

Invertebrate sampling protocol

Comparative part: next to 7 1m² plots

Experimental part: in 7 of the 24 plots (subplot dedicated for site specific studies)

The invertebrates should be sampled with a leaf blower set to suction mode (ideally a Stihl SH86 leaf blower or similar). Invertebrate suction sampling should take place on clear and mostly sunny days with no precipitation. A modified ca. 45cm diameter laundry basket (Fig. 1), or a contraption/device of a similar diameter, should be used as the standardized sampling unit (from here on called enclosure). We recommend to use the laundry basket from Ikea (Fyllen, ca. 10 Euro, Fig. 1).

Cut out the bottom of the enclosure (this will be placed over the vegetation). If you are using a pop-up compost bin attach a mosquito net with a narrow opening to the top of the enclosure (Fig. 2A). The Ikea laundry basket already has a lid on top. For each plot, the enclosure should begin closed (close the lid or the mosquito net) whilst it is positioned to the plot (Fig. 2A). You can fasten the enclosure to the ground using metal pegs to prevent the escape of the arthropods.

The suction sampler should be prepared so that a very fine mesh bag or a fine gauze / fabric (e.g. out of fabric that is used for fine curtains) is secured to the inside of the nozzle using a strong rubber band (Fig. 2C).

You can then open the mosquito net and insert the nozzle of the activated suction sampler quickly into the enclosure. Move the nozzle of the suction sampler around the plot vegetation at all heights for one minute (Fig. 2B). After that, remove the suction sampler from the enclosure (with engine still activated), and quickly remove the mesh bag from the nozzle and close it to trap the arthropods. This works well with the nozzle pointing upwards (Fig. 2C).

Invert the mesh bag over a funnel with a wide opening (Fig. 2D), to transfer all invertebrates and any litter into a sampling container (we use 100 ml polypropylene sampling containers), and fill with 70% ethanol before sealing the container (Fig. 2E). Another possibility is also to remove the mesh bag from the nozzle, close it to prevent the escape of arthropods, and place it carefully in a freezer (cooling box). This option is less good in systems with lots of spiders, which might have a snack on their way to the freezer, but is a good option in other systems, particularly if you have several mesh bags.

We will analyse the samples at a site level. It is therefore also possible to sample more than one plot in a row without turning the engine off, particularly if there is only little material in each plot. Just make sure that you have material sampled from 7 plots (or next to seven plots) in the end.

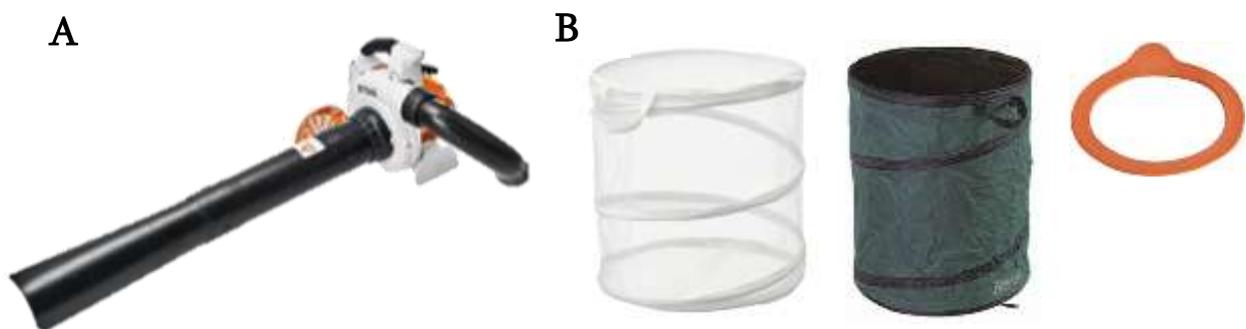


Fig. 1. A) The leaf blower Stihl SH86. B) A popup compost bin or the Ikea laundry bin (Fyllen) can be used as the sampling unit. C) Canning rubbers work well to attach the inserted mesh bag.



Fig. 2. A) Modified pop-up bin with removed bottom and mosquito net attached on the top. B) Suction sampling for one minute. C) Lift the nozzle upwards to remove the net. D) Transfer the content of the net into a sampling container (a funnel with a wide opening might be helpful here). E) Fill with 70 % ethanol and close container. Pictures A, B, D, E by Tosca Mannall, picture C by Anne Kempel.

Equipment list:

- Leaf blower: with inserted mesh net, nozzle, strong rubber band for mesh net
- popup laundry or compost bin (modified, without the bottom and with net on top) and metal pegs
- sampling containers: ca. 100 ml, one for each plot plus spare as some plots may need 2
- 70 % Ethanol