

Vegetation Monitoring Procedure for the Southern Plains Grassland Protocol

Standard Operating Procedure (SOP) #6: Line-Point Intercept Procedures

Version 1.1 (March 2011)

Revision History Log:

Previous Version #	Revision Date	Author	Changes Made	Reason for Change	New Version #
1.0	08/2025	M. Owen	Removed collection of dead vegetation.	Retroactive update to match how data were collected in the field.	1.1

This Standard Operating Procedure explains the procedures that are used to collect Line-Point Intercept data from monitoring transects. This SOP is adapted from the 2003 USDI-National Park Service Fire Monitoring Handbook.

Procedures

Use the appropriate form for 30 m transects or 50 m transects. Use a point intercept method to record the number of transect hits and to obtain relative and percent cover by species over time.

Locate the 0 Point on the Point Intercept Transect

The data collection starting point is at the 0P (origin stake) on grassland plots and follows the same tape transect used for obtaining nested quadrat data.

Collect Number of Transect Hits

Drop a ¼ in diameter pole (a rigid plumb bob), graduated in decimeters, gently so that the sampling rod is plumb to the ground (on slopes this will not be perpendicular to the ground), every 30 cm along the transect line. Where the transect length is 30 m, there will be 100 points (50 m transects will be 166 points).

At each “point intercept” (Pnt), gently drop the pole to the ground, and record each species (Spp) that touches the pole on the Line-Point Intercept data sheet. Count each species only once at each point intercept even if the pole touches it more than once. Record the species from tallest to the shortest. If the pole fails to intercept any vegetation, record the substrate (bare soil, rock, forest litter, etc.). Note: You can occasionally find vegetation under a substrate type; in this case you would ignore the substrate and record the vegetation. If the rod encounters multiple types of substrate, record only that which the pole hits first.

Do not count foliage or branches intercepted for trees over 2 m tall, but count all other vegetation, including shrubs, no matter its height. (This is because trees are better sampled using other procedures, and the target variables using the point intercept transect are shrubs and herbs.) If the sampling rod intersects the bole of a tree that is over 2 m tall, record “2BOLE,” or “2SDED” if the tree is dead. Note: Record species not intercepted but seen in the vicinity on the bottom of the data sheet.

Tall Vegetation Sampling Problems

When recording vegetation height, if vegetation is unexpectedly taller than the sampling rod, try dropping the rod at the sampling point, then placing your hand at the 1 or 1.5 m point on the rod and sliding the rod up (without looking up), elevating it by 1 or 1.5 m and recording where it touches the vegetation above you. If the vegetation is consistently taller, find a taller sampling rod.

Dead Herbaceous and Shrub Species Sampling Problems

You may encounter dead standing vegetation along your transects. Always record dead annual vegetation from the current growth year in the same way you record live individuals. Otherwise, do not record interceptions of dead herbaceous material unless it is from the current growth year, even if it is attached to a living plant. Count dead branches of living shrubs as a live intercept.

Sprouting Dead Trees

Trees under 2 m tall: If the bole (>2 m tall) is dead but sprouting at the base, consider any live sprout (<2 m tall) you encounter as live. Trees over 2 m tall: If you encounter a live basal sprout over 2 m tall, the sprout should be considered a tree (2BOLE) in its own right.

Shrub and Herbaceous Layer Height

At every sampling point, measure the height of the tallest living plant (to the nearest decimeter, in meters) at the highest place on the sampling rod touched by vegetation. Record this height (Hgt) on the data sheet. A ¼ in wide sampling rod graduated in decimeters should make this measurement relatively easy. Do not record data for aerial substrate such as the leaves or stems attached to a dead and downed tree.

Record Species Codes

Species codes are assigned in a systematic way. Originally, they were assigned following Natural Resource Conservation Service methodology, as used in the USDA PLANTS Database (USDA NRCS 2001). This naming convention used a 4+ character alpha code beginning with the first two letters of the genus name and the first two letters of the species name. The following 0–2 characters were assigned as needed to avoid confusion of plants with duplicate codes. If there was no subspecies or variety, the next character(s) may not be needed or would be a one or two digit number representing the alphabetical ranking of that plant on the national list.

The many numbers following the four letter code has proven to be quite confusing and an easy vector for mistakes when entering data into the database. Therefore, a change has been made to the species code for the purpose of this protocol. The species code will now be a six-letter code +characters, consisting of the first three letters of the genus and the first three letters of the species, followed by a number if duplicate codes exist (see Table 1). While numbering may still be involved, there are normally no more than two numbers involved, decreasing the possibility of mistakes.

Table 1. Examples of original and currently used species codes.

Original	Current	Plant Scientific Name
DACA	DALCAL	<i>Dalea californica</i>
DACA3	DANCAL	<i>Danthonia californica</i>
DACA13	DASCAL	<i>Dasistoma calycosa</i>

If the plant is a subspecies or variety, then the character in the seventh position will be the first letter of that infraspecific name, and if there are duplicates, a number will follow (Table 2).

Table 2. Examples of original and currently used codes for plant subspecies or varieties.

Original	Current	Plant Scientific Name
ACRUT	(ACERUBT)	<i>Acer rubrum</i> var. <i>trilobum</i>
ACRUT3	(ACERUBT2)	<i>Acer rubrum</i> var. <i>tridens</i>
DACAP	(DALCARP)	<i>Dalea carthagenensis</i> var. <i>portoricana</i>
DACAP3	(DANCALP)	<i>Danthonia californica</i> var. <i>palousensis</i>