

A Guide for Recording Esthetic and Biologic Changes With Photographs

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ABSTRACT: Photography has long been a useful tool for recording and analyzing environmental conditions. Permanent camera points can be established to help detect and analyze changes in the esthetics and ecology of wildland resources. This note describes the usefulness of permanent camera points and outlines procedures for establishing points and recording data.

Wildlands are becoming more "visible" everyday as highways, roads, trails, and recreation use proliferate. The immediate concern over the visual or scenic quality of the nation's environment has been highlighted most recently by the President's message on natural beauty.¹ And the

growing importance of sightseeing and recreation travel is amply documented in the Outdoor Recreation Resources Review Commission's summary report.²

Scenery has long been considered important in roadside zones, and in recreation, scenic, and natural areas. But it is becoming increasingly vital to consider the visual composition of all wildland areas. Every land management action should be considered in terms of its contribution to, or detracting from, the broad regional landscape.

This note outlines a procedure to help record and analyze visual conditions and changes occurring over time. It proposes the setting up of permanent camera points and keeping of photographic records.

¹House Document 78, Feb. 8, 1965.

²ORRRC. Outdoor recreation for America. 246 pp., illus., Washington, D.C. 1962.

Value of Photographs

Photographs taken systematically can not only document obvious physical changes, but often can reveal deeper problems associated with soils and plant communities, and point up the need for concentrated ecological research.³ They can help detect gradual but serious changes that might otherwise go unnoticed because of constant close association or because of a turn-over in personnel. For a continuing and meaningful record, photos should be taken at a minimum of 5-year intervals even if few changes are immediately obvious.

Certainly the use of photographs to record environmental conditions and changes is not a new concept. Aerial photographs have many applications to recreation problems.⁴ For our purposes, however, ordinary photographs have many advantages, such as capturing the scene from the visitor's point of view. Several recreation studies⁵ have been based on comparisons between old and recent pictures.

For day-to-day picture taking, the methods described here may not be suitable, and some photographers will probably want to continue personal or administrative practices. But for permanent camera points, the system described in this note has several advantages. For example, pictures are mounted in binders that can be easily carried in the field with photo-cards; they can be used to reestablish camera points when the pictures are retaken. Furthermore, pictures taken at various intervals are mounted together in the same binder where they can be easily compared.

Establishing Permanent Camera Points

Permanent camera points should be established at two types of locations: (a) sites normally subject to concentrated recreational impact, such as campgrounds, picnic areas, winter sports areas, water sports areas, recreation residence tracts, and resorts; and (b) key points along highways, trails, and rivers, within recreation areas, including wilderness type areas, where it is desirable to maintain esthetically pleasing landscapes.

³Use of photos alone has definite limitations as a primary research tool. See: La Page, W.F. A photo record study of vegetational changes at Chapman Dam State Park. 4 pp., illus. 1965. (Unpublished office report on file at the Northeastern Forest Expt. Station, Warren, Pennsylvania.)

⁴Colwell, Robert N., and Marcus, Leslie F. Determining the specifications for special purpose photography. *Photogrammetric Engin.* 27(4): 620-626, illus. 1961.

⁵Examples include: Gibbons, R.P., and Heady, H.F. The influence of modern man on the vegetation of Yosemite Valley. Univ. of Calif. Division of Agr. Sciences, Manual 36, 44 pp., illus. 1964; Hartesveldt, R. J. The effects of human impact upon *Sequoia gigantea* and its environment in the Mariposa Grove, Yosemite National Park, Calif. 310 pp., illus. 1962. (Unpublished doctor's thesis on file at the University of Michigan, Ann Arbor.); Sharsmith, C. W. A report on the status, changes and ecology of back country meadows in Sequoia and Kings Canyon National Parks. 1959. (Unpub. report on file at National Park Serv. Regional Office, San Francisco, Calif.); Snyder, A. P. Wilderness area management. An administrative study of a portion of the High Sierra Wilderness Area. U.S. Forest Service, Region 5, 62 pp., illus. 1960.

Permanent camera points should be located to take advantage of permanent landmarks such as stumps, boulders, or other large objects, which can be suitably marked and referenced for future identification. Where it is not possible to set-up over such objects, then a redwood stake may be driven flush to the soil surface and carefully referenced. In recreation areas, all markers must be as inconspicuous as possible to minimize their loss by vandalism or accidental destruction by visitors.

Referencing may not be necessary if permanent camera points are established over permanent and easily identifiable objects, otherwise they should be referenced by three permanent objects, such as trees or boulders. Bearing trees should be identified by species, diameter, and a bark scribe, or some other mark placed as high as possible on the side facing the permanent camera point. Bearing objects consisting of rock or concrete should have a small identification mark etched on by a cold chisel. (Remember safety goggles whenever rock or concrete are to be chiselled.) Rocks should be described according to length, width, height; such objects as barrier posts or buildings may be identified by brief verbal descriptions. Bearings (in whole degrees) and distances (in feet or inches depending on the scale involved) should be determined from the bearing points to the permanent camera points.

Recording Data

All information describing pictures, identifying the photographer, and specifying locations should be recorded before the photographer leaves the site. Cards in the shape and size suitable for electronic data processing can be used to record this information (fig. 1). Not all the space titles on the card may have obvious meanings, and therefore a few definitions follow:

File number: the photographer's personal file number.

Official Forest Service number: an agency's official file number.

Index data: various combinations of descriptor terms used to identify and catalog photographs according to subject matter.

Distance: the distance from the camera to the subject in feet, or the infinity symbol for large distances.

Support: method for supporting the camera--"H" by hand or "T" by tripod.

Rating: the exposure-index of the film being used.

PHOTO-CARD

FILE No.	0091	INDEX DATA
OFFICIAL F.S. No.		DAMAGE
PCP No.	75	soil
		human

TAKEN BY A.W. McGill

DATE 8/10/61 HOUR 2 p.m.

SUBJECT
Litter removed and soil
disturbed in a family
unit

LOCATION
Wounded Buck Campground
Cleveland National Forest

CAMERA Graphic

LENS 105 mm FILTER A - 25

DISTANCE ∞ EXP. TIME 1/125

DIRECTION SW SUPPORT T

FILM Tri-X

SIZE 2 1/4 x 3 1/4 RATING 400

LIGHT CONDITIONS
NATURAL ARTIFICIAL

EXP. METER USED NOT USED

MAKE GE

FIELD AND OFFICE NOTES

DEVELOPED BY OK Camera Co.

DATE 8/25/61

USE REVERSE SIDE FOR ADDITIONAL NOTES

Redwood stake set
flush to the soil
surface.

Magnetic bearings
from:

BT

JP - 31"
14 1/2 feet - N 50°E

Rock

30" x 45" x 36"
21 feet - N 46°E

Barrier post

SE end of barrier
21 inches - S 9°E

Figure 1.--Front and back of card for recording photo data.

The permanent camera points should be listed numerically, and the file number of each picture taken at a particular camera point should be recorded (fig. 2). Such a list is necessary whenever photo-cards are used to record pictures taken both at permanent camera points and at other locations.

The descriptor terms, recorded in the "index data" space, are composed of primary descriptors that define broad subject fields. Secondary and tertiary descriptors are used to elaborate and clarify the meaning of primary terms. An alphabetical listing of various combinations or descriptors that are now being used is given in table 1. Naturally other terms may need to be devised.

Information on the camera and film is needed to avoid possible misinterpretations due to changing photographers or equipment. It is usually enough to record bearings and distances from the witness points. But whenever a difficult problem of relocation is expected it may prove valuable to include a small sketch map and description on the back of the card.

The photographer's name and identifying number should be marked on the margin of the negatives with india ink and on the back of the prints. Negatives can be placed in individual glassine envelopes bearing the photograph number and filed in numerical order. Prints

Figure 2.--Permanent camera points should be listed numerically and the record should also include the file number of each photo taken.

PERMANENT CAMERA POINT RECORD							
Forest Recreation Research Project							
Year	FCP	Primary Descriptor	Photograph No. No. No.			Forest Code	Plot Nos.--site descriptions
1961	10	Ecology	0177			01	Sage Flat Campground
	11	"	0178			01	" " "
1961	12	Research	0197			13	D-14, High Cpgd., Unit 6
1962	13	Arboriculture	0285			07	Rocky Bar Cpgd.
	14	"	0286			07	" " "
	15	Hazard	0301			15	Pines Picnic Area

Table 1.--Subject matter descriptors for use in recording index data on photo-cards

ARBORICULTURE Cultivation Fertilization Irrigation Planting Pruning	ECOLOGY Campgrounds Shrubs Soils Trees Vegetation	RECREATION
AREAS Natural Picnic Recreation	ESTHETICS Bays (saltwater) Canyons Chaparral Deserts Forests Hills Lakes Meadows Mountains	REGENERATION Shrubs Trees Vegetation
DAMAGE Objects Damaged: Esthetics Facilities Roots Shrubs Soils Trees	PARKS National Regional State	SPORTS Camping Fishing Hunting Picnicking Winter Sports
Causative Agent: Entomology Erosion Fire Human Pathology Wildlife Wind	PLANTING Campgrounds Landscapes Picnic Areas Roadsides Shrubs Trees Vegetation	STABILIZATION Soils Vegetation
		WILDERNESS Primitive Wild

can be mounted on black paper, placed in plastic document protectors, and filed in three-ring photo-binders. To retrieve a negative from the numerical file, refer to (a) the number on the back of the photograph and mounting sheet in the photo-binder; (b) the photo-card; or (c) the permanent camera points numerical listing. Photo-binders and their contents can be organized by (a) subject matter, such as campgrounds, ecology, winter sports; (b) administrative units, such as forests, ranges, or watersheds; or (c) site locations, such as resorts, campgrounds, picnic areas, or vista points. (Site locations are more likely to be a sub-division within a photo-binder.)

Rephotographing Scenes

Repeat photographs should be taken by aligning the scene viewed through the camera's ground glass or view finder according to the original photo's framing. This procedure is made easier if the first photographer had included some foreground and selected easily recognized objects, such as large trees, for the margin of the picture.

The value of taking pictures to detect changes in soils and vegetation on high impact recreation sites is evident in comparing two photos taken 10 years apart (figs. 3, 4). Even though permanent camera points were not installed before 1964, we still were able to obtain valuable information by photographing the scene from about the original camera point. Since the original photo was taken in 1954, four trees have been removed, and a fifth is marked for cutting. Some understory



Figure 3.-- In 1954, this campground contained few shrubs, and young trees were not evident. The two center trees hid a third tree which was farther back but visible in the crowns.

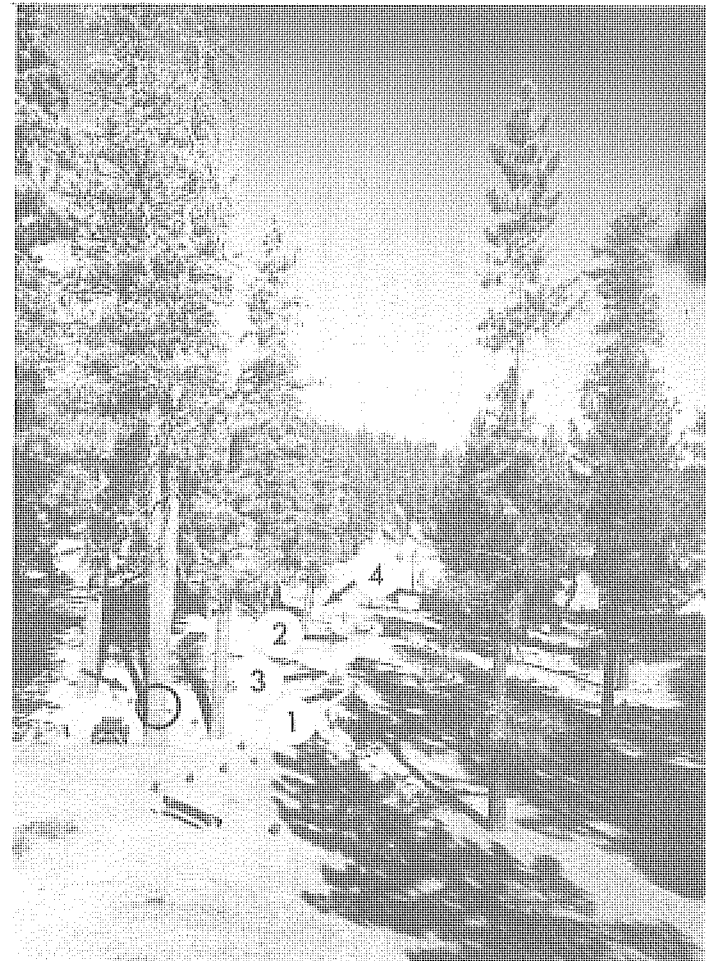


Figure 4.--The same campground, in 1964, has lost the three trees mentioned in figure 1, and close inspection reveals a fourth lost in the background. A 'cut' mark appears on the forked tree to the left. Understory seems unchanged.

vegetation was lost but on the whole, the understory and soil surface appear relatively unchanged. The absence of tree and shrub regeneration is important where openings have developed in the forest (center of figure 4).

The two pictures depict some common photographic problems. First, both photos were taken at about the same time of year, which is desirable, but the shadows indicate that they were taken at different times of the day. As a result, some objects visible in figure 3 are hidden in figure 4. Second, different cameras were used. Figure 3 was taken with unspecified equipment, and figure 4--which covers slightly more area--had to be taken with a wide angle lens to obtain the required view. Finally, most of the foreground in the two photos appears to be properly aligned, barring differences in equipment, but some of the smaller background trees and the telephone poles seem to be mislocated. Although being slightly out of position was not too critical here, in other situations important detail could be lost.

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