

Vegetation Monitoring Procedure for the Southern Plains Grassland Protocol

Standard Operating Procedure (SOP) #10: Management of Unidentified Taxa (Unknowns)

Version 1.2 (May 2024)

Revision History Log:

Previous Version #	Revision Date	Author	Changes Made	Reason for Change	New Version #
1.0	5/18/22	M. Owen	Increased detail on specimen collection and labeling; request to collect specimens for each plot in which they are found; updated database procedures and record keeping. Formatting, editing and reorganization. Edited data sheet.	Coordinate with SWNC protocols and incorporate new data management procedures; improve documentation and identification; improve data sheet.	1.1
1.1	5/14/24	M. Owen	Minor updates to collecting procedures. Added header.	Protect from overcollection of plants.	1.2

This standardized operating procedure (SOP) gives detailed instructions on how to collect, manage, and process unknown plant specimens, as well as instructions on the data management tasks that are associated with documenting and updating unknown plant specimen data records. An “unknown plant” refers to plant taxa that cannot be confidently identified by the vegetation monitoring field crew at the time of data collection. This procedure is applicable to all vegetation protocols.

Collecting an Unknown Plant Specimen

Identification of all plant species may not always be possible during field sampling. In this case, unknown plants will need to be collected and labeled for later identification.

1. Before considering a plant an unknown, first search the immediate area surrounding the transect or quadrats, looking for specimens of the unknown plant that are more readily identifiable (e.g., due to the presence of flowers or fruits from current or previous seasons). These may assist in correctly identifying the species in the plot.
2. Plants that are identifiable but are not listed in the park species list are to be considered unknowns. This ensures proper documentation and correct species identification.
3. Collect a sample of the plant with leaves, flowers, and/or fruit, and place it in a press or plastic bag. *Always collect a flowering or fruiting specimen if possible.* Ideally, plant collections should be made outside of the sampling plot, but if this isn’t possible, take a small piece of plant material from within the plot and avoid taking the entire plant. Do not uproot perennials unless you are collecting a voucher specimen.

4. Photo documentation may be used in addition to specimen collection and is preferable if the plant is rare. Photos should document the leaves, branching pattern, flowers, and fruits.
5. If the specimen is stored in a press, label the newsprint in which it is stored. If in a plastic bag, label the bag with a sharpie. Include the following information:
 - ***The Unknown Plant name:*** the assigned unique unknown plant species code. See “Assigning a Unique Unknown Plant Species Code,” in the following section.
 - ***Park:*** the 4-letter park code
 - ***Site:*** Plot name
 - ***Date:*** Date collected
6. If you find the same unknown plant at multiple plots within the same park unit, collect a specimen at each plot. This ensures proper documentation and correct species identification.

Assigning a Unique Unknown Plant Species Code

1. Assign an “unknown code” that is unique for each unknown plant species in the Grasslands Database. You will know that it is unique when the database does not recognize it and prompts you to add it as a new code. If using paper data sheets, a number may need to be added to the end of one or more unknown codes when they are typed into the database, to ensure that they are unique. If this is necessary, make sure all records (paper data sheets, scans, etc.) are updated with the new unknown name.
2. All unknown plant species codes must begin with the prefix “UNK”, followed by an identifier for the species. Identifiers may include an abbreviation of the suspected family or genus, or a descriptive word (e.g. UNK Malv, UNK Pinus, or UNK Fuzzy). This specific code will be used whenever the same plant is encountered at that park unit. Use the exact same unknown species code for the database/data sheet and the label accompanying the collected specimen. If the same unknown plant is encountered in a different park unit, collect a new specimen and assign it a unique unknown plant species code. This ensures proper documentation and correct species identification.

Adding an Unknown Plant Species Code to the Grasslands Database

1. When digital data entry is performed in the field on a field laptop, the field crew will need to add codes for these unknowns to the database species list. The database will not recognize a unique code and will give the user the option to add it to the database. Click “Yes” to add the species. In the window that opens, enter the unknown plant species code into the “Species Code” box, then click on the “Unk Sci Name” button (Figure 1). The 4-letter park code and year will be added as a prefix, generating a “Scientific Name” for the unknown plant. Verify that the park code and year are correct.

Enter unknown plant species code here

Species Code* UNKHAIRY

Collected ☐ *Start all unknowns with UNK

Entered By HLS01

Entered Date 2022 05 18

Scientific Name LAMR22_unkhaury

Make Unk Sci Name

Close Form

Record: 1 of 1 No Filter Search

Click here to generate a "Scientific Name" for the unknown plant

Figure 1. Grasslands Database Add Plant Field List form. NPS figure

Unknown Plant Species Documentation

1. The Unknown Plant Tracking Log – Field Form (Figure 2) should be used to document each unknown plant species. A digital version of this form may be uploaded to the field laptops, or a paper data sheet may be printed for field data entry.
2. When writing the description for an unknown plant in the tracking log, consider including the following information: annual/perennial, functional group, hairiness, branching pattern, number of petals, fused petals, scent, ligule, etc. Some features, such as petals or ligules, are difficult to see on a wilted or pressed specimen, so try to describe these features on a fresh specimen in the field. If you are unsure of any portion of your description, state that you are unsure.
3. At the end of each park visit, the Unknown Plant Tracking Log – Field Form should be uploaded to the appropriate folder on SharePoint. See protocol #13, Daily Data Management, for more details.
4. The protocol lead will maintain a primary Unknown Plant Tracking Log, located on SharePoint, with records from multiple years. This log will be updated annually during data certification.

Managing Unknown Plant Specimens

1. As soon as possible following collection, digital scans of the fresh specimen should be made at 1200 dpi to preserve the specimen's identifying features (see SOP #13, Daily Data Management, for more details). Scans should show both sides of the leaf, the branching pattern (alternate or opposite), and any flowers or fruits. Multiple scans may be needed to accomplish this.

2. File names for all scans or plant photos should include the entire “unk sci name,” consisting of “PARKlast 2 digits of year_plot name_unkname.” For example: CHIC22_LAKE-LT02_unkCARMUE.
3. After scanning, specimens should be placed in the plant press with the appropriate label, created during collection, and kept for examination by the protocol lead.

Identification of Unknowns

The field crew is encouraged to identify unknown plants as time allows. Identifiable specimens may be encountered later on in the work week, or the plant may be keyed out with the use of a dissecting scope upon return to the office. *However, continue recording unknown plants by their unknown name for the remainder of the park visit.* This maintains a record of difficult species and allows for identification to be confirmed by the protocol lead.

Identification Resources

Plant identification will likely require a variety of resources, such as floras and other online resources. Here are some suggested websites:

- SEINet Portal Network Home (swbiodiversity.org)
- Minnesota Wildflowers (www.minnesotawildflowers.info)
- Southwest Colorado Wildflowers (swcoloradowildflowers.com)

Plant Specimen Dissection

Use a dissecting microscope when necessary to aid in plant species identification. Dissect plant specimens only after they have been scanned, and avoid destruction of the entire specimen and the diagnostic parts. Do not dissect voucher specimens.

Updating the Unknown Plant Species Tracking Log

1. If a plant has been confidently identified during a park visit, the scientific name should be written on the collection label and in the correct column of the Unknown Plant Species Tracking Log – Field Form. The identifier should also initial and write the date identified in the corresponding column. If the plant is identified as a species not included on the park species list, make a note of the possible ID on the tracking log but continue to consider the plant an unknown.

Updating the Grasslands Database/Paper Data Sheets

1. The crew or crew lead should not update the database or paper data sheets after unknown plants have been identified. This will be completed during data certification or delegated as necessary.



National Park Service

U.S. Department of the Interior

Vegetation Sampling

Unknown Plant Tracking Log -- Field Form

Datasheet Version: 1.2

Page ____ of ____

Proofread by: _____

Copied by: _____

Edits to DB date: _____

Edits to Datasheet date: _____

Edits to Copies date: _____

Location Information

Park Code: _____

Date	Plot	Unknown Species Code	Collector Initials	Description	Best Guess	Scientific Name	Identified by & date

Unknown_Plant_Tracking_Log_Field_Form_v1.2.doc

Figure 2. The Unknown Plant Tracking Log – Field Form.