

## Standard Operating Procedure 5.2.3

### Photo Documentation Procedure

#### Introduction:

Photographs provide a qualitative, and potentially semi-quantitative, record of conditions in a watershed or on a water body. Photographs can be used to document general conditions on a reach of a stream during a stream walk, pollution events or other impacts, assess resource conditions over time, or can be used to document temporal progress for restoration efforts or other projects designed to benefit water quality. Photographic technology is available to anyone and it does not require a large degree of training or expensive equipment. Photos can be used in reports, presentations, or uploaded onto a computer website or GIS program. This approach is useful in providing a visual portrait of water resources to those who may never have the opportunity to actually visit a monitoring site.

#### Equipment:

Use the same camera to the extent possible for each photo throughout the duration of the project. Either 35 mm color or digital color cameras are recommended, accompanied by a telephoto lens. If you must change cameras during the program, replace the original camera with a similar one comparable in terms of media (digital vs. 35 mm) and other characteristics. A complete equipment list is suggested as follows:

#### Required:

- Camera and backup camera
- Folder with copies of previous photos (do not carry original photos in the field)
- Topographic and/or road map
- Aerial photos if available
- Compass
- Timepiece
- Extra film or digital disk capacity (whichever is applicable)
- Extra batteries for camera (if applicable)
- Photo-log data sheets or, alternatively, a bound notebook dedicated to the project.
- Yellow photo sign form and black marker, or, alternatively, a small black board and chalk

#### Optional:

- GPS unit
- Stadia rod (for scale on landscape shots)
- Ruler (for scale on close up views of streams and vegetation)

Some safety concerns that may be encountered during the survey include, but are not limited to:

- Inclement weather
- Flood conditions, fast flowing water, or very cold water
- Poisonous plants (e.g.: poison oak)
- Dangerous insects and animals (e.g.: bees, rattlesnakes, range animals such as cattle, etc.)
- Harmful or hazardous trash (e.g.: broken glass, hypodermic needles, human feces)

We recommend that the volunteer coordinator or leader discuss the potential hazards with all volunteers prior to any fieldwork.

### **General Instructions:**

From the inception of any photo documentation project until it is completed, always take each photo from the same position (photo point), and at the same bearing and vertical angle at that photo point. Photo point positions should be thoroughly documented, including photographs taken of the photo point. Refer to copies of previous photos when arriving at the photo point. Try to maintain a level (horizontal) camera view unless the terrain is sloped. (If the photo can not be horizontal due to the slope, then record the angle for that photo.) When photo points are first being selected, consider the type of project (meadow or stream restoration, vegetation management for fire control, ambient or event monitoring as part of a stream walk, etc.) and refer to the guidance listed on *Suggestions for Photo Points by Type of Project*.

When taking photographs, try to include landscape features that are unlikely to change over several years (buildings, other structures, and landscape features such as peaks, rock outcrops, large trees, etc.) so that repeat photos will be easy to position. Lighting is, of course, a key ingredient so give consideration to the angle of light, cloud cover, background, shadows, and contrasts. Close view photographs taken from the north (i.e., facing south) will minimize shadows. Medium and long view photos are best shot with the sun at the photographer's back. Some artistic expression is encouraged as some photos may be used on websites and in slide shows (early morning and late evening shots may be useful for this purpose). Seasonal changes can be used to advantage as foliage, stream flow, cloud cover, and site access fluctuate. It is often important to include a ruler, stadia rod, person, farm animal, or automobile in photos to convey the scale of the image. Of particular concern is the angle from which the photo is taken. Oftentimes an overhead or elevated shot from a bridge, cliff, peak, tree, etc. will be instrumental in conveying the full dimensions of the project. Of most importance overall, however, is being aware of the goal(s) of the project and capturing images that clearly demonstrate progress towards achieving those goal(s). Again, reference to *Suggestions for Photo Points by Type of Project* may be helpful.

If possible, try to include a black board or yellow photo sign in the view, marked at a minimum with the location, subject, time and date of the photograph. A blank photo sign form is included in this document.

marker post) then have an alternate method (map, aerial photo, copy of an original photograph of the photo-point, etc).

2. Select an existing structure or landmark (mailbox, telephone pole, benchmark, large rock, etc.), identify its latitude and longitude, and choose (and record for future use) the permanent position of the photographer relative to that landmark. Alternatively, choose the procedure described in *Monitoring California's Annual Rangeland Vegetation* (UC/DANR Leaflet 21486, Dec. 1990). This procedure involves placing a permanently marked steel fence post to establish the position of the photographer.
3. For restoration, fuel reduction, and BMP projects, photograph the photo-points and carry copies of those photographs on subsequent field visits.

### **Determining the Compass Bearing:**

1. Select and record the permanent magnetic bearing of the photo center view. You can also record the true compass bearing (corrected for declination) but do not substitute this for the magnetic bearing. Include a prominent landmark in a set position within the view. If possible, have an assistant stand at a fixed distance from both the photographer and the center of the view, holding a stadia rod if available, within the view of the camera; preferably position the stadia rod on one established, consistent side of the view for each photo (right or left side).
2. Alternatively, use the procedure described in *Monitoring California's Annual Rangeland Vegetation* (UC/DANR Leaflet 21486, Dec. 1990). This procedure involves placing a permanently marked steel fence post to establish the position of the focal point (photo center).
3. When performing ambient or event photo monitoring, and when a compass is not available, then refer to a map and record the approximate bearing as north, south, east or west.

### **Suggestions for Photo Points by Type of Project:**

#### *Ambient or Event Monitoring, Including Photography Associated with Narrative Visual Assessments:*

1. When first beginning an ambient monitoring program take representative long and/or medium view photos of stream reaches and segments of shoreline being monitored. Show the positions of these photos on a map, preferably on the stream/shore walk form. Subjects to be photographed include a representative view of the stream or shore condition at the beginning and ending positions of the segment being monitored, storm drain outfalls, confluence of tributaries, structures (e.g., bridges, dams, pipelines, etc.).
2. If possible, take a close view photograph of the substrate (streambed), algae, or submerged aquatic vegetation.

4. Long view and medium view of streambed changes (thalweg, gravel, meanders, etc.)
5. Medium and close views of structures, plantings, etc. intended to induce these changes.
6. Optional: Use a tape set perpendicular across the stream channel at fixed points and include this tape in your photos described in 3 and 4 above. For specific procedures refer to Harrelson, Cheryl C., C.L. Rawlins, and John P. Potyondy, *Stream Channel Reference Sites: An Illustrated Guide to Field Techniques*, United States Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station, General Technical Report RM-245.

*Vegetation Management for Fire Prevention ("fuel reduction"):*

1. Aerial view (satellite or airplane photography) if available.
2. In the absence of an aerial view, a landscape, long view showing all or representative sections of the project (bluff, bridge, etc.)
3. Long view (wide angle if possible) showing the project area or areas. Preferably these long views should be from an elevated vantage point.
4. Medium view photos showing examples of vegetation changes, and plantings if included in the project. It is recommended that a person (preferably holding a stadia rod) be included in the view for scale
5. To the extent possible include medium and long view photos that include adjacent stream channels.

*Stream Sediment Load or Erosion Monitoring:*

1. Long views from bridge or other elevated position.
2. Medium views of bars and banks, with a person (preferably holding a stadia rod) in view for scale.
3. Close views of streambed with ruler or other common object in the view for scale.
4. Time series: Photograph during the dry season (low flow) once per year or after a significant flood event when streambed is visible. The flood events may be episodic in the south and seasonal in the north.

# PHOTO- LOG FORM

**Project:**

**Location:**

**Date:**

**Photographer:**

**Team members:**

Photo #	Time	Photo Point ID	Photo Pt. Description & Location	Bearing to Subject	Subject Description

**General Notes or Comments (weather, cloud cover, time of sunrise and sunset, other pertinent information):**

**BIG CREEK ROAD INVENTORY PROGRAM (BCRIP)  
PROTOCOL FOR CONDUCTING COMPANY ROAD  
INVENTORIES & MAINTENANCE**

**Purpose**

Big Creek Lumber Company owns and controls over 11,000 acres of forestlands on which there are over 60 miles of permanent, temporary, surfaced, and un-surfaced roads. Maintenance of these roads requires frequent monitoring and treatment.

This document has been drafted to provide the standard operating procedures for conducting and recording road inventories and for the use of the inventory to direct appropriate treatments. This protocol has been drafted so as to guide road inventories consistent with Big Creek goals & objectives and with the certification of Big Creek's lands with the Forest Stewardship Council (FSC).

**Process of Road Inventory**

Big Creek conducts road inventories on varying intervals, depending upon (1) the designated use of the road, (2) the intensity and duration of precipitation received, (3) the hydrologic activity of the stream system in the area, (4) the susceptibility of the road and appurtenant crossings to failure or damage, and (5) the interval of time since that portion of road was used.

On properties where there has been recent activity or road use, especially if road drainage was altered or improved, review of the roads is conducted more frequently. For each portion of road, Big Creek has designated a standard interval of 2 inches of rain per storm event as the cue to send out maintenance crews. The 2" standard interval is subject to change based on the relationship between the five factors listed above.

When indicated by the interval period, or when deemed necessary otherwise, an individual or group of persons will review the portion of road. Road inventory may be conducted on foot, by pickup, or (especially in wet periods) by ATV or other light-tracking vehicle. While conducting the inventory, the person or persons will do handwork, where necessary, to clear and improve drainage structures and culverts.

Each instance a portion of road is inventoried, a form is filled out recording the observations of the person (see Appendix B, Road Inventory Form). This form allows the person to record the location, date, problem, and proposed solution. This form is then submitted to the Chief Forester of Operations (CFO).

After the road inventory form is completed, it is entered into the roads inventory database (a spreadsheet which tracks observations, work completed, and dates of last review for a portion of road).

If the need for repair or maintenance is immediate, the road reviewer will immediately notify the Chief Forester of Operations so that an appropriate treatment may be planned and initiated. All road inventory forms submitted to the CFO are reviewed, and potentially urgent problems are further analyzed to determine if immediate treatment is necessary. When immediate treatment is prescribed, the project is listed with indication of urgency on a dry erase board posted in the Big Creek Forestry Office. As soon as resources are available to conduct the treatment operations, the necessary equipment, materials, and personnel are dispatched to the site.

After the site is treated, the CFO or the CFO's designee will review the site to determine the success of the treatment. This site, at an interval dependent upon the treatment, will be reviewed over time to evaluate success of treatment and to determine if follow-up treatment is necessary.

For sites that do not require immediate treatment, the records for that site will not be further reviewed until the biennial summary of roads is prepared (May 1 and November 1 of every year). At these times corresponding to the approximate end and beginning, respectively, of the winter period, the latest records for each property are reviewed and responsibility for appropriate treatments are delegated. Subsequent evaluation of the treatment's success is conducted, and follow-up treatment prescribed, if necessary.

## **ELEMENTS OF THE FIVE FACTORS THAT DETERMINE INSPECTION TRIGGERS FOR THE BCRIP:**

### **Watershed:**

- Threatened and Impaired
- 303 (D) Listed Stream Segments
- Sub-division/home proximity to project area
- Orographic effect:
  - South county vs. North county
- Project elevation, low vs. high in the watershed
- Road conditions outside of project area that contribute or receive flow
- Watercourse classifications for project area

### **Porosity:**

- Fast vs. slow
- Soil type – sandstone/shale/granite
- High vs. low rock content
- Ground saturation point/springs begin to flow at higher rates

### **Topography:**

- Steep/flat/undulating
- Indication of instabilities/ tipped trees/earth fractures/slides
- Proximity to San Andreas Fault

### **Vegetative Cover Type:**

- Brush/oak woodland/conifer
- General vegetative cover

### **General Elements Associated with Infrastructure:**

- Age of road:
  - Older vs. newer road/existing leaf cover/general vegetation cover
- History:
  - Legacy problems/old humboldt crossings
  - Who designed and implemented the existing road/crossings
  - Past performance and condition of general infrastructure
- Location of road:
  - Ridge top/steep ground/proximity to watercourse/roads on unstable areas
- Road surfacing:
  - Rocked/ based/seeded/straw mulched/slash packed/un-surfaced
- Road Standard:
  - Insloped/outsloped/crowned/re-contoured:
    - Spittler outslope of new roads
  - Full bench road cut/balanced cut and fill/fill
  - Through cuts/long run of through cut
  - Berms on outside edge of road
  - Seasonal/all winter road
- Type of drainage and crossings:
  - Waterbars/rolling dips/bridges/culverts/rocked fords
  - Current condition of erosion control structures/How much do you think they can handle
- Trespass
  - 4WD/motorcycles/mountain bikes/horses/foot traffic
- Watercourse crossing location and frequency
- Gopher holes
- Pig wallows/rooting
- PG&E access road
- EHR rating in THP

**Weather:**

- Interval of time since the last rain event
- Type of rain year/El nino/are storms holding more rain
- Jet stream status
  - High pressure or low pressure
- Wind direction:
  - South East – Strong high pressure
  - South – Storm medium pressure
  - Southwest – Storm low pressure
  - East/Southeast – Strong extreme low pressure
  - West – Clearing
- Check the barometer
- Soaking, low intensity, rain vs. hard, high intensity, rain
- General weather patterns

**Trigger Assessment Tools:**

- Weather radio
- Barometer
- Local contacts:
  - Forest landowners
- Local news forecasts
- Tell tail locations:
  - Creek mouths open to the ocean
  - General overland flow
  - Bridge crossings of major rivers/streams/creeks throughout the county
  - Etc...
- State wide contacts
  - Other foresters and forestry companies
- California Newts:
  - Moving uphill vs. downhill
- Weather web sites (rainfall, stream flow, satellite imagery, forecasts, flood warnings, etc...):
  - <http://www.wrh.noaa.gov/mtr/>
  - <http://www.goes.noaa.gov/>
  - [http://water.usgs.gov/cgi-bin/waterwatch?map\\_type=real&state=ca](http://water.usgs.gov/cgi-bin/waterwatch?map_type=real&state=ca)
  - <http://cdec.water.ca.gov/misc/realStations.html>
  - [http://www.weather.com/maps/maptype/satelliteworld/pacificoceansatellite\\_large\\_animated.html?](http://www.weather.com/maps/maptype/satelliteworld/pacificoceansatellite_large_animated.html?)
  - <http://www.wrh.noaa.gov/mtr/gettext.php?pil=RR5&sid=RSA>
  - <http://www.surflife.com/home/index.cfm>
  - <http://weather.cnn.com/weather/forecast.jsp?locCode=SRU>



## Summary of Results Using Eligibility Criteria - January 2005

Location	Site #	CER #	H/M/L	DDI #	H/L	SDF #	H/M/L	SDF # w/ winter ops	H/M/L	ESR	TIER # w/ winter ops	Approximate TIER # for existing plans
Jennings	1-03-239 SCR	9%	L	200	H	502	L	602	L	I	I	II
MacLean	1-02-190 SCR	38%	H	151	H	632	L	759	L	III	III	III
Bartlebaugh	1-03-071 SCR	21%	H	98	L	698	L	838	L	II	II	II
Peiphrey	1-03-019 SCR	9%	L	321	H	723	L	868	L	I	I	III
Hammond	1-02-159 SMO	8%	L	24	L	800	L	960	L	I	I	III
Kings Creek	1-01-189 SCR	18%	H	70	L	966	L	1160	M	II	III	III
Smelt/Locatelli	1-04-008 SCR	41%	H	192	H	1014	M	1217	M	IV	IV	II
Meyley (Redtree)	1-03-042 SCR	19%	H	228	H	1059	M	1271	M	IV	IV	III
RMC I	1-01-439 SCR	19%	H	88	L	1117	M	1341	M	III	III	III
Beeson Decker	1-03-004 SCR	31%	H	406	H	1277	M	1533	M	IV	IV	III
RMC II	1-03-082 SCR	28%	H	147	H	1387	M	1664	M	III	III	III
Scott Creek	1-02-101 SCR	9%	L	195	H	2003	M	2404	M	III	III	III

The Spread of Potential Outcomes Generated by the Tool (assuming random distribution of harvest plan and site characteristics)

4s	3s	2s	1s	Total
4	7	4	3	18
22%	39%	22%	17%	100%

Twenty-two percent of the outcomes result in development of Plan-specific MRPs through individual waivers. Another 17% would result in enrollments under the low-threat waiver, requiring no monitoring. Under the General Conditional Waiver, water quality compliance monitoring would be required of 39% of all outcomes, and 22% would result in implementation and effectiveness monitoring, and forensic monitoring as necessary. Staff knows from experience that harvest plans typically fall into the central portion of this spread. Thus we would expect a greater percentage of actual outcomes in Tiers 3 and 2 and fewer in Tiers 4 and 1. This would likely result in the majority of plans being required to perform water compliance monitoring, if future plans were typical of past plans.

CER	DDI	SDF	Tier
Hi	Hi	Hi	4
Hi	Hi	Med	4
Hi	Hi	Lo	3
Hi	Lo	Hi	4
Hi	Lo	Med	3
Hi	Lo	Lo	2
Med	Hi	Hi	4
Med	Hi	Med	3
Med	Hi	Lo	2
Med	Lo	Hi	3
Med	Lo	Med	3
Med	Lo	Lo	2
Lo	Hi	Hi	3
Lo	Hi	Med	2
Lo	Hi	Lo	1
Lo	Lo	Hi	3
Lo	Lo	Med	1
Lo	Lo	Lo	1