

SOP 14: Recording Species Nomenclature

Version 1.35 (March 2021)

Overview

A high quality plot record is based on a high level of confidence in the species list **as a whole**, particularly for the dominant or most common species. We recognize that it is not possible to identify every plant to species with high confidence for all plots, so we have developed a system for documenting the species name as well as the confidence we have in that species name. First of all, every plant needs to have a name, even if it is simply a descriptive name. For hard to identify taxa, use ad hoc names such as “*Carex* fuzzy red base” and “*Carex* green base”. This method is more useful than lumping them together into simply “*Carex* spp”. By identifying species in this way, we can better estimate overall species diversity numbers on each plot.

Recording Species Nomenclature

Whenever a species name is written on a field form, the presumption is that you are reasonably certain of the name. For each species, use the 7-8 letter code that corresponds to the full scientific name for that species (see full list of all species for CUPN parks for more information on the codes). The code consists of the first 4 letters of genus and first 3 letters of species for the genus and species of that plant plus an extra fourth letter or number as a “tiebreaker” where two species have similar names. When in doubt or in a hurry, write the full scientific name with no abbreviations. No other variations will be accepted. **Use neat block letters**. If the person doing data entry cannot read your writing, then the data quality is undermined and the work is wasted.

If the team leader is not comfortable with the use of 7 letter codes, then always spell out the entire genus and species name. If the genus begins “*Poly...*” it is a good idea to spell out the entire genus and species names. Subspecies are **not** required for this project, and can actually be confusing when data entry time comes. Your team leader may provide additional guidance on this.

Confidence in the identification is often related to the level of taxonomic specificity. You could be very confident in a plant identified only to family, (e.g. Species = Orchidaceae; Confidence = C) because you are sure that it is in that family, but have no idea which genus it is. Similarly, you could be very unsure of a genus or species level call (e.g. Species = *Dryopteris* sp.; Confidence = U), especially if the specimen is obscure, small, or somehow uncollectable (table 14.1).

Table 14.1. List of species identification confidence level codes.

Certain	The person(s) making the taxon interpretation has a high confidence in the accuracy of the field or herbarium identification.	C
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Probable	The person(s) making the taxon interpretation has a moderately high confidence in the accuracy of the field or herbarium identification, but uncertainty is typically recorded as “cf” or “?” (e.g., taxon is most likely the species named; occasionally another taxa may be listed as a possibility—it can be named in a comments field).	P
Uncertain	The person(s) making the taxon interpretation has only moderate confidence in the accuracy of the field or herbarium identification, as shown by “??” or other comments about uncertainty. For example, taxon may be one of two or more species and although one name is chosen, it could as easily be another.	U

Also include indicators of uncertainty in how you write the species name:

Simply record “CORNFOE” or “*Cornus foemina*” if species level is certain, and “*Cornus* sp.” if only genus level is certain. If you’re not certain of the species identification, give some indication of your uncertainty using the confidence level codes:

If the specimen might be one of two or a few species, record the two or three that it might be. Indicate, if possible, which one is most likely. If you’re not sure, indicate that as well. For example, *Viola* spp. (*conspersa* or *rostrata*)

If there are several distinct species within a genus, and you are uncertain of their name, but you can clearly see they are distinct, do use ad hoc names to separate them, such as “*Carex*- fuzzy red base” vs. “*Carex* - green base”. They will be entered as *Carex* sp. 1 and *Carex* sp. 2 along with your description.

If you don’t know the genus or species, record family if known. Beyond family, simply use broad growth forms, such as *tree sp.*, *shrub sp.*, *herb sp.*, *aquatic sp.*, *moss sp.*, *lichen sp.*, *algae sp.*, or *vine sp.* Record some additional note characterizing the plant. *Shrub sp* (opp lv).

If the specimen consists of only cotyledons or is so small (less than 5 cm) as to be difficult to identify with any certainty, you may ignore the specimen and move on without recording anything on the datasheet.

Where there is uncertainty noted with the species identification, as indicated by “cf.” or “?” in the species names, or by other comments, use the **Confidence Level** field to record that the identification is **Probable**.

Where there is greater uncertainty indicated, e.g., multiple species are listed, even though one is designated as the primary name, record the identification as **Uncertain**. Field crews should always indicate which name is primary, if more than one is listed.

Follow a Nomenclature Standard

With the important discussions surrounding data quality standards and initial efforts to develop Quality Assurance Plans (QAP), nomenclature standards have received renewed attention within the NPS Inventory and Monitoring Division (IMD). While its importance is understood, implementing a taxonomic standard that all parties can agree upon can be a challenge, particularly in the area of vascular plants! Botanists vary in their agreement as to the validity of particular taxonomic concepts. In addition, many species can only be reliably identified during particular times of the year. With that said the decision was made to adopt Weakley (2019) as this protocol's taxonomic standard for identification and reporting purposes whenever possible. However, the plot botanist or field subject matter expert is the ultimate authority, which is why to date CUPN has utilized professionally trained botanists.

At the end of the field day, or later in the office, be sure to review your list and make the nomenclature and levels of certainty as clear as possible. In addition, we ask that you note on the plot sheet the field guide/guides used for your work on that plot. This will vary depending upon the park in which you work and which field guide is most appropriate to use. Field guides can be obtained through the network program manager if you do not possess them or you can bring your own based on input from the network program manager as to which field guides are best to use in the park where you will work.

Revision History

Version numbers are incremented by decimals where minor grammatical changes or textual clarifications are incremented by hundredths (e.g., 1.01, 1.02, 1.03, ..., etc.) and moderate changes, such as equipment updates or changes in methodology that do not impact analysis are incremented by tenths (e.g., 1.1, 1.2, 1.3, etc.). Whole number increments (e.g., 1.0, 2.0, 3.0, ..., etc.) are reserved for major revisions. Of course, differentiating between what is moderate vs. major may not always be clear, but it is anticipated that with a little "common sense" and discussion protocol leads can adequately document and track revisions through time to the benefit of future data users. It should be noted that prior to 2020 all revisions were incremented by tenths.

Revision History Log

Version #	Date	Revised by	Changes
1.1	01/15/12	B. Moore and R. White	Note some revisions made 10/4/12 but not assigned a new version number - Added some good rules to follow when collecting specimens - Added need to include field guides or keys used on the plot to aid in accurate field identification - Added statement that it was understood that not all species could be identified with high confidence (10/4/12) - Every plant should be assigned a unique name. Descriptive qualifiers are ok (e.g., <i>Carex</i> sp. red base) as it aids in more accurately tracking diversity (10/4/12)
1.2	4/5/2018	C. Bledsoe	- Added field datasheet field descriptions to this SOP (previously part of Appendix D) - Removed good rules to follow when collecting specimens

			- Made updates to datasheet field descriptions, reflecting changes made to datasheet including revisit forms - Changed SOP title
1.3	3/31/2020	B. Moore	- Updated taxonomic standard from ITIS to Weakley (2019), <i>Note this standard was used in the field in the 2019 field season</i> - Moved Revision History to end of SOP and added more detailed list of changes made to date
1.31	8/10/2020	B. Moore	- Address grammatical changes and clarifying comments made by IMD regional program manager
1.35	3/2/2021	B. Moore	- Removed field data form descriptions and parsed them out to appropriate SOPs (e.g., tree data field descriptions to end of SOP6) - Removed "Data Field Descriptions" from SOP title -