ASSESSING ELK TRAIL AND WALLOW IMPACTS IN MOUNT RAINIER NATIONAL PARK

Quarterly Progress Report

for the Period

July 1 through September 30, 1987

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SUMMARY OF OVERALL PROGRESS

Development of a remote sensing system to monitor trails caused by elk in Mount Rainier National Park continues. This summary of the progress and activities covers the period of July 1, 1987 through September 30, 1987. The activity in this quarterly period involved: 1) producing a report on the first and second year activities on assessing elk trail and wallow impacts in the Park; 2) the acquisition of new large scale aerial photography; and 3) field work in the basin north of Fremont Lookout.

First and Second Year Activities Report

The report provides a description of progress in the development of a remote sensing system to monitor elk trail and wallow impacts at Mount Rainier National Park. It consists of two parts: the first section describing activities that took place between August 1985 and July 1986; the second section provides a description of the activities during the August 1986 through July 1987 timeframe.

The first year's activities involved: 1) field enumeration and mapping of elk trails in forested areas, and 2) development of laboratory methods to map elk trails and wallows in non-forested areas from large scale aerial photography. The second year activities include: 1) establishing permanent photo-plots on both the 1985 and 1986 aerial photography, and 2) the systematic sampling of elk trails from the aerial photography. Accuracy assessments were conducted in both the first and the second years.

Aerial Photography Acquisition

Thirty-six natural color aerial photographs were obtained during a flight on August 4, 1987 along three flight lines located in the northern part of the Park. The scale of the resulting 9"x9" color negatives is approximately 1:5,000. Refer to the attached map for additional information on the location of the flight lines. The areas covered with this new aerial photography include Fremont Basin, Vernal Park, Elysian Fields, and the Sluiskin Mountain area. All four of these areas contain permanent photo-plots as designated by Mount Rainier National Park Staff for elk trail monitoring (Table 1). Fremont Basin includes a plot for the detailed study of change in elk trail impacts.

Aerial photography was also obtained for additional areas in the northwestern part of the Park for the Rainier Park staff. These aerial photographs were obtained for a human impact assessment project covering the areas of Knapsack Pass, Mist Park, Mount

Pleasant, Seattle Park, Spray Park, Tillicum Point, Echo Rock, Observation Rock, and a portion of Ptarmigan Ridge.

Place Name	1987 Frame Number	1986 Frame Number	1985 Frame Number
Fremont Lookout North	2E-4	7E-4	4-16
Green Park		6E-5	3-10
Burnt Park		4E-3	1-11
Vernal Park	3-6	8W-6	5-7
Elysian Fields West	2-3	7E-3	4-1
Bear Park		5E-13	3-19
Sluiskin Mountain	1-3	6W-7	
Fawn Ridge		1-8	
Slide Mountain		3-6	
No Name Park		3-2	

Table 1. Locations and frame numbers associated with the photo-plot sampling sites selected by Mount Rainier National Park Staff.

The 1987 aerial photographs have been inspected for exposure, alignment, and coverage. All of the photographs are of high quality and within the required specifications. Enlargements (2.5x) were obtained for the Fremont Basin photo-plot.

Field Work

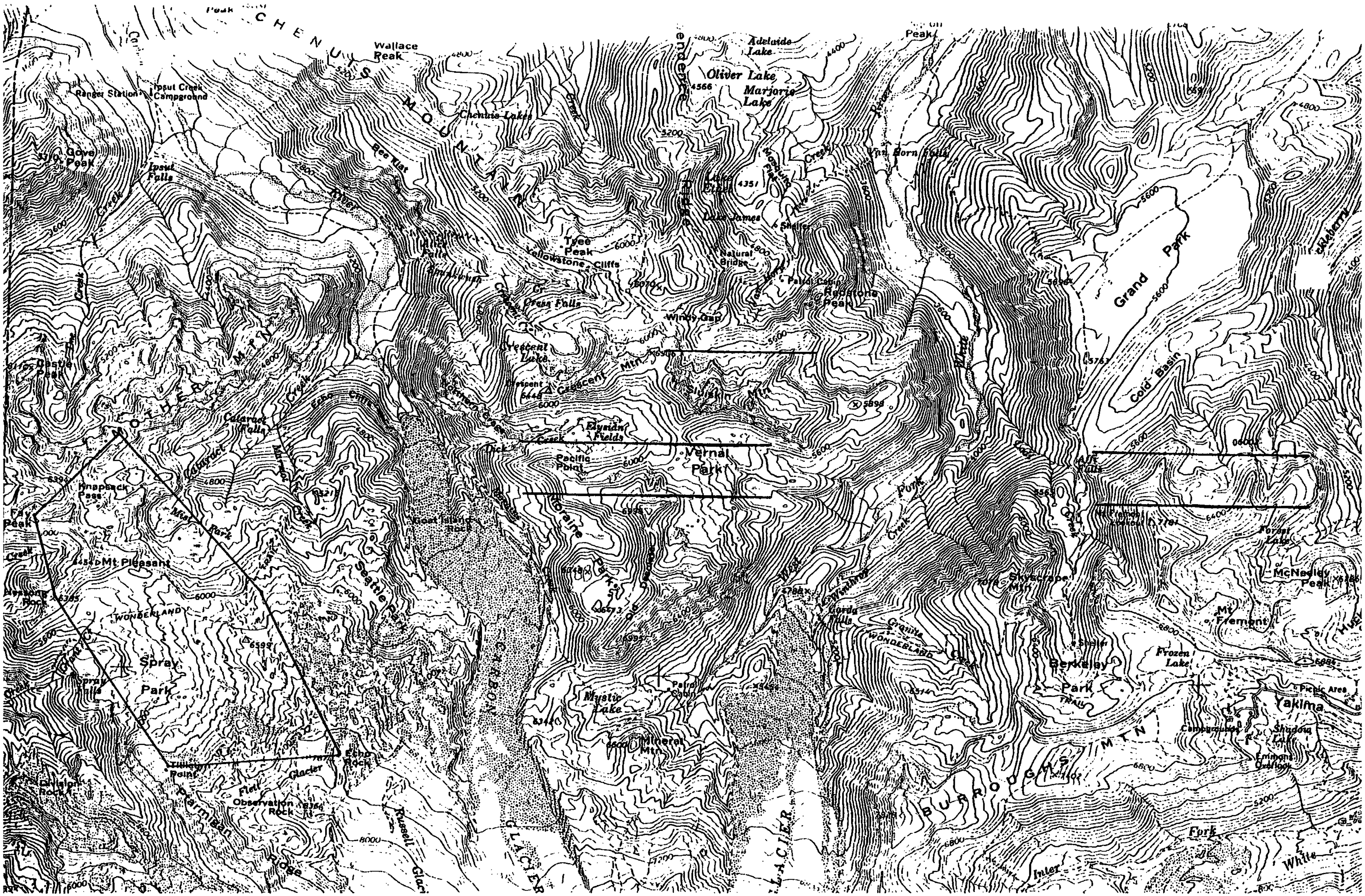
Field work for ground data collection was conducted in August, 1987 in the basin north of Fremont Lookout. Oblique 35mm photographs were acquired for each elk trail at approximately the same locations as the previous years' photographs. As in previous years, trail width measurements were taken at points five meters from the ends of each trail and at the approximate midway point between the ends of each trail. The line intercept method was used to record the extent of any vegetation that intercepted the tape measure as it lay across each trail. A new technique was developed to obtain vertical photographs of a

portion of the elk trails. This technique consists of extending a monopod over and normal to the tape as it lay across the trail. The photographs were exposed at a height of approximately two meters above the trail.

WORK FOR SUCCEEDING QUARTERLY PERIOD

The tasks scheduled for completion during this quarter are:

1) Conduct an elk trail assessment for the Fremont North site using the aerial photography and the ground truth data collected in August of 1987.
2) Establish additional baseline data on elk trails in the 4 photo-plots on the 1987 photography. These plots are located at Fremont Basin, Vernal Park, Elysian Fields, and Sluiskin Mountain.


CHENUIS MOUNTAIN
Wallace Peak
Ranger Station
Ipsut Creek Campground
Gove Peak
Ipsut Falls
Chenuis Lakes
Adelaide Lake
Oliver Lake
Marjorie Lake
Lake James
Shelter
Natural Bridge
Tyee Peak
Yellowstone Cliffs
Green Falls
Windy Gap
Redstone Peak
Patrol Cabin
Grand Park
Cold Basin
Crescent Lake
Crescent Mtn
Elysian Fields
Pacific Point
Vernal Park
Cataract Falls
Castle Peak
Knapsack Pass
Fay Peak
Mt Pleasant
Mist Park
Goat Island Rock
Moraine Park
Seattle Park
WONDERLAND
Spray Park
Spray Falls
Tillicum Point
Echo Rock
Observation Rock
Flett Glacier
Ptarmigan Ridge
Russell Glacier
CARBON GLACIER
Mystic Lake
Mineral Mtn
Patrol Cabin
Granite Creek
Skyscrape Mtn
Berkeley Park
BURROUGHS MTN
Mt Fremont
McNeeley Peak
Forest Lake
Frozen Lake
Yakima
Shadow Lake
Emmons Overlook
Campground
Picnic Area
Inter Fork
White
Division Rock
Hessong Rock
Van Horn Falls
Bee Flat
Dick Creek
Echo Cliffs