Field Guide

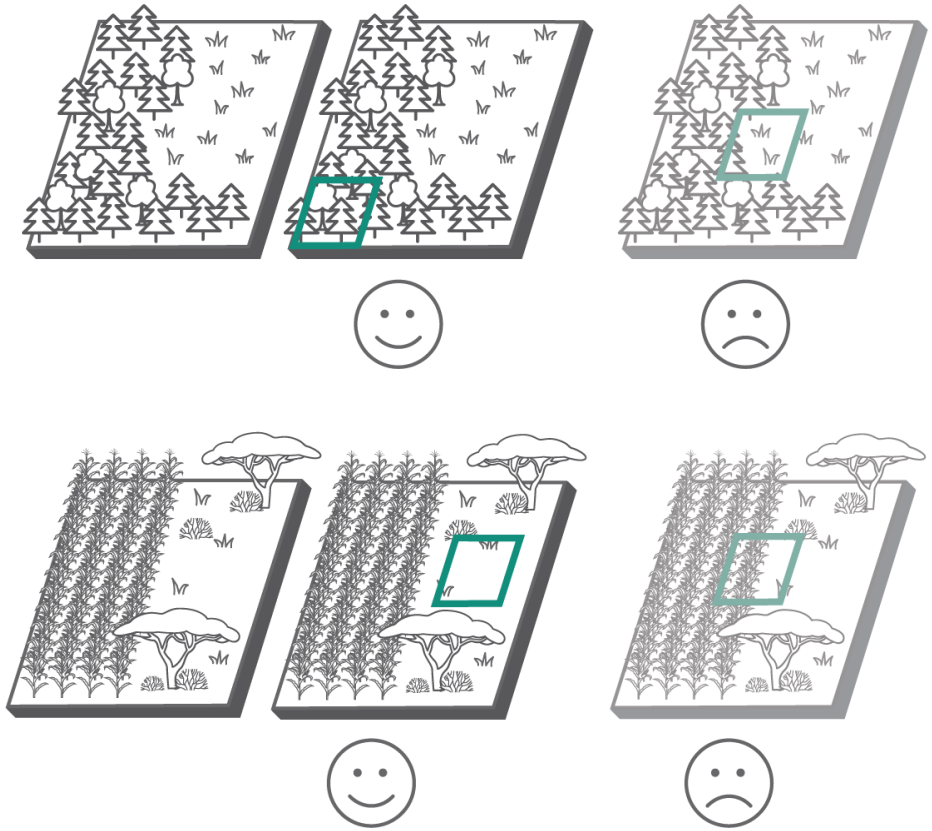
Soil BON

Soil BON partners represent a range of stakeholders, including researchers, educators, and policy advisors from academic, governmental, and private sectors. The goal is to further connect multi-national partners and initiatives in a worldwide effort to understand soil biodiversity, document how it is changing, how these changes affect people who rely on soil living resources for their well-being and livelihoods, and how a sustainable use of ecosystems can safeguard soil biodiversity.

Soil BON supports the development of a global community for the observation, understanding, and prediction of soil biodiversity, being a forum to network groups to advance methods for observing soil biodiversity including integration of information across spatial, temporal and taxonomic scales. This includes addressing capacity building needs from observations to informatics, helping to integrate existing and new field data following agreed international standards.

Sampling approach

Site selection



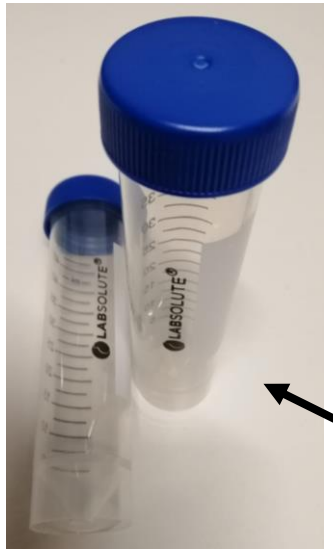
- We do **NOT** aim to have a managed vs non-managed comparison between sites. What we aim for is for a comparison (for the same system) between nature conservation and non-conservation areas.
- Site selection does **NOT** include urban nor industrialized areas, this may be added in the future; also ongoing experimental sites (e.g., Nutnet, Drought-Net, BugNet, etc.) are not the focus of this call;
- Site need to be geographically independent. As a rule of thumb >1km between paired sites and >50km between pairs.
- Samples should be from a single habitat type, not a transition.
- Also avoid edges of your habitat type. Ideally you have an area of 1-2 hectares that you sample in its core.

Sampling approach

Sampling kit

Sampling approach

Sampling kit



+ Wood sticks

Filling

Plastic bag

Pocket knife

Plastic gloves

Sampling approach

Sampling types

Bulk sample

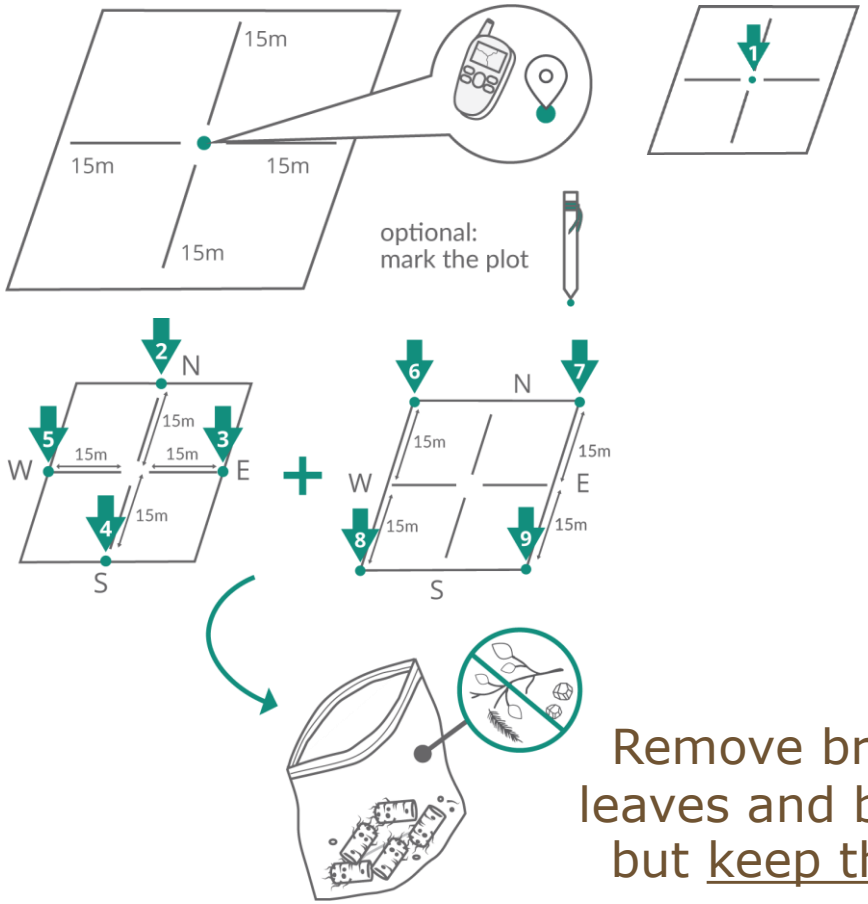
Crust sample

Wood sticks

Bulk Sample

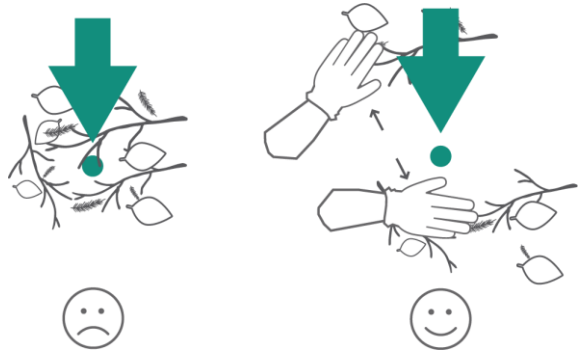
Sampling approach

Bulk sample

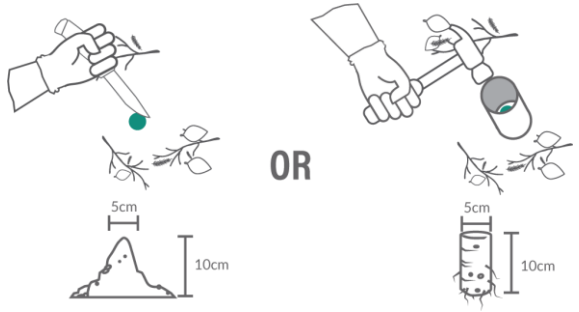


Remove branches, leaves and big rocks, but <u>keep the roots</u>

- <u>Take the coordinates of your site at the central point</u>.
- Then take 9 subsamples in each of the cardinal and central points (in the figure marked from 1 to 9 – <u>the order is not important</u>). Before sampling, in each location, remove existing leaves or branches in order to expose the soil



- You can use a knife or a corer and you should make a hole with 5 cm width x 10 cm depth.



Wear gloves!!

Sampling approach

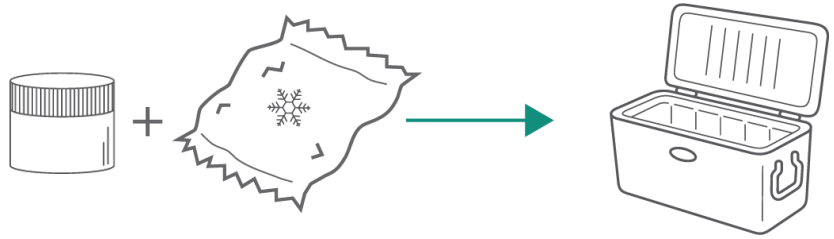
Bulk sample

- Place each subsample in the plastic bag provided.
- Gently homogenize the soil in the bag.

Next:

Separate 500 ml of soil to the container with the green sticker

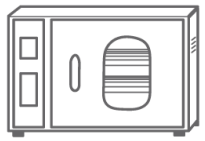
Place the container with the green sticker in a cooler.



Sampling approach
Bulk sample

Dry the remaining sample.

Paperless drying option:



drying oven

To use the following alternative options, ensure that soil is placed in a “paper sandwich” (one piece of paper below the samples, one piece of paper on top) to prevent contamination from UV and airborne contaminants.

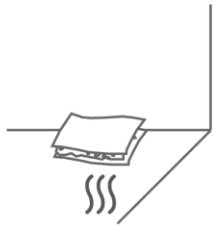
Be careful with the temperature!!

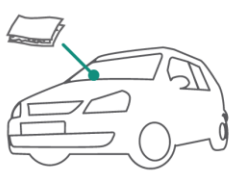
< 40 °C
< 104 °F

> 40 °C
> 104 °F

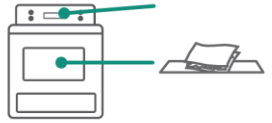
DO NOT use a microwave to dry samples. This will kill all microbial activity in the sample.


closed room under sunlight

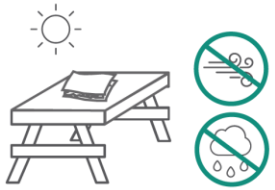

floor heating


under windscreen of car


indoors in dry room

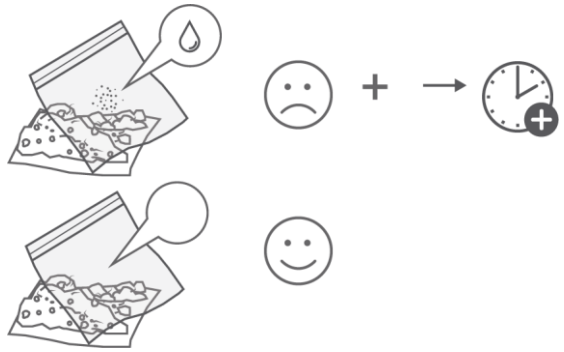

in residential oven at low temperature


above stove or fireplace


outside under sunlight

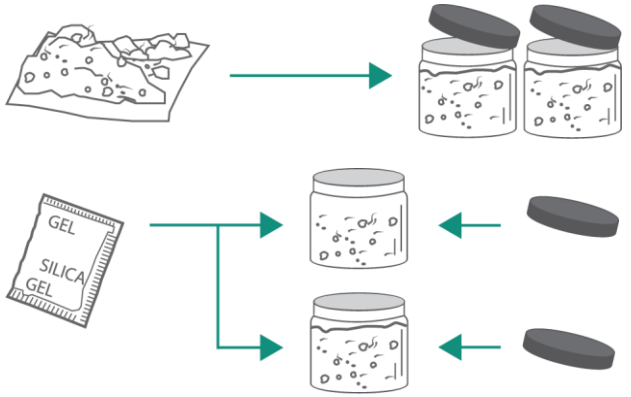
Take your time!

If it is still too wet continue drying.



Last step:

Fill the remaining two containers (brown sticker) and place a silica bag on the interior lid.



Crust Sample

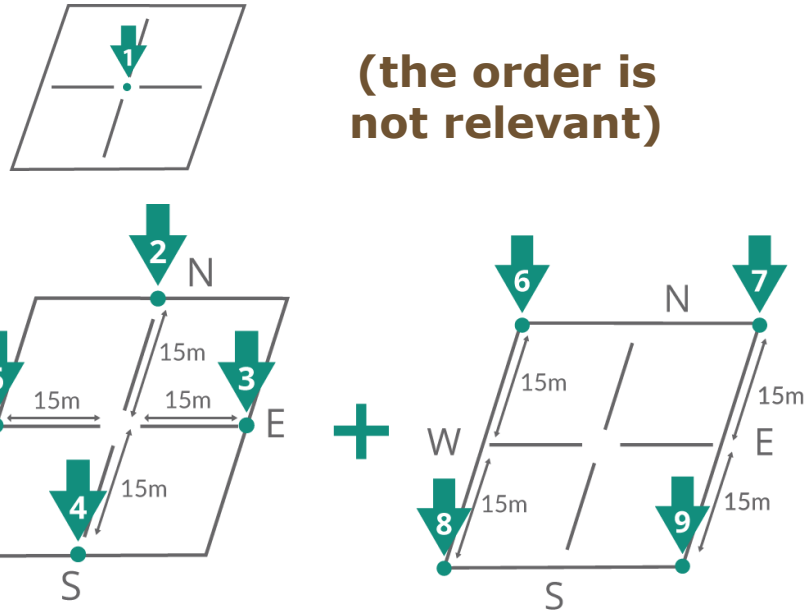
Sampling approach

Crust sample

- Use one of the falcon tubes provided!

50mL Falcon tube

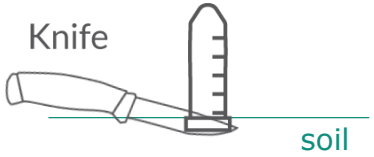
(this sampling is done next to the holes collected for the bulk sample)



(the order is not relevant)

Next to each hole from the bulk sample:

- Press the falcon tube into the ground until it penetrates the first 1 cm of soil.
- With the help of the knife (use it as a spatula), lift the soil and the falcon tube. In sandy soils you may need a proper spatula for this operation.



Use the paper bag to collect each sample!

Sampling approach

Crust sample

- Use one of the falcon tubes provided!

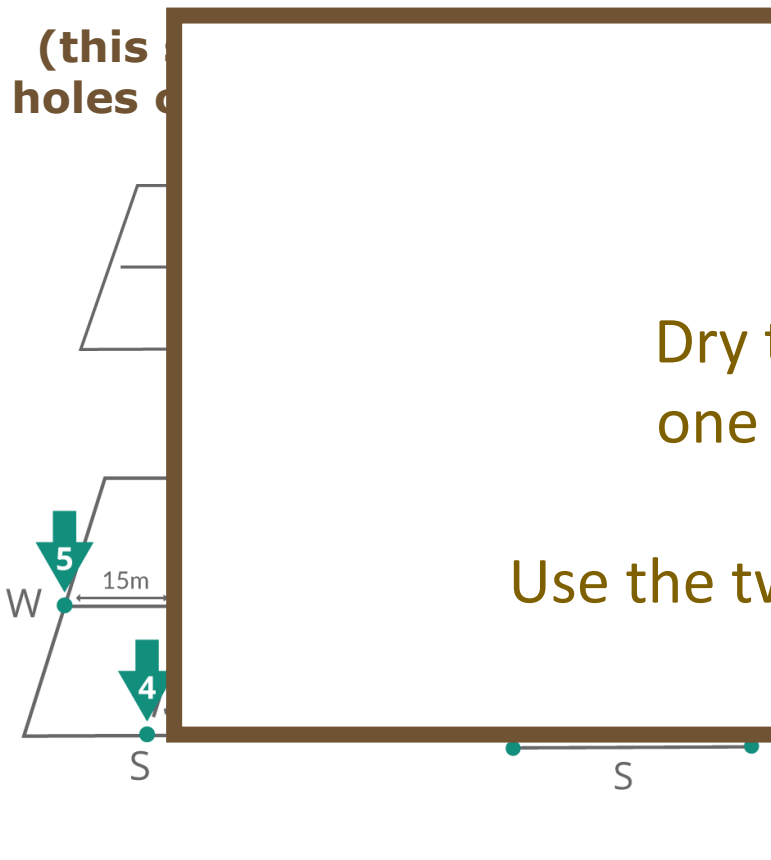
50mL Falcon tube

Last step!

Dry the soil inside the paper bag using one of the methods described before!

Use the two falcon tubes to collect the dried soil.

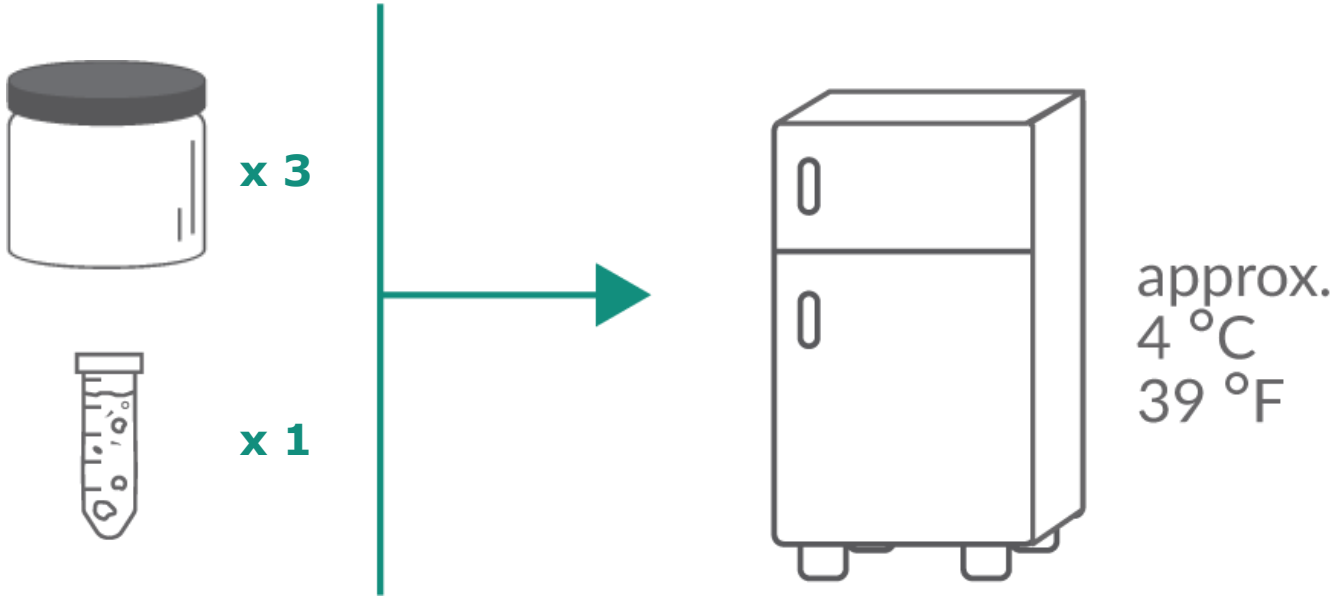
50mL Falcon tube



Sampling approach
Bulk + Crust sample

Final Steps:

Place your containers in a fridge before shipping them.



Contact us to arrange shipping

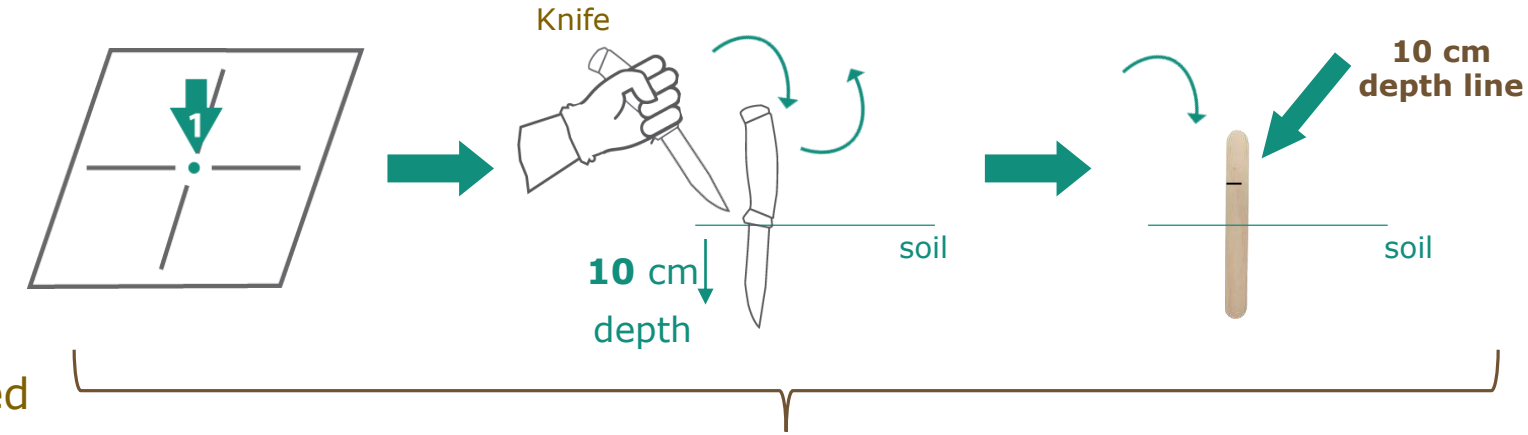
(if you require support for shipping you need to contact us as soon as possible)

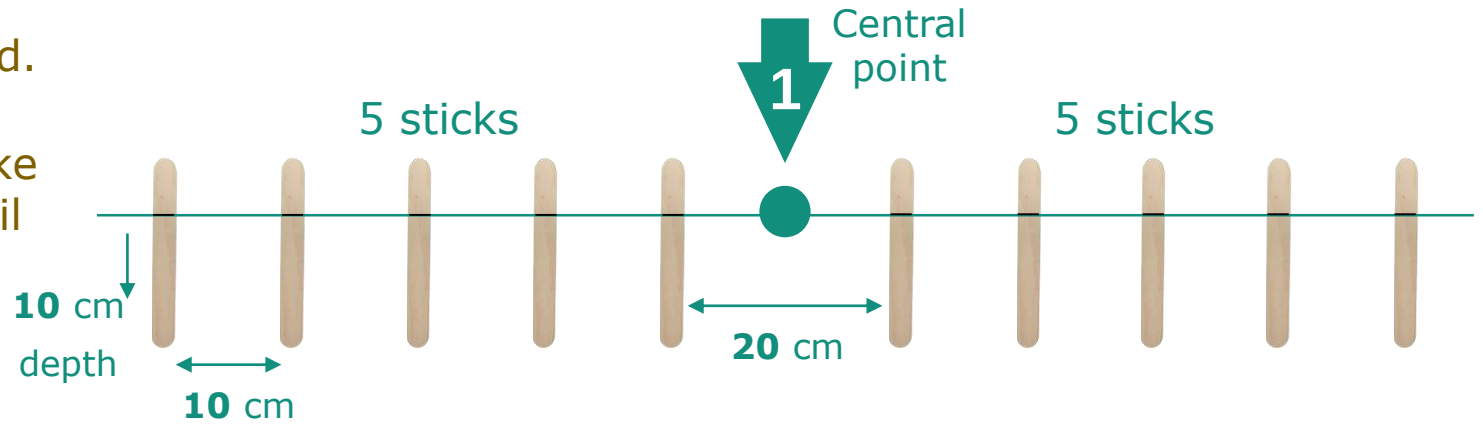
Wood Sticks

First steps:

Within the sampling site, use the central point (1)

- From the central point, install 5 sticks in one direction and 5 sticks in the opposite direction, ensuring they are in undisturbed location.
- Record the stick location on the Field Record.
- Push back any leaf litter. Use a knife to make a 10 cm slit. Insert stick vertically in the soil up to the 10 cm line. Replace leaf litter.
- Place sticks approximately 10 cm from each other.





IMPORTANT: for this you will need to plan according to the initial date of sampling!

Soil BON

Next steps:

After 12 months!!

(take note of the initial date of sampling!!)

Remove the sticks from the soil and dry them

Please make sure that you have this on your calendar

- Extract the wooden sticks and fill the Field Record:

  → Is the stick structurally stable?

  Gently pull the stick out.

  → Is the stick unstable or you are not sure?

  Gently extract the stick, or all pieces, with a knife or a hand shovel, by creating a hole around it.

- Place all sticks inside the paper bag provided, making sure they do not overlap.
- Dry using a method described in the guide.

Take your time!

If it is still too wet continue drying.

Last steps:

Contact us for the shipping documents at info@soilbon.org.

When received, place paper bag with sticks into the provided envelope and attach all documents to the outside of the envelope before shipping.

Shipping address:

Felix Zeh / Dr. Lise Thouvenot / Dr. Monica Farfan

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Supported by iDiv and the Deutsche Forschungsgemeinschaft (FZT 118)