

CODE-A-SITE

1977

JUSTIFICATION

Backcountry hiking and camping is on the increase throughout the nation. People are turning more and more toward the backcountry areas of our National Parks in an effort to enjoy the wilderness experience. As the movement of people into the backcountry increases, park managers are beginning to see signs of impact on the plants and animals of these natural areas.

Before park managers can tailor backcountry use regulations to provide a memorable wilderness experience for the visitor and at the same time, provide for minimum impact to the resource, they need to know more about visitor preferences, movements, and needs as well as the rates of alteration and recovery of the plant and animal communities.

In an effort to get some of these answers, a means of measuring visitor impact on our backcountry was needed. A technique called "Code-A-Site" was designed by Bruce B. Moorehead and Edward S. Schreiner for the study of human impact in the Pacific Northwest. This paper is the bases for our present system here at Crater Lake.

OBJECTIVES

The purpose of Code-A-Site is to establish study sites throughout Crater Lake in areas of present and future impact by the park visitor. Data is being collected to measure the alteration and recovery rates of these sites and will be collected and compared each year. With the data managers should better be able to put into effect an efficient backcountry use program. For the summer of 1977 the establishment of sites at the heaviest impacted areas of the park was projected, primarily concentrating on campsites with fire rings. These sites are in the Red Cone Springs, Bybee Creek, Lightning Springs and Dutton Creek Trail areas.

PROCEDURES

The resource management staff first adapted the procedures established by Bruce B. Moorehead's paper titled "A Campsite Survey Method in National Parks of the Pacific Northwest". (See paper in Code-A-Site file.)

The Red Cone Springs, Lightning Springs and below, and Bybee Creek (North) sites were done by this method. After several meetings on this procedure, it was agreed upon that a better system was needed to be designed. The Moorehead procedure was altered to fit our needs and plant communities.

The present Code-A-Site procedures have been set up. (Next pages with procedures and data forms.) It is important that the procedures be followed in a step by step manner to insure consistent data collection for future comparisons.

RESULTS

Because of the nature of Code-A-Site program, immediate results with relation to the collected data is pending future analysis and comparisons.

The tangible results for the summer is the establishment of the base procedures for Code-A-Site as a necessary tool for future backcountry management decisions. Sites have been established in the Red Cone Springs, Lightning Springs, Bybee Creek and Dutton Creek areas.

Equipment needed for site establishment:

- 1) Metric tape
- 2) 50cm by 20cm sampler(1000 sq.cm)
- 3) Rebar(2 1/2") and hammer
- 4) Camera, 35mm (Film 8 exposures/site)
- 5) Compass and pencils
- 6) Data sheet and plastic bags(for unknown plants)

Establishment:Steps-

1) At the selected study site, place the 2 1/2" rebar in a location that will effectively represent the area to be examined. If a campsite is being examined, place the rebar in the center of the campfire ring.

2) Take the metric tape and measure out from the rebar 10 meters on the magnetic readings of North, East, South and West, being sure to keep the tape as straight and level to the ground as possible.

3) Take the 50cm by 20cm sampler and starting at the rebar(zero) estimate the ground cover for every other 50cm unit until you reach 10 meters. Example- 0-50cm, 100-150cm, 200-250cm, etc... Within the 1000 sq. cm sampler estimate the per cent of ground cover(% of each plant species and bare ground). The sampler should be placed on the west side of the tape along the north-south radii and on the north side along the east-west radii. If you encounter an unknown plant, collect a sample outside the site for later identification. Listed below are the class coverages for the per cent estimations.

Class 1- 0-5% Class 3- 25-50% Class 5- 75-95%
 Class 2- 5-25% Class 4- 50-75% Class 6- 95-100%

4) While you have the tape extended at each direction, take the camera and photograph from behind the rebar toward the 10 meter mark and then stand behind the 10 meter mark and take a picture toward the rebar.(Figure #1) If there is some type of obstruction between the 10 meter mark and the rebar, move perpendicular (left or right) until you have a clear view. Be sure to record picture direction and number for future filing.

5) The study area will need to be mapped. Take azimuths and distance measurements to trees (over 1 meter), logs, cliffs, streams, rocks and near by trails and foot paths. (Figure #2) For sample see following pages. There is a legend assigning numbers and letters to the above landmarks.

6) Once the field data is collected, the map will need to be done at a scale of 1/4 in. 2 meters, and all data should be typed, including the location name, date, and the collectors. Xerox copies will be needed for the resource management files. Each Code-A-Site will need to be inventoried each year on its established date.

FIGURE #1

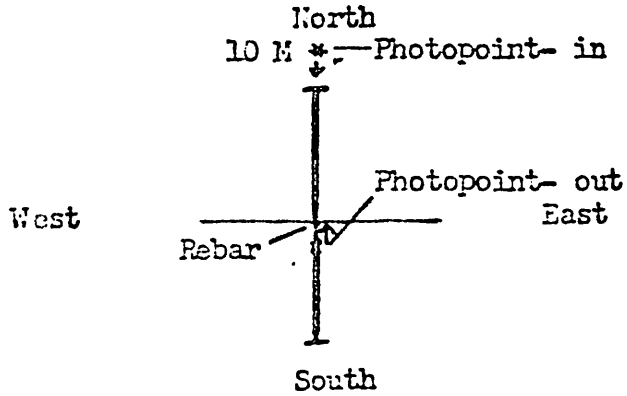
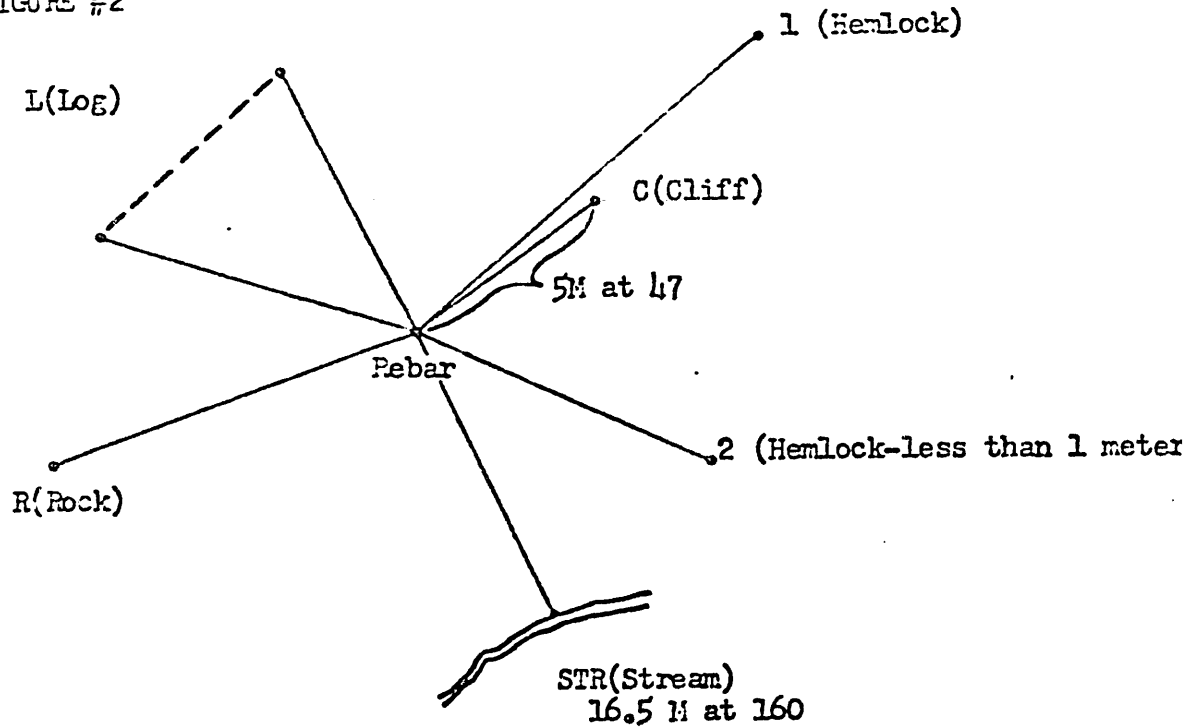
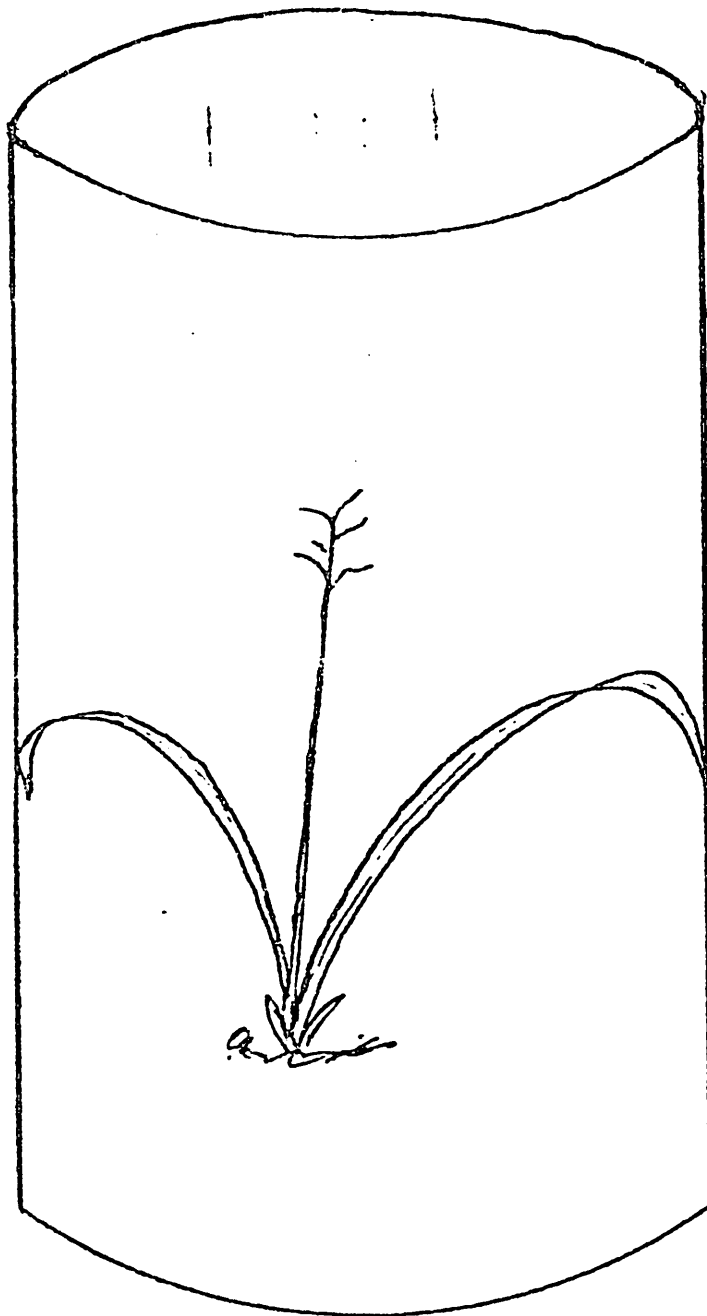


FIGURE #2



Figuring Per Cent Coverage



To measure the percentage of ground cover place an imaginary cylinder around each plant and estimate the percent of each species. You will have percentages over 100% because you have different levels of plant coverage.

NUMBERS

- 1- Hemlock (Greater than 1 meter) (Mountain)
- 2- Hemlock Seedling (Mountain)
- 3- Shasta Red Fir
- 4- Shasta Red Fir Seedling
- 5- Sub-Alpine Fir
- 6- Sub-Alpine Fir Seedling
- 7- Lodgepole Pine
- 8- Lodgepole Pine Seedling
- 9- Western White Pine
- 10- Western White Pine Seedling
- 11- Ponderosa Pine
- 12- Ponderosa Pine Seedling
- 13- Sugar Pine
- 14- Sugar Pine Seedling
- 15- Pacific Silver Fir
- 16- Pacific Silver Fir Seedling
- 17- Douglas Fir
- 18- Douglas Fir Seedling
- 19- Willow
- 20- Willow Seedling
- 21- Noble Fir
- 22- Noble Fir Seedling
- 23- White Fir
- 24- White Fir Seedling
- 25- Western Hemlock
- 26- Western Hemlock Seedling
- 27- Aspen
- 28- Aspen Seedling
- 29- Black Cottonwood
- 30- Black Cottonwood Seedling

LETTERS

- C- Cliff
- P- Rock
- L- Log
- PH- Photopoint
- SP- Spring
- DS- Dead Snag
- ST- Stump
- STR- Stream
- FP- Foot Path
- RD- Road
- T- Trail
- JCT- Junction

<u>Azimuth</u>	<u>Distance</u>	<u>Object</u>
2	10.95 M	Lodgepole Pine
10	12.79 M	"
13	3.32 M	Hemlock Seedling
18	16.47 M	Lodgepole Pine
18	15.91 M	Lodgepole Pine Seedling
19	12.39 M	"
19	15.71 M	"
23	11.69 M	Sub-Alpine Fir Seedling
32	5.95 M	Hemlock Seedling
33	17.03 M	Dead Snag
34	7.06 M	Hemlock Seedling
40	6.39 M	Lodgepole Pine
42	5.22 M	Hemlock Seedling
42	7.63 M	"
42	11.27 M	Lodgepole Pine
45	11.81 M	Sub-Alpine Fir Seedling
46	12.80 M	"
47	11.92 M	"
54	11.69 M	Lodgepole Pine
54	5.92 M	Hemlock Seedling
57	2.13 M	Lodgepole Pine
72	10.18 M	Hemlock
75	9.50 M	Hemlock Seedling
78	8.97 M	"
78	9.02 M	Hemlock
87	9.83 M	"
88	5.85 M	"
94	10.33 M	"
94	7.97 M	"
101	11.53 M	Dead Snag(Broken)
103	11.58 M	Hemlock
107	10.35 M	"
107	10.88 M	Sub-Alpine Fir
119	7.08 M	Dead Snag
128	8.40 M	"
138	10.33 M	Hemlock
144	10.80 M	"
145	10.13 M	"
146	9.95 M	"
150	10.64 M	Dead Snag(Double Fork)
163	10.29 M	Hemlock
169	10.08 M	"
163	1.59 M	Hemlock Seedling
175	5.70 M	"
175	5.40 M	"
180	10.75 M	Hemlock
180	6.01 M	"
180	5.71 M	Hemlock Seedling
180	5.66 M	"
180	5.54 M	"
180	5.34 M	"
188	4.53 M	Hemlock
197	7.68 M	"

RECOMMENDATIONS

The resource management staff sat down on September 15, 1977 and discussed the summer program and the following recommendations with relation to Code-A-Site were decided upon.

At the present time we are collecting data at each site along four(4) cardinal directions. (North, East, South, and West) During the establishment of these sites, a question arose pertaining to whether or not the four(4) directions will give us an accurate indication of the ground cover and impacted area. Since there is a 90 degree separation between radii, some impacted points within the site is not being documented.

1) The recommendation is to have someone look into the possibility of increasing the four(4) cardinal directions to eight (8). A few future sites could be set up to compare 4 radii to 8.

Many times throughout various agencies programs are designed with little or no literature search. This many times creates a duplication of work that has already been done in the same agency or in a sister agency.

2) To avoid duplication as much as possible, it is recommended that areas such as Mount Rainier be contacted concerning their Code-A-Site results, so that we may exclude techniques that give us little or no results. Shenandoah National Park has had a backcountry use program, which prohibits wood or charcoal fires in the backcountry. Their results may help our program.

Throughout the summer a close tab on backcountry campsites (legal and illegal) has been kept along our major trails. A common feeling among the resource staff is that allowing campfires throughout the backcountry has created an unnecessary eye sore in heavy use areas. The eradication of fire rings also takes up resource management time, which could be spent doing other tasks. (See Recommendations under Fire Ring Eradication.)

3) The resource staff recommends that backpackers who are interested in an open campfire be directed to Code-A-Sites located along the following heavy use areas. (Red Cone Springs, Lightning Springs Trail, Dutton Creek Trail and Bybee Creek area.) All other campers with propellant stoves could camp as the system now permits and campfires could be built as long as they were in areas other than the above heavy use sites.

This summer photopoints were established at each site. The coverage system in combination with photopoints should provide good data to the rates of recovery and alteration of these sites. To complete the data collection properly, the staff had to borrow a camera from the interpretation section, which provided many inconveniences with loading and unloading film, scheduling, and storage.

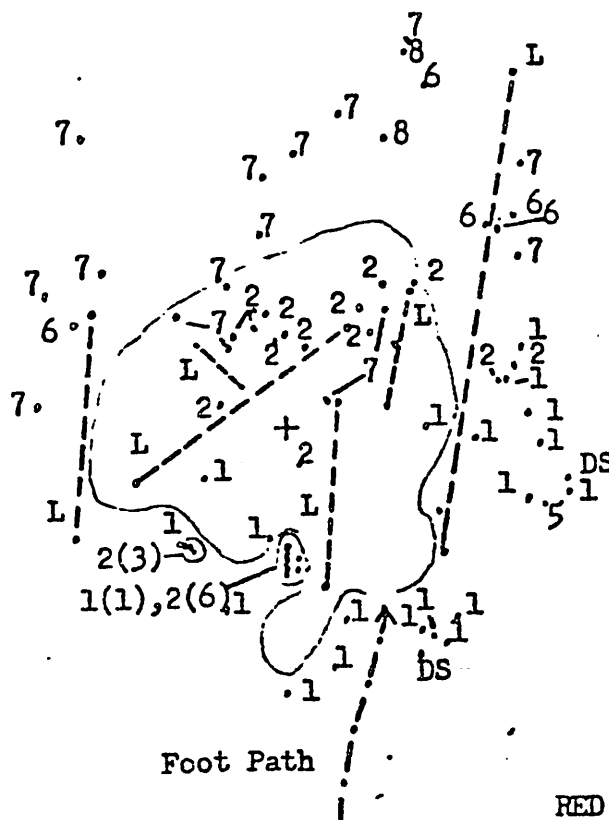
4) The resource staff recommends that a 35mm camera be

purchased(if funds permit) along with the proper slide storage trays for resource management documentation. A separate camera would expedite field work as well as providing an accurate visual data source for future management decisions.

Collecting the data at the Code-A-Sites demands a certain amount of knowledge of plants, which is necessary to complete the ground coverage estimates.

5) To insure a consistent and easier method of plant identification, it is recommended that photos be taken of the plant species encountered along each radii and prints made and placed into a book for easy reference. This would assist the new employee as well as insuring a more accurate account of the plant coverage.

MAGNETIC NORTH
20 Degree Declination
from True North.



SCALE: $\frac{1}{4}$ in. = 2M
DISTANCE TO LANDMARKS.

- 1- Hemlock(Greater than 20 cm)
- 2- Hemlock Seedling
- 5- Sub-Alpine Fir(Greater than 20 cm)
- 6- Sub-Alpine Fir Seedling
- 7- Lodgepole Pine
- 8- Lodgepole Pine Seedling
- L- Log
- DS- Dead Snag
- (#)- Number of species.

RED CONE SPRINGS
CODE-A-SITE
COMPLETED 7/16/77
TOOPS P. & C.

Approximately 75 meters to Red
Cone Spring.

<u>Azimuth</u>	<u>Distance</u>	<u>Object</u>
216	6.19 M	Hemlock Seedling
218	6.17 M	"
219	6.21 M	"
221	6.24 M	Hemlock
236	3.94 M	"
275	9.86 M	Lodgepole Pine
288	2.55 M	Hemlock Seedling
297	9.44 M	Sub-Alpine Fir Seedling
300	10.97 M	Lodgepole Pine
312	9.50 M	"
324	11.16 M	"
324	3.87 M	"
316	6.19 M	"
328	6.15 M 4.07 M	Hemlock Seedling
338	6.15 M	Lodgepole Pine
341	4.25 M	Hemlock Seedling
350	4.66 M	"
353	3.48 M	"
353	7.74 M	Lodgepole Pine
355	10.04 M	"
359	3.45 M	Hemlock Seedling

DOWN LOGS

249	6.44 M
33	4.58 M
313	4.71 M
312	2.36 M
43	7.49 M
79	4.45 M
62	2.36 M
166	6.56 M
128	8.40 M
33	17.03 M
302	8.99 M
242	9.32 M

Readings are Magnetic North.
20 Degree Declination from
True North.

FED CONE SPRINGS
CODE-A-SITE
COMPLETED 7/16/77
TOOPS P. & C.