entirely yellow. No other morphological differences exist between the nominate form and var. *interruptus*, and their synonymy by Pasteels (1955) was justified.

**Pampsilota brandbergensis** Koch, 2006

*Pampsilota brandbergensis* Koch, 2006a: 120. Described: male [holotype and paratype]. Type locality: Brandberg Massif, Namibia.

**Male.** Figures 14, 45–46

Head black; flagellum dark brown. Thorax black; pronotum and tegula yellow. Legs black; anterior surface of protibia brownish yellow, posterior surface brown. Wings subhyaline including intercostal area; substigmal spot very small and slightly infuscate, costa and stigma light brown, subcosta and rest of venation brown. Dorsal surface of abdomen black with very slight metallic lustre; terga 3–5 yellow, tergum 5 medio-apically blackish spotted, terga 2/6 yellow laterally, sterna 3–6 yellow, sometimes with blackish markings medio-apically, sternum 9 with yellow apical half.

Head narrowed behind eyes. Antenna 2.0× as long as maximum head width; flagellum scarcely enlarged towards apex, triangular in cross section, somewhat flattened apically, interior surface with sharply compressed longitudinal carina, other longitudinal carinae more weakly compressed. Eyes slightly converging towards clypeus. Anterior margin of the clypeus shallowly circularly emarginate, supraclypeal area flatly rising up to base of interantennal carinae, interantennal carinae sharply ridged, scarcely converging below, extending about one third of way to clypeus. Vertex, frons and clypeus impunctate, shiny; gena with micropunctures, shiny; pubescence whitish. Mesoscutum nearly impunctate, shiny; pubescence similar to that on head. Abdomen shiny; terga 1–3 with irregular microsculpture, posterior margin of tergum 8 with large triangular membranous median depression. Penis valve: Fig. 14.

Length: 5.5–6.0 mm.

**Female.** Unknown.


**Distribution.** Namibia (Fig. 36).

**Diagnosis.** Together with *P. luederitzensis*, also from southwest Africa, *P. brandbergensis* differs from other *Pampsilota* in its body length of maximally 6.0 mm (other species at least 7.0 mm long). The yellow pronotum and entirely black legs of *P. brandbergensis* distinguish it immediately from *P. luederitzensis*, with dark pronotum and largely pale tibia.

**Remarks.** Variability in colour pattern is scarcely noticeable in the two known specimens, except that tergum 5 as well as sterna 3–5 may be entirely yellow, and the pronotum may have a small ventro-lateral blackish spot.

**Pampsilota dahomeyanus** Goergen, Koch & Liston, sp. n.

http://zoobank.org/74BDE11B-8CA9-4566-8E73-9FEE395BD4BA

**Female.** Figures 15–18, 47–48

Head black; labrum yellow. Thorax yellow with following black: mesoscutum except for a small lateral spot on lateral lobe adjacent to tegula; mesoscutellum and metanotum; dorsal and ventral margin of propodeum. Legs yellow; mesotibia very narrowly and metatibia broadly ringed blackish apically; mesotarsomeres with black apex, metatarsomeres black, with basal half of metabasitarsomere yellow. Wings bicoloured: basal half flavescent, apical half and intercostal area infuscate; substigmal spot fuscous and small; stigma, subcosta and venation in apical half black; costa and venation in basal half yellowish. Abdomen yellow.

Head parallel-sided behind eyes. Antenna 1.4× as long as maximum head width; flagellum enlarged towards apex, quadrangular in cross section, interior surface with sharply compressed longitudinal carina, other longitudinal carinae more weakly compressed. Eyes slightly converging towards clypeus. Anterior margin of the clypeus with shallow circular emargination, supraclypeal area slightly rounded, protruding up to base of interantennal carinae, interantennal carinae obtusely ridged, very slightly converging below, extending about to the level of ventral margin of torulus. Frons, supraclypeal area and clypeus moderately densely punctuate, shiny; vertex and gena scattered micropunctate, shiny; pubescence yellowish. Anterior half of mesoscutum densely punctate, weakly shiny; posterior half nearly impunctate, shiny; pubescence similar to that


Length: 7.8–9.0 mm.

**Male.** Figures 19, 49–50

Coloration similar to female except for a more or less large yellowish patch on clypeus and supraclypeal area. Sometimes mesoscutellum yellow only medially and on posterior half. Mesotibia entirely, mesotarsus nearly entirely yellow; metatarsomeres black ringed apically. Wings slightly infuscate throughout; stigma, subcosta and venation blackish, only costa yellowish.

Head slightly narrowed behind eyes. Antenna 1.9× as long as maximum head width; flagellum scarcely enlarged towards apex, scarcely flattened apically, slightly triangular in cross section; interior surface with sharply compressed longitudinal carina, other longitudinal carinae much more weakly compressed. Other characters as for female. Penis valve: Fig. 19.

Length: 7.3–7.7 mm.


**Larva.** Figures 51–55.
Individuals of two instars were examined in detail: GBIF GISHym 21229, total length 13mm, head capsule width 1.4mm; GBIF GISHym 21236, total length 6mm, head capsule width 0.9mm. Mature larvae reach a length of about 25 mm. All examined instars extremely similar in coloration except that the abdominal prolegs are pale in later instars (Fig. 51), and blackish in younger larvae (Fig. 52). The trunk is mainly green (Fig. 53). They possess the ground-plan characters of Argidae as given by Lorenz and Kraus (1957): one antennomere, abdominal segments 2–9 with 3 dorsal annulets, and tarsus of thoracic legs (Fig. 54) with large empodium.

Head with frons mainly dark, and extensive partly confluent black patches on parietal region and vertex (Figs 51, 55). Mandible with 2 setae. Maxillary palp with 6 setae on outer surface. Clypeus with 2 setae. Anterior edge of labrum with fringe of about 12 setae directed in same plane as labrum; two longer setae arise near the centre and are directed outwards. Frons with about 35 short setae, mostly shorter than diameter of antennomere. Rest of head capsule width 1.4mm; GBIF GISHym 21236, total length 6mm, head capsule width 0.9mm. Mature larvae reach a length of about 25 mm. All examined instars extremely similar in coloration except that the abdominal prolegs are pale in later instars (Fig. 51), and blackish in younger larvae (Fig. 52). The trunk is mainly green (Fig. 53). They possess the ground-plan characters of Argidae as given by Lorenz and Kraus (1957): one antennomere, abdominal segments 2–9 with 3 dorsal annulets, and tarsus of thoracic legs (Fig. 54) with large empodium.

Head with frons mainly dark, and extensive partly confluent black patches on parietal region and vertex (Figs 51, 55). Mandible with 2 setae. Maxillary palp with 6 setae on outer surface. Clypeus with 2 setae. Anterior edge of labrum with fringe of about 12 setae directed in same plane as labrum; two longer setae arise near the centre and are directed outwards. Frons with about 35 short setae, mostly shorter than diameter of antennomere. Rest of head capsule width 1.4mm; GBIF GISHym 21236, total length 6mm, head capsule width 0.9mm. Mature larvae reach a length of about 25 mm. All examined instars extremely similar in coloration except that the abdominal prolegs are pale in later instars (Fig. 51), and blackish in younger larvae (Fig. 52). The trunk is mainly green (Fig. 53). They possess the ground-plan characters of Argidae as given by Lorenz and Kraus (1957): one antennomere, abdominal segments 2–9 with 3 dorsal annulets, and tarsus of thoracic legs (Fig. 54) with large empodium.

Entire surface of trunk with numerous very short, fine, pale setae. On dark-pigmented areas of thorax and abdominal segments 1, 2 and 10, setae are darker and longer. All three dorsal annulets of meso- and metathorax and abdominal segments 1–2 with row of small, dark-pigmented glandubae (Fig. 52). Prothorax with fewer small glandubae, but paired medial black markings larger than on other segments (Fig. 52). Pigmentation of glandubae on abdominal segment 2 paler than on more anterior parts of dorsum. Pigmentation, size of glandubae on the abdominal dorsum and length of their setae diminish progressively towards the posterior (Fig. 52). Subspiracular lobe on abdominal segments 1–3(4) more or less marked with black, extent of black decreasing from segment to segment towards posterior.

Abdomen strongly tapering caudally, ventral surface appearing flat in live specimens. Prolegs very small; developed on abdominal segments 2–6 and 10 (Figs 51, 52), with numerous setae on exterior and interior surfaces; on segments 7–9 a minute scar-like vestige probably homologous with a proleg. Suranal lobe, dorsal and ventral surfaces of subanal lobe extensively black (Fig. 52). Posterior surface of anal prolegs dark-marked. Caudal edge of suranal lobe rounded (Fig. 51). Subanal lobe projecting beyond suranal lobe (Fig. 52). Setae on dorsal surface of subanal lobe particularly long and dense.

Prepupa and pupa. The trunk of the prepupa (Fig. 58) is darker than the larva, the head paler (mostly brown). The pattern of dark thoracic markings is retained. The pupa (Fig. 59) is at first pale, darkening progressively as it nears eclosion.

Host plant. Larvae were found and reared by G. Goergen at the IITAC on Lannea nigritana (Scott-Elliot) Keay (Anacardiaceae), a small (height 3–6 m), deciduous, leioiphilous tree species occurring from Senegal to Gabon, West and Central Africa.

Natural history. Flight period: June to December, peaking in July and October especially shortly after the annual flushing of individual trees of Lannea nigritana. During peak periods numerous adult sawflies were observed on the host plant. In early October 2014 host trees at the type locality were severely defoliated by P. dahomeyanus, and large numbers of larvae of all instars were found together with adults. Oviposition is generally on older leaves, with 1–3 eggs laid singly in slits cut into the leaf-blade, next to the midrib, at the base of a leaflet (Fig. 56). The female sits on the underside of the leaf during oviposition. Larvae are gregarious (Fig. 53): a group of larvae occupies a whole compound leaf and feeds on plant tissues of all ages. As they mature, larvae turn from dull green to pale yellow. In the laboratory, maturation of the 33 larvae reared from field-collected eggs took about 12 days. When fully grown, the larvae drop onto the soil to spin cocoons. About half of the cohort reared in October 2014 made cocoons, sometimes stuck together, in the leaf litter near the soil surface. Cocoons of the remaining larvae were found at about 5 cm below the soil surface. The cocoon is elongate-oval, about 9 mm long, double-walled, with sand grains attached to the outside (Fig. 57). The outer wall is irregularly netted, the inner wall parchment-like separated from the first by a loose layer of silk strands. Whereas eclosion of the individuals which made cocoons above ground occurred already between 20–27 October 2014, i.e. 7–14 days after making their cocoons, adults emerged from cocoons made in the ground in the period 8–25 June of the following year, i.e. 207–224 days after entering the ground. In both instances, there was no obvious pattern in the emergence of male and female sawflies. It is concluded that P. dahomeyanus has a multivoltine life cycle with polymodal adult emergence. Parasitism: during larval peak periods imagines of an unidentified Boethus species (Hymenoptera, Ichneumonidae, Tryphoninae) were observed attaching eggs externally to the surface of the larvae. Members of the genus are known as koinobiont parasitoids of Argidae larvae. This is the first record of Boethus from West Africa.

Etymology. The new species name, a Latinised adjective, refers to the historical West African kingdom of Dahomey, the later Republic of Benin, in which the type locality is situated.

Distribution. Benin (Fig. 36).

Diagnosis. Pampsilota dahomeyanus adults resemble those of P. nigeriae and P. tsavoensis in the nearly entirely yellow colour of the abdomen and thorax underside. Pampsilota nigeriae is separated from P. dahomeyanus by its predominantly light brown to yellow antenna, entirely yellow propleuron, bicoloured stigma, and very
different penis valve (Fig. 26). *Pampsilota tsavoensis* differs from *P. dahomeyanus* in the blackish dorsal part of its mesepisternum, the shape of the serrulae (Figs 29, 30), and in the shape of the valvulae 3: conspicuously divergent in dorsal view, with distinct denticles on the interior surface (Fig. 28), whereas in *P. dahomeyanus* the ovipositor sheath is more compact, with the valvulae 3 not diverging distally, and without denticles (Fig. 16). The similarly coloured *P. nigeriae*, of which only a single male is known, differs from both species in the predominantly yellow antenna and the bicoloured stigma, and from *P. dahomeyanus* especially in the shape of the penis valve (Fig. 26).

**Remarks.** Especially males of *P. dahomeyanus* are highly variable in coloration. Four specimens have an entirely black mesonotum, metascutellum, black tegula, blackish markings on the pronotum and tergum 1, and terga (5)–8 nearly entirely black. However, no accompanying differences in the shape of the penis valve were detected. Sometimes, in both sexes, the clypeus and the supraclypeal area are marked with dirty yellow. In the material studied, one male was found to have a very small subapical spine on one metatibia. We interpret this as a rare reversion to what may be the plesiomorphic character state.

General morphology of the larva is very similar to the *Arginae* species described by Lorenz and Kraus (1957; in that work represented only by larvae of *Arges*), and Smith (1989). Compared to Sterictiphorinae, *P. dahomeyanus* larvae share characters of *Arge*: thoracic leg with six articulated lobes without raised or subcutaneous glands (present in Sterictiphorinae), subanal lobes without pseudocerci (present in Sterictiphorinae). There is no detailed published description of an Afrotropical argid larva with which to compare *P. dahomeyanus*.

**Pampsilota leleupi** Pasteels, 1953

*Pampsilota leleupi* Pasteels, 1953: 116–117. Described: ♂. Type locality: Territoire de Sandoa, Congo. Head black, including antenna. Thorax black. Legs towards apex, triangular in cross section, scarcely flattened apically, interior surface with sharply compressed longitudinal carina, other longitudinal carinae weakly compressed. Eyes slightly converging towards clypeus. Anterior margin of the clypeus shallowly circularly emarginate, supraclypeal area scarcely protruding up to ventral limit of interantennal carinae, interantennal carinae sharply ridged, conspicuously converging below, extending about one quarter of way to clypeus. Frons, supraclypeal area and clypeus moderately densely micro-punctate, shiny, vertex and gena sparsely micropunctate, shiny; pubescence brownish. Mesoscutum sparsely micro-punctate, shiny; pubescence similar to that on head. Abdomen irregularly microsculptured, with conspicuous dense pubescence. Penis valve: Fig. 20.

- **Length:** 9.7 mm.
- **Female.** Unknown.


**Distribution.** Democratic Republic of the Congo (Fig. 37).

**Diagnosis.** *P. leleupi* resembles *P. afer* in its large body size, thorax without pale makings, and abdomen at least partly pale, but *P. leleupi* is easily recognised by its extensively pale legs (largely black in *P. afer*).

**Remarks.** The genitalia preparation mentioned above (“Genit. △, H4-47”) was not available (personal communication from Stephane Hanot, collection manager at MRAC, 26.02.2015). The illustration of the penis valve is therefore taken from Pasteels (1953).

**Pampsilota luederitzensis** Koch, 2006


**Female.** Figures 21–24

- Head black, including antenna. Thorax black. Legs black; tibiae whitish, apically slightly brownish, tarsi brownish. Wings hyaline with intercostal area slightly flavescent-hyaline; subterminal spot very small and slightly
infuscate; costa light brown with basal half white, stigma, subcosta and rest of venation light brown. Abdomen yellowish brown; terga 1, 2 black, terga 3–5 with small light brown median spot, tergum 5 additionally with light brown posterior margin, terga 6/7 brown; ventral surface of abdomen brown with yellow longitudinal median stripe.

Head parallel-sided behind eyes. Antenna 1.6× as long as maximum head width; flagellum scarcely enlarged towards apex, quadrangular in cross section, somewhat flattened towards apex, ventral surface with moderately compressed longitudinal carina, other longitudinal carinae more weakly compressed. Eyes slightly converging towards clypeus. Anterior margin of clypeus shallowly, circularly emarginated; supraclypeal area roundly protruding up to ventral limit of interantennal carinae; interantennal carinae sharply ridged between antennae, converging below, extending about one third of way to clypeus. Vertex, frons, gena, clypeus and supraclypeal area sparsely micropunctate, shiny; pubescence whitish. Mesoscutum nearly impunctate, shiny; pubescence similar to that on head; lateral lobe of mesoscutum with narrow glabrous stripe. Valvulae 3: Figs 21, 22. Lancet with about 13 serrulae: Figs 23, 24.

Length: 6.0 mm.

General coloration similar to that of female. Head and mesoscutum with slight metallic lustre; anterior margin of labrum brownish. Tarsi light brown. Costa almost entirely whitish. Abdomen blackish, tergum 3 yellowish with light brown median spot, terga 4/7 light brown, distal terga yellow; sternum 7/9 yellow.

Antenna 1.7× as long as maximum head width; apex of flagellum flattened, interior surface with sharply compressed longitudinal carina. Other characters as for female. Penis valve: Fig. 25.

Length: 5.3 mm.


**Distribution.** Namibia (Fig. 37).

**Diagnosis.** *Pampsilota luederitzensis* resembles *P. brandbergensis* in the body length not exceeding 6.0 mm (in other species at least 7.0 mm). The yellow pronotum and entirely black legs of the latter distinguish it immediately from *P. luederitzensis* with dark pronotum and largely pale tibia.
**Pampsilota nigeriae** Liston & Koch, sp. n.  
http://zoobank.org/5C0DDF6E-9F09-4DD8-B683-308A3ACF8EE7

**Male.** Figures 26, 64–65  
Head black; labrum yellow; antenna light brown with blackish apex and sharply compressed longitudinal carina. Thorax yellow with following black: mesoscutum except for a small median spot between lateral lobes on posterior margin, mesoscutellum and metascutellum. Legs yellow; metabasitarsomeres of mediotarsomeres moderately broadly blackish-ringed apically, tarsomeres 3/4 nearly entirely black. Wings including intercostal area slightly infuscate; substigmatic spot weakly developed, stigma bicoloured with dirty whiteish base and blackish apical half, costa whitish, subcosta except for apex adjacent to stigma and rest of venation blackish. Abdomen yellow.

Head slightly narrowed behind eyes. Antenna 1.6× as long as maximum head width; flagellum very slightly enlarged towards apex, triangular in cross section, scarcely flattened apically, interior surface with sharply compressed longitudinal carina, other longitudinal carinae weakly compressed. Eyes very slightly converging towards clypeus. Anterior margin of clypeus semi-circularly emarginate over its entire width; supracylpeal area very slightly rounded, protruding up to ventral limit of interantennal carinae, interantennal carinae obtusely ridged, converging below, extending to a little below ventral margin of torulus. Frons, supracylpeal area and clypeus densely punctate, weakly shiny, vertex and gena scattered micropunctate, shiny; pubescence whitish. Mesoscutum moderately densely punctate, shiny; pubescence similar to that on head. Abdomen smooth and shiny. Penis valve: Fig. 26.

Length: 7.3 mm.

**Female.** Unknown.


**Etymology.** The new species is named after Nigeria, the country in which the holotype was collected.

**Distribution.** Nigeria (Fig. 37).

**Diagnosis.** *Pampsilota nigeriae* adults resemble those of *P. dahomeyanus* and *P. tsavoensis* in the mostly yellow colour of the abdomen and thorax underside, but differ from both in its predominantly yellow antenna and the bicoloured stigma. The penis valves of *P. dahomeyanus* (Fig. 19) and *P. nigeriae* (Fig. 26) show differences. Additionally, the dorsal part of mesepisternum is blackish in *P. tsavoensis*, but yellow in *P. nigeriae*.

**Pampsilota tsavoensis** Liston & Koch. sp. n.  
http://zoobank.org/F7FF2570-36FB-4A86-A8C1-F6D844104E9E

**Female.** Figures 27–30, 66–67  
Head black with following yellow: labrum, clypeus, supracylpeal area. Interantennal area light brown; antenna black with ventral surface brownish, base of scape yellow. Thorax yellow with following black: mesoscutum, metascutum, dorsal half of mesepisternum blackish. Legs yellow with following black: narrow apex of mesotibia, broad apex of metabasitarsi, pro- and mesotarsomeres more or less blackish ringed apically, metabasitarsomere black ringed apically with following tarsomeres black. Wings slightly infuscate; intercostal area and very small substigmatic spot infuscate; stigma, costa, subcosta and rest of venation blackish. Abdomen yellow.

Head parallel-sided behind eyes. Antenna 1.3× as long as maximum head width; flagellum conspicuously enlarged towards apex, quadrangular in cross section, interior surface with sharply compressed longitudinal carina, other longitudinal carinae conspicuously weakly compressed. Eyes very slightly converging towards clypeus. Anterior margin of the clypeus shallowly, circularly emarginated; supracylpeal area scarcely protruding up to ventral limit of interantennal carinae, interantennal carinae obtusely ridged, not converging below, extending about to level of ventral margin of torulus. Frons, supracylpeal area and clypeus sparsely micropunctate, shiny, vertex and gena densely micropunctate, subshiny; pubescence whitish. Mesoscutum irregularly microsculptured, subshiny; pubescence similar to that on head. Abdomen smooth and shiny. Valvulae 3: Figs 27–28. Lancet with about 16 serrulae: Figs 29–30.

Length: 7.0 mm.

**Male.** Unknown.


**Etymology.** The species is named after its collection locality, Tsavo National Park in Kenya.

**Distribution.** Kenya (Fig. 37).

**Diagnosis.** *Pampsilota tsavoensis* adults resemble those of *P. dahomeyanus* and *P. nigeriae* in the mostly yellow colour of the abdomen and thorax underside, but differ from *P. dahomeyanus* in the blackish dorsal part of mesepisternum, shape of the serrulae (Figs 29, 30), and in the morphology of the valvulae 3, which in *P. tsavoensis* are conspicuously divergent in dorsal view, with distinct denticles on the interior surface (Fig. 28), whereas in *P. dahomeyanus* the valvulae 3 do not diverge distally, and are without denticles (Fig. 16). *P. nigeriae*, of which only a single male is known, differs from *P. tsavoensis* in its predominantly yellow antenna and the bicoloured stigma.

Figure 26. *Pampsilota nigeriae*: Penis valve (left, lateral aspect).
**Pampsilota tsavoensis** Liston & Koch, sp. n.

http://zoobank.org/D56CC835-6389-4FFB-91D5-8E4FB47936BE

**Female.** Figures 31–34, 68–69

Head black with blue metallic lustre. Thorax black with metallic lustre; pronotum yellow with anterior margin and medially black. Legs black with blue metallic lustre; pro- and mesotibia entirely yellow, metatibia yellow with moderately broad blackish apex, probasitarsomere sometimes with yellow base. Wings including intercostal area subhyaline; substigmal spot strongly infuscate but small; stigma, costa, subcosta and rest of venation black. Abdomen yellow-orange; terga 1–6 broadly black with blue metallic lustre; terga 7–9 entirely black, sternum 5 with broad black posterior margin, sternum 6/7 entirely black; ovipositor sheath with black valvifers 2.

Head very slightly enlarged behind eyes. Antenna 1.4× as long as maximum head width; flagellum enlarged towards apex, quadrangular in cross section, interior surface with sharply compressed longitudinal carina, other longitudinal carinae conspicuously more weakly compressed. Eyes slightly converging towards clypeus. Anterior margin of the clypeus broadly, shallowly, tri-angularly emarginate; supraclypeal area nearly evenly rising up to base of interantennal carinae, interantennal carinae obtusely ridged, converging below, extending to about level of ventral margin of torulus. Frons, supraclypeal area and clypeus rugosely sculptured, dull, vertex densely punctate, dull, postcellar area and gena densely micropunctate, shiny; pubescence whitish. Mesoscutum moderately densely micropunctate, shiny; pubescence similar to that on head. Abdomen smooth and shiny. Valvulae 3: Figs 31, 32. Lancet with about 16 serrulae: Figs 33, 34.

Length: 9.5 mm.

**Male.** Figures 35, 70–71.

General coloration similar to that of female. Metatibia entirely yellow, sometimes interior surface of apex slightly blackish, basal tarsomerses of fore and mid legs extensively yellow. Sterna 5–9 black with blue metallic lustre, sternum 9 broadly yellow apically.

Antenna 1.8× as long as maximum head width; flagellum slightly enlarged medially, scarcely flattened apically, approximately oval in cross section, interior surface with sharply compressed longitudinal carina, outer carina conspicuously more weakly compressed, other carinae not

developed. Other characters as for female. Penis valve: Fig. 35.

Length: 7.2–7.8 mm.


**Etymology.** The new species name, a noun in apposition, refers to the well-known and widely distributed African ungulate, so named in several European languages.

**Distribution.** Tanzania. The only known locality lies on the edge of the Udzungwa Mountains National Park (Fig. 37).

**Diagnosis.** Pampsilota zebra resembles *P. africana* in having pincer-shaped valvulae 3 (compact or diverging in all other species), metatibia distally nearly circular in cross section, and in the main colour characters (thorax black except for pronotum and sometimes tegulae, legs partly pale, and abdomen at least ventrally partly pale). *Pampsilota zebra* differs from *P. africana* especially in its black costa and subcosta (in the latter costa and anterior of subcosta bright yellow). The tegulae of *P. zebra* are always black, whereas in *P. africana* they are sometimes bicoloured. Furthermore, the hind tibia of *P. zebra* is in contrast to *P. africana* broadly ringed apically with blackish. The serrulae of these species are very differently shaped (Figs 12, 34), but their penis valves are quite similar (Figs 13, 35).

**Remarks.** Intraspecific variability is apparent in the coloration of the dorsum of the abdomen, where the black markings are medially more or less extensive, and the more or less extensively yellow coloured pro- and mesotarsi.
Discussion

The regrettable current lack of knowledge on the host plant associations of the majority of Afrotropical Tenthredinoidea, compared for example to the relatively large and partly corroborated data sets available for many regions in the Palaeartic and Nearctic, has recently been highlighted by, for example, Koch et al. (2015) and Liston et al. (2015). This deficit makes it impossible to judge within a wider perspective the significance of the host plant record for the single Pampsilota species for which such data exists: *P. dahomeyanus* on *Lannea nigritana* (Anacardiaceae). This is currently one of very few records of an Afrotropical sawfly species using a native, woody host. We are not aware of other published records of leaf-eating African tenthredinoids reared, or otherwise unequivocally associated, with Anacardiaceae, although a few records associate Neotropical Pergidae and Nearctic Argidae with this plant family (e.g. McKay et al. 2009, Regas-Williams and Habeck 1979). Among the other Afrotrropical symphytan lineages, only Goulet (2014) recorded an association with a species of Anacardiaceae: *Afrotremex xylophagus* Goulet, 2014 (Siricidae) reared from wood of *Antrocaryon klineanum* Pierre. The few host plants hitherto recorded for native Afrotropical tenthredinoids are, conspicuously, nearly all non-woody species, and very often those which are cultivated (Koch et al. 2015). By contrast, in the Holarctic many tenthredinoids, including most *Arge* species (Smith 1989, Liston 1995), use woody plants as hosts. Possibly the lack of data on sawflies of sub-Saharan Africa using native tree species as larval hosts might largely have been caused by various sampling biases, such as failure to employ effective collecting methods on trees at the right season, or perhaps even a widespread relative lack of interest in studying the insect fauna of native trees, compared to that of the crop plant species which are of more obvious importance to humans. Because the host of *P. dahomeyanus* is valued by humans for its fruit, and has a variety
of other uses, including medicinal, it is often planted
in or near settlements (Burkhill 1985), and is thus a
more conspicuous host than the many Afrotropical tree
species found only in the rapidly diminishing areas of
semi-natural forest.

Our study aims to make possible the identification
of part of the species-rich Afrotropical fauna of Argi-
dae, and thus prepare the way for further research. The
current lack of genetic data forced us to rely on mor-
phological methods, but real progress in understanding
the phylogeny of the twenty nominal argid genera
worldwide that are currently placed in the Arginae (14)
and Athermantinae (6) (Taeger et al. 2010), will prob-
ably only be possible when sufficient genetic data be-
come available for a representative spectrum of these
taxa. We are, however, a very long way from achieving
this. The lack of fresh material of several Afrotropical
taxa is a problem, well illustrated by the type species
of *Pampsilota*, *P. afer*: at least six of the eleven spec-
imens (one is without a date) which we were able to
examine were collected over one hundred years ago,
with the most recent from 1955. The acquisition of
gene sequence data for as many Afrotropical sawfly
taxa as possible should nevertheless remain an objec-
tive, because, apart from its usefulness in phylogenetic
analyses, it could also be used to accelerate the task
of identifying larvae and host plants, by avoiding the
need to rear the immature stages to adults. The latter
technique, which is time-consuming and not always
successful, will of course remain essential in the long
term, if we desire to know more about the natural his-
tory of individual taxa.

The separation of the Arginae from the Athermantin-
ae was first proposed by Benson (1938). He ascribed
great importance to the character states “pre-apical
spurs on meso- and metatibia present [Arginae] or ab-
sent [Athermantinae]”. This has become the only char-
acter used in more recent works, e.g. Koch et al. (2015),
to distinguish members of the putative lineages. One
might well question whether this single character of re-
duction, which might have occurred or been reversed independently more than once within the Argidae, is really of such phylogenetic significance. On the other hand, of the very many Afrotropical argid specimens examined by the authors, only two specimens were found in which this character state was equivocal (the holotype of *Calarge africana*, and a single *Pampsilota dahomeyanus*). Therefore, we are of the opinion that the character is sufficiently stable at species level to be useful at least for identification.

The morphology of the larva of *P. dahomeyanus* does not differ in any notable way from known larvae of *Arge* species, as described for example by Lorenz and Kraus (1957), and Smith (1989). Given that at suprageneric level the larvae of exophytic sawfly taxa generally exhibit some clear apomorphies (Lorenz and Kraus 1957), this similarity supports the inclusion of *P. dahomeyanus* in the Arginae, rather than the Athermantinae, in which *Pampsilota, Sjostedtia* and *Cipdela* have mostly been placed following Benson (1938) (e.g. Taeger et al. 2010).
However, it would be unwise to draw any conclusions from this assessment before gene sequences are acquired and larval morphology elucidated for the type species of Pampsilota, and as many other argine and athermantine species as possible worldwide. What is clear, is that after the exclusion of Sphacophilus afer and Scobina poecila from the Afrotropical fauna, and the synonymy of Callarge with Arge, the argid fauna of the sub-Saharan continent is by no means as diverse at higher taxonomic levels as previously believed.

Acknowledgements

We are most grateful to S. M. Blank (SDEI), E. De Coninck and S. Hanot (MRAC), F. Gusenleitner (OLML), E. Marais (NNIC), M. Paris (MNCN), A. Taeger (SDEI), A. Teräs (UZMT), H. Vårdal (NHRS), S. Csősz, S. Vas, and L. Zombori (HNHM) for allowing us to examine the specimens in their care. Without their help, this study could not have been undertaken. M. Paris also sought information about the history of the C. terminalis and S. afra specimens. E. Schubert (SDEI) made available handwriting
samples of L. Conradt, and D. R. Smith (USNM) kindly gave his opinion on our assessment of the status of *S. afr a* and *C. terminalis*. Images for Figs 70–71 were kindly provided by B. Schurian (MFRN). We thank the graphic designer E. Siebert (MFRN) for her help with arranging and lettering the line drawings. The staff of the SDEI library have, over many years, made a great effort in obtaining and archiving potentially relevant literature. Particularly thanked for this by AL are K. Elgner, H. Framke, U. Kaczinski, and R. Riedelsheimer. We are also grateful to Aristide Adomou (Jardin Botanique et Herbier National du Bénin, Université d’Abomey Calavi, Abomey-Calavi, Benin) for identifying the host plant of *P. dahomeyamines* and Hervé Houngué, IITA Benin, for technical assistance in collecting and rearing the species. FK would like to express his gratitude to the International Bureau of the Federal Ministry of Education and Research (BMBF) at the Project Management Agency c/o German Aerospace Center (DLR) and the National Research Foundation (NRF), South Africa for a research grant. S. Monckton and S. van Noort reviewed the manuscript and suggested important improvements. Finally, the Museum für Naturkunde defrayed the cost of open access publication.

References


Liston AD et al.: Revisions of Afrotropical Argidae


Provancher L (1888) [Symphyta:] In: Additions and Corrections to the volume II of the faune entomologique du Canada. Québec [1885-1889]: 427–428.


Wei Meicai (1997) Taxonomical studies on Argidae (Hymenoptera) of China IV. Revision of Tanyphatnideini from China with descriptions of two new species. Entomotaxonomia 19 [supplement]: 35–42. [In Chinese, abstract in English]