

## A new collection of Psocodea (Insecta) from Unguja Island (Zanzibar, Tanzania)

DILIAN GEORGIEV

*Department of Ecology and Environmental Conservation, University of Plovdiv "Paisii Hilendarski", Tsar Assen Street 24, 4000 Plovdiv, Bulgaria, diliangeorgiev@gmail.com*

**Abstract.** The study presents a new collection of Psocodea (Insecta) from Unguja Island (Zanzibar, Tanzania), conducted during March 3rd to 9th, 2024. Despite recent efforts to explore Psocodea fauna in equatorial and tropical Africa, comprehensive studies in East Africa, particularly along the east coast and inland areas, remain limited. This research contributes to filling these gaps by documenting 16 species, including nine new records for the Zanzibar autonomic region and seven new records for Tanzania. Notably, one species (*Nanopsocus* sp.) may potentially be new to science.

**Key words:** Psocoptera, new records, Africa.

### Introduction

The understanding of Psocodea fauna in equatorial and tropical Africa remains limited, with recent efforts focusing on exploration in Zanzibar, Kenya, and Uganda (Georgiev 2021, 2022a, b, c, 2023a, b, c, d, 2024). However, comprehensive studies in East Africa have been scarce, leaving significant gaps in our knowledge of psocid species diversity, particularly in understudied regions along the east coast and inland areas.

The first papers about the Zanzibar region describe two new species: *Peripsocus pembanus* described by Enderlein in 1908 from Pemba Island (Enderlein 1908), and *Psocidus zanzibarensis* described by Pearman in 1934 from Unguja Island (Pearman 1934). Subsequently, Georgiev (2021, 2022a, b, c, 2023b, 2024) expanded the list of known species by reporting new records and describing additional species from Unguja Island. Following these studies, the total number of known species for Zanzibar stands at 35, with 34 species recorded from Unguja Island and one from Pemba Island.

This research contributes by newly documenting 16 species, including nine new records for the Zanzibar autonomic region and seven new records for Tanzania. Notably, one species may potentially be new to science.

### Material and Methods

The study was carried out between 03-09.03.2024 on Unguja Island (Zanzibar) A total of eight localities were surveyed (Table 1). Beating the vegetation technique was mainly used for collection, and the specimens were stored in 96% ethanol. The species discussed in the paper were identified according to original descriptions, redescrptions, and/or published identification keys. The specimens were deposited in the National Natural History Museum – Sofia, Bulgaria.

**Table 1.** Sampling sites of the present study (Alt. – altitude in meters).

No	Date	Locality	Coordinates	Alt.	Habitat
1	03.03.2024	Uroa village	S06 05 14.2 E39 25 24.3	4	secondary broadleaf forest with <i>Cocos nucifera</i>
2	03.03.2024	Uroa village	S06 05 52.6 E39 25 27.8	15	yard of a resort complex
3	04.03.2024	Uroa village	S06 05 59.6 E39 25 14.9	6	coastal bush vegetation
4	05.03.2024	Uroa village	S06 05 41.0 E39 25 19.1	12	secondary broadleaf forest with <i>Cocos nucifera</i>
5	06.03.2024	Uroa village	S06 05 29.0 E39 24 53.9	4	plantations and bushes
6	07.03.2024	near Upenja village, road to Kiwengwa Cave	S05 59 44.0 E39 21 30.0	26	broadleaf forest edge
7	08.03.2024	N of Uroa village	S06 05 10.0 E39 25 31.0	9	coastal bush vegetation
8	09.03.2024	Uroa village	S06 05 46.0 E39 25 32.0	10	building in a resort complex

## Results and Discussion

A total of 16 species from eight families were registered.

Species list (\* - new records to Zanzibar, \*\* - new records to Tanzania):

### **Lepidopsocidae Enderlein, 1903**

1. *Echmepteryx falco* (Badonnel, 1949)\*\*: loc. 1, 1 ♀, from dry branches with leaves.
2. *Echmepteryx madagascariensis* (Kolbe, 1885): loc. 4, 1 ♀, from dry palm leaves; loc. 8, 1 ♀, from a wall of a building.
3. *Echmepteryx pallida* Smithers, 1965: loc. 1, 1 ♀, from dry branches with leaves; loc. 3, 1 ♀, from dry branches with leaves; loc. 4, 1 ♀, from dry branches with leaves and dry palm leaves; loc. 6, 1 ♀, from dry and live branches of bushes and trees.

### **Psoquillidae Lienhard & Smithers, 2002**

4. *Rhyopsocus pandanicola* Thornton, Lee & Chui, 1972\*\*: loc. 1, 1 ♂, from dry branches with leaves.

### **Psyllipsocidae Lienhard & Smithers, 2002**

5. *Psocathropos lachlani* Ribaga, 1899\*: loc. 8, 1 ♀, from a building wall, collected by hand.

### **Liposcelididae Broadhead, 1950**

6. *Liposcelis albothoracica* Broadhead, 1955: loc. 1, 4 ♀, from dry branches with leaves.
7. *Liposcelis entomophila* (Enderlein, 1907)\*: loc. 2, 1 ♀, from mats of a building roof.

### **Pachytroctidae Enderlein, 1904**

8. *Nanopsocus* sp. (n. sp. ?)\*\*: loc. 5, 1 ♀, from dry branches with leaves. Remark: similar specimens were reported from Kenya by Georgiev (2022b, c).

**Caeciliusidae Mockford, 2000**

9. *Valenzuela virgatus* (Broadhead & Richards, 1982): loc. 5, 1 ♂, from dry branches with leaves.

**Ectopsocidae Roesler, 1944**

10. *Ectopsocus coccophilus* Ball, 1943: loc. 1, 5 ♀, 3 ♂; loc. 3, 1 ♀, 2 ♂; loc. 4, 1 ♀, 2 ♂; loc. 5, 1 ♀, 3 ♂; loc. 6, 1 ♀, 2 ♂; loc. 7, 6 ♀, 2 ♂, all from dry branches with leaves.

11. *Ectopsocus maindroni* Badonnel, 1935: loc. 1, 5 ♀, from dry branches with leaves; loc. 7, 2 ♀, from dry branches with leaves.

12. *Ectopsocus pilosus* Badonnel, 1967: loc. 1, 1 ♀, from dry branches with leaves; loc. 5, 2 ♀, from dry branches with leaves.

13. *Ectopsocus similis* Badonnel, 1955\*\*: loc. 6, 1 ♀, from branches of bushes and trees.

**Archipsocidae Pearman, 1936**

14. *Archipsocopsis fernandi* (Pearman, 1934)\*\*: loc. 4, 1 ♂, from dry branches with leaves and dry palm leaves.

15. *Archipsocopsis machadoi* (Badonnel, 1955)\*\*: loc. 4, 2 ♀, from dry branches with leaves and dry palm leaves.

16. *Archipsocus ghesquierei* Badonnel, 1946\*\*: loc. 1, 1 ♀, from dry branches with leaves.

From all species registered, nine are representing new records for the Zanzibar autonomic region and seven for Tanzania as a whole. This highlights the rich diversity of Psocodea in the area and emphasizes the importance of continued exploration and documentation efforts.

The discovery of one potentially new species, *Nanopsocus* sp., raises intriguing questions about the extent of undiscovered biodiversity in the region. Further taxonomic studies are warranted to confirm its status and elucidate its ecological significance.

Overall, this study adds significant new insights into the Psocodea fauna of Unguja Island, Zanzibar, contributing to our understanding of insect biodiversity in East Africa. Continued research efforts are essential to further unravel the complexities of this diverse group and inform conservation and management communities in the region.

**References**

- Enderlein, G. (1908) Beitrage Kenntnis der Copeognaten. *Reise in Ostafrika in den Jahren 1903-1905 von Prof. Dr. Alfred Voeltzkow. Wissenschaftliche Ergebnisse. Band 2, Systematische Arbeiten*, 246-257.
- Georgiev, D. (2021) On the fauna of Psocoptera of Unguja (Zanzibar) Island (Tanzania, East Africa). *Historia naturalis bulgarica*, 42: 35-42.
- Georgiev, D. (2022a) A new species of *Thylacella* Enderlein, 1911 (Psocoptera: Lepidopsocidae) with an identification key to the species from Africa and Madagascar. *Historia naturalis bulgarica*, 44 (3): 25-29.
- Georgiev, D. (2022b) New records of Psocoptera from East Sub-Saharan Africa, *ZooNotes*, Supplement 12: 1-36.
- Georgiev, D. (2022c) New species of Psocoptera (Insecta) from East Africa. *Historia naturalis bulgarica*, 44 (7): 51-62.
- Georgiev, D. (2023a) New records of Psocoptera (Insecta) from Uganda. *ZooNotes*, 214: 1-4.

- Georgiev, D. (2023b) On the *Rhyopsocus* Hagen, 1876 (Insecta: Psocoptera) of East Africa with a description of two new species. *Historia naturalis bulgarica*, 45(2): 31-37.
- Georgiev, D. (2023c) A new species of *Liposcelis* Motschulsky, 1852 from Uganda. *Spixiana*, 45(2): 257-260.
- Georgiev, D. (2023d) A new species of *Tapinella* Enderlein, 1908 (Insecta: Psocoptera), *Tapinella zirobwensis* n. sp., from Uganda. *Biologica Nyssana*, 14(2): 125-127.
- Georgiev, D. (2024) *Archipsocus michamwiensis* n. sp. – a new species of Psocoptera (Insecta) from Zanzibar (Tanzania). *Historia naturalis bulgarica*, 46(4): 99-102.
- Pearman, J. (1934) New and little known African Psocoptera. *Stylops*, 3(6): 121-132.