

Berlese – Mesofauna Extraction

Aim: sample beneficial carabids



Surveys nb/year	3 times per year
When ?	three times - before first tillage (around bud break); around flowering; before harvest
Time estimate	2 days for soil sampling; half a day for installing soil samples in Berlese apparatus. 5 days of extraction and half a day for demounting the samples.

Material:

Material for our construction:

- Funnel
- Plant pots (∅ at the bottom ~13,5cm)
- Collection jars
- Hot glue
- Mesh (2mm) – is glued to the bottom of the pot with hot glue
- Holding tube
- Light bulbs of 20W-50W



Protocol:

General:

The principle of the extraction method is to create a gradient of heat/dryness in the soil sample. Soil arthropods will avoid heat and dryness and will migrate downwards into the funnel where they fall into a collection jar with alcohol. The gradient will be created by light bulbs of 20W – 50W mounted above the Berlese.

First step: in the field!

Extractions of rows are kept separately. Berlese extractions are done from composite soil samples of 10 subsamples.

Soil sampling:

1. Collection 10 subsamples per Berlese extraction.
2. approx. 0.5m apart to a depth of 10 cm, without litter or vegetation, starting at least 5 meters away from the edge of the plot
3. Berlese Extraction for all rows separately

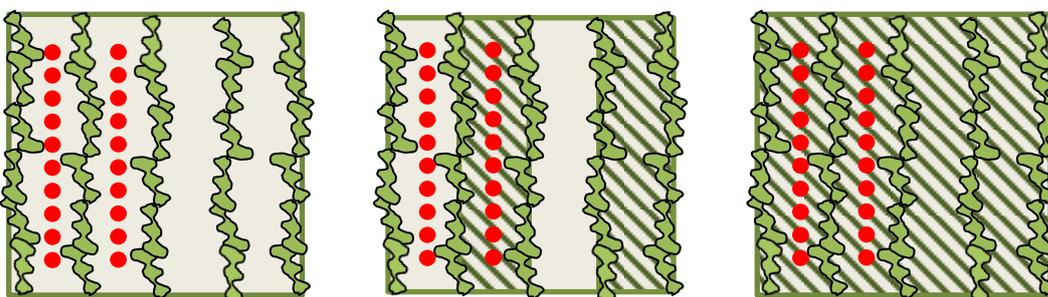


Figure 1 Soil sampling scheme

Extraction:

Extraction with light bulbs of 20-50W.

1. assemble the Berlese apparatus
2. take 250ml from composite soil sample and put it carefully in plant pot
3. some soil will fall through already by installing the Berlese extraction therefore take the jar with the fallen through soil and add it again to the soil in the plant pot on top
4. add alcohol to the empty collection jar (~1,5cm niveau of liquid)
5. carefully place the construction for 5 days without any further disturbance
6. light bulbs should not be mounted too close to the soil sample to avoid too quick drying of the soil sample approx. 30cm above
7. after 5 days detach the collection jar carefully from the funnel (as careful as possible)
8. after extraction sieve (2mm) the dry soil sample from the plant pot in order to determine the volume of the stones >2mm
9. extract is ready for sorting and determination

References



Coleman, D. C., Crossley, D. A., & Hendrix, P. F. (2004). *Fundamentals of soil ecology*. Elsevier Academic Press.