

RANGE MONITORING WITH PHOTO POINTS

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Photo points provide a way for owner/managers to monitor rangeland health with a minimum of time and expense. Photo points, which are simply periodic photographs of specific range sites, can help owner/managers make better management decisions.

Any given pasture is usually composed of several different range sites, each with different plant communities of grasses, forbs and woody plants. This mix of plant species within each range site changes over time because of weather, seasons, brush and weed management, and grazing pressure by livestock and wildlife. The kinds of plants, their quality and quantity within each community dictate the rangeland's potential to produce livestock, wildlife, water and other products.

Managers must monitor changes in these plant communities to ensure that:

- ▶ Management is not damaging the soil, water quality or range resource base; and
- ▶ Past decisions are producing expected results.

By comparing photographs and detailed notes on the same location over time, managers can see what changes have occurred. Photographs, notes and interpretations serve as a permanent record of each situation for future consideration. The manager's observations and other information are necessary to establish the causes of changes in resource conditions.

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HOW OFTEN TO MONITOR

There are two types of photo-point monitoring situations:

- ▶ Annual photos for long-term monitoring of range condition and health over years; and
- ▶ Seasonal photos for monitoring short-term management impacts such as stocking rates, changes in forage standing crop, or responses to weed and brush control practices.

WHEN TO TAKE PHOTOGRAPHS

Photographs that best illustrate the situation should be taken at least once a year and at the same time each year. A good time for annual photographs is in fall before the first killing frost. Shoot more often if you want to monitor more closely. For seasonal monitoring, consider taking photographs at late winter or spring green-up, mid-summer and at frost or before and after grazing a pasture or when controlling brush.

LOCATION AND NUMBER OF PHOTO POINTS

Individual pastures can be composed of many range sites, or areas supporting different types of plant communities. Identify these range sites using county soil survey manuals or with help from the local county Extension agent or Natural Resources Conservation Service personnel. All major range sites should be monitored using photo points. The actual number within each range site depends on the acreage involved and the purpose of monitoring. In most cases, shooting two to five photo points per range site gives acceptable results.

To monitor grazing, do not choose photo points close to water or in the back of the pasture. Select those that represent the range site in general and the use the site receives by grazing animals. Locate other photo points to monitor specific "problem" situations (such as stream bank erosion, sensitive riparian areas, recovery following wildfire).



Scene photographs show the general landscape.

Remember: The photo points you choose now will be used to characterize a much larger area for a long time. Selecting areas that truly represent the range site as a whole is critical to an effective monitoring program.

Choose sites that are reasonably accessible, because you will be returning year after year. Photo points can be located along ranch roads, which also can be used for spotlight deer surveys and routine pasture observations. Balance accessibility with the need for representative photo points.

SETTING UP A PHOTO POINT

After selecting the location of a specific photo point, mark it permanently by driving a steel fence post or metal stake (re-bar) into the ground. Spray the marker with highly visible paint. A nearby fence post can also be sprayed to help locate the plots. Pile rocks around the re-bar to prevent injuries to animals or vehicles. Identify the location of each photo point on a ranch/pasture map or aerial photograph.

Take detailed notes describing the site for each photo point. This may include compass bearing and distance from a highly visible landmark or GPS coordinates if available.

With a felt pen and a yellow paper pad (white is too bright), make a plot sign to include in the photo plot/scene. Include some identification (pasture name, range site, etc.) concerning the specific plot/scene being photographed and the date. Other information can be included, but to be legible, keep it as short as possible.

TYPES OF PHOTOS

Two types of photographs, vertical and scene, are generally used. Photographs taken from a “near” vertical position are best to show details of soil, litter and vegetation. These vertical photos will show changes

in plant cover, litter, bare ground and erosion in spaces between plants, for small areas within permanently located plots. Detailed vertical photos are very specific and less representative of the landscape than scene photographs.

Scene photographs show much larger areas, including the general landscape, brush, grass, terrain and soil. If the scene is photographed with the bottom of the photo no farther than 10 feet away, the foreground can show herbaceous species, cover, litter, bare ground, etc.

VERTICAL PHOTOGRAPHS

Establish one to several photo points in an area by placing a plot frame on the ground. A convenient frame can be made by two 6-foot folding carpenter’s rulers folded at their 3-foot position and placed to face each other, collectively forming a square. PVC pipe joined with elbows also may be used. After placing the plot on the ground, mark the corners by driving 1-foot sections of re-bar rods into two opposite plot corners. This allows the exact relocation of the plot for future observations. Place the plot sign on the ground next to the plot frame before photographing.

Stand so that your shadow is not cast over the photo plot. Take the picture by standing as close to the plot frame as possible while still including all the plot frame and the yellow pad in the picture. Try to shoot as vertical a picture as possible.

SCENE PHOTOGRAPHS

Landscape (scene) photographs also can be taken from the steel post or re-bar marker. Simply stand at the post and take one picture facing each of the cardinal directions, using a compass to frame each shot accurately. If you wish to take only a single scene photograph at each location, place the plot identification at the base of the steel post or re-bar. When shooting the photograph, stand about 10 feet from the plot marker in a predetermined and recorded direction. Include the plot identification and plot marker in the bottom of the photograph.

REPEATING PHOTOGRAPHS

- ▶ Identify on your work calendar the dates that repeat photographs should be taken.
- ▶ Organize the photos for easy viewing and so that subsequent years may be added in sequence on the same storage sheet.
- ▶ Have an updated map showing the location of each photo point.

- ▶ Carry the map and previous photographs of the plots to be photographed when re-photographing the plots. Use the previous photograph to locate the exact scene or photo location.
- ▶ Reshoot the photograph with proper plot identification encompassing exactly the same scene using the same procedures.
- ▶ Use a data information sheet to record any observations before leaving each location. This data information sheet should include the plot ID, date, pasture and any notes concerning species of plants present, general observations, concerns, etc.

INTERPRETING PHOTOGRAPHS

When comparing photographs for a specific photo point over time, look for:

- ▶ Changes in the cover or density of desirable or undesirable plants and amount of litter on the ground;
- ▶ Changes in the amount of bare ground visible; and
- ▶ Evidence of erosion, such as loss of soil between plants.

Records such as those detailing grazing use, brush management and rainfall are invaluable in interpreting these photographs.

STORING SLIDES AND PHOTOGRAPHS

If you use slide film, write the date, photo point number and management unit on the edge of the slides after they are developed. If print film is used, record the same information on an adhesive label and affix the label to the back of the print. Prints (3-by-5- inch) can be stored in sheets holding five photos per page or use one 3-by-5-inch card to index each print on the page.

Photos taken with a digital camera can be processed as either prints or slides or maintained as graphic files. Digital photos can easily be sent to others over the Internet. Keep the data sheets/information and maps for each location with the photographs.

EQUIPMENT NEEDED

- ▶ Steel fence posts
- ▶ Sections (12 to 18 inches) of re-bar rod
- ▶ Hammer or post driver
- ▶ Spray paint
- ▶ Camera (35 mm preferred) or digital camera
- ▶ Film (100 ASA preferred)
- ▶ Two 6-foot folding rulers or 3-by-3-foot PVC frame (for vertical plots)
- ▶ Farm or ranch map or aerial photograph
- ▶ Yellow pad
- ▶ Felt marking pen
- ▶ Three-ring binder
- ▶ Non-acidic, non-PVC print/slide storage sheets
- ▶ Data sheets
- ▶ Pen or pencil

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