

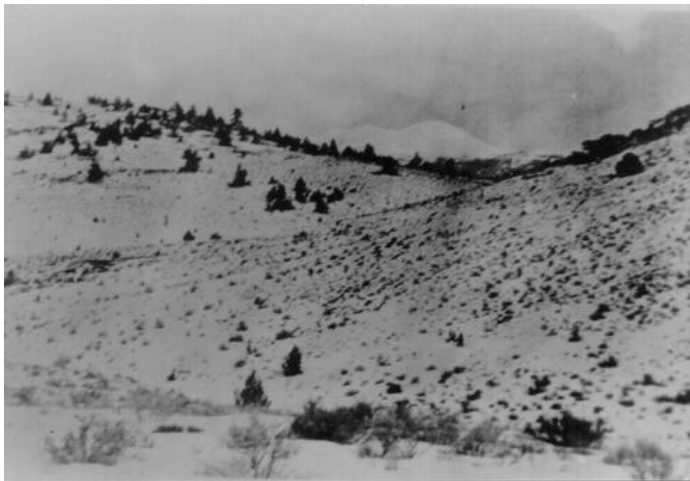
Monitoring With a Camera

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It is often said that a picture is worth a thousand words. Photographs taken consistently over the years provide an easy, convenient, and inexpensive method by which ranchers can establish a visual representation of resource conditions. You can use photos to supplement transect data and to present data to audiences of varied backgrounds. There are two basic types of monitoring pictures: landscape photographs and close-up photographs. You should consider using both types when monitoring.

Landscape Photographs

Landscape photographs document change over time. Try to find old family or ranch photographs that show historical vegetation conditions. These historical photos provide you with a picture of previous range conditions. New pictures from the same locations allow you to immediately illustrate vegetational changes.



Location: West Valley Allotment, Modoc National Forest, Old Blue Lake Road, looking Northeast towards Eagle Peak, Modoc County, California.

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If you cannot find historic photo sites for sites of current interest, establish new ones. Sites where landscape photographs should be taken may include:

- riparian areas
- upland areas
- burns
- re-vegetation areas
- stream diversions such as rock dams
- areas of concern
- areas likely to be discussed in allotment or ranch management planning
- fence lines

Landscape photos should be taken from the same designated point (marked by a steel post or other type of permanent marker). The steel post may be placed to direct, by the use of a compass, the position of the camera for the photo. Include a distinctive landmark in the background (peak, rock outcrop, tree, etc.) or another steel post set 20 feet away to line up on for the photograph. A compass direction and previous photographs are helpful in lining up photographs in subsequent years.

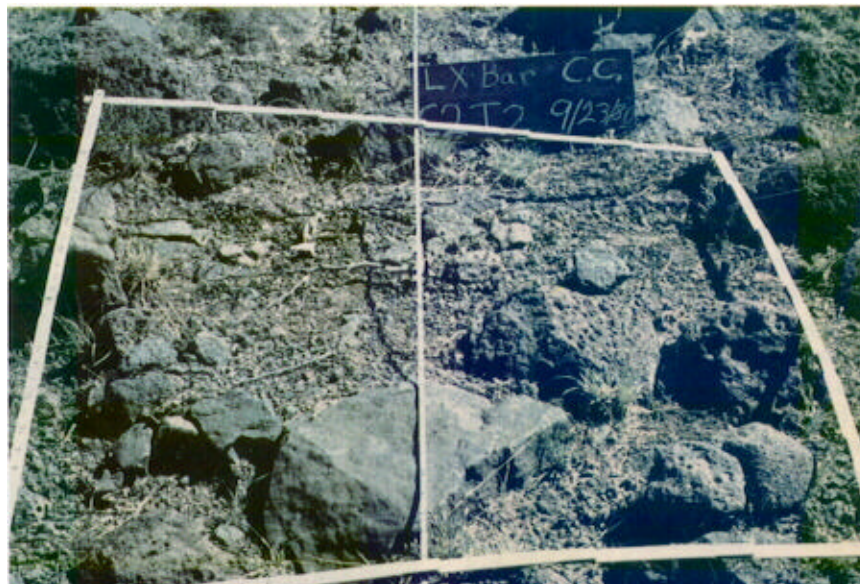
The following should be recorded on each photograph:

- date (a camera that dates pictures works well)
- camera lens size (i.e., 50mm)
- type of film used (i.e., Slide ASA 100)
- photo point number (i.e., pasture/allotment, Global Positioning System (G.P.S.) location)
- actual use (i.e., on-off dates)
- comments (i.e., rainfall, time of day, etc.)
- any unusual event that occurred that year (i.e., drought, high rain fall, etc.)

Caution, writing on your photos can cause damage; use the adhesive labels that can be made with Appendix I.

Close Up Photographs

Close-up photographs show specific characteristics of an area such as soil surface, ground cover by vegetation, and organic litter. Permanent photo plots can be marked by angle iron or rebar. You should paint the stakes with a bright colored spray paint for ease of locating the plot in subsequent years. You may mark the plot in the photograph by using two 6-foot folding rulers, or a 3 x 3 foot square made of PVC pipe that is distinctly marked in 1- inch increments on at least one side, (see last page for PVC instructions). The folding ruler or PVC pipe helps illustrate plant density and scale in the photograph. A non-white photo ID card (see, *Appendix II*) showing date, photo point number, and the allotment/pasture should be placed flat on the ground on the outside edge of the plot. Make sure that the ID card is included in the picture. A witness post may be placed by the road with a corresponding compass bearing in order to locate the witness post at the photo point (plot). Take the picture from the north side of the plot by standing over the plot without casting a shadow on the plot, and with your toes touching the edge of the plot. Consistency in taking pictures from the north side of the plot prevents a shadow from being cast on the plot.



Red Creek Allotment 1980



Red Creek Allotment 1984

Setting Up A Permanent Photo Point

At each site take a close-up and at least one landscape photograph. Initial planning is necessary when establishing close-up and landscape photo points. It is important that photographs taken are comparable over time and provide meaningful information. Before establishing a photo point, here are a few items to consider:

- Do you have historic photographs?
- Are all vegetation types represented (i.e. riparian, upland)?
- Has there been a major event (fire, flood, etc.) that needs to be recorded?
- Does the area have potential to change, etc.

When establishing a permanent photo point, the following should be recorded in a notebook:

- Allotment/pasture, and photo point number
- Photo point location marked on map and description of the area so the plot can be found easily by others. G.P.S. coordinates may also be helpful.
- Compass direction of the photo taken from the witness post
- Initial comments and notations on vegetation and other pertinent reasons for photo point.

Equipment needs for establishing photo points:

- Map (U.S. Geological Survey quad map)
- Compass
- Steel Posts (or other permanent markers), rebar
- Hammer
- Spray Paint

When to Monitor with Your Camera

No matter when you choose to monitor you should be consistent from year to year. The exact day is not important since seasonal conditions vary from year to year. Instead, try to time your monitoring to correspond to a stage of growth of a particular plant (i.e. the heading out of cheatgrass, the flowering of bitterbrush), or before and after grazing (on and off dates). Monitoring after grazing has the advantage of documenting the amount of forage left.

Equipment Needs For Photographic Monitoring

Only a few supplies are needed for photographic monitoring. A 35mm camera, small enough to fit in a coat pocket, with the ability to date slides or pictures is best. Slides are usually of better quality, however, prints may be more convenient to illustrate changes to others in the field. For an additional cost, prints can be made from slides. A film speed of ASA 100 is recommended for outdoor photography. Note the film type and speed and use the same type of film each year.

Equipment Needed:

- 35mm Camera
- Film
- Felt Tip Pen
- Notebook
- Non-White Photo Description Card (Example in Appendix II)
- Photo Plot Frame (2, 6-foot carpenters rulers, or PVC pipe; list of materials and frame instructions on the last page)

Storage Of Photographs

After developing the slides or photographs, write information (date, pasture/allotment) on the edge of the slides. If photographs are stored in a photo album, place adhesive labels (*Appendix I*) on the back describing the location, date, etc. Place slides in a binder using photo or slide storage sheets that are non-pvc, non-acidic to protect them from damage.

When the photographs are processed, file the prints and negatives in a monitoring record book. A convenient way to file both negatives and prints is to use a 5 x 7-inch manila envelope, which can be punched for a three-ring binder or kept in a file.

Each photo point should have its own envelope. Negatives should be kept in a secure place. Prints may also be displayed in an album or on pages in a binder (with photochemically safe pages, no pvc emissions). Monitoring data should be kept compiled and stored in a safe place. The use of a “monitoring recordbook” is strongly recommended for safe keeping photographs and other data.

Analyzing Your Photos

Landscape pictures are generally classified as qualitative data. Dramatic changes are clearly evident over time. Subtle changes may require in-depth study of landscape photos to ascertain if a change has occurred and what direction the change may be headed. Close-up photographs can be used to measure the amount of bare soil and cover. Close-up photos can be used either as a qualifying or quantifying measurement of the bare soil and cover. If slides are used, you can project the image on a paper background and trace bare soil in the plot and calculate the area of which it encompasses. This can also be done with enlarged prints, but with less detail. New computer software is being developed that should assist in the analysis of photographs. Remember to review your goals and see if the changes in the rangeland resource depicted in your pictures are moving you closer towards achieving your goal.

Example Of A Data Sheet

Photo Point Number (Allotment/Pasture)_____
Date_____
Lens Size_____
Film Type_____
Actual Use(On-Off Dates)_____
Comments (Rainfall, Time of Day, etc.)_____

Commonly Asked Questions And Other Tips

How many photos should I take initially?

Plan ahead the areas you feel are important to photograph. Photo point locations near roads may be faster to take but may not provide the most representative sampling of the resource condition you are trying to show. Some photo points may be eliminated or added after evaluating photographs and locations. You should have at least one landscape and close-up for each vegetational type (riparian or upland) pasture.

What other data should I record?

- Actual use (period of grazing)
- Rainfall
- Other significant occurrences (such as gates being left open, fire, drought, etc.)
- Timber harvest
- Dry water holes (may have important present year impacts and should be noted so that in future years these facts are not lost)
- Recreational impacts

Keep as simple as possible. Consistency of monitoring is more important than documenting every detail.

What is a Witness Location?

A witness location is a post or tree with a metal tag nailed to it located near a road from which a compass direction is taken to locate a photo plot.

PVC Photo Plot Frame Materials List

4 -- 35.5" lengths of 1/2 inch schedule 4- PVC pipe (Total required = 144" or 12 feet).

4 -- PVC 1/2 inch schedule 40 90° elbows.

Electrical tape -- 1 inch wide, to mark 1" intervals on 2 sides of the PVC pipe frame.

References for More Information

Monitoring California Annual Rangeland Vegetation, UC/DANR Leaflet 21486, December, 1990.

Photo plots. The Governor's Watershed Enhancement Board, Salem, OR. October, 1993.