

Vegetation Monitoring Procedure for the Southern Plains Grassland Protocol

Standard Operating Procedure (SOP) #4: Photographing Plots

Version 2.0 (May 2022)

Revision History Log:

Previous Version #	Revision Date	Author	Changes Made	Reason for Change	New Version #
1.0	5/17/22	A. Arulanantham M. Owen	Complete revision: reorganization, increased detail of "Shooting Photos" section, edited photo log, added QA/QC checks & photo example, removed lead technician role and designated responsibilities to crew lead, added equipment list, and updated camera model.	Updates and increased detail needed to set clear standards for photo quality. Formatted to match other procedures; edited and reorganized for clarity; all techs should be able to take photos with crew lead oversight.	2.0

This Standard Operating Procedure explains the methods for photo-documentation of permanent plots. Landscape photo-pairs repeated from identical points over time are extremely valuable tools for documenting changes through time in vegetation and landscape variables. This procedure has been adopted from the 2003 USDI-National Park Service Fire Monitoring Handbook.

Preparation for Fieldwork

1. The crew lead will become proficient in the operation and features of the digital camera prior to going into the field. They should become adept at the following functions of the camera: image resolution, image file size, zoom or wide-angle capabilities, and the 'macro' feature. The crew lead will train and assist crew technicians as needed on these skills.
2. The crew lead will become familiar with the methods, hardware, and software required to download the images following a trip, and is responsible for recharging the batteries such that they will be ready for use during the subsequent field excursion. The crew lead will train and assist crew technicians as needed on these skills.
3. The crew lead will ensure that the proper gear is assembled and packed for sampling trips (digital camera, photo board, dry erase markers, batteries, storage cards, photo log, charging equipment). A sufficient number of charged batteries and storage cards should be brought into the field each day. All photographic equipment must be well-cared-for both in and out of the field, and the camera must be stored in dry conditions during inclement weather.

Plot Photography

1. When establishing a new plot, photos are taken immediately after installation (SOP #3—Plot Design and Setup). When revisiting a previously established plot, photos should be taken as soon as the transect line is set up and before vegetation sampling begins. This is done to capture images of the plot that represent its most natural, undisturbed state.

2. Remember that when you are photographing plots that have already been documented, you should make every attempt to duplicate the previous photos, unless the previous photos are poor (e.g., the photos do not meet the requirements of the protocol). If possible, bring a reference photo (a color photocopy of the original) along to facilitate duplication of earlier shots.
3. Use a medium resolution format for photos. The typical file size of photos ranges between 400 KB–1 MB. Rarely will you need to store images in the highest resolution format for routine photo-documentation.
4. Take a minimum of two photos at each plot, following the “Subject” sequence in Table 1.

Table 1. “Subject” sequence for taking photos at each plot.

Subject	Subject Code
From 0P toward 50P	0P–50P
From 50P toward 0P	50P–0P
From 0P toward reference feature	0P–REF
From reference feature toward 0P	REF–0P

5. The transect line should run directly down the center of the photograph, with either the plot origin stake (0P) or the plot end stake (50P) visible at the bottom of the frame. Place a chaining pin or visible marker at the location of the stake to make it more visible. The camera should be fully zoomed out, and the photo should consist of 90% vegetation and 10% sky (Figure 1).
6. The field crew and gear should not be visible in plot photos. The photographer is responsible for asking technicians to move if they are visible.
7. A coded photograph identification board should be prepared and made visible in every photograph (see Figure 1). A whiteboard, laminated piece of card stock, or the back of a metal clipboard can be used as a suitable identification board; dry erase markers should be used to mark the board. The board should display, in large black letters, the plot identification code, park code, date, subject code, and any other information that may be useful (e.g., unit or burn status). The identification board should be held in line with either the plot origin stake or end stake (0P or 50P) and at a right angle to the transect line. When photographing from 0P–50P, the board should appear in the upper right-hand corner of the photo, and when photographing from 50P–0P, the board should appear in the upper left-hand corner. Photos will be more useful if they show primarily the vegetation, with space taken up by the board and monitor minimized. Have someone hold the board so that the codes are visible in each photograph, but the board itself is as unobtrusive as possible. The person holding the board need not be visible in the photograph.



Figure 1. An example plot photograph. NPS photo

8. The crew may place a range pole or other tall marker at the midpoint of the line being photographed. The pole should be located at the 25-m mark on the tape.
9. If the origin or end stake is obstructed by a shrub or tree limbs, take the photo anyway, moving as little vegetation as possible. If obtrusive vegetation completely blocks any view of the plot, take the photo, move the photographer and the photo identification board forward past the obstructing vegetation, and take a second photo. Ensure that the identification board now reads the new location with which it is held in line. For example, if the photo board is held at 5 m, it should read “5P–50P.” This procedure may also be used when obtrusive vegetation prevents the crew from placing the camera/photographer in the correct location. You may also take an additional, oblique shot of the photo transect if desired, noting the exact location from which this shot was taken and that this photo should always be repeated on subsequent visits. Never prune vegetation from a plot.
10. Every photo that is taken must have a visible, correctly labeled photo identification board or be recorded in a photo log. The camera automatically assigns a number to each image. Each number in the sequence for a particular grid must be recorded in the data sheet. If you delete an image, the camera will not re-assign that number to another image. Therefore, if you delete a photo for any reason, record it as a deleted image next to the associated number, so that all numbers in the sequence are accounted for.

QA/QC

1. For the sake of consistency, one technician may be assigned the lead role for photo-documentation. But this role may switch from park to park, and different technicians may need to shoot some of the required photos. Ultimately, the field crew lead is responsible for ensuring that the required photographs for each plot are taken and that all photos meet the requirements laid out in this protocol.
2. The crew lead must view and approve all plot photos before the crew leaves the plot. The crew lead must confirm, at a minimum, that a photo has been taken from either end of the transect line, that all photos have a readable and correctly labeled photo board in the appropriate spot, that the transect line runs down the middle of the plot and is straight, that the photo is 90% vegetation and 10% sky, and that the origin or end stake is located at the bottom of the photograph. If the crew lead is not present at the plot, a lead technician will be designated this responsibility.

PHOTOGRAPHIC RECORD SHEET

Park Code: _____ Camera Type: _____

[illegible]