

Standard Operating Procedure #15:

Quality Assurance/Quality Control

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Revision History Log

Date	Previous version	New version	Authors
2012	1.0	2.0	Suzanne Sanders and Jessica Grochowski
We revised our resample procedure.			
2024	2.0	2.1	Suzanne Sanders and Jessica Kirschbaum
Revised to: • detail the current plot resampling and field check procedures; • reflect the fact that we no longer use paper datasheets; all references to data entry, data checking, camera downloading, and photo inspections and renaming have been updated; • note that we will not be collecting additional GPS coordinates since all sites have been established; • improve wording and flow of text.			

15.0 Introduction

The success of the vegetation monitoring protocol is dependent upon the integrity of the data. This SOP details procedures for ensuring the data collected are of the highest possible quality, addressing standards to follow both while in the field and afterward.

15.1 Field Procedures

Quality Assurance/Quality Control Procedures for All Plots

The standard data collection methods detailed in SOP #6: Field Methods and Data Collection should be followed precisely. This will ensure accurate data collection and allow consistency between observers. In addition, each field data collection form in the tablet is programed to not accept out-of-bounds data, and to ensure certain secondary data are collected when triggered by initial data inputs. This immediate feedback is one way to promote data accuracy.

Quality Assurance/Quality Control Check Plots

Field crew members will be tasked with co-sampling a plot, along with either the Ecologist (for tree samplers) or the Botanist (for herb samplers), as a final check of their abilities prior to sampling actual sites. Each tree sampler will tally trees along 10-meter segments, beginning with the 0- to 10-meter mark of the first transect. The seasonal will begin on one side of the transect line while the Ecologist will sample on the other side. They will then switch sides, each sampling the other half of that segment. The Ecologist and seasonal will then walk through both sides, comparing trees one-by-one. Among the things that will be checked are that each tree got sampled, that no trees were duplicated, that pests and pathogens were included (if present), that dead trees were, indeed, marked dead, and that the diameter at breast height (DBH) was correctly recorded. This last point is crucial because there are numerous rules on where and how to measure DBH, depending on such things as whether the tree is leaning (or living but down), if there are irregularities at the breast height, and if the trunk is curved or forked. There are typically numerous mistakes during the first 10 meters of checking. Once this first section is fully reviewed and discussed, the seasonal and Ecologist move on to the 10- to 20-meter segment and so on until the entire plot has been sampled and discussed by both individuals.

Herb samplers will sample a 1 m² herbaceous quadrat and leave the quadrat in place. The herb sampler will then step away while the Botanist samples that same quadrat. Data is then compared between the herb sampler and the Botanist and any discrepancies are addressed and a consensus is reached. The same process is continued for all quadrats at the plot.

15.2 Data Processing

Vegetation Data

Standard queries will be run following the download of data from the NPS ArcGIS Online Portal, but prior to import into the Access database. These queries are intended to reveal errors in data entry manifested as inconsistencies between samplers. Examples include:

- Discrepancies in the date recorded.
- Duplication and/or lack of transects.
- All photopoints collected with no duplicates.

Once these are complete, data are imported into the MS Access database and further QA/QC queries are run. This second set is intended to reveal further mistakes in the data that are not automatically addressed on the tablets. These queries include checks for the following:

- Duplicate species entries in an herb quadrat or browse circle.
- Identifying missing or extra transects/quadrats in the data.
- Identifying data collected that includes notes warranting further attention.
- Identifying transects or quadrats where the sampling type is incorrect.
- Reference objects that are dead or eliminated but still have a status of active.

If data are collected on paper datasheets, they must be entered manually and will be checked by one person reading the original data sheets and a second person checking the MS Access report generated for each site/parameter.