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Field Collecting Protocol for Macrofungi

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ABSTRACT

The Sam Mitchel Herbarium of Fungi documents the diversity of “macrofungi” in the Southern Rocky Mountain region. For the use of this collecting protocol, we use the definition of Mueller et al. (2007, Biodiversity Conservation 16:37-48) to define macrofungi as, “...distinguished by having spore-bearing structures visible to the naked eye (mushrooms, brackets, puffballs, false-truffles, cup fungi, etc.)” Macrofungal surveys and collections represent baseline data critical to understanding species diversity and distributions. To make macrofungal collections valuable for current and future research, both the physical specimen and all associated data must be of the highest quality. If we use flowering plants as an analogy, the macrofungal spore bearing structure (AKA basidiocarp or “mushroom”) is analogous to the fruit of a plant. Consequently, we tend to refer to the mushroom as the “fruit” of the fungus. The ‘business end’ of the fungus (ie. the leaves, stems, and roots) are in the form of myceliumwhich form underground or within the substrate the fungus is deriving nutrition from. Please note that this protocol focuses on the field collection process. In Appendix see Resources 1-2 for information about processing museum-quality specimens for fungal herbaria.The directions outlined in this protocol are designed to research quality mushroom collections.

EXTERNAL LINK

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DBG_SpecimenColleciton_Protocol.pdf

MATERIALS TEXT

Essential collection materials

Preparing supplies for the field is important. Lacking important equipment for your trip can result in a loss of time and money. Make a checklist of the following field items before each trip.

- GPS units for marking waypoints of collection locations. Be sure to include extra batteries. Also, physical maps can always be used as a backup.
- Collecting permits and contact information for landowners
- Collecting basket: Or some vessel that is easy to carry in order to contain your collecting gear (outlined below) and specimens.
- Sampling/digging Tool: Generally this is in the form of a collecting knife. A good knife can be used for digging up the specimen from the ground, or cutting it from whatever substrate it is growing from. Additional options include:

•A trowl or hori hori.

•A hard tined rake can be used to scrape for hypogeous fungi.

- Clippers to collect branches with fungi on them, to ID plants later.
- Wax paper bags for collecting and storing individual specimens. In a pinch, you can substitute foil, or small paper bags. Plastic bags are not desired and only acceptable when there are no other options.
- Tackle box is useful for collecting and keeping separate smaller specimens.
- Field notebook for writing each plant collection number and associated data
- Camera and camera book for taking pictures and logging associated data for each specimen
- Tubes of silica for collecting tissue samples.•Hand lens and keys to species for making identifications in the field.D.

Essential specimen processing materials

For field collecting where you do not anticipate returning home at the end of the day you will need to bring additional items in order to effectively process specimens as research collections. This is necessary because macrofungal specimens do not maintain their integrity for very long after being collected. As a result, we need to describe the characteristics of the fresh specimen, before going through the

process of preserving it as a voucher:

- Specimen cards or data slips for transcribing macrofungal notes of fresh specimens.
- Specimen labels to provide collection numbers and associated collection data with specimens.
- Field guides to assist in putting a name on your collection.
- Metric ruler to record the range of sizes of the collection in mm or cm.
- Color guide to describe the colors of the specimen prior to preserving.
- Sealable containers to protect dried specimens from moisture. Basically zip-lock bags, but tupperware containers can work in a pinch.

1 Describing the survey location so that its physical location and habitat characteristics can be well understood by others.

2 Preparing for the field.

3 Planning and scope of the collecting trip.

4 Collecting a macrofungal specimen with all the necessary physical structures, associated descriptors, and pictures/tissue collections.

5 Take notes in the data and features described in steps 3 and 4 above.

6 Drying to achieve a high quality and lasting specimen.