

Photo Plots

**A guide to establishing points and taking photographs
to monitor watershed management projects**

The Governor's Watershed Enhancement Board

**158 12th St. NE
Salem, Oregon 97310**

October 1993

Contents

Photo Plots	3
WHAT EQUIPMENT WILL I NEED?	3
OK! LET'S TAKE THE PICTURES	4
CLOSE-UP PHOTOGRAPHS	4
GENERAL VIEW PHOTOGRAPHS	5
HOW CAN I BE SURE TO FIND THE SAME PHOTO PLOT NEXT YEAR?	5
HOW DO I TAKE SUBSEQUENT PHOTGRAPHS?	5
WHAT IF I NEED HELP?	6

Tables and Figures

Table 1 - Monitoring Common Practices for Effectiveness	7
Figure 1 - Close-up Permanent Photo plot Location	9
Figure 2 - Photo Identification Label	10
Figure 3 - General View Photo Plots.....	11

Photo Plots

A Simple Way to Monitor Watershed Management Projects

Monitoring is an effective way to find out if a watershed management project is meeting its goals and objectives. Monitoring can show how well, or how poorly, a management system is working. It can help identify needed changes in management and can show others how to improve watersheds and riparian areas.

Many kinds of monitoring systems are used to document the results of watershed enhancement projects. Some systems, such as taking measurements and recording scientific data, can be exacting and quite complicated. The data may take many years to develop and analyze.

Other systems are quite simple. Taking photographs is one of the most basic monitoring techniques. While photographs cannot tell the entire story about a project, much information can be gathered from photographs taken at the same point over a number of years.

Photographs often reveal changes that measurements miss. They serve as a reminder of how far you have come in establishing a healthy-functioning, natural resource area. Photos are an easy way to make others aware of the benefits of good land management practices.

This booklet can help you establish the reference points or photo plots from which to take pictures to monitor changes resulting from a resource management project.



WHAT EQUIPMENT WILL I NEED?

You will need only a few supplies to photo-monitor your project.

You will need a camera, of course, preferably 35mm, and film. Either the print or slide type is fine although slides are preferred by most natural resource managers. While not really a vital necessity, you may also wish to have a camera tripod to get steady, clear shots.

For close-up photographs, you will need four pieces of angle iron or rebar stakes about 16 inches long (or any height you can see easily), and a hammer or post driver depending upon ground conditions. For general view photographs, you will need two stakes about 3 to 4 feet high. Brightly colored spray paint for the stakes will help you to find them later.

A wood or steel measuring tape, photo identification labels, a map at an appropriate scale, for example a USGS quad sheet, and a black felt-top pen are also necessary.



OK! LET'S TAKE THE PICTURES

Table 1 on page 7 shows what photographs should be taken to monitor certain management practices. Depending upon the type of project you have, there are two types of photographs you may wish to consider taking, close-up and general view.

CLOSE-UP PHOTOGRAPHS

Close-up photos show specific characteristics of an area, such as soil surface or the amount of ground surface covered by vegetation and organic litter. Close-up photos are taken periodically from permanently located photo points.

Usually a 3 ft. x 3 ft. square area is used for close-up photo plots. To mark the corners of the square, drive angle iron or rebar stakes into the ground on all four corners (Figure 1 on page 9). Paint the stakes a bright color, such as yellow or orange, to help you relocate them during subsequent picture taking. You may have to repaint them once in a while if they fade.

If you have a camera with changeable lenses, you should plan to use the same lens on your camera during subsequent picture taking as you did when you set up the original photo point and took the first pictures.

You and your camera should stand on the north side of the plot. By standing on the north side, photographs can be taken at any time during the day without casting a shadow across the plot.

Before taking the picture, place a filled-out photo identification label (see Figure 2 on page 10) on the ground next to the photo plot.

Place a steel or wood measuring tape across the south side of the plot. The tape should be opened to 36 inches with the tape reading from left to right.

The tape will provide some relative scale to the photo. Stand about six to eight feet back from the center of the plot. Be sure you can see the label in the camera view finder.

After taking the picture, mark the location of the photo plot on the map along with an arrow showing the direction in which you took the photo.

If you are sending the monitoring photographs to someone else, as an enclosure in a report for example, be sure to keep a copy of the pictures and the map for yourself. The copies will help you locate the same spot and line up the landmarks for subsequent photos. They will also help you see the changes that have occurred since the last pictures were taken.

GENERAL VIEW PHOTOGRAPHS

General view photos can be divided into two categories: features and landscapes.

Feature photos document change on or around larger objects such as rock dams, stream-banks or stream profiles. Pictures can be taken with views across, upstream and / or downstream (showing, for example, changes in a stream profile), or across or up and down a fence line to show contrast between different land management activities.

Feature photos are usually taken from opposite ends of an imaginary line. For example, you may set up a photo plot to monitor changes on opposite sides of a stream. To do this, drive a stake or post into the ground on each side of the stream. The two points should be about 30 or 40 feet apart. Place the photo identification label in an upright position so that it appears in the foreground of the photograph. Holding the camera over one stake, center the other stake in the middle of the photograph. For the next photo, reverse the procedure. Be sure to include the photo label and, if possible, some sky in the photo to help set the scale of the objects being photographed.

Landscape photos are an overview of the area showing the feature and its relationship to the surrounding area. A landscape photo might be taken from a nearby hill showing from a distance the same section of stream where the feature photo was taken.

Figure 3 on page 11 shows some examples of general view photo plots.



HOW CAN I BE SURE TO FIND THE SAME PHOTO PLOT NEXT YEAR?

Leaving the brightly painted stakes in place will mark the exact photo plot location. However, because of vegetation growth and other changes, the photo plot may be hard to see in subsequent years. A photograph of the area around the plot, taken from the nearest road at the time you establish the plot, can facilitate finding the general location.

Again, remember to keep copies of all of the photos for yourself!



HOW DO I TAKE SUBSEQUENT PHOTOGRAPHS?

When you take subsequent photographs, follow the same process used in taking the initial ones. Include the same stakes and a new label in the close-up photos. Match up the same landmarks and stakes in the subsequent general view photos. Don't forget to make up a new label.

To give validity to your photos and to really show the results, it's best to take subsequent photos at approximately the same time of year as the originals.



WHAT IF I NEED HELP?

If you need more information about how to set up photo plots or take subsequent photos, please contact GWEB at 503-378-3589. We will direct your inquiry to the appropriate person in your area.

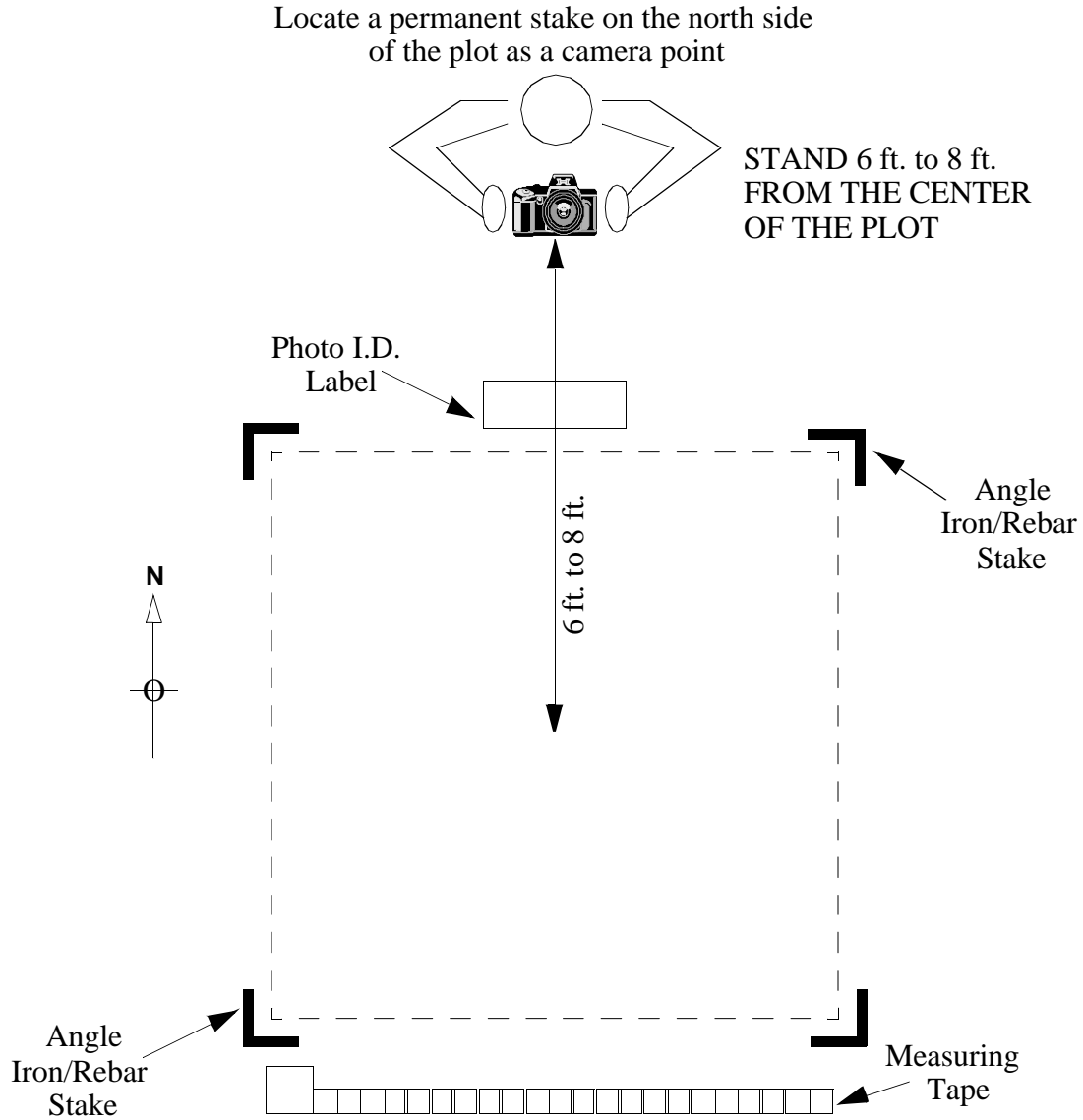
Table 1: Monitoring Common Practices for Effectiveness

Practice	Enhances Watersheds (water quality and quantity) by ...	Monitor by Taking (before, during, after) Photos of ...
<u>Control juniper</u> in uplands	... reducing transpiration, allowing grasses to increase so they can impede and filter overland flow, and increase their root density to hold soil	... sites where junipers have been killed or removed
<u>Manage grazing</u> of domestic livestock through new rotation patterns, fences or water developments	... increasing grass cover and vigor in uplands to intercept rainfall, impede and filter overland flow, and reduce erosion and siltation. Reducing compaction in riparian areas so as to reduce bank failures, erosion and stream siltation	... representative areas <u>in uplands</u> , and of streambank profiles <u>in riparian</u> areas
Install <u>gradient-stabilizing</u> drop structure to partially block stream flow and form pool	... reducing stream velocity, trapping sediment, reducing streambank erosion and channel cutting, and promoting streambank revegetation	... profiles of representative streambanks. Measure the depth of silt behind the structures
<u>Construction jetties</u> in stream channels to partially block stream flow and form a pool	... reducing stream velocity, allowing sediment to settle, and protecting the channel downstream from cutting, bank failure, and erosion	... the downstream side of jetty locations from about 30 feet away
<u>Herbaceous plantings</u> in uplands	... increasing grass cover to intercept precipitation, impede runoff, reduce erosion, increase infiltration and filter overland flow	... representative landscapes

Table 1: Monitoring Common Practices for Effectiveness

Practice	Enhances Watersheds (water quality and quantity) by ...	Monitor by Taking (before, during, after) Photos of ...
Planting <u>vegetation</u> in riparian areas	... anchoring riparian soil, reducing streambank failure, erosion, and channel cutting; promoting revegetation of streambanks and restoring channel profile; trapping debris, filtering the stream, providing shade, and reducing stream temperature	... representative streambank profiles (with the horizon at the top edge of the photo)
Install <u>cut-tree riprap</u> to form barriers along streambanks	... impeding stream flow and velocity along the banks; reducing erosion, channel cutting, and bank failure; reducing siltation, promoting revegetation of streambanks to further trap sediment; reducing compaction and trampling by livestock in riparian areas	... cross-sections of streambanks, focusing on locations of typical installations
Install <u>head-cut control</u> devices	... stopping channel cutting, promoting channel healing, helping restore channel profile and promoting water storage in riparian areas	... treatment areas, providing an oblique view of problem sites

Figure 1
CLOSE-UP PERMANENT
PHOTO PLOT LOCATION
(3 ft. x 3 ft. Plot Outline)



- Paint the stakes with bright-colored permanent spray paint (yellow or orange) to aid in relocation. Repaint these stakes when subsequent photographs are taken.

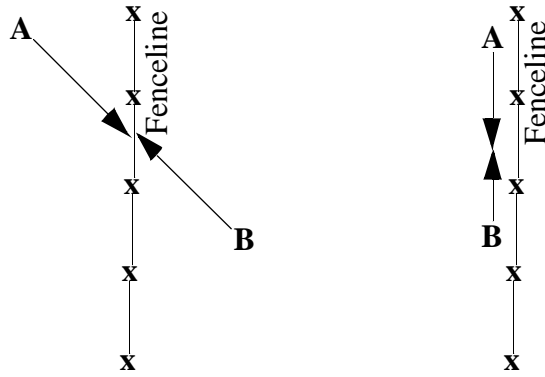
Figure 2
PHOTO IDENTIFICATION LABEL

DATE _____
TIME _____
PHOTO POINT No. _____
PROJECT No. _____
PROJECT NAME _____

- Create a label with this information on it. The label should be large enough to be readable in the photograph.

Figure 3
GENERAL VIEW PHOTO PLOTS

Examples of Fenceline Photo Points



Examples of Stream and Stream Bank Photo Points

