

Constructing a Berlese Funnel for Collecting Soil Invertebrates

Berlese funnels are a standard means for extracting invertebrates from soils and litter, and are easy to construct and use. Berlese funnels have three components: a funnel for holding litter and soil, a light source placed over the funnel to slowly heat and dry the samples and force the invertebrates to move downward, and a jar placed under the funnel to collect the invertebrates. It's suitable for collecting most invertebrates (e.g., earthworms, mites, springtails, centipedes, millipedes, beetles), but not nematodes (see Constructing a Baermann Funnel for Collecting Soil Nematodes).

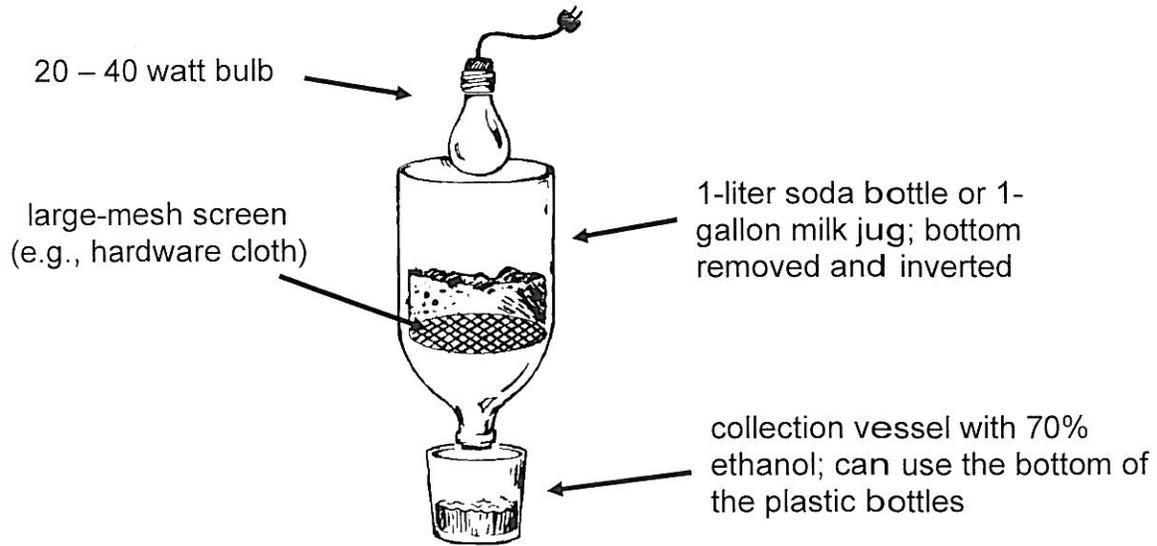
Materials

- a large funnel (e.g., 10 cm diameter canning funnel, 1-liter pop bottle, 1-gallon plastic milk jug)
- a heat source (e.g., lamp with a 20 to 40 watt bulb)
- a piece of hardware cloth or other large mesh screen (ca. 25 cm²)
- a jar or other container (e.g., quart mason jar, 400-ml beaker, bottom of pop bottle)
- alcohol for preserving arthropods (e.g., 70% ethanol)
- binocular microscopes
- forceps, needles, fine brushes, etc to manipulate the invertebrates (fine brushes work best)
- small petri dishes for holding samples
- keys and books for identifying invertebrates (see Soil Invertebrate Picture Guide)

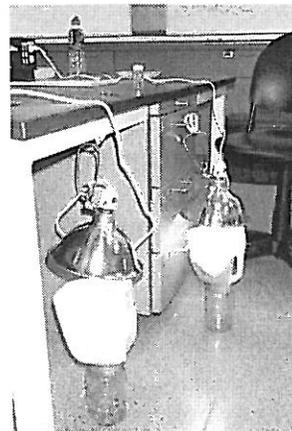
Methods (See figures below)

1. Construct a Berlese funnel by cutting either a 1-liter pop bottle or a 1-gallon milk jug in half. Invert the top half into a 1-quart mason jar, or use the bottom half of the pop bottle to hold the inverted top half (see figure below)
2. Place the piece of hardware cloth at the bottom of the funnel to hold in the litter and soil.
3. Place the container with alcohol at the bottom of the Berlese funnel to collect the invertebrates.
4. Place about 2 cups of litter (or more if a larger funnel is used) carefully into the funnel; try to prevent soil from falling through into the alcohol.
5. Move the lamp about 12-15 cm from the litter.
6. Allow the litter/soil to dry slowly under the light (usually about 3 days) and carefully remove the funnel so soil doesn't fall into the alcohol.
7. Pour the contents of the collect vesicle into a petri dish; examine the contents with a microscope.

Basic Berlese Funnel Designs



- Cut the bottom off a plastic milk jug
- Invert the milk jug over a 1-qt mason jar with 70% ethanol
- Place a small piece of hardware cloth over hole in the jug
- Place coarse plant litter at the bottom, then the organic matter of the soil
- Place a light source over the litter to dry slowly



Also, see: Mike Kaspari's Homemade Berlese Funnel