

Experiments with a Berlese Funnel

Paul J. Palmer

Trying to figure out what to call a Berlese (or Tullgren) Funnel takes more time than describing what it does. It is an apparatus for collecting microfauna from soil or leaf litter samples. The history is hard to pin down, but the earliest mention seems to be from Berlese (1905) and Tullgren (1917). It appears that Berlese was the first to describe the apparatus, using a water bath as a heater. Tullgren later simplified the overall arrangement by substituting an electric lamp as a source of heat. For now, I'm going to stick with "Berlese Funnel."

The general principle involves providing a funnel with a fine-mesh lid, an inner coarse mesh upon which the sample material is laid, and a slippery funnel leading to a receptacle with a liquid preserving agent. The use of a lamp to warm and dry the sample is an optional extra in these days of high energy costs, especially if you keep the apparatus in a warm, dry place. In my setup, I placed the apparatus in the greenhouse with a small lamp to dry the material (See Figure 1) and a tube filled with 100% Mono Propylene Glycol (MPG) to catch the microfauna. I'm a fan of MPG as it is a good preservative, slow to evaporate, non-toxic, preserves colours, and keeps specimens fairly supple. I found that most of the catch appeared after three days, and little ever appeared after a week.

For my experimental trial, all the material came from locations on the nature reserve at Rutland Water: So what did I find?

My favourite and a personal first was the Pseudoscorpion *Chthonius ischnocheles* (Common Chthonid) Figure 2. It turned out that the keys to woodlice are quite easy to use so Figures 3 and 4 show the common woodlice *Trichoniscus pusillus* Ag. and *Philoscia muscorum*. All the by-catch was separated and logged and thanks to Graham Finch I have a list of the beetles too. Of note were *Ochthebius pusillus* with just one previous record in 1936, and *Dacryla fallax* with just three previous records, with the last Rutland Water record in 2021. The current list of species recorded is in Table 1.

After this encouraging start I shall be expanding use of the Berlese Funnel in 2024.

Table 1: Summary of taxa recorded.

Order	Family	Taxon	Common Name
Araneae	Linyphiidae	Tenuiphantes tenuis	Money Spider
Coleoptera	Carabidae	Acupalpus dubius	
		Agonum fuliginosum	
		Oxypselaphus obscurus	
		Stenolophus mixtus	
	Staphylinidae	Anotylus rugosus	
		Dacila fallax	
		Habrocerus capillaricornis	
		Lathrobium brunnipes	
		Ochthebius pusillus	
Isopoda	Coccinea	Unknown	Scale Insect
	Philosciidae	Philoscia muscorum	Common Striped Woodlouse
	Trichoniscidae	Trichoniscus pusillus Ag.	Common Pygmy Woodlouse
Pseudoscorpione	Chthoniidae	Chthonius ischnocheles	Common Chthonid

References

- Berlese, Antonio. 1905. “Apparecchio Per Raccogliere Presto e in Gran Numero Piccoli Arthropodi.” *REDIA – Journal of Zoology*, 85–89.
- Tullgren, A. 1917. “En Enkel Apparat För Automatiskt Vittjande Av Sällgods.” *Entomologisk Tidskrift* 38: 97–100. <https://www.biodiversitylibrary.org/item/42375#page/124/mode/1up>.



Figure 1: Berlese Funnel set up in the greenhouse.

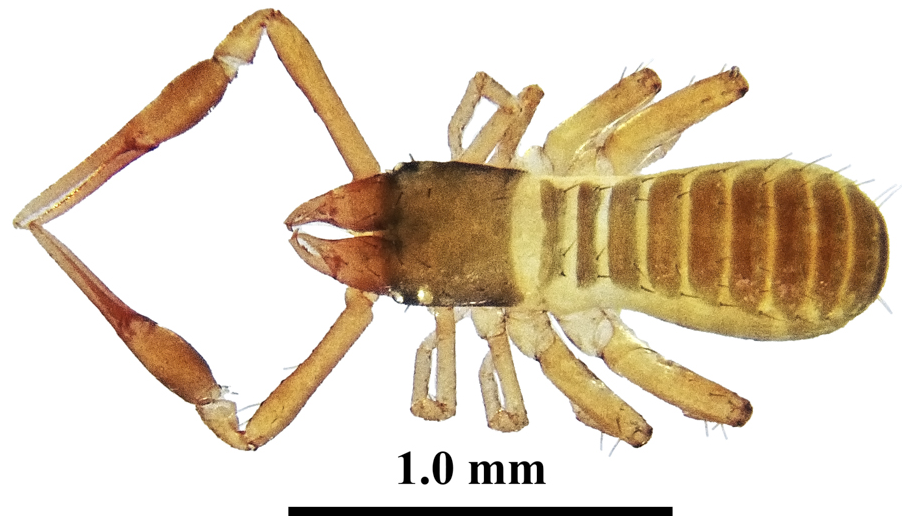


Figure 2: *Chthonius ischnocheles* Common Chthonid

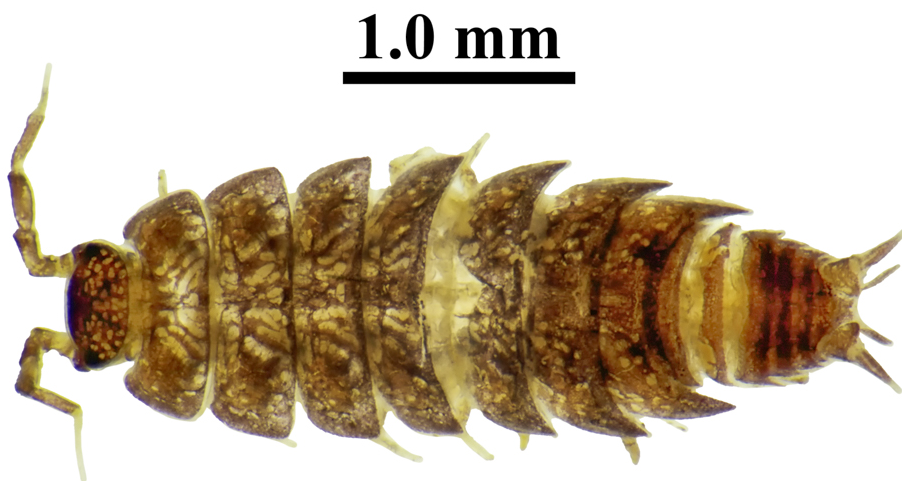


Figure 3: *Trichoniscus pusillus* Ag. Common Pygmy Woodlouse



10.0 mm

Figure 4: *Philoscia muscorum* Common Striped Woodlouse



1.0 mm

Figure 5: Unknown *Coccinid* Scale Insect, mobile stage.