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New records of Psocoptera from East Sub-Saharan Africa



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New records of Psocoptera from East Sub-Saharan Africa

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Abstract. New information on the species diversity of Psocoptera (Insecta) of East Sub-Saharan Africa was presented. The check list of Kenya was updated with 28 species records, Zanzibar with 2 (and 3 corrected), and South Africa with 3.

Key words: Psocoptera, distribution, species diversity.

Introduction

Biodiversity research is the key to its conservation. In the last 30 years, the number of insects worldwide has decreased by a quarter - a problem with a fairly high percentage in the tropics (Attenborough 2020). Obviously every little piece of information about the panthropically little known order Psocoptera in areas like East Africa is important.

Accumulating on dry and decomposing plant matter relates psocids closely to environmental conservation, soil fertilization, and some are even economically important being considered as pests on stored products. Even following paper could look quite amateur work, with it I would like to stress that these insects in Africa are extremely diverse and quite far from being well studied. For example from the paper of Broadhead & Richards (1982) there was a gap of about 40 years when there was no any paper on Psocoptera of East Africa published.

This paper is aimed on presenting new information on the species diversity of Psocoptera (Insecta) of East Sub-Saharan Africa by: 1. correcting my misidentifications from Georgiev (2021a), 2. checking again the materials mentioned above for some more species which could be found, 3. providing new information about the Psocoptera distribution in coastal Kenya by newly collected specimens, 4. analyzing photographs of barklice from social networks and searching for new country records.

Material and Methods

Revision of the materials from Zanzibar was done. Photographs from the social networks iSpot and iNaturalist were surveyed. Different habitat types were studied during new collections in Kenya (Fig. 1).

The species discussed in the paper were considered according to original descriptions, redescriptions, and published identification keys. Even mainly exterior photographs of the specimens were provided, the terminalia structures were considered as a leading identification feature. They were studied under light microscopes Optika and Carl Zeiss-Jena. The photos (specimens in glycerin) were taken by a camera Canon PowerShot SX500IS through the eyepiece of the microscope. For the specimens from family Archipsocidae, the criteria of Mockford (1953) were used for identification.

Species diversity and distributions were according Lienhard (2016) and Johnson *et al.* (2022).



Fig. 1. Some of the habitat types surveyed in Kenya: 1, 2 – coastal broad leaf forest (1 – along the coast, 2 – W of Diani Road), 3, 4 – savannah (4 – dry brunches with dry leaves, one of the psocid richest microhabitats), 5 – scrubs at the bank of Congo River, 6 – coastal bushes on rocks.

Results and Discussion

Family Lepidopsocidae Enderlein, 1903

Echinopsocus sp.

Material examined: 27.2.2022, Kenya, near Diani Road, edge of a broad leaf coastal forest, S04 19 55.3 E39 34 01.7, 36 m a.s.l., 5 ♀, a pile of old palm leaf mats at the base of *Adansonia digitata*, collected by beating; 5.3.2022, 6 ♀, same locality and way of collecting (Fig. 2); 27.2.2022, Kenya, Diani Beach area, coastal forest in a hotel yard, S04 20 10.2 E39 34 00.7, 18 m a.s.l., 1 ♀, from palm leaf mats on a roof of a shelter, collected by beating.

Remarks: A new species to science which is going to be described in other publication.

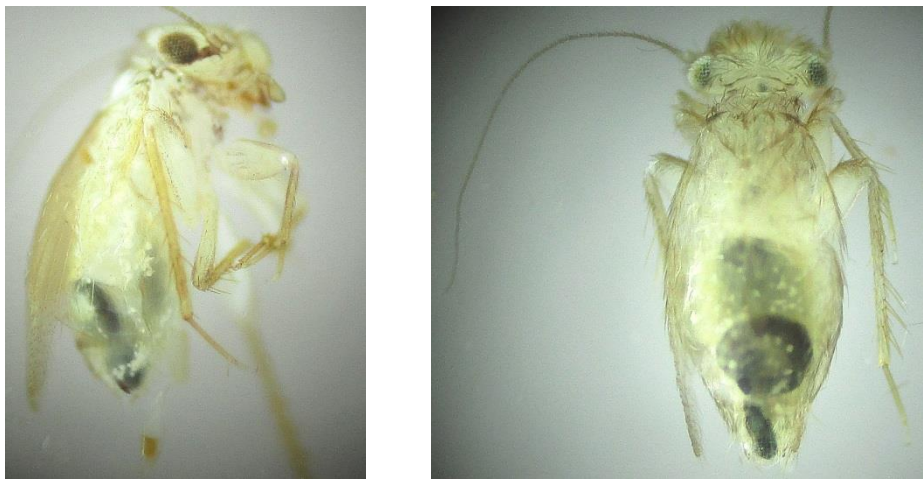


Fig. 2. *Echinopsocus* sp. from Kenya, female: lateral and dorsal view.

Echmepteryx lunulata Thornton, Lee & Chui, 1972

Material examined: 27.2.2022, Kenya, W of Diani Road, coastal broad leaf forest, S04 19 52.6 E39 34 00.4, 24 m a.s.l., 1 nymph, from brunches of bushes and trees with dry leaves, collected by beating the vegetation; 27.2.2022, S of Mombasa, at the estuary of Congo River, bushes and trees at sandy river bank, S04 15 30.8 E39 35 43.5, 4 m a.s.l., 1 ♀, from various bushes, collected by beating the vegetation; 4.3.2022, S of Mombasa, at the estuary of Congo River, mangrove scrubs, S04 15 30.3 E39 35 41.3, 6 m a.s.l., 9 ♀, 5 nymphs, from various bushes and trees, collected by beating the vegetation.

Remarks: The species was known from Antilles, Chagos Archipelago, Christmas Island, Equatorial Guinea, Galapagos, Indonesia, Japan, Melanesia, Micronesia, Reunion, Hawaii and Zanzibar. New record for Kenya.

***Echmepteryx (Thylacopsis) madagascariensis* (Kolbe, 1885)**

Material examined: 27.2.2022, Kenya, near Diani Road, edge of a broad leaf coastal forest, S04 19 55.3 E39 34 01.7, 36 m a.s.l., 3 ♀, a pile of old palm leaf mats at the base of *Adansonia digitata*, collected by beating (Fig. 3); 27.3.2022, Kenya, Diani Beach area, S04 20 10.2 E39 34 00.7, 18 m a.s.l., 3 ♀, mats of a shelter roof, collected by beating.

Remarks: The species was known from many of the warmer parts of the World. New record for Kenya.



Fig. 3. *E. madagascariensis* from Kenya, female: general view.

***Echmepteryx (Thylacopsis) pallida* Smithers, 1965**

Material examined: 26.2.2022, Kenya, Diani Beach area, coastal broad leaf forest in hotel yard, S04 20 12.3 E39 33 59.0, 36 m a.s.l., 2 ♀, collected already dead and dry, from brunches of various bushes and trees, collected by beating the vegetation (Fig. 4).

Remarks: The species was known from Australia, Christmas Island, Equatorial Guinea, Indonesia, Polynesia and Zanzibar. New record for Kenya and Continental East Africa.



Fig. 4. *E. pallida* from Kenya, female: general view, front side of the head.

***Lepidopsocus pretiosus* (Banks, 1942)**

Material examined: 4.3.2022, Kenya, S of Mombasa, at the estuary of Congo River, mangrove scrubs, S04 15 30.3 E39 35 41.3, 6 m a.s.l., 1 ♀, from various bushes and trees, collected by beating the vegetation (Fig. 5).

Remarks: The species was known from Christmas Island, Guam, Indonesia, Melanesia, Micronesia, Polynesia and Zanzibar. First record for Kenya and Continental Africa.

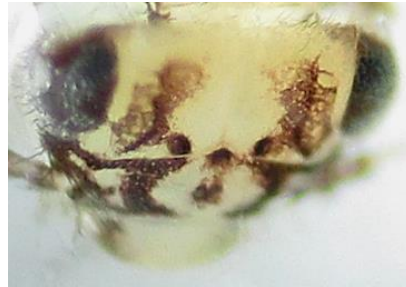


Fig. 5. *L. pretiosus* from Kenya, female: front side of the head.

***Lepolepis bicolor* Broadhead, 1955**

Material examined: 27.2.2022, Kenya, Diani Beach area, coastal broad leaf forest in a hotel yard, S04 20 12.3 E39 33 59.0, 36 m a.s.l., 4 ♀, 5 nymphs, from dry tree bark on the ground, collected by sieving (Fig. 6); 1.3.2022, Diani Beach area, coastal broad leaf forest, S04 20 20.3 E39 34 04.2, 2 m a.s.l., 2 nymphs, from detritus and dry leaves on the forest floor, collected by sieving.

Remarks: The species was known from Great Britain, Iles Glorieuses, India, Reunion and Zanzibar, but possibly having wider range. New record for Kenya and Continental Africa.



Fig. 6. *L. bicolor* from Kenya, female: lateral view.

***Thylacella* sp.**

Material examined: 27.2.2022, Kenya, S of Mombasa, at the estuary of Congo River, bushes and trees at sandy river bank, S04 15 30.8 E39 35 43.5, 4 m a.s.l., 1 nymph, from various bushes, collected by beating the vegetation.

Remarks: The collected specimen clearly belongs to the genus *Thylacella* having strongly setosae body and a lack of scales. From Kenya only *T. angustipennis* Broadhead & Richards, 1982 was known which has green eyes like the specimen found during present study (Fig. 7).



Fig. 7. *Thylacella* sp., nymph from Kenya: lateral and dorsal view.

Lepidopsocidae indet.

Material examined: 27.2.2022, Kenya, Diani Beach area, coastal broad leaf forest in a hotel yard, S04 20 12.3 E39 33 59.0, 36 m a.s.l., 1 nymph (?), from dry tree bark on the ground, collected by sieving.

Remarks: The specimen collected is different from all Lepidopsocidae collected from the area of East Africa. It is blackish-brown, with long well developed hind femora similar to these of *Lepolepis* species. The undeveloped forewings shape is similar to these ones of a *Lepidopsocus* species (Fig. 8).

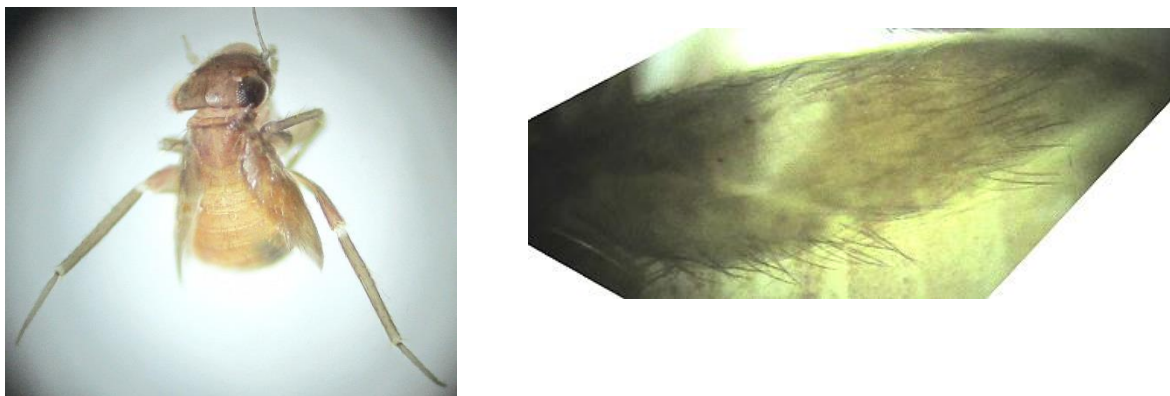


Fig. 8. The unidentified Lepidopsocid specimen from Kenya: dorsal view and forewing.

family Trogiidae Roesler, 1944

***Cerobasis* sp.**

Material examined: 1.3.2022, Kenya, Diani Beach area, broadleaf coastal forest, S04 20 20.3 E39 34 04.2, 2 m a.s.l., 2 nymphs, from brunches of bushes and trees, collected by beating the vegetation; 3.3.2022, Kenya, Diani Beach, open scrubs at coastal rocks near the beach, S04 20 52.6 E39 33 53.2, 1 m a.s.l., 1 ♀ (Fig. 9), 2 nymphs, from brunches of bushes and trees, collected by beating the vegetation.

Remarks: A new species to science which is going to be described in other publication.



Fig. 9. *Cerobasis* sp. from Kenya, female: dorsal view.

Family Psoquillidae Lienhard & Smithers, 2002

***Rhyopsocus* sp.**

Material examined: 4.3.2022, S of Mombasa, at the estuary of Congo River, mangrove scrubs, S04 15 30.3 E39 35 41.3, 6 m a.s.l., 1 ♀, from various bushes and trees, collected by beating the vegetation (Fig. 10).

Remarks: According to general coloration, wing venation and female genitalia, the specimen collected resembles *R. pandanicola* Thornton, Lee & Chui, 1972 known from Micronesia, Christmas Island and Tonga. It differs from *pandanicola* by its uniformly brown maxillary palpus and metathoracic terga. First record of *Rhyopsocus* from Kenya.

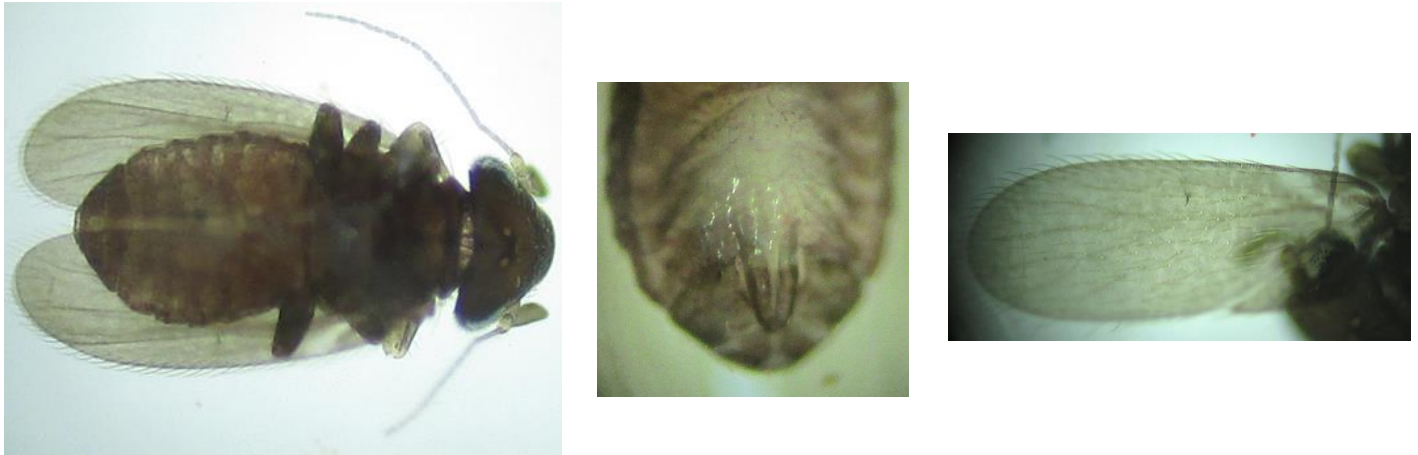


Fig. 10. *Rhyopsocus* sp. from Kenya, female: dorsal view, genitalia and forewing.

Family Amphientomidae Enderlein, 1903

***Lithoseopsis* sp.**

Material examined: 4.3.2022, Kenya, S of Mombasa, at the estuary of Congo River, mangrove scrubs, S04 15 30.3 E39 35 41.3, 6 m a.s.l., 3 ♀, from various bushes and trees, collected by beating the vegetation (Fig. 11).

Remarks: A new species to science which is going to be described in other publication.



Fig. 11. *Lithoseopsis* sp. from Kenya, female: dorso-lateral view.

Family Liposcelididae Broadhead, 1950

Belaphopsocus murphyi Lienhard, 1991

Material examined: 27.2.2022, Kenya, near Diani Road, edge of a broad leaf coastal forest, S04 19 55.3 E39 34 01.7, 36 m a.s.l., 2 ♀, 1 nymph, a pile of old palm leaf mats at the base of *Adansonia digitata*, collected by beating; 5.3.2022, 1 ♀, same locality and collected same way.

Remarks: The species was described from Singapore (Lienhard, 1991), and later found on Zanzibar (Georgiev, 2021a) (Fig. 12). This first record on the coast of Continental Africa suggests that possibly this species has wider range covering areas with suitable habitats at least along the northern and western coasts of the Indian Ocean.



Fig. 12. *B. murphyi* from Zanzibar, female: lateral and dorsal external view, lateral view of the head and maxillar palpus, and antenna.

Liposcelis albothoracica Broadhead, 1955

Material examined: 27.2.2022, Kenya, Diani Beach area, coastal forest in a hotel yard, S04 20 10.2 E39 34 00.7, 18 m a.s.l., 1 ♀, from palm leaf mats on a roof of a shelter, collected by beating; 1.3.2022, Diani Beach area, coastal broad leaf forest, S04 20 20.3 E39 34 04.2, 2 m a.s.l., 1 ♀, from detritus and dry leaves on the forest floor, collected by sieving; 5.3.2022, Kenya, near Diani Road, edge of a broad leaf coastal forest, S04 19 55.3 E39 34 01.7, 36 m a.s.l., 5 ♀, a pile of old palm leaf mats at the base of *Adansonia digitata*, collected by beating.

Remarks: The species was described from stored products in Britain with unknown origin (Broadhead, 1955). Later it was found in Cape Verde Islands, Mexico, Senegal and Zanzibar. This species probably has much more wider range in the tropical areas than known till now. New record for Kenya and Continental East Africa.

***Liposcelis angolensis* Badonnel, 1955**

Material examined: 27.2.2022, Kenya, Diani Beach area, coastal broad leaf forest in a hotel yard, S04 20 12.3 E39 33 59.0, 36 m a.s.l., 1 ♀, from dry tree bark on the ground, collected by sieving (Fig. 13); 1.3.2022, Diani Beach area, coastal broad leaf forest, S04 20 20.3 E39 34 04.2, 2 m a.s.l., 3 ♀, from detritus and dry leaves on the forest floor, collected by sieving.

Remarks: The species was known from Angola and Kenya (Central Aberdares).

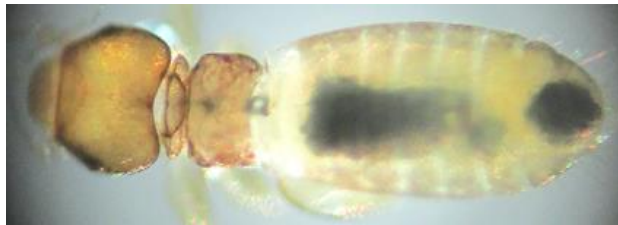


Fig. 13. *L. angolensis* from Kenya, female: dorsal view.

***Liposcelis bostrychophila* Badonnel, 1931**

Material examined: 27.2.2022, Kenya, Diani Beach area, coastal broad leaf forest in a hotel yard, S04 20 12.3 E39 33 59.0, 36 m a.s.l., 1 ♀, from dry tree bark on the ground, collected by sieving; 27.3.2022, Kenya, Diani Beach area, S04 20 10.2 E39 34 00.7, 18 m a.s.l., 1 ♀, mats of a shelter roof, collected by beating.

Remarks: Cosmopolitan species. For Kenya reported by Broadhead & Richards (1982) from Amboseli Game Reserve.

***Liposcelis entomophila* (Enderlein, 1907)**

Material examined: 27.3.2022, Kenya, Diani Beach area, S04 20 10.2 E39 34 00.7, 18 m a.s.l., 2 ♀, from mats of a shelter roof, collected by beating.

Remarks: Widely distributed species. New record for Kenya.

***Liposcelis puber* Badonnel, 1955**

Material examined: 4.3.2022, S of Mombasa, at the estuary of Congo River, mangrove scrubs, S04 15 30.3 E39 35 41.3, 6 m a.s.l., 1 ♀, from various bushes and trees, collected by beating the vegetation (Fig. 14).

Remarks: The species was known from Angola, Kenya, Senegal and Zanzibar (Johnson *et al.*, 2022, Georgiev 2021b). In Kenya it was recorded from Amboseli Game Reserve (Broadhead & Richards 1982).

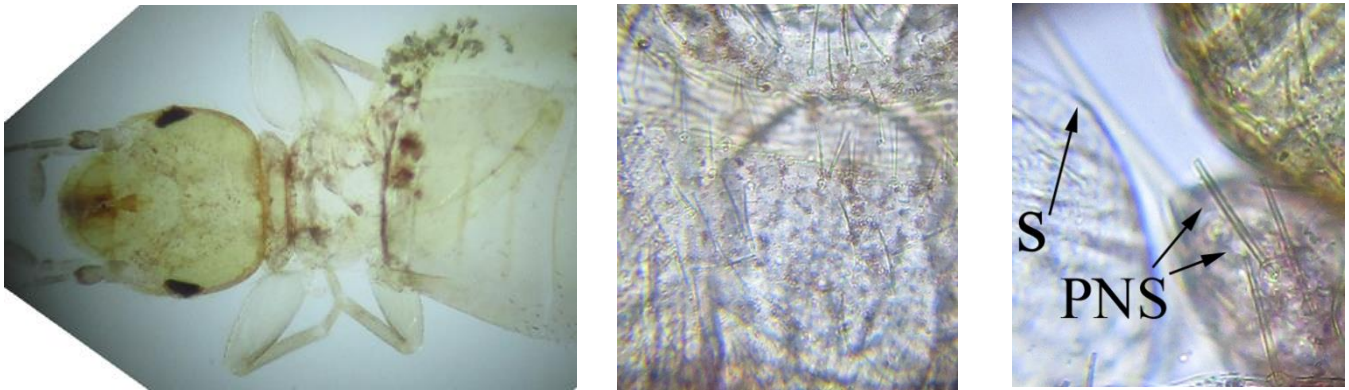


Fig. 14. *L. puber* from Kenya, female: head, thorax and front dorsal abdominal area, setae of the vertex and setae on the pronotum.

Family Pachytroctidae Enderlein, 1904

Nanopsocus sp.

Material examined: 27.2.2022, Kenya, coastal area, south of Mombasa, at the estuary of the small river of Kongo, bushes and trees at sandy river bank, S04 15 30.8 E39 35 43.5, 4 m a.s.l., 1 nymph, from brunches of bushes and trees (Fig. 15); 28.2.2022, Kenya west of Diani Road, savannah, mixed bushes and trees near an agricultural building, S04 19 43.0 E39 33 44.6, 1 m a.s.l., 2 nymphs, from dry brunches with dry leaves.

Remarks: Possibly a new species to science which morphology will be described more in other publication.



Fig. 15. *Nanopsocus* sp. from Kenya, nymph: lateral view and claws, pointed by an arrow.

***Peritroctes cochinensis* Menon, 1938**

Material examined: 1.3.2021, Tanzania, Zanzibar, Unguja Island, Michamwi Peninsula, scattered bushes and trees, a patch of *Pandanus* sp., S06 08 28.5 E39 29 35.0, 6 m a. s. l., 1 ♀, from dry leaves, collected by beating the vegetation (Fig. 16); 5.3.2021, Tanzania, Zanzibar, E coast of Unguja Island, at the entrance of Kuza Cave, near Jambiani village, wet forest at the cave entrance, S06 18 14.5 E39 32 00.9, 25 m a. s. l., 8 ♀, from dry brunches with dry leaves, collected by beating the vegetation.

Remarks: Reported erroneously by Georgiev (2021a) as a *Pachytroctes* cf. *bicoloripes* Badonnel, 1949.

P. cochinensis is known only from its type locality in India. This finding is the second record of this species.

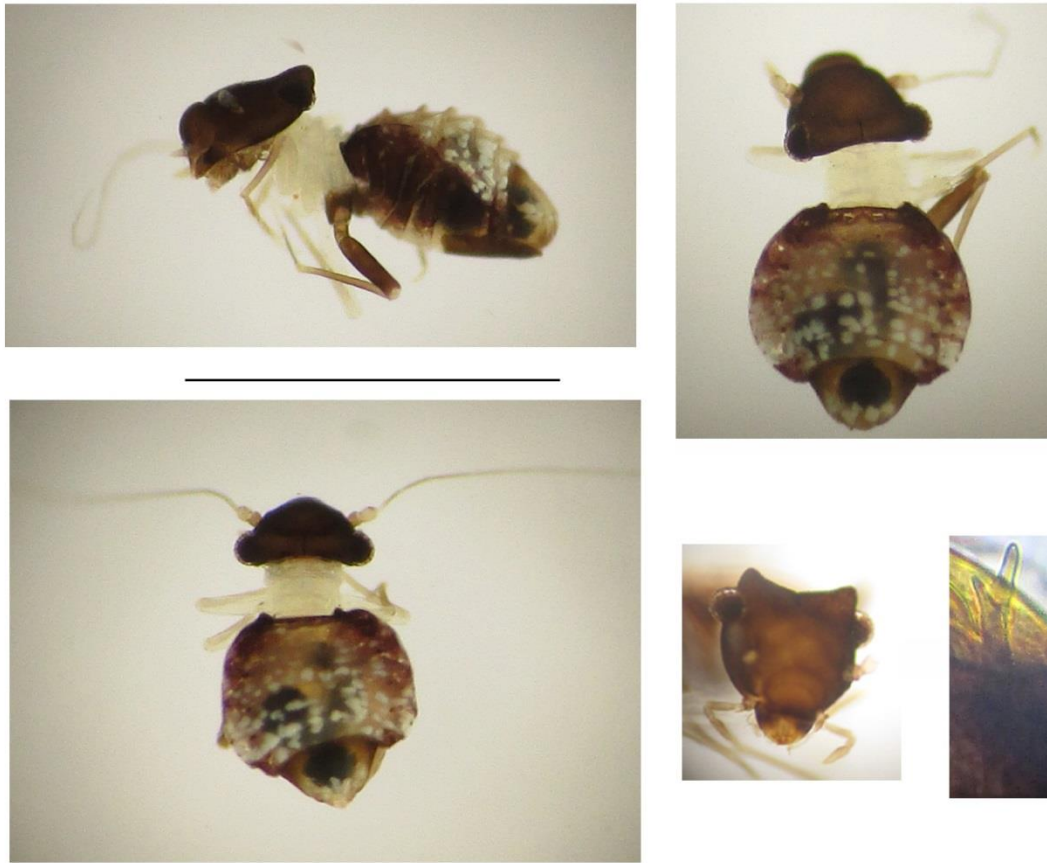


Fig. 16. *P. cochinensis* from Zanzibar, females: lateral view, dorsal view of two specimens, front view of the head and lacinia (not to scale) (scale bar 1 mm).

***Tapinella curvata* Badonnel, 1949**

Material examined: 28.2.2022, W of Diani Road, savannah, mixed bushes and trees near agricultural building, S04 19 43.0 E39 33 44.6, 1 m a.s.l., 1 ♀, dry brunches with dry leaves (Fig. 17).

Remarks: The species was known from Angola, Congo, Nigeria, Senegal, Unated Arabian Emirates and Zanzibar. New record for Kenya and East Africa.

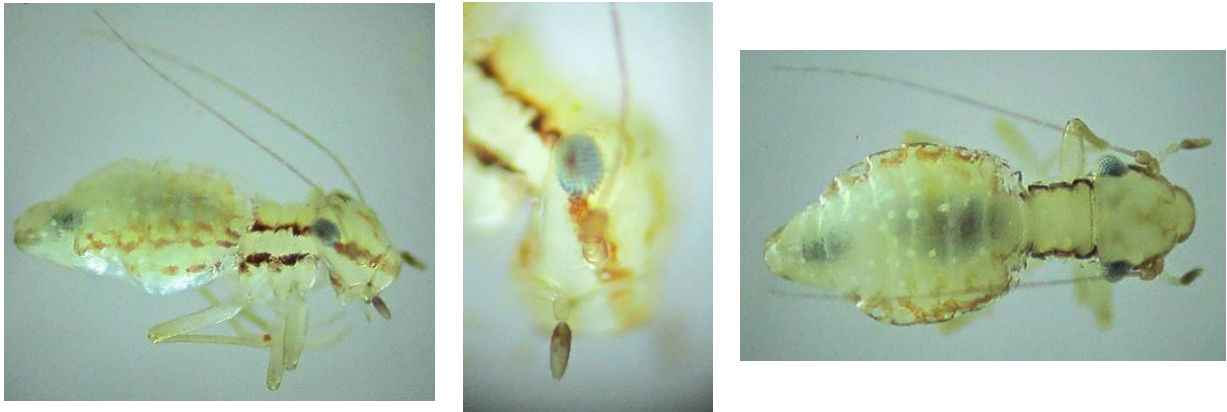


Fig. 17. *T. curvata* from Kenya, female: lateral view, head and dorsal view.

family Caeciliusidae Mockford, 2000

***Stenocaecilius casarum* (Badonnel, 1931)**

Material examined: 2 photographs of one specimen, taken on 31.5.2017, South Africa, Port Elizabeth, S33 47 58.8E25 28 45.1, social network: iSpot, by user: melda goets, <https://www.ispotnature.org/communities/southern-africa/view/observation/728770/nearly-invisible>.

Remarks: The specimen from the photographs can be related to *S. casarum* because of its external characters: Body yellow except for medium brown areas on thoracic notal lobes and medium brown longitudinal stripe through midline of head from anteclypeus through vertex. Wings clear, elongate and slender (Mockford 1993).

The species was described from Mozambique and later found on Bermuda Islands, Chile, Easter Island, Guatemala, Guianas, Indonesia, Hawaii, Mexico, Panama, New Guinea, Melanesia, Micronesia, USA, Venezuela, and Zanzibar. New record for South Africa.

family *Philotarsidae* Pearman, 1936

Haplohallus africanus Broadhead & Richards, 1982

Material examined: 4.3.2022, S of Mombasa, at the estuary of Congo River, mangrove scrubs, S04 15 30.3 E39 35 41.3, 6 m a.s.l., 1 ♂, from various bushes and trees, collected by beating the vegetation (Fig. 18).

Remarks: The species was known from Tanzania (near village of Nainokanoka 14 km northeast of Ngorongoro Crater (type locality), Ngorongoro Crater and Mount Empakaai) and Kenya (Mount Kenya and Central Aberdares).



Fig. 18. *H. africanus* from Kenya, male: lateral view and forewing.

Aaroniella sp.

Material examined: photographs of a single specimen, taken on 13.12.2021, South Africa, St Lucia, S28 22 34.3E32 25 05.2, social network: iNaturalist, user: magdastlucia, <https://www.inaturalist.org/observations/103004679>.

Remarks: No any *Aaroniella* species were known from South Africa till now. The specimen on the photograph resembles *A. betschi* Badonnel, 1976, described from Madagascar.

family Peripsocidae Roesler, 1944

***Peripsocus ghesquierei* Badonnel, 1948**

Material examined: 1.3.2022, Kenya, Diani Beach area, broadleaf coastal forest, S04 20 20.3 E39 34 04.2, 2 m a.s.l., 1 ♀, from brunches of bushes and trees, collected by beating the vegetation (Fig. 19).

Remarks: The species was known from Congo, Kenya and Nigeria. From Kenya it was reported for Central Aberdares and Mount Kenya (Broadhead & Richards 1980).



Fig. 19. *P. ghesquierei* from Kenya, female: lateral view and subgenital plate.

***Peripsocus pallidus* Broadhead & Richards, 1980**

Material examined: 2.3.2021, Tanzania, Zanzibar, Unguja Island, Michamwi Peninsula, Maya bay, scattered bushes and trees, S06 08 20.8 E39 29 28.8, 3 m a.s.l., 2 ♀, from brunches of bushes and trees, collected by beating the vegetation (Fig. 20).

Remarks: These two specimens were found together with the other species recorded from Zanzibar, *P. keniensis* Broadhead & Richards, 1980 (Fig. 21). So both species occur on the island.

The species was known only from its type locality on continental Tanzania, near village of Nainokanoka 14 km NE of Ngorongoro Crater (Broadhead & Richards, 1980). New record for Zanzibar.



Fig. 20. *P. pallidus* from Zanzibar. The characteristic for this species pale stripe of the forewing is shown by an arrow.



Fig. 21. *P. keniensis* from Zanzibar for comparison: head, external view, lateral view of the abdominal apex, subgenital plate.

Family Ectopsocidae Roesler, 1944

***Ectopsocus briggsi* McLachlan, 1899**

Material examined: 4.3.2021, Tanzania, Zanzibar, Unguja Island, Michamwi Peninsula, bushes and trees at the tidal zone, S06 07 58.5 E39 29 34.3, 8 m a. s. l., 1 ♂, from dry brunches with dry leaves, collected by beating the vegetation.

Remarks: Widely distributed species. From Continental Africa known from Algeria, Tunisia, Congo, Kenya, Nigeria, South Africa, Tanzania and Zimbabwe. New record for Zanzibar.

***Ectopsocus coccophilus* Ball, 1943**

Material examined: Kenya: 26.2.2022, Diani Beach area, coastal broad leaf forest in hotel yard, S04 20 12.3 E39 33 59.0, 36 m a.s.l., 4 ♀, 3 nymphs, from branches of various bushes and trees, collected by beating the vegetation; 27.2.2022, W of Diani Road, coastal broad leaf forest, S04 19 52.6 E39 34 00.4, 24 m a.s.l., 8 ♀, from branches of bushes and trees with dry leaves, collected by beating the vegetation; 27.2.2022, S of Mombasa, at the estuary of Congo River, bushes and trees at sandy river bank, S04 15 30.8 E39 35 43.5, 4 m a.s.l., 1 ♀, from various bushes, collected by beating the vegetation; 28.2.2022, W of Diani Road, savannah, mixed bushes and trees near agricultural building, S04 19 43.0 E39 33 44.6, 1 m a.s.l., 1 ♀, dry branches with dry leaves, collected by beating the vegetation; 28.2.2022, coastal area in front of Chale island near the Chale harbor, bushes on rocks at periphery of the tidal zone, 1 ♀, from various bushes, collected by beating the vegetation; 1.3.2022, Diani Beach area, coastal broad leaf forest, S04 20 20.3 E39 34 04.2, 2 m a.s.l., 2 ♀, 1 nymph, from detritus and dry leaves on the forest floor, collected by sieving, and 6 ♀, 1 ♂, from branches of bushes and trees, collected by beating the vegetation; 3.3.2022, S of Diani, along the coast, coastal scrubs at the beach on rocks, S04 20 52.6 E39 33 53.2, 1 m a.s.l., 1 ♀, from branches of various bushes, collected by beating the vegetation; 4.3.2022, S of Mombasa, at the estuary of Congo River, mangrove scrubs, S04 15 30.3 E39 35 41.3, 6 m a.s.l., 1 ♀, from various bushes and trees, collected by beating the vegetation.

Remarks: The species was known from Congo, Indonesia and Zanzibar. New record for Kenya. This species seems to be the most abundant and distributed than the other *Ectopsocus* species both in the coastal areas of Zanzibar and Kenya studied. On Fig. 22 a photograph of female specimen from Zanzibar is shown.



Fig. 22. *E. coccophilus* from Zanzibar (at the entrance of Kuza cave): lobe of PSG, wing and external view of a female.

***Ectopsocus pilosus* Badonnel, 1967**

Material examined: Kenya: 27.2.2022, W of Diani Road, coastal broad leaf forest, S04 19 52.6 E39 34 00.4, 24 m a.s.l., 1 ♀, from brunches of bushes and trees with dry leaves, collected by beating the vegetation; 28.2.2022, Kenya, Diani Beach area, W of Diani Road, S04 19 43.0 E39 33 44.6, 1 m a.s.l., savannah, mixed bushes and trees near agricultural building, 1 ♀, 1 ♂, from dry brunches with dry leaves, collected by beating the vegetation (Fig. 23); 1.3.2022, Diani Beach area, coastal broad leaf forest, S04 20 20.3 E39 34 04.2, 2 m a.s.l., 2 ♀, from brunches of bushes and trees, collected by beating the vegetation.

Remarks: Known from Madagascar, Mascarene Islands, Bangladesh, Cambodia, India and Malaysia.

The species *E. longisetosus* Broadhead & Richards, 1980 described from Tanzania is quite similar to *pilosus* considering coloration, wing venation, subgenital plate and structure of the gonapophyses, and both could be conspecific. Here I accept the name of the firstly described *E. pilosus* from Madagascar by Badonnel (1967).



Fig. 23. *E. pilosus* from Kenya, general view of a female and subgenital plate of the same specimen.

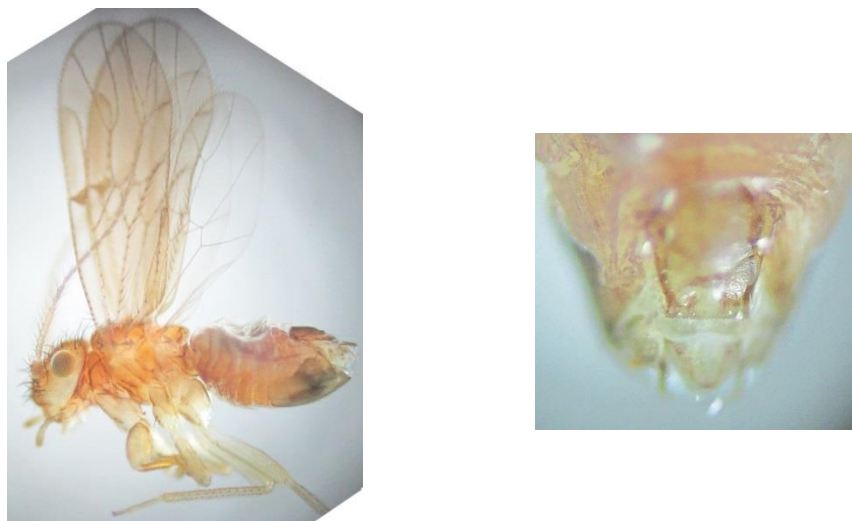


Fig. 24. *E. pilosus* from Kenya, general view of a male and dorsal view of the clunium of the same specimen.

***Ectopsocus maindroni* Badonnel, 1935**

Material examined: 4.3.2021, Tanzania, Zanzibar, Unguja Island, Michamwi Peninsula, bushes and trees at the tidal zone, S06 07 58.5 E39 29 34.3, 8 m a. s. l., 2 ♀, 1 ♂, from dry brunches with dry leaves, collected by beating the vegetation.

28.2.2022, Kenya, Diani Beach area, W of Diani Road, S04 19 43.0 E39 33 44.6, 1 m a.s.l., savannah, mixed bushes and trees near agricultural building, 7 ♀, 1 ♂, from dry brunches with dry leaves, collected by beating the vegetation; 1.3.2022, Kenya, Diani Beach area, coastal broad leaf forest, S04 20 20.3 E39 34 04.2, 2 m a.s.l., 5 ♀, from brunches of various bushes and trees, collected by beating the vegetation (Fig. 25).

Remarks: Widely distributed in tropical areas of the World, known and from Great Briatin. From Africa and its adjacent islands reported from Angola, Congo, Ivory Coast, Madagascar, Togo, Aldabra and Mascarene Islands. New record for Tanzania and Kenya.



Fig. 25. *E. maindroni*: from Kenya, female: lateral view.

***Ectopsocus cf. similis* Badonnel, 1955**

Material examined: 3.3.2022, Kenya, S of Diani, along the coast, coastal scrubs at the beach on rocks, S04 20 52.6 E39 33 53.2, 1 m a.s.l., 1 ♂, from brunches of various bushes, collected by beating the vegetation (Fig. 26).

Remarks: The species *similis* was known only from its type locality in Angola (Dundo), both from females and males. New record for Kenya.



Fig. 26. *E. cf. similis* from Kenya, lateral, ventral and dorsal view of a male, and phallosome.

***Ectopsocus titschacki* Jentsch, 1939**

Material examined: 28.2.2022, W of Diani Road, savannah, mixed bushes and trees near agricultural building, S04 19 43.0 E39 33 44.6, 1 m a.s.l., 1 ♀, from dry brunches with dry leaves (Fig. 27).

Remarks: The species was known from many parts of the World. From continental Africa it was reported from Angola, Congo, Equatorial Guinea, Ivory Coast, Nigeria and Senegal. New record of this species group for Kenya.



Fig. 27. *E. titschacki* from Kenya, female: external view, wing and subgenital plate.

***Ectopsocus* sp.**

Material examined: 1.3.2022, Diani Beach area, coastal broad leaf forest, S04 20 20.3 E39 34 04.2, 2 m a.s.l., 1 ♀, from brunches of bushes and trees, collected by beating the vegetation (Fig.28).

Remarks: The specimen has a subgenital plate similar to these ones of *E. similis* (mentioned above) and *E. bicaudatus* Badonnel, 1935 (from Madagascar) but it is yellowish-white like the rest of the abdomen, and is lacking of distinct dark pigmentation like in these species. Also its forewings are hyaline (vs smoky), and have well visible spots at the distal areas of the veins, which are very weak in *similis* and *bicaudatus*. Its green eyes and hyaline forewings distinguish it and from the similar *E. ewarti* Vaughan, Thornton & New, 1989 described from Krakatau (Vaughan *et al.* 1989).



Fig. 28. *Ectopsocus* sp. from Kenya, female: external view and subgenital plate.

family Lachesillidae Pearman, 1936

***Lachesilla grandis* Badonnel, 1931**

Material examined: Kenya: 27.2.2022, W of Diani Road, coastal broad leaf forest, S04 19 52.6 E39 34 00.4, 24 m a.s.l., 1 ♀, from brunches of bushes and trees with dry leaves, collected by beating the vegetation; 28.2.2022, W of Diani Road, savannah, mixed bushes and trees near agricultural building, S04 19 43.0 E39 33 44.6, 1 m a.s.l., 4 ♀, dry brunches with dry leaves, collected by beating the vegetation (Fig.29); 1.3.2022, Diani Beach area, coastal broad leaf forest, S04 20 20.3 E39 34 04.2, 2 m a.s.l., 2 ♀, 1 ♂, from brunches of bushes and trees, collected by beating the vegetation.

Remarks: The species was known from Mozambique (type locality Chimoio), Nigeria and Yemen (additional description by Lienhard (2020)). New record for Kenya.

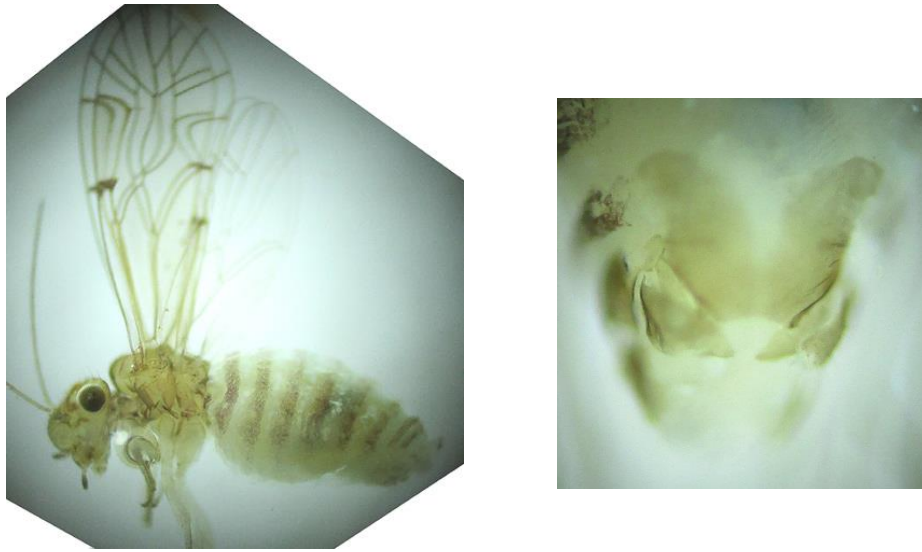


Fig. 29. *L. grandis* from Kenya, female: general view and subgenital plate.

family Archipsocidae Pearman, 1936

***Archipsocopsis* cf. *fernandi* (Pearman, 1934)**

Material examined: Kenya: 27.2.2022, S of Mombasa, at the estuary of Congo River, bushes and trees at sandy river bank, S04 15 30.8 E39 35 43.5, 4 m a.s.l., 1 ♀, from various bushes, collected by beating the vegetation; 28.2.2022, W of Diani Road, savannah, mixed bushes and trees near agricultural building, S04 19 43.0 E39 33 44.6, 1 m a.s.l., 2 ♀, dry brunches with dry leaves (Fig. 30).

Remarks: The species *fernandi* was known from Australia, Bangladesh, Indonesia, Sri Lanka and Madagascar.

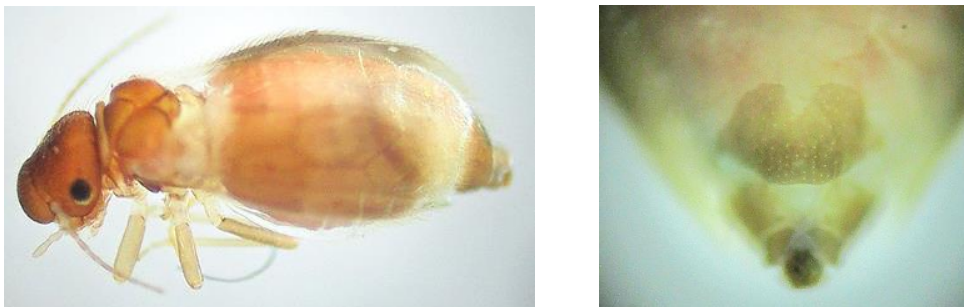


Fig. 30. *A. cf. fernandi* from Kenya, female: general view and subgenital plate.

***Archipsocopsis* cf. *machadoi* (Badonnel, 1955)**

Material examined: 28.2.2022, Kenya, W of Diani Road, savannah, mixed bushes and trees near agricultural building, S04 19 43.0 E39 33 44.6, 1 m a.s.l., 2 ♀, dry brunches with dry leaves (Fig. 31).

Remarks: The species *machadoi* was known only from Angola (13 localities in Dundo, Kassai and Boa Entrada).



Fig. 31. *A. cf. machadoi* from Kenya, female: lateral view, wings, head and thorax (the characteristic dark band at the wing periphery is shown by an arrow).

***Archipsocus cf. ghesquierei* Badonnel, 1946**

Material examined: Kenya: 26.2.2022, Diani Beach area, coastal broad leaf forest in hotel yard, S04 20 12.3 E39 33 59.0, 36 m a.s.l., 1 ♀, from branches of various bushes and trees, collected by beating the vegetation (Fig. 32); 4.3.2022, S of Mombasa, at the estuary of Congo River, mangrove scrubs, S04 15 30.3 E39 35 41.3, 6 m a.s.l., 1 ♀, from various bushes and trees, collected by beating the vegetation.

Remarks: The species *ghesquierei* was known from West Africa: Congo, Angola, Benin, Ivory Coast and Togo.



Fig. 32. *A. cf. ghesquierei*, from Kenya, female: lateral and dorsal view, wings.

***Archipsocus cf. passosi* Badonnel, 1977**

Material examined: 27.2.2022, Kenya, S of Mombasa, at the estuary of Congo River, bushes and trees at sandy river bank, S04 15 30.8 E39 35 43.5, 4 m a.s.l., 1 ♀, from various bushes, collected by beating the vegetation (Fig. 33).

Remarks: The species *passosi* was known only from its type locality in Angola (Caconda).

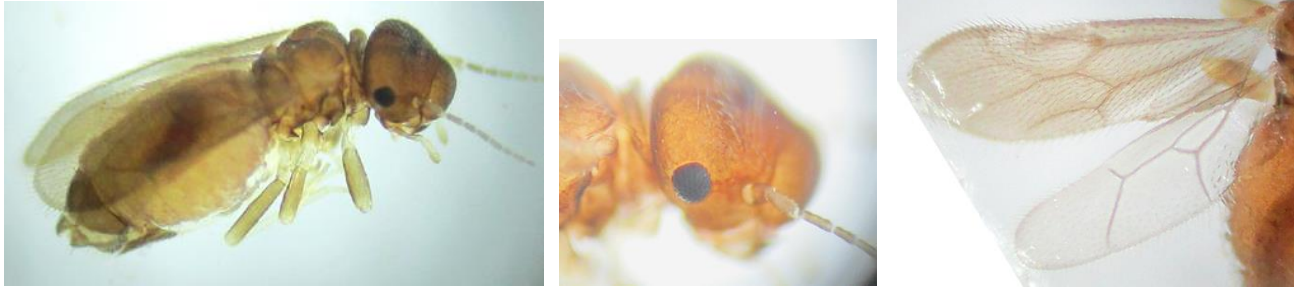


Fig. 33. *A. cf. passosi* from Kenya, female: general view, head and wings.

***Archipsocus* sp.**

Material examined: 2.3.2021, Tanzania, Zanzibar, Unguja Island, Michamwi Peninsula, bushes at the periphery of the tidal zone, from branches of bushes, S06 07 39.4 E39 29 28.2, 2 m a. s. l., 1 ♀, collected by beating the vegetation (Fig. 34).

Remarks: Erroneously reported as *Archipsocus textor* Enderlein, 1911 by Georgiev (2021a) but it differs from it by the lack of pterostygma of the forewing and not densely setosae abdomen. The body coloration, antennae morphology and forewing venation correspond well with *A. recens* Enderlein, 1903 (Enderlein, 1903). This species is known from South-East Asia: Singapore, China, India, Indonesia and Taiwan. The specimen from Unguja differs by its very long setae on the fore and hindwings and a little bit longer antennae compared to body length.



Fig. 34. *Archipsocus* sp.: external view of a female from Unguja Island, Zanzibar.

Archipsocidae indet.

Material examined: 2 photographs of a small colony, taken on 13.4.2020, South Africa, Mtunzini, S28 57 38.6E31 45 21.8, social network: iNaturalist, user: ricky_taylor, <https://www.inaturalist.org/observations/44128696>.

Remarks: Species of Archipsocidae were not reported from South Africa till now.

family Elipsocidae Pearman, 1936

***Nepiomorpha annulata* Badonnel, 1955**

Material examined: Kenya: 28.2.2022, coastal area in front of Chale island near the Chale harbor, bushes on rocks at periphery of the tidal zone, 1 ♀, from various bushes, collected by beating the vegetation (Fig. 35); 4.3.2022, S of Mombasa, at the estuary of Congo River, mangrove scrubs, S04 15 30.3 E39 35 41.3, 6 m a.s.l., 1 ♀ nymph, from various bushes and trees, collected by beating the vegetation (Fig. 36).



Fig. 35. *N. annulata* from Kenya, coastal area in front of Chale island near the Chale harbor, female: external view, forewing (pterostygma damaged, bent) and subgenital plate.

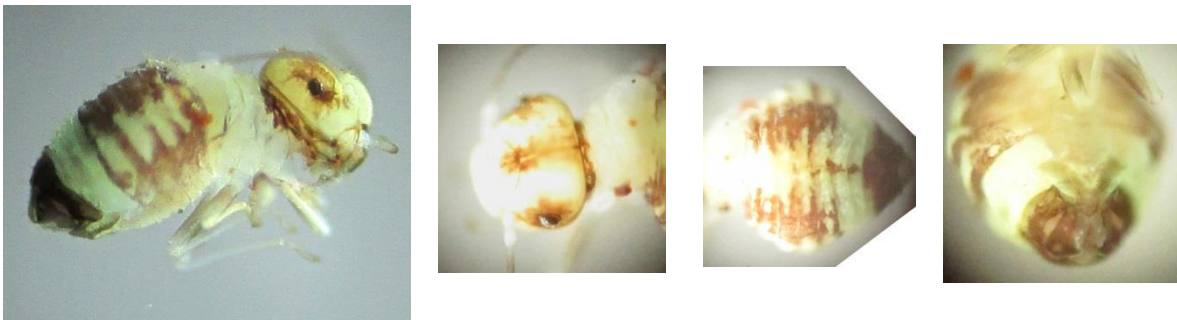


Fig. 36. *N. annulata* from Kenya, S of Mombasa, at the estuary of Congo River, mangrove scrubs, female nymph: external view, head, dorsal side of the abdomen, ventral side of the abdomen with subgenital plate.

family Pseudocaeciliidae Pearman, 1936

***Mepleres* sp.**

Material examined: 2.3.2021, Zanzibar, Unguja Island, scattered bushes and trees, S06 08 20.8 E39 29 28.8, 3 m a. s. l., 3 ♀, 1 ♂, from branches of bushes and trees, collected by beating the vegetation (photograph on the front page, female).

Remarks: Erroneously reported as *M. maculatus* (Broadhead & Richards, 1982) by Georgiev (2021a). A new species to science which is going to be described in other publication.

family Psocidae Hagen, 1865

***Sigmatoneura* sp. - 1**

Material examined: 26.2.2022, Kenya, Diani Beach area, coastal broad leaf forest in hotel yard, S04 20 12.3 E39 33 59.0, 36 m a.s.l., 1 ♀, collected already dead and dry, from brunches of various bushes and trees, collected by beating the vegetation (Fig. 37).

Remarks: With its forewing venation and pigmentation the specimen resembles *S. pinbiensis* Liu, Li & Liu, 2011 known from its type locality in China (Yunnan Province, Pingbian) (Liu *et l.* 2011). Because the specimen collected in Kenya is dry and shriveled, and a single one its genitalia was not studied. First record of a *Sigmatoneura* species from Kenya.



Fig. 37. *Sigmatoneura* sp. from Kenya: general view of the single, dry female collected.

***Sigmatoneura* sp. - 2**

Material examined: 1 photograph of a single female specimen, taken on 11.4.2010, South Africa, SW of Lavumisa, S27 20 55.9E31 49 44.1, social network: iNaturalist, user: ryanmtippett, <https://www.inaturalist.org/observations/35523405>.

Remarks: No any species of this genus were known from South Africa till now.

***Trichadenotecnum pardus* Badonnel, 1955**

Material examined: 28.2.2022, coastal area in front of Chale island near the Chale harbor, bushes on rocks at periphery of the tidal zone, 1 ♀, from various bushes, collected by beating the vegetation; 4.3.2022, S of Mombasa, at the estuary of Congo River, mangrove scrubs, S04 15 30.3 E39 35 41.3, 6 m a.s.l., 1 ♀, from various bushes and trees, collected by beating the vegetation (Fig. 38).

Remarks: The species was known from many sites of the tropical areas of the World. From Continental Africa it was reported from Angola, Nigeria and Togo. New record for Kenya.

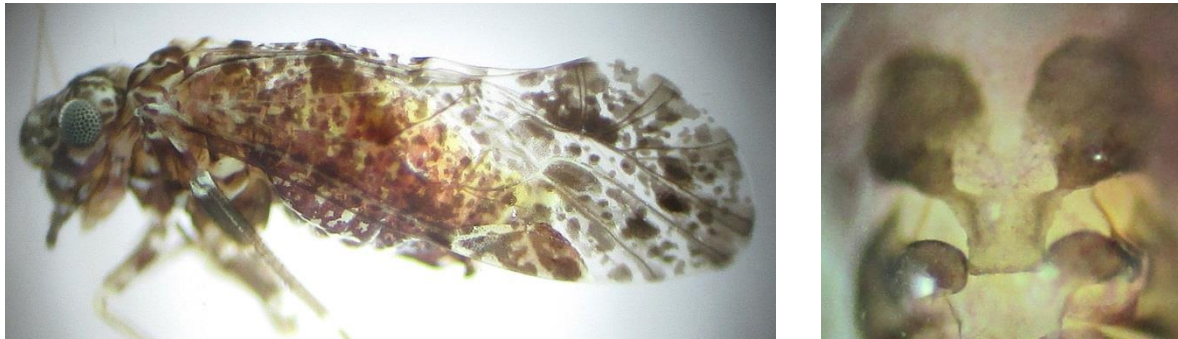


Fig. 38. *T. pardus* from Kenya, female: lateral view and subgenital plate.

Unidentified nymphs

Some unidentified psocid nymphs were also collected from Kenya. In order to show that the species diversity in the area is still very poorly studied and visibly high, I decided to include the localities of the unidentified nymphs, as well as photos of the registered specimens.

nymph indet. – 1

Material examined: 27.2.2022, Kenya, near Diani Road, edge of a broad leaf coastal forest, S04 19 55.3 E39 34 01.7, 36 m a.s.l., 1 nymph, a pile of old palm leaf mats at the base of *Adansonia digitata*, collected by beating; 4.3.2022, S of Mombasa, at the estuary of Congo River, mangrove scrubs, S04 15 30.3 E39 35 41.3, 6 m a.s.l., 1 nymph, from various bushes and trees, collected by beating the vegetation (Fig. 39).

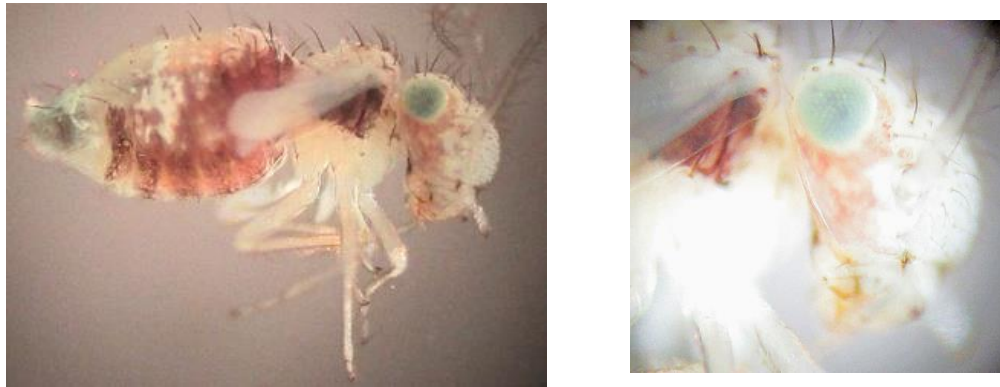


Fig. 39. Unidentified psocid nymph from Kenya (nymph indet. – 1).

nymph indet. – 2

Material examined: 4.3.2022, S of Mombasa, at the estuary of Congo River, mangrove scrubs, S04 15 30.3 E39 35 41.3, 6 m a.s.l., 1 nymph, from various bushes and trees, collected by beating the vegetation (Fig. 40).

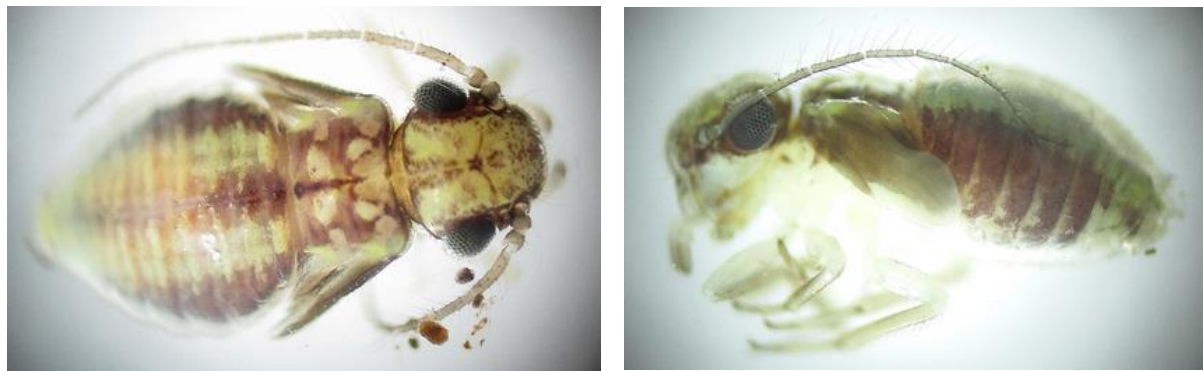


Fig. 40. Unidentified psocid nymph from Kenya (nymph indet. – 2).

Updated check lists of Psocoptera of Zanzibar and Kenya

(with bold: new records or corrections in the present paper)

Zanzibar:

Lepidopsocidae

- Echmepteryx madagascariensis* (Kolbe, 1885)
- Echmepteryx pallida* Smithers, 1965
- Echmepteryx lunulata* Thornton, Lee & Chui, 1972
- Lepidopsocus pretiosus* (Banks, 1942)
- Lepolepis bicolor* Broadhead, 1955
- Thylacella zanzibarica* Georgiev, 2022

Trogiidae

- Trogium pulsatorium* (Linnaeus, 1758)

Liposcelididae

- Belaphopsocus murphyi* Lienhard, 1991
- Liposcelis albothoracica* Broadhead, 1955
- Liposcelis annulata* Badonnel, 1955
- Liposcelis bostrychophila* Badonnel, 1931
- Liposcelis paetula* Broadhead, 1950
- Liposcelis plesiopuber* Broadhead & Richards, 1982
- Liposcelis puber* Badonnel, 1955

Pachytroctidae

- Nanopsocus oceanicus* Pearman, 1928
- Peritroctes cochinensis* Menon, 1938**
- Tapinella curvata* Badonnel, 1949

Caeciliusidae

- Stenocaecilius casarum* (Badonnel, 1931)
- Valenzuela virgatus* (Broadhead & Richards, 1982)
- Paracaecilius lucidus* Broadhead & Richards, 1982

Peripsocidae

- Peripsocus keniensis* Broadhead & Richards, 1980
- Peripsocus pallidus* Broadhead & Richards, 1980**
- Peripsocus pembanus* Enderlein, 1908 (the only species from Pemba)

Ectopsocidae

- Ectopsocopsis spathulata* (Ball, 1943)
- Ectopsocus briggsi* McLachlan, 1899**
- Ectopsocus coccophilus* Ball, 1943

Ectopsocus longisetosus Broadhead & Richards, 1980 (? = *pilosus*)
***Ectopsocus maindroni* Badonnel, 1935**

Trichopsocidae

Trichopsocus coloratus Lienhard, 1983

Archipsocidae

***Archipsocus* sp.**

Elipsocidae

Elipsocidae sp.

Pseudocaeciliidae

***Mepleres* sp.**

Psocidae

Ptycta kiboschoensis (Enderlein, 1907)

Kenya:

Lepidopsocidae

***Echinopsocus* sp.**

***Echmepteryx lunulata* Thornton, Lee & Chui, 1972**

***Echmepteryx madagascariensis* (Kolbe, 1885)**

***Echmepteryx pallida* Smithers, 1965**

***Lepidopsocus pretiosus* (Banks, 1942)**

***Lepolepis bicolor* Broadhead, 1955**

Thylacella angustipennis Broadhead & Richards, 1982

Lepidopsocidae sp.

Trogiidae

Cerobasis questfalica (Kolbe, 1880)

***Cerobasis* sp.**

Lepinotus fuscus Broadhead & Richards, 1982

Trogium apterum Broadhead & Richards, 1982

Psoquillidae

***Rhyopsocus* sp.**

Amphientomidae

Hemiseopsis obscurus Broadhead & Richards, 1982

***Lithoseopsis* sp.**

Liposcelididae

***Belaphopsocus murphyi* Lienhard, 1991**

***Liposcelis albothoracica* Broadhead, 1955**

Liposcelis angolensis Badonnel, 1955

Liposcelis annulata Badonnel, 1955

Liposcelis bostrychophila Badonnel, 1931

***Liposcelis entomophila* (Enderlein, 1907)**

Liposcelis plesiopuber Broadhead & Richards, 1982

Liposcelis puber Badonnel, 1955

Pachytroctidae

***Nanopsocus* sp.**

***Tapinella curvata* Badonnel, 1949**

Caeciliusidae

Maoripsocus aequalis (Broadhead & Richards, 1982)

Maoripsocus frater (Broadhead & Richards, 1982)

Maoripsocus semifuscatus Tillyard, 1923

Stenocaecilius gilvus (Pearman, 1932)

Stenocaecilius lucidus (Pearman, 1932)

Valenzuela ambiguus (Pearman, 1932)

Valenzuela brunneonitens (Pearman, 1932)

Valenzuela inquinatus (Enderlein, 1902)

Valenzuela obscurus (Pearman, 1932)

Valenzuela signatipennis (Enderlein, 1907)

Valenzuela virgatus (Broadhead & Richards, 1982)

Paracaecilius copiosus Broadhead & Richards, 1982

Paracaecilius lucidus Broadhead & Richards, 1982

Paracaecilius pallidus (Pearman, 1932)

Ypsiloneura kirkpatricki Pearmankirkpatricki, 1932

Philotarsidae

Haplophallus africanus Broadhead & Richards, 1982

Tarsophilus aequabilis Mockford & Broadhead, 1982

Tarsophilus lineatus Mockford & Broadhead, 1982

Amphipsocidae

Amphipsocus camerunus Badonnel, 1943

Amphipsocus pallidus Navas, 1936

Harpezoneura indotata Broadhead & Richards, 1982

Harpezoneura pallens Pearman, 1934

Peripsocidae

Peripsocus bilobatus Broadhead & Richards, 1980

Peripsocus curviclavus Broadhead & Richards, 1980

Peripsocus ghesquierei Badonnel, 1948

Peripsocus keniensis Broadhead & Richards, 1980

Peripsocus machadoi Badonnel, 1955

Ectopsocidae

- Ectopsocus briggsi* McLachlan, 1899
***Ectopsocus coccophilus* Ball, 1943**
***Ectopsocus pilosus* Badonnel, 1967**
***Ectopsocus maindroni* Badonnel, 1935**
***Ectopsocus* cf. *similis* Badonnel, 1955**
***Ectopsocus titschacki* Jentsch, 1939**
***Ectopsocus* sp.**

Lachesillidae

- Lachesilla acutiloba* Broadhead & Richards, 1982
Lachesilla cornisterna Broadhead & Richards, 1982
***Lachesilla grandis* Badonnel, 1931**
Lachesilla keniensis Broadhead & Richards, 1982
Lachesilla rectigladia Broadhead & Richards, 1982

Archipsocidae

- Archipsocopsis* cf. *fernandi* (Pearman, 1934)**
***Archipsocopsis* cf. *machadoi* (Badonnel, 1955)**
***Archipsocus* cf. *ghesquierei* Badonnel, 1946**
***Archipsocus* cf. *passosi* Badonnel, 1977**

Pseudocaeciliidae

- Heterocaecilius aequabilis* Broadhead & Richards, 1982
Mepleres maculatus (Broadhead & Richards, 1982)
Pseudocaecilius morstatti Enderlein, 1913

Elipsocidae

- Propocus pulchripennis* (Perkins, 1899)
Lesneia nigra Broadhead & Richards, 1982
Lesneia pulchra Broadhead & Richards, 1982
***Nepiomorpha annulata* Badonnel, 1955**

Mesopsocidae

- Mesopsocus acutilobus* Broadhead & Richards, 1982
Mesopsocus alatus Broadhead & Richards, 1982
Mesopsocus difficilis Broadhead & Richards, 1982
Mesopsocus montinus Enderlein, 1907
Psoculidus ricei (Mockford, 1975)

Psocidae

- Blaste fuscoptera* New, 1975
Blaste nairobensis New, 1975
Blaste suffusa Broadhead & Richards, 1980
Blaste virgata Broadhead & Richards, 1980

Blastopsocidus pictus Broadhead & Richards, 1980
Psococerastis fuelleborni (Enderlein, 1902)
Psococerastis thomasseti Pearman, 1934
Pearmania incuria (Navas, 1936)
Pilipsocus intricatus (Enderlein, 1907)
Psocidus guttulatus Pearman, 1934
Ptycta apicalis Broadhead & Richards, 1980
Ptycta curviclava Broadhead & Richards, 1980
Ptycta kenyensis New, 1975
Ptycta obscura Broadhead & Richards, 1980
Ptycta paralobata New, 1975
Ptycta platyclava Broadhead & Richards, 1980
Ptycta striatoptera New, 1975
Ptycta vaga New, 1975
***Sigmatoneura* sp.**
Trichadenotecnum thorntoni New, 1975

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