WILDERNESS MANAGEMENT PLAN
MOUNT RAINIER NATIONAL PARK

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PLAN PREPARES AND PRINCIPAL CONTRIBUTORS

This Plan was prepared principally by Barbara Samora, Resource Management Specialist, with significant contributions and recommendations from other park Wilderness Plan Committee members:

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Rick Kirschner, Subdistrict Ranger
Randy Brooks, Subdistrict Ranger
Lynn Arthur, Longmire Area Interpreter

The plan was distributed to all permanent and seasonal employees for review and comment. The final draft plan was developed with consultations with park staff representing all park administrative divisions; and with comments received through a 30-day public review period.
I. PURPOSE OF THE PLAN

The Wilderness Management Plan is an action plan to be implemented as part of the Resource Management Plan for Mount Rainier National Park and is not intended to discuss general resource management issues in great detail. This plan has been developed in response to several Servicewide, Regional and park directives including the Director's 12-Point Plan, NPS Management Policies on Wilderness Preservation and Management, the NPS Pacific Northwest Wilderness Management Program, and the Mount Rainier National Park Five-Year Goals (1988-1993). Park management is directed to ensure that designated, potential and proposed Wilderness in the National Park system is managed according to the principals of the Wilderness Act. These directives call for specific steps to improve coordination and consistency in management of all Wilderness areas; to monitor human use, air quality and noise trends in Wilderness areas; to develop an initiative on interpretation and public information regarding Wilderness areas; and to develop a systematic resource management strategy for such areas.

A. History of Backcountry Use and Management Actions

Backcountry use of the park rose gradually throughout the first half of the century but increased dramatically in the late sixties and seventies, peaking in 1974. This resulted in an equally dramatic increase in damage caused by a recreation-oriented public. The combination of overuse, lack of controls and a fragile backcountry environment resulted in a rapidly deteriorating state of the more popular backcountry areas. Eroding trails, denuded sections of meadows, innumerable fire sites and other impacts began to take their toll. Park administrators assessed this damage and determined that it was unacceptable. Measures were taken to mitigate impacts to restore several areas. A Backcountry Use Management Plan was prepared in 1973 to address these concerns. The plan limited group size and numbers of parties in certain areas, limited campfires, campsite selection and stock use.

Environmental compliance mandates were met in 1973 when an Environmental Assessment was issued for public review, along with the 1973 Backcountry Management Plan. It was determined that the backcountry use and management plan would not have a major impact but would be beneficial to the environment and that a full environmental impact statement would not be needed (NPS, 1973). Additional environmental compliance is not required at this time since no significant changes are being proposed that were not discussed in the 1973 Environmental Assessment.

The controls on public use of the backcountry established in the 1973 Plan were challenged via litigation filed in 1975 and again in 1980. In both cases the National Park Service’s authority to establish regulations was challenged and in both cases was reaffirmed. The court did, however, stipulate that the Service must continue to assess human impacts in the backcountry and adjust quotas to reflect maximum use of these areas; and to employ the public review process to a greater extent. Although these stipulations applied only to the ten year period from 1978 to 1988, impact inventories are continuing. In the years since the advent of the 1973 Backcountry Management Plan many of the original public use restrictions have been reduced or eliminated as most of the re-occurring damage has ceased and significant progress has been made in restoring impacted areas.

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1 Penberthy v. Tobin et al., U.S.D.C. W.D. Wash. Civil 075-571 S.
B. Wilderness Designation

Both the Mount Rainier National Park Act of 1899 and the National Park Service Organic Act of 1916 promote management of the park for the preservation of its natural features as well as providing for public use and enjoyment. The National Park Service has managed Mount Rainier National Park for these purposes and has directed operations toward preserving the natural ecological processes and features of the park. Most of the undeveloped portions of the park have been managed as "de-facto" Wilderness as directed by the 1964 Wilderness Act. Camps Muir and Schurman, Sunrise Trailside Camp, portions of water supplies, road systems, and developed roadside areas have been excluded from the Wilderness (See Figure 1 and Appendix A).

In 1974 the National Park Service proposed to Congress that some 210,700 acres within Mount Rainier National Park be designated "Wilderness." Public hearings regarding the proposed Wilderness were held in 1974 at Longmire and Tacoma, Washington with some 250 people in attendance. Congress took no action to designate the Mount Rainier Wilderness until 14 years later. However, the Backcountry Management Plan implemented in 1973 provided for the management of the park's backcountry in a near-Wilderness state.

The 1974 proposal was amended to increase the size of the Wilderness and the bill became law on November 16, 1988, designating some 228,480 acres of Mount Rainier National Park as Wilderness (Public Law 100-668).

C. Purpose of This Document

The Wilderness Management Plan for Mount Rainier National Park, formerly entitled, "Backcountry Management Plan," serves several purposes:

1. It serves as a public document which explains the various policies, objectives, and justifications employed by the National Park Service in administering the Wilderness resources of the park.

2. It serves as a reference for park employees administering the plan.

3. It provides a summary of documented environmental changes, likely causes; describes desirable Wilderness conditions; establishes standards for maintaining desirable conditions; and identifies management actions to be taken to mitigate damage.

The Backcountry Management Plan was developed with continual public involvement and was modified numerous times with every significant revision receiving thorough public review. This plan, now entitled "The Wilderness Management Plan," has evolved around some of the concepts of Wilderness management as described by Stankey, et al. (1985), in the publication "Limits of Acceptable Change (LAC) System for Wilderness Planning." LAC is described as a framework for establishing acceptable, appropriate and measurable resource and social conditions in Wilderness. LAC also represents a reformulation of the recreational carrying capacity concept, with the primary emphasis on the conditions desired in the area rather than on how much use an area can tolerate.
Figure 1: Wilderness and Non-Wilderness Zones of Mount Rainier National Park
In the development and subsequent modifications of the original Backcountry Management Plan many of the planning steps Stankey and others have defined as LAC were accomplished. Consequently, as this Wilderness Management Plan replaces the older plan, the LAC process has, for the most part, already been integrated into the management of the park's Wilderness resources. However, additional revisions are needed to meet the objectives of LAC, especially regarding the development of measurable standards. A modified LAC approach was taken in order to address threats for factors (such as aquatic resources) where exact measurable (e.g., quantitative) standards are not easily defined given existing site-specific information but where human use is recognized as a threat that can result in alterations to these resources. More quantitative standards will be developed for these factors as we gain more knowledge of their current status.
II. MANAGEMENT GOALS AND OBJECTIVES

Manage the Wilderness as a distinct resource with inseparable parts.

Manage the use of other resources and activities within Wilderness in a manner compatible with Wilderness.

Allow natural processes to operate freely within Wilderness and preserve the quality of air, water, and other natural resources.

Attain the highest level of purity in Wilderness character within legal constraints.

Promote Wilderness values and benefits while preserving Wilderness character.

Utilize interdisciplinary scientific skills in managing the Wilderness.

Identify internal and external threats to Wilderness values and establish long-term programs for monitoring use and associated impacts, threats to rare and endangered species, water quality, acid rain and other forms of degraded air quality, and visual or sound impairments.

Control and reduce physical, ecological and social impacts of human use in Wilderness through education or innovative management. Regulate at the minimum necessary to achieve Wilderness goals and objectives.

Exclude the sight, sound and other tangible evidence of motorized equipment or mechanical transport wherever possible within Wilderness. Accomplish necessary Wilderness management work with the "minimum tool."

Remove existing structures and terminate uses and activities not essential to Wilderness management or not provided for by law.

Harmonize Wilderness and adjacent land management activities.

Preserve outstanding opportunities for solitude and a primitive and unconfined recreation experience in the Wilderness. Provide for varying degrees of challenge and opportunity for solitude by designating three zones:

1. **Trail Zone:** Provide for the easy access and use of the Wilderness by large numbers of visitors at any one time by concentrating their impacts upon durable and well-maintained trails and permitting camping along such trails only at designated campgrounds. During the summer months (July through September) the Trail Zone would likely provide only limited opportunities for experiencing solitude.

2. **Crosscountry Zone:** Provide a reasonable opportunity for challenge and solitude in a more "pristine" Wilderness by dispersing use in areas of lower forest and subalpine environments where no designated campgrounds, facilities, structures, or well developed and maintained trails (Type A or B trails) exist and users are encouraged to follow minimum impact techniques. Some areas may have narrow "way" trails (Type C trails). The opportunity for experiencing solitude in the Crosscountry Zone
varies from moderate to high but in most cases would likely be higher than in the Trail Zone.

3. **Alpine Zone**: Provide for climbing and alpine hiking opportunities offering a higher degree of challenge and experience in areas above treeline, generally above 6000 feet or elsewhere on exposed rock, glaciers, and snowfields. Only two Type B trails exist in this zone. Some areas may have narrow "way" trails (Type C trails) that lead to heavily used vistas or climbing routes. Campers are encouraged to camp on permanent snow or ice; use only bareground areas that have previously been used as campsites; or may camp in the designated campgrounds at Camp Curtis.\(^2\)

No camping is permitted on vegetated areas of Alpine Zones. The opportunity for experiencing solitude in the Alpine Zone during the summer months ranges from high on the more remote or technically difficult climbing routes, to extremely low on the more popular routes.

\(^2\) Camping is also provided at Camps Muir and Schurman which are outside of the designated Wilderness and are addressed in a separate plan (see Appendix A).
III. Description and Use of the Park

Mount Rainier National Park is located on the western slope of the Cascade Range, approximately 65 miles southeast of the Seattle-Tacoma metropolitan area and approximately 65 miles west of Yakima (See Figure 2). Mount Rainier is a towering snow and ice-covered dormant volcano that dominates Mount Rainier National Park and is a prominent landmark in the Pacific Northwest. Rising to a height of 14,411 feet above a surrounding environment that extends from sea level to the crest of the nearby Cascade Range at 6,000 feet, the "Mountain" is considered an "arctic island in a temperate zone."

The park consists of three major ecological zones. The upper mountain or alpine zone consists of snow, rock, and ice and fragile alpine vegetation that covers roughly one-third of the park and begins at treeline, generally above 6,000 feet. The lower forest, consisting of silver and Douglas fir, western hemlock and western red cedar, covers approximately three-fifths of the park and extends from the park boundaries to the subalpine meadows at about 5,000 feet elevation. Most park roads and other developed facilities are within this zone. The subalpine zone, characterized by scattered stands of subalpine fir and grassy and heather meadows extending from about 5,000 feet elevation to treeline, is the smallest yet most frequented zone for the majority of park visitors.

Mount Rainier is mantled by some 25 named glaciers that radiate from its crest on all flanks, including glaciers that are the largest and extend to lower elevations than any others in the lower 48 states. The brilliant display of wildflowers in the subalpine meadows, the dense ancient lower forests, and the mountain itself, a mecca to snow and ice climbers throughout the world, attract an estimated 200,000 day hikers, 12,000 backpackers, and 7,000 climbers each year.
FIGURE 2

REGIONAL SETTING
IV. AREA ISSUES AND CONCERNS

Many obvious human impacts occur in the sensitive subalpine ecosystem. Crowding, human waste problems and damage to alpine plants occur on the upper mountain, but it was primarily impacts to subalpine areas that led park managers to initiate controls on backcountry use beginning in 1973.

The rate of damage caused by backcountry users has diminished since 1973. Damaged areas were closed to allow natural recovery and many areas have been or are proposed to be restored by park management. However, many of the issues and concerns of the early seventies remain the same today:

1. PRESERVATION OF THE WILDERNESS ENVIRONMENT IN ITS NATURAL STATE.

As required by the park's enabling legislation, and the National Park Service Organic Act, one of the primary objectives of park management is preservation of the natural and historic features of the park. The Wilderness Act directs that areas be managed for use and enjoyment in ways that leave them unimpaired as Wilderness and for the protection and preservation of Wilderness values. These mandates require park managers to allow for public use without permanently damaging resources. However, visitor use to any degree causes some impact. Thus, the level of use that will be tolerated without causing unacceptable damage must be determined and not exceeded. Impacts from trampling, camping, campfires, stock use and management facilities, among others, must be considered. Specific threats include:

a. Impacts from trampling and camping: Such impacts affect vegetation growth and soil conditions and frequently cause bare ground areas where campsites have been established. Many "social" trails have developed from repeated use.

b. Impacts from campfires: Many areas have been stripped of downed wood, disturbing the natural cycle of decay. Live trees are often mutilated to provide fuel for fires. Rock fire rings filled with burned ash, unburned firewood and litter destroy ground vegetation, sterilize soil and present an eyesore.

c. Impacts from past management practices: Abandoned roads, trails, structures, mining remains and debris from trail construction and backcountry restoration projects are present in some areas of the Wilderness. Considerable time and effort must be given to removal and site restoration.

d. Impacts from stock use: Stock may damage trail structures and disturb trail surfaces resulting in erosion; trample or denude areas of vegetation; and, if tied directly to tree trunks, may destroy both the ground cover and damage or destroy the tree they are tied to. Stock waste presents a health problem at water supplies or near campsites and may also introduce exotic plant species into the Wilderness.
Impacts from human waste: Human waste disposal methods for the Wilderness need to be improved. Potential health hazards, odors and other aesthetic intrusions on the natural scene should be eliminated. Improper placement of toilets has in some cases threatened adjacent surface waters with disease agents and increased nutrient loading with the potential for accelerating natural succession and other alterations of these waters. Public education and research on alternative techniques for human waste disposal should be explored to provide safe and simple methods that minimize damage to the environment and on visitors' Wilderness experience.

Many other natural resource issues such as air quality, water resources, hazard trees, and wildlife are addressed in the Mount Rainier National Park Natural Resource Management Plan. Additional research and long-term monitoring programs should be implemented or continued to determine the effects of visitor use on the Wilderness.

2. PROVIDE FOR DIVERSE BUT COMPATIBLE EXPERIENCES AND OPPORTUNITIES FOR SOLITUDE AS DIRECTED BY THE WILDERNESS ACT AND CONSISTENT WITH NPS POLICIES.

Visitors vary greatly in their expectations of a Wilderness experience. Some may come for reasons other than experiencing the Wilderness itself. Climbers, for example, frequently climb simply to get to the summit or for a feeling of accomplishment and camaraderie. Some may feel that a Wilderness experience can include other parties camped nearby, while others prefer to leave trails and all other signs of humans seeking a more primitive experience.

Additional research is needed to determine the range of solitude available in the Wilderness and methods that can be used to measure and monitor solitude in the Wilderness. Impacts on solitude may include aircraft overflights, use of mechanized equipment, visible and audible effects of adjacent land-use practices such as clearcuts and logging operations, crowding, and visible evidence of human activities such as social trails and bareground areas resulting from camping.

3. PROTECT RARE, THREATENED, OR ENDANGERED SPECIES OF PLANTS AND ANIMALS.

As threats to plant and animal species are documented, measures are taken to mitigate damage to assure their continued survival. As an example, in the early 1980s the alpine "fellfields" along the Muir Snowfield were closed to camping to protect fragile plants from trampling and other camping impacts.
4. REMOVE AND REFRAIN FROM CONSTRUCTING STRUCTURES OR OTHER DEVICES INCONSISTENT WITH WILDERNESS.

Since 1973, many public trail shelters were removed as they became unnecessary or unsafe. These structures are not necessary for the management and preservation of the Wilderness and, consistent with the 1964 Wilderness Act, are gradually being removed, with consideration given to their historic register eligibility. Likewise, the presence of trail bridges over streams, excessive trail width, and other developments must be considered in light of the requirements of the Wilderness Act.

5. CONTROL VISITOR USE OF THE WILDERNESS TO THE DEGREE NECESSARY TO MEET STANDARDS ESTABLISHED FOR ACCEPTABLE CHANGE, AND TO STRIVE FOR MANAGEMENT TECHNIQUES THAT WILL ALLOW VISITORS FREEDOM IN THE WILDERNESS.

This concern goes to the very heart of the National Park Service dual mandate of "preserving the scenery" while "providing for the enjoyment." Controls on public use began with the 1973 Backcountry Management Plan and included limits on group size, restricting camping in certain areas, and requiring permits for overnight camping and climbing. Additional staff is needed to ensure continued protection of the Wilderness.

6. PROVIDE FOR VISITOR AND EMPLOYEE EDUCATION/INTERPRETATION OF THE WILDERNESS

Although most past backcountry management practices will remain the same, the Wilderness designation does require some significant changes in public and administrative use. Education of the public and park staff is necessary to:

   a. Provide public education programs that encourage wise visitor use of the resource through education of Wilderness values as expressed in the Wilderness Act. Develop additional interpretive media to educate visitors in concerns regarding human waste disposal, minimum impact techniques and threats to Wilderness resources.

   b. Provide comprehensive Wilderness management training to all park employees. Training should focus on the value of Wilderness resources, ethics, stock use and restoration and revegetation techniques.

   c. Provide roving Rangers to prevent impacts to fragile vegetation in more popular Wilderness areas. This informal method of interpretive contact appears to be effective in reaching a large number of visitors, with a limited staff.
V. LAWS, POLICIES, GUIDELINES

The following laws, policies, and guidelines affect Wilderness management within Mount Rainier National Park.

1. Legislation:

Mount Rainier National Park Act of 1899: Designates the park "for the benefit and enjoyment of the people" and requires regulations which "provide for the preservation from injury or spoilation" of park resources and "retention in their natural state."

The National Park Service Organic Act of 1916: Creates the National Park Service and directs the service to, "promote and regulate the use" of parks. It states that the "fundamental purpose" of parks is, "to conserve the scenery and the natural and historic objects, and the wildlife therein." The act also directs the Service, "to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

The Wilderness Act of 1964: Provides for the designation of Wilderness areas. Directs such areas to be managed: (1) for use and enjoyment in ways that leave them unimpaired as Wilderness, (2) for the protection and preservation of their Wilderness values, and (3) for acquiring information to facilitate preservation and public use of Wilderness. The act defines Wilderness as: A tract of undeveloped federal land, of primeval character, and without permanent improvements or human habitation; where the forces of nature predominate, and the imprint of human civilization is not readily perceived. The area provides outstanding opportunities for solitude and an unconfined and primitive type of recreation. Wilderness is described in the act as, "an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain."

The National Trails System Act of 1968: A portion of this act contains standards of development, maintenance considerations, and permissible activities on scenic trails, and guidelines to the Secretaries of Agriculture and Interior on issuing regulations.

The National Environmental Policy Act of 1969: Directs all government agencies to use an interdisciplinary approach to decision making for any management actions that will impact on the environment. The Act requires the preparation of an Environmental Impact Statement that assesses the effects of proposed actions, discusses alternatives, mitigating actions, and long and short term effects.
Endangered Species Act of 1973: Requires all federal agencies to take actions necessary to ensure that management activities authorized, funded, or carried out by them do not jeopardize the continued existence of listed endangered and threatened species, or result in the destruction or modification of critical habitat of such species.

Clean Water Act (Federal Water Pollution Control Act of 1972 and Executive Order 11752): Establishes a national policy to enhance the quality of water resources and to prevent, control, and abate water pollution. The Executive Order directs all Federal agencies to comply with federal, state, interstate, and local standards and limitations regarding the quality of air, water, and land resources.

Clean Air Act of 1977: Established for the purpose of preserving, protecting, and enhancing air quality. Establishes National Parks greater than 6,000 acres as mandatory Class I air spaces. Managers of such lands have direct responsibility to protect the air quality and related values, including visibility.

Redwoods Act of 1978: Reemphasizes Congressional concern for all National Park System lands: "... administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these areas have been established."

The Antiquities Act of 1906: Provides for the protection of historic or prehistoric remains, or any antiquity on federal lands.

The Historic Sites Act of 1935: Authorizes the programs that are known as the Historic American Buildings Survey, the Historic American Engineering Record, and the National Survey of Historic Sites and Buildings; authorizes the preservation of properties of national historic or archeological significance.

The National Trust Act of 1949: Facilitates public participation in the preservation of sites, buildings, and objects of national significance or interest. Created the National Trust for Historic Preservation.

The National Historic Preservation Act of 1966, as amended, 1976, 1980: Declares a national policy of historic preservation, provides authority for the expansion of the National Register of Historic Places, established the Advisory Council of Historic Preservation; and provides procedures to be followed by federal agencies in the event of a proposal that might have an effect on designated or eligible National Register properties. Requires each federal agency to establish a program to locate, inventory and nominate to the National Register all properties under the agency's control; directs each federal agency to exercise caution so that properties which may be eligible are not inadvertently transferred, sold, demolished, substantially altered or allowed to deteriorate significantly.
Archaeological and Historical Preservation Act of 1974: Amends the 1960 Salvage Act, provides for the preservation of significant scientific, prehistoric, historic, or archaeological data that might be lost or destroyed as a result of any alteration of the terrain caused as a result of any federal project or program.

The Archaeological Resources Protection Act of 1979: Provides for the protection of archaeological resources located on public lands and defines archaeological resources to be any material remains of past human life or activities which are of archaeological interest and are at least 100 years old; established a requirement for the excavation or removal of archaeological resources from public lands. Archaeological resources covered by the Antiquities Act of 1906 are covered by this act.

2. Executive Orders:

E.O. 11988 "Floodplain Management," May 24, 1977 and E.O. 11990 Protection of Wetlands:" Instructs federal agencies to avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and wetlands and to avoid direct or indirect support of development in floodplains and wetlands wherever there is a practicable alternative. Where floodplains or wetlands cannot be avoided, these procedures will focus on mitigation of the adverse effects of any action.

E.O. 11593 "Protection and Enhancement of the Cultural Environment," May 31, 1971: Instructs all federal agencies to provide national leadership in historic preservation, and to assure the preservation of cultural properties in federal ownership. The order directs all federal agencies to locate, inventory and nominate all sites, buildings, districts, and objects under their jurisdiction or control that appear to qualify for listing on the National Register of Historic Places.

3. Department of Interior and National Park Service Policies:

National Park Service Management Guidelines: Establishes policies for management and use of Wilderness resources and other park activities. This includes necessary control of resource use, pollution control and abatement, to monitor critical resources for change, and modify management or other practices having adverse effects on natural processes.

Director's 12-Point Plan: Provides an overview of the NPS management plan developed to strengthen public trust, revitalize the organization and assure its continued success over time. The points directly related to Wilderness management are: develop a long-range strategy to protect our natural, cultural, and recreational resources; pursue a creative, expanded land protection initiative; stimulate and increase our interpretive and visitor service activities for greater public impact; share effectively with the public our understanding of critical resource issues; increase public understanding of the role and function of the NPS; and seek a better balance between visitor use and resource management.
Pacific Northwest Wilderness Management Program: Establishes management objectives and wilderness management standards for the NPS Wilderness and backcountry areas of the Pacific Northwest Region; and proposes actions related to Wilderness uses and capacity determination, education/training of NPS staff and public; and interagency coordination.

Mount Rainier National Park Statement for Management 1988: Contains management objectives including, "to preserve and perpetuate the park's environmental resources and the atmosphere of Wilderness solitude on lands meeting the criteria for inclusion in the National Wilderness Preservation System" and, "to provide alternatives with minimal restrictions on backcountry users to minimize resource damage and human waste disposal."

Master Plan for Mount Rainier National Park (approved, 1984): The Plan is based upon law and policy and establishes the purpose of the park, management categories, and the approach to be utilized in visitor use and facility development. The Master Plan identifies and guides park resource management and use, natural science research and monitoring.

Mount Rainier National Park Five-Year Goals, 1988-1993: Describes six major goals and actions to be taken to improve the internal effectiveness and efficiency of park operations to gain knowledge and experience in collaborative team work and to strengthen the communication flow and sense of unity throughout the park. The six major goals are as follows:

1. Improve parkwide communications and operations.
2. Foster effective relationships with individuals and groups who affect or are affected by the park.
3. Develop the human resources of the park.
4. Excel in protecting the resource and serving the visitor.
5. Encourage commitment to effective parkwide safety.

Resource Management Plan for Mount Rainier National Park (approved, 1986): The plan outlines various natural and cultural resource management issues, discusses the current situation and provides alternatives considered and selected to address each issue.

Trails Management Handbook: This plan is currently being revised and will define standards for maintaining all park trails including Type A, B and C trails within the Wilderness.

Sign Plan: This plan is currently being revised and will define standards for sign specifications and placement in the Wilderness.

Hazard Tree Management Plan: Developed areas including trailside camps, patrol cabins and fire lookouts, are annually inspected in accordance with the Hazard Tree Inspection Guidelines.
Other regulations and directives pertain to management of the park's Wilderness are: 36 C.F.R. and related compendium, and park Superintendent's Office Orders regarding the use of mechanized equipment, helicopters, and stock (See Chapter VIII and Appendices).
VI. AREA CLASSIFICATIONS

1. Trail Zone: This zone includes Type A and B trails, trailside camps, and areas within one quarter mile of the trails or trailside campsites. Where trailside camps are on lakes the trail zone extends to 1/4 mile around the lake. Thirty-eight trailside camps with 144 individual campsites and 23 group sites have been established (see Appendix C). The Trail Zone includes areas of lower forest, subalpine, and some alpine environments. Use capacities in the trail zone are established by the number of campsites available and are based on ecological and sociological considerations as specified in the standards outlined in Chapter VII. Stock are permitted on specified trails and at four camps in this zone (with 16 individual and three group sites). (See Appendix G). 60,317 acres are included in this zone.

2. Crosscountry Zone: Crosscountry zones are located a minimum of one quarter mile from the Trail zone (including trails and trailside camps) and from roads. Crosscountry zones extend from lower forest areas to subalpine environments up to treeline, which generally begins at 6000 to 6800 ft. elevation.

Visitors are expected to use these zones without man-made guides or assistance such as signs or Type A or B trails, although some Type C trails exist. Hikers are asked to utilize Type C trails where they exist rather than creating numerous paths throughout these areas. No designated campsites exist and visitors are required to follow minimum impact camping techniques (see Appendix H).

There are three unlimited use zones in the lower forest and five unlimited use zones in subalpine areas, where no restrictions are placed on the number of parties using the area but party size remains limited to five; and 30 limited use zones (providing overnight camping for a total of 74 parties per night) throughout the lower forest and subalpine environments. Use capacities are based on ecological and sociological considerations as specified in the "standards" stated in Chapter VII. Existing conditions are compared with these standards in determining use limitations for these zones. 132,969 acres are included in this zone.

3. Alpine Zone: This Zone extends above treeline, generally from the 6,000 foot elevation level and contains primarily exposed rock, glaciers and snowfields. Some areas have narrow Type C trails that lead to heavily used vistas or climbing routes.

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3 This includes the Sunrise Trailside Camp which is outside of the designated Wilderness (see Appendix A).
Campers are encouraged to camp on permanent snow or ice; use only bareground areas that have previously been used as campsites; or may camp in the designated campgrounds at Camp Curtis.\(^4\) Camping on vegetated areas is not permitted. No new sites are permitted to be constructed, and enhancement of existing sites with additional construction such as rock walls or windbreaks is not permitted.

There are three limited use Alpine Zones providing overnight camping for a total of 84 persons per night; and 17 unlimited Alpine Zones. 43,823 acres are included in this zone.\(^5\) Capacities in these zones are established based on ecological and sociological considerations as specified in the "standards" stated in Chapter VII with special emphasis on resource damage to alpine vegetation; sanitation considerations and effects on downstream waters; and crowding.

4. **Day Use Zone:** These zones are designated in areas that cannot tolerate resource impacts that may result from camping activities, or to protect public water supplies. See Appendix C for description of current Day Use Zones.

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\(^4\) Camping is also provided at Camps Muir (overnight camping for 110 persons) and Schurman (overnight camping for 35 persons) which are outside of the designated Wilderness and are addressed in a separate plan (see Appendix A).

\(^5\) This includes Emmons Flat which is also outside of the designated Wilderness and is addressed in a separate plan (see Appendix A).
FIGURE 3. Area Classification Zones
VII. STANDARDS FOR WILDERNESS RESOURCES AND SOCIAL CONDITIONS

The Wilderness Act mandates that present and future generations will have available "an enduring resource of wilderness," and an area "retaining its primeval character and influence, . . . managed so as to preserve its natural conditions," and an area which "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable" (See Appendix D). Park management must determine at what point "substantially" and "noticeable" change has occurred and does not appear to have been caused "primarily" by the forces of nature. Consequently limits of acceptable change for major resource and social conditions (factors) have been described in the form of "standards." "Indicators" listed are the variables to be measured to detect the state or condition of the resource and to measure the standard.

Standards have been developed using our best available knowledge of the Mount Rainier Wilderness including ecological limitations, visitor use and existing environmental conditions; and current literature available on Wilderness management. These standards will be reviewed annually and refined as we gain more knowledge on their effectiveness in meeting Wilderness management objectives. In addition, a discussion of current conditions and monitoring programs pertaining to each factor is included. Specific actions are defined to improve conditions when they are not consistent with standards.

Factor: AQUATIC RESOURCES

Indicators

Obvious signs of pollution from humans and stock, litter, food particles, cleansing agents and other wastes; high levels of chemical and biological indicators of cultural eutrophication of lakes, streams and wetlands; presence of social trails adjacent to lakes, streams or wetlands; habitat and populations of aquatic organisms.

Current Conditions

There are approximately 382 lakes, 470 rivers and streams and an unknown number of cold and hot springs in the Wilderness. All but two creeks originate inside the park Wilderness. The majority of influences on park waters are from management activities, visitor use or atmospheric influences. Threats such as alterations due to acid precipitation and from human use, such as sedimentation from shoreline erosion and contamination with human wastes, are recognized and are currently being investigated. Approximately 12 amphibians, several species of Sculpins and Salmonids (cutthroat, Dolly Varden, whitefish and possibly steelhead and salmon are native; several species of trout, and kokanee salmon were introduced); and an unknown number of aquatic invertebrates, zooplankton and phytoplankton species exist in the aquatic systems throughout the Wilderness. Additional inventories and long-term monitoring programs are needed to determine the status of these species and overall state of the aquatic systems within the Wilderness.

Visitors are advised to treat surface waters when used for drinking water. Information on the recommended methods of treatment can be obtained at all Ranger stations.
Current Monitoring Actions

Aquatic Conditions are evaluated according to EPA National Surface Water Survey Analytical Methods Manual (1985). Measurements of physical, chemical and biological parameters are rated according to legal and recommended EPA standards for Quality Criteria for Water (1976); and comparison to other similar natural systems; presence of coliform organisms is evaluated according to the State of Washington Administrative Code.

Eighteen stream sampling stations have been monitored during spring, summer and fall since 1986 to establish baseline information and to detect threats to surface waters. Eighteen lakes were sampled in 1987; approximately 30 lakes were sampled during 1988. Water resources have been monitored for physical and chemical parameters: temperature, transparency, turbidity, dissolved solids, dissolved sediments, dissolved oxygen, pH, conductivity, ions, nutrients, metals, and plankton. Some past sampling efforts (pre-1986) have included aquatic biota (macroinvertebrates and fish). Future lake and stream surveys will include physical, chemical and biological parameters. Sampling frequencies for future monitoring will be determined after careful analyses of this multi-year inventory effort. The effects of human wastes on aquatic resources is also discussed under the Sanitation factor.

Trail Zone

Standards: All lakes and streams are naturally occurring and are largely unaltered by humans, with the notable exception of stocking of non-native fish up until 1972. Aquatic ecosystems will be managed to maintain natural processes and native species indigenous to the Wilderness. NO measurable degradation of water quality (as determined through aquatic resource monitoring programs) should result from human activity, including park administrative use and management of the Wilderness. NO campsites will be located less than 100 feet from surface waters. Where trailside camps are located on or adjacent to lakes, NO camping is permitted within one-quarter mile of the lake except in the designated campsites (between June 15 and September 30 or anytime when snowcover is less than two feet). NO toilet facility will be placed less than 200 feet from surface waters and all toilets will meet specifications as described under the Sanitation factor. NO washing or use of cleansing agents, disposal of dishwater or food, human or animal wastes is permitted within 200 feet of surface waters. NO trails will be permitted in areas where they may cause sedimentation into adjacent surface waters, or threaten critical habitat of aquatic organisms (such as herptofauna shoreline macroinvertebrates). See Wildlife Factor and standards. Coliform counts for adjacent lakes and streams will not exceed the legal limit as defined by the State of Washington Administrative Code.

Actions: Long-term monitoring programs will be conducted to determine the effects of human use on aquatic resources and to develop more measurable standards such as using mean concentrations of selected nutrients (e.g., nitrates, sulfates, phosphates). Sites suspected of contributing or causing water quality problems may be more frequently monitored. Where adjacent surface waters are suspected of being seriously degraded as suggested by documented chemical, biological or physical characteristics, trailside camps
may be closed or use limited until problems can be mitigated. Visitors will be advised to treat all drinking water. Campsites located too close to surface waters will be closed and restored to natural conditions. Toilet facilities not meeting Sanitation standards will be removed, relocated and/or replaced with a composting toilet, if feasible. Periodic inspections of management facilities such as underground fuel tanks and sewage treatment facilities will be routinely conducted to prevent contamination to downstream Wilderness areas. Inventories of aquatic organisms will be conducted and habitat maps developed to aid in monitoring the effects of human use on aquatic fauna. Trails that threaten aquatic resources will be closed and damage mitigated. Public education, interpretive media and enforcement of regulations will be utilized to protect aquatic resources. Introduced fish species may be eradicated using methods that are least disruptive to aquatic ecosystems and values.

Crosscountry Zone

Standards: Standards for this zone will be the same as described for the Trail Zone except that no toilet facilities will be provided. Human waste should be disposed of as noted in the Sanitation standards under Crosscountry Zone.

Actions: Actions are similar to those stated for the Trail Zone. Areas suspected of seriously degrading water quality may be closed or use limited until problems can be mitigated. Users will be advised of area closures by signs at the site and through backcountry permit restrictions. Campsites located less than 100 ft. from lakes, streams or wetlands will be closed and restored to natural conditions. Trails that threaten aquatic resources will be closed and damage mitigated. Public education, interpretive media and enforcement of existing regulations will be utilized to protect aquatic resources.

Alpine Zone

Standards: Human waste will not contaminate downstream areas (as determined through monitoring programs). No camping is permitted within 100 feet of lakes, tarns, or streams. No trails will be permitted that threaten adjacent aquatic resources. No toilet facility will be placed less than 200 feet from lakes, streams or tarns. When toilet facilities are not available, visitors will be directed to utilize the disposal methods as described under the Sanitation standards for the Alpine Zone. No washing or use of cleansing agents, disposal of food, human or stock wastes is permitted within 200 feet of lakes, tarns or streams. Coliform counts for adjacent lakes and streams will not exceed the legal limit as defined by the State of Washington Administrative code.

Actions: Long-term monitoring programs will be conducted to determine the effects of human use on aquatic resources and to develop more measurable standards. Where human use is suspected of being a threat to aquatic resources (as documented through monitoring programs), or creating public health threats, areas may be closed or limited to visitors until
problems are mitigated. Public education, interpretive media and enforcement of regulations will be utilized to gain compliance.

Day Use

Standards and actions for Day Use zones are the same as for the Trail Zone except that NO camping is permitted.

Factor: WILDLIFE

Indicators

Population declines or increases, wildlife displacement due to presence of humans; unnaturally high populations due to human factors and resulting in unnaturally occurring impacts on terrestrial and aquatic systems; habituated wildlife problems (with some consideration for visitor and employee safety); introduced or non-native animal species; and documented cases of poaching.

Current Conditions

Mount Rainier provides diverse habitat for about 130 species of birds, 50 species of mammals, approximately 12 species of amphibians and 2 species of reptiles. External land management practices influence habitat and wildlife populations within the park. Information on invertebrates, amphibians and reptiles is scant. No formal program exists for the management of wildlife resources in the Wilderness. However, elk, bear and goat have been specifically addressed in the park's Resource Management Plan. No exotic animals, other than several species of non-native fish, are known to inhabit the Wilderness.

Current Monitoring Actions

Wildlife conditions are evaluated by the impact internal and external influences have on animals, especially rare, threatened and endangered species. Wildlife observation cards are used to document the presence of wildlife. Monitoring programs for elk and northern spotted owl document the presence and habitat use of these species in the park.

Numerous wildlife studies have been conducted over the past several years and include studies of vertebrates such as elk and spotted owls, and invertebrates such as Coleoptera and Lepidoptera. Records of wildlife observations are maintained. However, there are no specific programs for monitoring effects on wildlife as it pertains to Wilderness management.

Trail Zone

Standards: Wildlife will be managed to allow natural ecological successions, including natural infestations of native insects, to operate freely without human influences unless public health is threatened. Wildlife indigenous to the Wilderness will be maintained with emphasis on rare species. Extirpated (indigenous) species may be introduced into the Wilderness, subject to NPS policies pertaining to wildlife. Visitor use will not decrease wildlife habitat quality by more than 10%. Wildlife may invade campgrounds in the
Trail Zones. Visitors will be instructed to hang food and equipment at night and when away from camp. All food cooked for a meal should be eaten, no leftovers. Cooking and eating equipment should be cleaned as soon as meals are over. Cooking activities should be a reasonable distance from sleeping areas. Structural pests identified in patrol cabins, fire lookouts and historic shelters, will be controlled using integrated pest management (IPM) techniques and are subject to NPS policies pertaining to IPM.

Actions: Indicator species (sensitive to human presence), will be identified to determine the effects of human use on wildlife. Population trends and distribution will be monitored. Critical habitat for these species will be identified, mapped, and monitored to determine the efficacy of standards. If human influences are determined to be severe (as measured against the standard), actions will be taken to mitigate the effects through limits on use or complete closure of areas. Artificially high wildlife populations that are severely damaging terrestrial and aquatic ecosystems may be controlled, according to National Park Service Policies (Management Policies, 1988). If certain animals become more than an occasional nuisance measures will be taken to reduce the problem by temporarily closing the site to public use until the animal is no longer frequenting the area. Actions will focus on removing the human influence. Patrol cabins and historic structures will be monitored regularly for structural pest problems.

Crosscountry Zone

Standards and Actions for the Crosscountry Zone will be the same as for the Trail Zone with the exception of campground closures for nuisance animals. Since no designated camps exist in this zone visitors will be advised when problem animals are frequenting a particular area. Areas may be closed if displacement of wildlife has been determined to be the result of human use. No structures exist within Crosscountry Zones.

Alpine Zone

Standards and Actions for the Alpine Zone will be the same as for the Crosscountry Zone.

Day Use Zone

Standards and Actions for the Day Use Zone will be the same as for the Trail Zone except that no camping is permitted in Day Use Zones.
Factor: SANITATION

Indicators

Human or stock waste, toilet paper, offensive odors, sightings of inappropriate sanitary behavior, litter in toilets or on the ground, presence of toilet holes, pollution of nearby waters as indicated by high levels of chemical and biological indicators, excessive noise from administrative use of helicopters in removing human wastes from Wilderness and backcountry areas.

Current Conditions

Human waste disposal is one of the most critical management problems of the Mount Rainier Wilderness and other backcountry areas. Fecal waste is often the medium for disease, can cause alterations to aquatic ecosystems and create aesthetic problems. Giardia and other evidence of water contamination have been documented throughout the Wilderness, and employees and visitors are advised to treat all drinking water. Sanitation is a particular concern for the alpine areas of the Wilderness. The increased use of the high elevation sites has resulted in the accumulation of human wastes. Wastes do not decompose rapidly on snowfields and as spring melt occurs, the past season's accumulation becomes apparent. Alpine hikers and climbers generally melt snow for drinking water, increasing the potential for contamination from these wastes. Complaints have been frequently received about the volume of human wastes observed along the more popular climbing routes. Disposal of human wastes during the winter-use period is also a concern.

Several methods of waste disposal are available to Wilderness users, but no means are without problems. The objectives for managing human waste disposal in the Wilderness are to maximize decomposition of wastes, and to minimize water contamination and discovery by others.

Toilets have been provided at trailside camps, patrol cabins and fire lookouts as well as in heavily used areas of the Alpine Zone where they are essential for resource and visitor protection. However, several toilets in trailside camps have been inappropriately placed and threaten adjacent surface waters. Helicopter removal of human wastes from Alpine toilet facilities is costly, time-consuming, and poses some threat to employee health. Other methods for human waste disposal include surface disposal, "catholes," and the "blue bag" system. Surface disposal increases decomposition through exposure to sun and air, but also increases the likelihood of contact by humans, and if improperly located, of water pollution. "Catholes" are shallow (approximately 6" deep) holes dug in the organic layers of the soil where microorganisms are thought to be more abundant. However, research has suggested that a number of pathogens survive for at least one year buried in the most organic layers of the soil, and depth or type of burial appear to have no bearing on reducing pathogens. Thus buried feces can remain a health hazard for years. The "blue bag" system was initiated in 1984 to address human waste disposal problems in alpine areas, especially along popular climbing routes. Visitors are asked to place human wastes inside triple-lined plastic bags available at all Ranger stations, and to dispose of bags at designated locations, usually outside of the Wilderness. Additional public education efforts and emphasis on voluntary compliance is needed to determine the adequacy of this system.
Backcountry hikers and campers are expected to carry out their trash. Burying trash or depositing trash in crevasses is not permitted.

Current Monitoring Actions

Sanitation conditions are evaluated based on presence or absence of human waste outside of toilets and privies, the level of nutrients, especially nitrogen compounds and abundance of aquatic macrophytes found in adjacent aquatic systems, the presence of microorganisms associated with public health concerns (as stated in the State of Washington Administrative Code), and the proper placement of pit toilets based on soil and vegetation conditions of the surrounding area.

The effects and signs of human waste are monitored in all zones through documentation on backcountry impact cards. Backcountry Rangers and/or Maintenance employees periodically (not regularly) inspect toilets in Trail Zones and the designated campgrounds in the Alpine Zone. Inventories and long-term monitoring programs are needed to establish more measurable standards for the sanitation factor. See Aquatic Resources factor for additional monitoring actions.

Trail Zone

Standards: A toilet will be provided, where feasible, at trailside camps (for public use), and backcountry cabins and fire lookouts (for administrative use). Toilet paper will not be furnished. No toilet will be located less than 200 feet from surface waters, within the zone of seasonal high groundwater, or in poorly drained soils. Pit toilet holes for human waste disposal are acceptable at some trailside campgrounds where suitable site conditions exist, although other methods, such as composting toilets may be employed where possible. Site selection for pit toilets will be made based upon soil conditions, depth of water table and distance from campsites and surface waters; and locations will be selected to minimize the presence of offensive odors and pests. Toilet design and siting will minimize visual impacts. (See Appendix B). Visitors in trailside camps are encouraged to use toilet facilities. Visitors hiking along Trail Zone trails are also encouraged to use toilet facilities at trailside camps. Where nearby toilet facilities are not available, no human waste will be deposited less than 200 feet from surface waters; and "catholes," will be dug at least 6 inches deep in the organic layer of the soil. Visitors and staff are required to pack out all trash. Coliform counts of adjacent surface waters will not exceed the standards as defined by the State of Washington Administrative Code (Chapters 173-201, sub-paragraphs 045, 050, 070, 080).

Actions: Inventories will be conducted and long-term monitoring programs implemented to develop more measurable standards for the Sanitation factor. Pit toilets in violation of the standards (as indicated by unsuitable soil conditions and/or exceedance of coliform counts) will be removed immediately and actions taken to mitigate damage to adjacent surface waters. When all reasonable locations for pit toilets have been exhausted, a compost toilet may be installed, or the trailside camp may be permanently closed. Public education, interpretive media and enforcement will be utilized to gain compliance.
Crosscountry Zone

Standards: NO camping is permitted within 100 feet of surface waters. NO toilet facilities will be provided in crosscountry zones. NO human wastes will be deposited within 200 ft. of surface waters. In high use areas, visitors are required to deposit human wastes in a level spot, in "catholes," at least 6 inches deep in the organic layer of the soil. In areas receiving low use, visitors should dispose their wastes on the surface in a dry, open exposure, not likely to be visited by others. Feces should be scattered and smeared with a rock or stick to maximize exposure to the sun and air and increase decomposition. Toilet paper waste should be packed out as trash. Visitors should disperse their wastes when traveling in groups. Visitors and staff are required to pack out all trash. **Coliform counts of adjacent surface waters will not exceed the standards as defined by the State of Washington Administrative Code (Chapters 173-201, sub-paragraphs 045, 050, 070, 080).**

Actions: Inventories will be conducted and long-term monitoring programs implemented to develop more measurable standards for the Sanitation factor. Public education, interpretive media and enforcement will be utilized to gain compliance with standards. If areas are not being adequately protected through these methods, crosscountry zones or portions of them will be closed to camping until problems can be mitigated.

Alpine Zone

Standards: NO camping is permitted within 100 feet of lakes, streams or tarns. Toilet facilities are available at Camps Muir (solar toilet), Schuman (pit toilet), and Emmons Flats (latrine) outside of the Wilderness; and at Ingraham Flats (latrine), and Camp Curtis (pit toilet), inside the Wilderness. Human waste from pit toilets is periodically removed and flown out of the Wilderness. Hikers and climbers are expected to use these facilities whenever possible. Where toilet facilities are unavailable, human wastes should be deposited in the "blue bags" provided at Ranger Stations, and packed out of the Wilderness for proper disposal. Where blue bags or toilet facilities are not available, and in areas receiving low use, visitors should select sites that are a minimum of 200 feet from lakes, streams or tarns, and dispose of their wastes on the surface in a dry, open exposure, not likely to be visited by others. Visitors and staff will remove all litter and trash, including toilet paper waste (except where toilets are provided), from the Wilderness. Trash will not be deposited in crevasses or other areas. **Coliform counts of adjacent lakes, streams or tarns will not exceed the standards as defined by the State of Washington Administrative Code (Chapters 173-201, sub-paragraphs 045, 050, 070, 080).**

Actions: Inventories will be conducted and long-term monitoring programs implemented to develop more measurable standards for the Sanitation factor. Public education, interpretive media and enforcement will be utilized to gain compliance with standards. Visitors will be strongly encouraged to use the "blue bag" system of waste disposal. If voluntary compliance is not effective in achieving sanitation standards, the "blue bag" system may become mandatory and/or areas may be closed until problems can be mitigated.
Day Use Zone

Standards and actions for Day Use zones are the same as for the Trail Zone except that NO camping is permitted.

Factor: LANDSCAPE CONDITIONS

Indicators

Amount of denuded ground vegetation as a result of camping activities, vegetative species composition, size and distance between campsites, fire scars, trees mutilated or stripped of limbs, litter, cut vegetation, ground disturbance around tents (e.g., trenching), rock walls around sites, and presence of social trails, presence of exotic plants, presence of miscellaneous items such as tree stumps, abandoned telephone lines, insulators, aircraft wreckage, trail construction materials and other items.

Current Conditions

Campfires may damage vegetation, modify the soil, leave scars, and the consumption of decaying vegetation in man-made fires disrupts the natural litter layer of the forest floor. Fires are prohibited in all areas of the Wilderness as of June 15, 1989.

Trails are discussed under Trail Conditions.

Camping in the Trail Zone is permitted only at designated camps. See Appendix C for a complete list of designated trailside camps. Trailside camps have one or more campsites, composed of a marked site stake, tent or sleeping area, access trail and a community toilet. Individual sites within these camps are limited to no more than 5 people per party, except for the designated group sites, which can accommodate 12 persons. Stock parties are permitted at specified trailside camps, but are limited to a total of 12 persons or stock in combination on the Pacific Crest Trail and a maximum of five stock on other specified trails (see Appendix G).

No designated campsites exist in Crosscountry Zones and travelers and campers are expected to use the Wilderness without signing and well-developed travel routes. Visitors are required to use minimum impact techniques in these zones (see Appendix H). Group size is limited to 5 people.

In Alpine Zones of the Wilderness, campers are encouraged to camp on permanent snow or ice; use only bareground areas that have previously been used as campsites; or camp in the designated campgrounds at Camp Curtis. Camping on vegetated areas is not permitted. No new sites are permitted to be constructed, and enhancement of existing sites with additional construction such as rock walls or windbreaks is not permitted. Group size is limited to 12 people.

Miscellaneous items such as tree stumps, abandoned telephone lines, insulators, aircraft wreckage, trail construction materials and other items exist throughout the Wilderness. Park personnel remove such materials as time and funding permit. Several impacts resulting from human use occur throughout the Wilderness. Denuded ground vegetation from camping or trampling, expanding trailside campsites, campfire
scars, mutilated trees, and litter and rock walls built for windbreaks are being inventoried and impacts mitigated as time, staff and funding permit.

Revegetation and soil stabilization plans are prepared when necessary and approved by the Superintendent.

Wilderness areas are revegetated only with native species of similar genotypes. Seeds and plants are collected as close as possible to the area being revegetated; avoiding removal of vegetation from the immediately impacted site. Collections are made in less sensitive areas and propagated or grown in the park greenhouse.

Several species of exotic plants have been identified as occurring in the Wilderness. A limited control program using biological and mechanical methods has been implemented for 8 major species (flat pea, Scotch-broom, foxglove, tansy ragwort, common mulein, Klamath weed, bull thistle and Canada thistle). Management of exotic vegetation is addressed in more detail in the park's Resource Management Plan.

**Current Monitoring**

Landscape conditions are rated based on sensitivity of soils, geology, vegetation and aquatic resources and aesthetic conditions. Campsite inventories are performed using the following criteria: bareground area and vegetal relationships, area developments (e.g., fire scars/rings, garbage, human waste), mutilations, access trails and visual obtrusiveness. Type C and social trail conditions are inventoried for linear distance, width, depth, slope, gullying, associated drainage disruption and number and condition of multiple treads. Proposed additions to Trailside Camps are rated using the Campsite Selection Criteria and the Criteria for Determining Whether a New Trailside Camp Should Be Constructed (see Appendix B; these will be revised by 1990).

Campsite impacts in all zones are monitored by assessing bare ground areas through radial transects, photo transects and vegetation transects. Inventories of Trailside Campsites have been completed for all but 14 Camps. An inventory of campsite condition class for Crosscountry Zones will be developed during 1989 using similar procedures as described by Parsons (1986), Prissell (1978) and Schreiner and Moorhead (1979). Crosscountry Zone campsite inventories have been completed for only the Van Trump and Southern Spray Park Crosscountry Zones. An inventory of campsite condition class for Alpine Zones is being developed using a modification of procedures suggested by Edwards (1983). Campsite inventories have been completed for unlimited use Alpine Zones near Meany Crest, upper Van Trump, Tokaloo, Muir Corridor, and alpine areas of Lower Curtis Ridge. Type C and social trails have been inventoried for Van Trump and Southern Spray Park Crosscountry Zones.

Park personnel monitor presence of exotic plants in the Wilderness through documentation on backcountry cards and through the data management system established for exotic species.

Impacts for vegetation are monitored through vegetation transects and vegetation plots. Permanent vegetation plots have been established by Edwards (1985), and monitored by Rochefort and others in 1986 and 1987 for detecting long-term vegetation changes occurring in alpine areas.
Trail Zone

Standards: NO camping is permitted outside of designated sites. Where possible, sites are constructed at least 25 feet from the next closest site and natural screening between sites is used. NO campsites will be located less than 100 feet from surface waters. Campsites will be located near the primary trail through the area, but screened from the trail, where possible. Bare ground impacts are concentrated onto the Type C trails leading to and within the campground, on the tent site and on Type C trails leading to water supplies and toilets. NO social trails will be permitted. All other areas surrounding and within the trailside camps are expected to remain in a near-natural condition. Bareground area for each group campsite should not exceed 150 square meters. Bareground area for each individual campsite should not exceed 100 square meters. Sites will be delineated with logs or other natural materials wherever possible, and this will define the limits of acceptable change. Tent sites may be situated directly on bare ground or upon constructed sites using perimeter logs or timbers and elevated pads covered with dirt. Hazard trees will be inventoried in trailside camps and removed in accordance with the Hazard Tree Management Plan. From June 15 to September 30 and during other times of the year when snow depth is less than two feet, camping is permitted in compliance with summer regulations pertaining to group size and designated campsites. When snow cover exceeds two feet during the period from October 1 through June 14, group size is limited to 12 persons and camping is permitted anywhere except within 100 feet of surface waters. Larger groups may be accommodated during this period only if provisions are made to carry out their human wastes and with approval of the Superintendent. Only materials necessary for trail work, site restoration or rehabilitation projects, or work on Trail Zone structures will be placed in the Wilderness. These materials will be placed out of sight of main travelways and where damage to vegetation and other resources is minimized. Materials will not be stock piled for more than two years from the time of transport into the Wilderness.

Actions: Trailside Campsite inventories will be completed to measure total bare ground areas, as described above and to determine the efficacy of the standards. When expansion of bare ground exceeds the acceptable limits of the campsite and intrudes into vegetated areas, these sites may be closed and additional use limits imposed until impacts can be mitigated. The area may be restored through site rehabilitation/revegetation or allowed to recover naturally. Sites located less than 100 feet from water will be closed and replacement sites will be constructed only if there is a management need for the additional site, and the new site can be accommodated without significant resource damage. Campgrounds in the Trail Zone may also be limited or closed if use levels exceed the capacity of the existing toilets and no suitable sites remain for placement of new toilet facilities (see Sanitation standards). Type C trails will be monitored and rehabilitated as necessary. Social trails will be inventoried and restored to natural conditions through closure, rehabilitation and/or revegetation. Tree stumps, abandoned telephone lines, insulators, aircraft wreckage, trail construction materials and other man-made items will be removed from the Wilderness unless they are determined to be essential. Restoration and rehabilitation projects for trailside camps and surrounding areas will be coordinated between the Natural Resource
Planning, Maintenance and Ranger Divisions. Public education, interpretive media and enforcement will be utilized to meet standards.

Crosscountry Zones

Standards: Camping is permitted in relatively durable sites and campers are expected to avoid fragile areas, such as heather meadows. NO camping is permitted within 100 feet of surface waters during any time of the year. Vegetation and the ground surface must not be intentionally damaged or disturbed. Soil compaction should not exceed limits which will prevent natural plant establishment and growth. NO loss of trees or root exposure will be permitted as a result of human use. NO long-term modification of natural plant succession will be permitted as a result of human activities. All dead, standing vegetation should be left in place. Bareground areas resulting from camping activities will not exceed nine square meters for any one site; campsites will not be less than 150 meters from the next closest campsite; and there should be no more than five campsites/500 acre diameter (one mile circle).

Only materials necessary for trail work, site restoration or rehabilitation projects will be placed in the Wilderness. These materials will be placed out of sight of main travelways and where damage to vegetation and other resources is minimized. Materials will not be stock piled for more than two years from the time of transport into the Wilderness.

From June 15 through September 30 and when snow depth is less than two feet, camping is permitted in compliance with summer regulations. When snow cover exceeds two feet, during the period from October 1 through June 14, group size is limited to 12 persons. Larger groups may be accommodated during this period only if provisions are made to carry out their human wastes and with approval of the Superintendent.

Actions: Inventories for Crosscountry Zones will be completed to determine the effects of human use and to assess the efficacy of standards established for these zones. Bare ground areas within Crosscountry Zones that exceed the limits as stated above may be closed to camping or use limits imposed until actions can be taken to mitigate damage. An inventory of campsite condition class will be developed during 1989, as described above. Tree stumps, abandoned telephone lines, insulators, aircraft wreckage, trail construction materials and other man-made items will be removed from the Wilderness unless they are determined to be essential. Restoration and rehabilitation projects for crosscountry zones will be coordinated between the Natural Resource Planning and Ranger Divisions. Public education, interpretive media and enforcement will be utilized to gain visitor compliance with standards.

Alpine Zone

Standards: A number of visitor-constructed tent sites exist along all climbing routes and at the summits of Mount Rainier, and other places throughout the Alpine Zone. Campers are encouraged to camp on permanent snow or ice; use only bareground areas that have previously been used as campsites; or may camp in the designated campgrounds at Camp Curtis (designated camps are
also provided at Camps Muir and Schuman, outside of the Wilderness). NO camping is permitted on vegetated areas. NO new sites are permitted to be constructed; existing sites may not be enhanced with additional construction such as rock walls or windbreaks. Igloos and snow caves may be constructed, but must be collapsed after use.

Only materials necessary for trail work or site restoration or rehabilitation projects will be placed in the Wilderness. These materials will be placed out of sight of main travelways and where damage to vegetation and other resources is minimized. Materials will not be stock piled for more than two years from the time of transport into the Wilderness.

Actions: Campsites in Alpine Zones will be inventoried to document and measure use impacts and to develop acceptable standards; and monitored to determine vegetation recovery rates following campsite removal and to assess long-term changes in native plant communities. A campsite condition class procedure will be developed using a modification of methods as described by Edwards (1983). A standard for campsite condition will be established after inventories are complete. Camping on any bareground area may cause damage to fragile alpine vegetation or may prevent areas from revegetating naturally. Consequently, when all Alpine Zones have been inventoried, selected campsites will become "designated" and campers will be required to use only these sites when camping off of snow and ice. All other campsites will be closed and restored to natural conditions. The number of sites allowed to remain will be determined based on resource damage and user statistics for each area. If fragile ecosystems are being threatened, areas may be temporarily or permanently closed to camping until the damage can be mitigated. Additional research will be conducted to determine appropriate restoration strategies for alpine ecosystems. Additional use limits will be established by 1991 for the 17 currently unlimited Alpine Zones.

Abandoned telephone lines, insulators, aircraft wreckage, trail construction materials and other man-made items will be removed from the Wilderness unless they are determined to be essential. Restoration and rehabilitation projects for Alpine zones will be coordinated between the Natural Resource Planning and Ranger Divisions. Public education, interpretive media and enforcement will be utilized to gain visitor compliance with standards.

Day Use Zone

NO camping or social trails are permitted in Day Use Zones. Type C trails may be present. Only materials necessary for trail work, site restoration or rehabilitation projects, or work on Trail Zone structures will be placed in the Wilderness. These materials will be placed out of sight of main travelways and where damage to vegetation and other resources is minimized. Materials will not be stock piled for more than two years from the time of transport into the Wilderness.
**Factor: STOCK USE**

**Indicators**

Damaged trail structures, trail erosion and damaged ground vegetation (exposed roots, trampled vegetation, grazing impacts), stock waste along trails and at campsites, presence of exotic plants from stock waste, visual sightings of stock users off trail and in restricted areas.

**Current Conditions**

Several studies have demonstrated that stock can cause significant damage to trails and campsites not constructed to support such use. Therefore, stock use is limited to selected trails and trailside camps in more durable soils and vegetation. Stock waste can also introduce exotic plants into the Wilderness. About 100 miles of trails and 4 trailside camps are open to stock use (see Appendix G). Use of pack stock by visitors is very light (approximately 30 to 100 stock use days per year) and most use is along the Pacific Crest Trail. These trails are maintained to a stock use standard as stipulated in the park's Trail Management Handbook. Party size is limited to no more than 5 head of stock, except on the Pacific Crest Trail, where a total of 12 people and stock in combination is permitted in a single party. Administrative use of stock is constrained by office order 87-1 (see Appendix F). Use of administrative stock on trails not open to public stock use must be approved by the Superintendent. Grazing of stock is not permitted. Stock feed must be carried by the user in the form of pellet feed in order to reduce the probability of introducing exotic plants.

**Current Monitoring**

Stock use is evaluated based on reduction in vegetation cover, grazing impacts, presence of exotic plants, soil compaction and trail conditions in stock use areas. Observed impacts are documented on Backcountry Impact Cards.

**Trail Zone**

**Standards:** Stock will be permitted on trails and campsites open to stock when these areas can be used with no irreparable damage, usually from August until mid-October, due to wet trail conditions. Vegetation loss, erosion, and volume of stock waste will not exceed the design limits of the designated stock Camps and trails (see Appendix G). NO grazing is permitted. Stock grain pellets must be packed in by users for feed. Administrative use of stock will be constrained by office order 87-1 (see Appendix F). Administrative use of stock on trails not open to public stock use must be approved by the Superintendent.

**Actions:** Inventories of trails and Camps open to stock use will be conducted to assess impacts and to develop measurable standards for stock use in Trail Zones. The soil erosion potential system developed for prioritizing resource restoration projects will be used to develop appropriate standards. However, when stock use results in damage to trails that is excessive to routine maintenance expected with stock trails, such trails will be repaired and upgraded to a level able to sustain use as described in the Trails Management
Handbook. If this is not feasible, such trails will be closed to stock use until damage can be mitigated. If stock use at trailside camps results in significant damage to resources or structures, or creates unacceptable sanitation conditions, areas will be temporarily or permanently closed to stock use, depending upon the severity of the damage. Public education, interpretive media and enforcement will be utilized to encourage proper use of stock in the Wilderness.

Crosscountry Zone

Standard: Stock use is not permitted in Crosscountry Zones.

Alpine Zone

Standard: Stock use is not permitted in Alpine Zones.

Day Use Zone

Standard: No stock use is permitted in Wilderness Day Use Zones.

Factor: TRAIL CONDITIONS

Indicators

Eroded gullies, expanding trail width, drainage disruptions, cutting switchbacks, damaged trail structures, safety hazards, formation of social trails.

Current Conditions

(See Glossary for definition of trail types). There are approximately 262 miles of Type B trails in the Trail Zone. Numerous structures are in place along these trails: 577 bridges across streams, 693 culverts under the trails, 4,411 feet of trail puncheon and numerous rock walls, water bars, drainage ditches and several hitching posts at stock Camps. In some instances, old roadbeds have been converted to trails. There are also a number of abandoned trails present in the Wilderness.

Several Type C trails exist throughout the Wilderness in all zones, but have not yet been completely inventoried. Type C trails have developed from hikers repeatedly using the same travel routes. Type C trails are maintained only to a minimum standard to protect areas from resource damage; the number of Type C trails are minimized in Crosscountry Zones which should present more of a challenge to hikers than is present in the Trail Zone. Numerous social trails exist throughout the Wilderness. Social trails cause extensive vegetation damage, affect visual aesthetics and may affect the degree of solitude present in an area. Type B and C trails are maintained in accordance with the park's approved Trails Management Handbook. Social trails are inventoried and rehabilitated as time and funding permit.
Current Monitoring

Trail conditions in Crosscountry and Alpine Zones are rated according to an assessment of resource damage as established by physical measurements of length, width, depth, slope, gullying and etc., (see Landscape Conditions factor). Trails in the Trail Zone and Crosscountry Zones are rated according to the Trails Management Handbook for Mount Rainier National Park.

Type B trails are monitored by the park Trail Crew to identify maintenance needs. Type C and social trails are inventoried by Natural Resource Planning and Ranger Divisions; impacts are quantified through low elevation aerial photography and ground surveys; recommendations for mitigating damage are suggested; and site restoration plans prepared when necessary.

Trail Zone

Standards: Wilderness trails will offer visitors a primitive experience and will be unpaved and modest in character. NO Type A trails will be present within the Wilderness Trail Zone. Type B trails in the Trail Zone are identified on the park trails system inventory. Some Type C trails may be present in Trailside Camps. NO social trails will be accepted in Trail Zones. Type B and C trails are maintained in accordance with the park Trails Management Handbook. Trail maintenance and construction is oriented toward encouraging users to stay on the trail (e.g., proper drainage, slopes, etc.). The formation of parallel trails will be discouraged by improving drainage or building higher trail tread. Bridges may be provided only where they are essential for resource protection or where significant safety hazards would otherwise exist during the normal use period. Trail construction materials will be stored in the Wilderness only when necessary and will be placed out of sight of main travelways and in areas where damage to vegetation is minimal. Stockpiled material will be used within two years of being transported into the Wilderness. All trail construction debris and materials will be removed from the Wilderness when maintenance is complete. Whenever possible, materials for trail construction/maintenance will be brought in from outside of the Wilderness. The Trails Management Handbook provides detailed restrictions on the use of on-site materials within the Wilderness (including soil, rock, and trees). Man-made materials such as metal or fiberglass culverts will be used only where they will not remain visible. Gravel will be incorporated into the trail and not predominantly on the surface. New bridges will not be constructed over minor streams that may be crossed without hazard. Existing bridges over such streams will be removed when they would otherwise be due for major rehabilitation or replacement. New trail construction may be considered only when in the interest of resource protection and enhancement of Wilderness values or public safety. During winter conditions trails will not generally be marked and visitors must navigate on their own and be aware of common hazards such as avalanches, weather, and difficulty of travelways.
Actions: Type B trails will continue to be monitored by the park Trail Crew. Type C and social trails within the Trail Zone will be inventoried, and resource damage documented and mitigated. Trails will be maintained according to standards described for Type B and C trails in the Wilderness. Social trails and old roadbeds will be obliterated and restored to natural conditions. Use of the "minimum tool" concept will be employed when determining routine and special trail maintenance. Trail maintenance and special projects (including work within trailside camps) will be coordinated between the Maintenance, Natural Resource Planning and Ranger Divisions, on an annual basis through an annual trails meeting. Unnecessary bridges and other trail structures will be removed after coordination with these divisions and with approval of the Superintendent. Public education, interpretive media and enforcement actions will be taken to encourage proper use of trails. Training for park employees will be conducted to educate staff in the minimum tool concept and other Wilderness management objectives.

Crosscountry Zone

Standards: NO Type A or B trails will be present in Crosscountry Zones. NO social trails will be present in these zones. Type C trail width will generally not exceed 18 inches and will be maintained to specifications as stated in the Trails Management Handbook. Maintenance of Type C trails will be conducted only to prevent resource damage. Hikers are encouraged to use Type C trails to prevent damage to adjacent soils and vegetation and to prevent the formation of parallel trails. However, Type C trails will not be signed or published on park maps. Park staff will provide information on these trails to visitors upon request and when overnight permits for Crosscountry Zones are obtained.

Actions: Type C and social trails within Crosscountry Zones are being inventoried. Trail conditions are being measured to quantify total bareground, length, width, depth, slope, gullying, associated drainage disruptions, and number and condition of multiple treads. Areas within Crosscountry Zones may be closed if trail damage is severe and/or if extensive site rehabilitation is needed. Site restoration plans will be developed for areas in need of extensive restoration and resource damage will be mitigated for all areas. The Trails Management Handbook will be revised and standards developed for Type C trails.* Visitors will be educated on the proper use of trails in Crosscountry Zones through public education, or placement of physical barriers. Public education, interpretive media and enforcement will be utilized to encourage visitors to use minimum impact techniques in the Wilderness.

Alpine Zone

Standards: NO Type A trails will be present in the Alpine Zone and the number of Type B and Type C trails will be minimal. Type C trail width will generally not exceed 18" and will be maintained only to protect resources from damage. Type C trails will be maintained in accordance with the park Trails Management Handbook. Type C trails formed by repeated use through snow or bare ground are acceptable only if fragile alpine ecosystems are not being damaged. NO social trails will be accepted in the Alpine Zone. Most climbing
routes are not marked however, heavily travelled snow routes may be marked with wands or flagging only to protect public safety and Wilderness resources.

**Actions:** Inventories are being conducted to document high elevation impacts and measure vegetation recovery rates as well as to assess long-term changes in native plant communities. Trails impacting fragile alpine vegetation will be closed permanently. Research will be conducted to determine appropriate restoration strategies for areas in the Alpine Zone. Public education, interpretive media and enforcement actions will be utilized in protecting fragile alpine ecosystems.

**Day Use Zone**

**Standards:** Type B or C trails may be present in Day Use Zones. Standards are the same as for the Trail Zone.

**Actions:** Actions for Day Use Zones will be the same as for the Trail Zone.

**Factor:** ENDANGERED, THREATENED AND RARE SPECIES

**Indicators**

Population declines or species extirpation likely as a result of human use.

**Current Conditions**

The objectives of managing endangered, threatened and rare species are to preserve and protect designated species of animals or plants and their critical habitat. This includes species that are listed by federal or state authorities, or those considered to be unique and endemic to Mount Rainier National Park. Species that are of concern are listed in the park’s Resource Management Plan.

There are no known animals on the federal list of endangered and threatened species known to permanently inhabit the park. However, scant information is available on the presence of invertebrates, amphibians and reptiles. Migrants such as bald eagles and peregrine falcons have been sighted in the park. Little information exists on the gray wolf, several species of salamanders and frogs, goshawk, wolverine, heather vole, water shrew, oreas angle-winged butterfly, great gray owl, northern pocket gopher and Cascade vole. Several animals which are listed on the state of Washington List of Species of Special Interest do occur in the Wilderness. These include fisher, marten, bobcat and northern spotted owl.

No federally listed plant species occur within the Wilderness, but the Mount Rainier paintbrush (*Castellija cryptantha*) remains a candidate species. Approximately 41 species of plants listed on the Washington National Heritage Species of Special Interest occur within the Wilderness.

Endangered, threatened and rare species are evaluated according to recommendations made by the Washington Natural Heritage Program and the U. S. Fish and Wildlife Service.
Current Monitoring

Rare plant populations are checked periodically for condition and growth, and new areas surveyed annually. All sightings of rare plant species are recorded and species information compiled and maintained in a computerized data management system. Spotted owl populations are monitored periodically. No other endangered, threatened, or rare animal species are being monitored.

All Zones

**Standard:** Visitor use will not be allowed to compromise protection of endangered, threatened and rare species. There will be no loss or threats to rare plants or animals or their habitat as a result of visitor use.

**Actions:** Assessments of habitat needs and identification of critical habitat will be conducted. Plans for the species recovery or preservation will then be developed. Areas may be closed to public use if these species are being threatened by human presence or recreational activities.

Factor: CAMPFIRES

**Indicators**

Rock fire rings, ashes, partially burned materials, branches, and other material, trees stripped of limbs, scorched ground, sterilized soil.

Current Conditions

Wood fires may damage vegetation, modify the soil and leave scars. The collection of firewood disrupts natural cycles of decay on the forest floor by the removal of essential organic material. Fires have been prohibited in all but a few select Trailside Camps. Prior to 1989 in lower forest Crosscountry Zones open wood fires were permitted in "fire pans" or other self-containing devices, carried by the user. Fire pans are metal containers such as a cake pan used to limit impacts. The pans are supported on rocks to prevent ignition of the forest duff. However park staff have found limited evidence that fire pans have been utilized and numerous impacts from campfires are evident throughout the Wilderness. Consequently, wood and charcoal fires will be prohibited in all areas of the Wilderness as of June 15, 1989. Gas, propane, butane or similar fueled stoves are permitted.

Current Monitoring

Park personnel document presence of fire rings, fire scars etc., through impact monitoring programs and on backcountry cards.

All Zones

**Standard:** NO campfires will be permitted in the Wilderness. Gas, propane, butane, or similar fueled stoves are permitted.
Actions: Illegal campfires will be documented through backcountry cards and impact monitoring programs. Campfire rings will be removed and affected areas restored to natural conditions. Educational and interpretive media and when necessary appropriate law enforcement actions will be used to gain compliance.

Factor: AIR QUALITY

Indicators

Violations of the criteria pollutants noted in the Washington State Implementation Plan, for Class One Areas; evidence of air pollutant effects on soils, vegetation, animals and aquatic systems.

Current Conditions

Wilderness air quality is affected by the Centralia Power Plant. This facility may also affect the level of acidic precipitation received in the park. In addition, large amounts of fine particulates are emitted from slash burns adjacent to the park on private and U.S. Forest Service lands. Smoke from these burns sometimes affect visibility for Wilderness visitors.

Current Monitoring

Air quality is being evaluated through the use of visibility monitoring; nephelometer and fine particulate monitor; nitrate and ozone monitors; and a bulk precipitation sampler. Effects of acid precipitation on surface waters is being evaluated as stated under the Aquatic Resources factor.

All Zones

Standards: Air quality should meet criteria as directed by the Federal Clean Air Act and state standards for criteria pollutants for Class I areas. Air quality is not degraded as a result of recreational use. Air quality, especially visibility, may be temporarily degraded as a result of prescribed natural fire occurrences.

Actions: Park staff will monitor air quality for compliance with NPS policies and Federal and State Clean Air Act.

Air quality related values will be monitored and evaluated as described by Fox, et al. (1987). The effects of airborne pollutants on sensitive ecosystems will be monitored by measuring gases and aerosols (ozone, nitrogen dioxide, sulfate, inorganic nitrate, total ammonia, sulfur dioxide); chemistry and volumes of wet deposition; meteorological measurements (temperature, wind speed and direction, relative humidity, pressure, precipitation amounts); and visibility.

Management efforts will be made to correct air pollutant problems through coordination with other agencies. Smoke resulting from prescribed natural fires will be monitored to prevent conflicts with local, state and federal air quality regulations (see park Fire Management Plan (1988)).
Factor: OPPORTUNITY FOR SOLITUDE AND EXPERIENCE

Indicators

Opportunities for solitude can be assessed by many variables: the amount of use received in each area and indicated by backcountry use and climbing statistics, day use trail counter statistics, and staff logs of number of visitor contacts along trails and at campsites; amount of sight and sound intrusions such as use of mechanized equipment, adjacent land use practices, and private, commercial and military aircraft overflights; physical distance between campsites; encounters with other visitors and staff and party size.

Experience opportunities can be assessed by variables such as: relative isolation, evidence of human activities, frequency of encounters with other users, difficulty of travel, degree of challenge and risk.

Current Conditions

Adjacent forestry practices, especially on the west side of the park, severely affect scenic vistas in the Wilderness. Forestry practices such as logging and slash burning can visually and audibly affect visitors Wilderness experience. Frequent private, commercial and military aircraft overflights can often disrupt visitors solitude in the Wilderness. Administrative use of helicopters for removal of human waste from Alpine Wilderness and backcountry areas, and transport of supplies and materials for trail work and restoration projects is restricted to time periods before July 1 and after Labor Day, on Mondays through Thursdays. Administrative air flights are conducted in August and September for monitoring elk populations; and for low level aerial photography for resource monitoring projects.

There are currently no data that specifically indicate the various levels of opportunities for experiencing solitude in the Wilderness of Mount Rainier National Park. However, observations made by park personnel and analyses of several years of Backcountry Permit System data indicate that a range of opportunities for solitude exist depending upon route, destination, time of year and time of the week.

Experience opportunities within each management zone are rated based on the relative isolation, evidence of past human activities, frequency of encounters with other visitors, the opportunity for challenge, risk, and utilization of primitive skills. A range of opportunities of experience exist from the easily accessed Trail Zone to the more difficult climbs in the Alpine Zone.

Areas in the Trail Zone offer easy access and use of the Wilderness by large numbers of visitors. Use in this zone is concentrated along well-maintained trails and in developed trailside camps.

Crosscountry zones provide more of an opportunity for challenge. Although some Type C trails exist, these travel ways are not as developed as trails in the Trail Zone. Crosscountry travel requires visitors to use the Wilderness without the use of signs, developments and other amenities found in the Trail Zone. Limits on overnight camping have been established for some Crosscountry Zones with the intention of dispersing use.
Alpine zones offer a high degree of challenge in relation to access and difficulty of travel ways which range from narrow way trails to very technical climbing routes that surround the mountain. However, visitors' experience in these zones may be affected by the increased frequency of encounters that occur along the more popular routes.

**Current Monitoring**

Amount of use is monitored through the Backcountry Permit System, Climbing Cards, Day Use Trail Counters, and staff logs of visitor encounters along trails and at campsites.

Sight and sound intrusions from adjacent land use practices and aircraft overflights are documented on Backcountry Cards and Case Incident forms.

**All Zones**

Additional information is needed to establish standards for determining the levels of opportunities available for experiencing solitude in the various management zones of Mount Rainier National Park. A range of opportunities will remain available to visitors depending upon route, time of year, and time of the week. The amount of sight and sound intrusions on Wilderness solitude is currently unknown.

**Actions:** Research will be conducted to develop techniques for defining indicators and standards of solitude and to monitor the opportunity for solitude available in the Wilderness. Monitoring of aircraft overflights and influences of adjacent land use practices will be conducted by improving current reporting and documentation procedures. Communications with adjacent land owners will be initiated to gain their cooperation in minimizing impacts on the Wilderness.

Opportunity for Solitude Based on Campsite Locations, Party Size, and Degree of Challenge.

**Trail Zone**

**Standards:** The opportunity for experiencing solitude in the Trail Zone based on distance between campsites, is low. Campsites may be spaced anywhere from five feet to 25 feet distance from each other. However, where possible, campsites will be spaced a minimum of 25 feet from the next closest site. Campsites may be placed anywhere from a few feet to several hundred yards from Type B or C trails. The opportunity for experiencing solitude based on party size would likely below in the more popular areas of the Trail Zone; party size may be as high as 12 for overnight camping in group sites and from October 1 through June 14 when there is more than two feet of snowcover on the ground.

The Trail Zone provides low to moderate opportunities for exploring and experiencing isolation from the sights and sounds of humans; from experiencing independence; tranquility; and self-reliance in a natural environment that offers a moderate degree of challenge and risk.
Actions: Research will be conducted to determine the frequency of encounters with other visitors along the more popular travelways. Day use will also be monitored to determine associated impacts.

Crosscountry Zone

Standard: The opportunity for experiencing solitude based on distance between campsites and party size is higher in Cross-country Zones than in Trail Zones. Campsites will be no less than 150 meters from the next closest campsite; and there should be no more than five campsites/500 acre diameter area. Campsites must be located a minimum of one quarter mile from any Type A or B trail, or from any road. Party size is limited to five during the more heavily visited seasons from June 15 through September 30 and when snow cover is less than two feet. From October 1 through June 14, when snow cover exceeds two feet, party size is limited to 12.

The Crosscountry Zone provides a higher opportunity for isolation and solitude, more free from the evidence of past human activities and with less frequent encounters with other users. The user has many outstanding opportunities to travel crosscountry utilizing a maximum degree of primitive skills, often in an environment that offers a high degree of challenge and risk.

Actions: Same as for the Trail Zone. Trail and campsite inventories will be conducted (see Landscape Conditions factor), and data can be used to determine the amount of evidence of past human activities that may affect solitude.

Alpine Zone

Standards: The opportunity for experiencing solitude based on distance between campsites would vary for Alpine Zones. Areas where it is desirable to concentrate use (e.g., Camp Curtis) may provide low solitude while other Alpine Zones may provide a very high degree of solitude. Until campsite inventories are complete, standards for distance between campsites cannot be established.

The opportunity for experiencing solitude based on party size would vary but would likely be lower in the more popular areas. Party size may be as high as 12 for public use; and up to 36 for the commercial guide service traveling along the Muir corridor (guide service groups of this size must camp only at Camp Muir).

In general, the Alpine Zone provides the highest degree of challenge and some of the most outstanding opportunities for experiencing isolation and solitude, relatively free from the evidence of past human activities and with less frequent encounters with other users (except on the more popular alpine routes to the summit). Users must be experienced mountaineers as the Alpine Zone offers the highest degree of challenge and risk.

Actions: Same as for Crosscountry Zone. Standards for distance between campsites will be established when inventories are complete (see Landscape Conditions factor).
Day Use Zone

Standards: No camping is permitted in Day Use Zones. There are no limits on party size for hikers using these areas. Experience opportunity varies from high in many alpine areas, to low to moderate in the Reflection, Louise and Clover Lake zones, located close to roads and trailheads.

Actions: Same as for the other zones.
VIII. STANDARDS FOR ADMINISTRATIVE USE AND MANAGEMENT OF THE WILDERNESS

Structures in the Wilderness

Structures, other than toilets, exist only in the Trail Zone areas of the Wilderness.

Public Shelters

There are currently seven (7) public shelters in the park's Wilderness: three at Mowich River, Lake George, Summerland, Indian Bar and Nickel Creek. Shelters will be removed when they require major maintenance. Minor maintenance (replacement of shingles, broken boards, etc.) will be accomplished only when necessary. When the shelter's condition is poor as the result of deterioration, the shelter will be removed with approval of the Superintendent and with consideration given to historic register eligibility. The Indian Bar and Summerland trail shelters are on the List of Classified Structures and are eligible for the National Register of Historic Places.

Cabins, Fire Lookouts, and Radio Repeaters

There are nine (9) patrol cabins located in the Trail Zone of the Wilderness: St. Andrews, Mowich Lake, Golden Lakes, Indian Henrys, Mystic Lake, Lake James, Lake George, Huckleberry Creek and Three Lakes; and four (4) fire lookouts: Gobblers Knob, Shriner Peak, Tolmie Peak and Mt. Fremont. These buildings are maintained in a condition that approximates the original condition of the structure and to a standard stipulated in the park's structural maintenance standards. These facilities will be maintained in such a manner that will minimize impacts on the Wilderness. Wood stoves are used only during extremely cold temperatures and when they are necessary for emergency operations. Wood for fuel is brought in from outside of the Wilderness. Pit toilets and gray water drainage will be located in well drained soils, a minimum of 200 feet from surface waters (see Sanitation standards). Cabins and fire lookouts will be maintained over time as long as they are essential for meeting objectives of Wilderness management. They provide housing for backcountry personnel, are important visitor contact points, and serve as base stations for search and rescue operations. If a structure is seriously damaged it may be replaced only if required to preserve Wilderness character or values, protect public safety and would not result in resource derogation. Some of these buildings are also on the List of Classified Structures and are eligible for the National Register of Historic Places. These include: all four fire lookouts, and cabins at Huckleberry Creek, Indian Henrys, Mowich Lake, St. Andrews and Three Lakes. Tools used to perform maintenance on these structures will be in accordance with the "minimum tool" guidelines as noted in the park's Office Order 87-1 (see Appendix F) and in Appendix E.

There are two radio repeaters located at fire lookouts at Gobbler's Knob and Mt. Fremont. Additional radio repeaters will not be placed in the Wilderness unless no alternative locations are available.

Structures, on the List of Classified Structures are consequently eligible for the National Register of Historic Places. Compliance with NPS-28, Cultural Resource Management, and 36 CFR 800 regulations for Section 106 of the National Historic
Preservation Act will be completed before any alterations or removal of these structures is undertaken.

Archaeological Sites

Very few cultural sites utilized by prehistoric Indians and historic human activities have been identified in the park's Wilderness. These sites receive appropriate protection in accordance with the Archaeological Resources Protection Act and National Park Service policies.

Signs

Currently there are hundreds of signs in the park's Wilderness. Most of these signs are on metal posts and are constructed of buffed aluminum plate with engraved and painted lettering. Some signs are bulletin board or other construction. The current Wilderness signs note mileage to destination points, mark intersections, designate points of interest, detail rules and regulations and give other information. Thousands of boundary marker signs have also been placed along the current park boundaries.

Trailhead bulletin boards are provided at all major trailheads and are the responsibility of the Interpretation and Maintenance Divisions. Metal signs are placed at major "designated" trail junctions in the Trail Zone only. No destination signs will be provided except at trailside camps. Minimum signing will be utilized for public health and safety and resource concerns in all management zones. In general signs in the Wilderness will be few and simple. The park's Sign Plan and related Office Order 79-1 provide additional specifications for signs in the Wilderness.

Plaques or Memorials

No monuments or plaques exist in the park's Wilderness with the exception of U.S.G.S benchmarks and tiltmeter marks. No monuments, plaques or other memorials may be placed in the park's Wilderness without specific legislative authority from Congress.

Administrative Use of Aircraft

Administrative use of helicopters is permitted in accordance with Office Order 87-1 and 79-8 (see Appendix F). Permission to use helicopters in Wilderness is granted by the Superintendent. Except in very special situations, helicopter use in Wilderness, for other than emergencies, will not be approved between July 1 and Labor Day and use is restricted to Mondays through Thursdays. Approval for use of helicopters in non-emergency situations will be granted only if it has been determined to be the minimum tool to achieve the purposes of the area or for protection of Wilderness values (see Appendix F).

There are no existing, constructed helicopter landing spots in the Wilderness. Natural openings are to be used for helicopter landings as detailed in the park's Fire Management Plan. However, minimum clearing can be accomplished in an emergency if other safe alternatives have been ruled out. Site restoration is required if clearing is conducted.
Fixed wing aircraft are used in compliance with FAA regulations for administrative purposes such as for resource management, search and rescue and fire management operations.

Administrative Work Crews and Camps

Temporary work crew camps or Backcountry Ranger camps may be established anywhere within the Trail Zone with approval of the Superintendent. Temporary camps may also be established in more resilient areas of Crosscountry Zones with the permission of the Superintendent. However, no camps will be established in Day Use Only areas or within view or one quarter mile of Type A or B trails. Workcamps established in Crosscountry Zones will only be large enough to accommodate two three-person tents. Work crews will meet the same standards for camping as required for visitors. Group sizes exceeding 12 will utilize Trailside Camp group campsites only and must have prior permission from the Superintendent. Cache boxes, equipment and supplies will be kept out of sight of trails and trailside camps and will be removed when they are no longer essential. Camp locations will be selected based on minimum impact considerations. Large work crews will be assigned the use of trailside camp group sites as long as public use of the area would not be significantly affected. All work camps will be restored to natural conditions upon completion of use. This includes removal of toilets and any social trails that may have been developed.

Administrative Use of Mechanized Equipment

Park use of power equipment in Wilderness is dictated by Office Order 87-1 (See Appendix F). The use of mechanical equipment is constrained by the Wilderness Act and National Park Service Policy. In determining the appropriate minimum tool for use in the Wilderness, consideration will be given to disturbing the visitor's Wilderness experience, public safety, and effects on Wilderness resources. Resource protection and safety concerns will take precedence over economic considerations. Generally, alternative methods should be utilized in place of power tools. Any use of power tools in Wilderness will be confined, as much as possible, to the period prior to July and after August. All power tools will use a modified muffler that reduces noise levels. Use of helicopters, if determined to be the minimum tool, will be limited to before July 1 and after Labor Day and use is restricted to Mondays through Thursdays. Approval for use of helicopters in non-emergency situations may be granted only if it has been determined to be the minimum tool to achieve the purposes of the area or for protection of Wilderness values (see Appendix E).

Fire Management

Response to wildlands fire in Wilderness will be governed by the park's approved Fire Management Plan. The use of the "minimum tool" concept will be employed for fires in the Wilderness. Specific emphasis is on the natural role of fire in the park's ecosystem and the need to modify our responses in order to minimize the effects of suppression on the ecosystem. The fire decision chart contained in the Fire Management Plan outlines appropriate suppression response to human caused fires and for naturally caused fires. In addition the plan contains specific suppression standards, both tactical and strategic, that are designed to minimize the environmental effects of suppression activities.
Research

Research activities are permitted in accordance with 36 CFR. Research projects are permitted if they meet the following requirements: the project addresses an identified management need; addresses a stated Wilderness management objective; there is no alternative to conducting the research in the Wilderness area; and the project will not adversely affect or interfere with natural resources, ecosystem processes, aesthetic values, or recreational or conservation purposes of the Wilderness over a broad area or long duration.

Research equipment and numerous study sites exist within the Wilderness: a seismic site a short distance from Fremont Lookout, including a tiltmeter; a USGS outburst flood monitoring station in the Kautz and Tahoma Creek drainages; a weather station north of Chinook Pass on the park boundary; a Research Natural Area at Butter Creek; and several study sites marked with small metal stakes, tags, or wooden markers.

Monitoring devices for hydrological, seismic, hydrothermal or other purposes may be installed and operated in Wilderness only when park management has determined that the information is essential and cannot be obtained from a location outside of the Wilderness and the proposed device is the "minimum tool" necessary to accomplish the study objective. Devices used for monitoring or research purposes are removed when they are no longer essential. All areas are restored to natural conditions at the completion of studies.

Rights-of-way

There is one park-maintained power line in the Wilderness between Longmire and Paradise. A telephone line to Sunrise is also present. No future right-of-way grants may be given without the specific authorization of Congress.

Mining claims or operations:

There are no active mines or valid claims within the park. Remains from past mining activities are present in the park's Wilderness and are comprised primarily of shafts, drifts, tailing piles, wooden supports, rail tracks or ways and assorted devices which are no longer operable. Some mining remains may be eligible for nomination to the National Register as historic objects. Some mining remains may need special measures to protect visitors from safety hazards. Mining remains not eligible for the National Register will be removed from the Wilderness as time and funding permit.
Use of Mechanical Forms of Transportation

Use of bicycles or other non-motorized mechanical forms of transportation by visitors is not permitted in the Wilderness, with the exception of wheelchairs used by disabled visitors.

Use of Watercraft

No motorized watercraft is permitted in the Wilderness. Use of non-motorized watercraft is permitted when packed in and out of the Wilderness.

Hang-gliders or Paragliders

Hang-gliders and paragliders are not permitted in Wilderness in accordance with 36 C.F.R., Sec. 2.17.

Firearms

Visitor use of firearms is permitted only with stock along the Pacific Crest Trail. Firearms are not permitted in other areas of the Wilderness.

Pets

Dogs (except seeing eye dogs) or other pets (including sled dogs) are not permitted on trails or elsewhere in the park's Wilderness, with the exception of the Pacific Crest Trail.

Management of Use

Permit systems are effective tools in reducing resource impacts and crowding in the Wilderness. These systems provide park management with daily quantified information on use of the Wilderness, facilitate enforcement of use limits, and provide invaluable information for assessing user damage to Wilderness resources and in determining other management needs.

All backcountry permits and climbing cards will be entered into the computerized Backcountry Permit System on a daily basis. The Backcountry Permit System is administered by the Interpretation Division. Permits for overnight use of the Wilderness are required year-round, beginning June 15, 1989. Permits are issued in person, on a first-come, first-serve basis and are issued no more than 24 hours in advance of beginning date. Permits are written for a maximum of seven nights, but visitors who wish to extend their stay can obtain another permit for a maximum of 7 additional nights; maximum stay in the Wilderness is 14 days. Extensions can be obtained from field rangers with radio contact with the Hiker Center, or through one of the several permit stations located throughout the park. Data on camping location, length of stay, party size and locations of entry and exit, etc., are entered into the computerized data base. Permits reserve a space at the location and date indicated on the permit. Strict adherence to stated locations and dates of camping is required in order to manage overcrowding and potential resource damage. Campers are advised of alternatives to areas that have reached capacity or to crowded areas so that they may gain a greater degree of solitude in the Wilderness.
From June 15 through September 30 and when snow cover is less than two feet, usually in early fall and late spring, use is permitted under the same rules governing summer use. From October 1 through June 14 when snow cover exceeds two feet or more, camping is permitted only in areas that are a minimum of 100 feet distance from any lakes, streams or other wetlands, and at least 200 feet from plowed or unplowed roads. Party size is limited to a maximum of 12 persons during winter conditions. Larger groups may be permitted in winter (when at least two feet of snow covers the ground) only if they remove their own human wastes from the Wilderness, and with special permission from the Superintendent. During winter conditions, trails will not generally be marked, and visitors must navigate on their own and be aware of common hazards such as avalanches, weather and difficulty of travel ways.

See Appendix C for current use limits for each of the management zones. Restrictions on use may be amended based on damage to Wilderness resources or success of rehabilitation or natural recovery of impacted areas. Climbers may be denied permission to use popular routes if Wilderness values are being threatened. Wilderness users may be requested to show field rangers their permit at any time. Permit requirements will be strictly enforced. Annual statistics will be compiled from permit data in order to determine patterns of use in the Wilderness.

Group and Party Size

Except as noted above for use during winter conditions, individual party size for overnight camping may not exceed 5 persons (unless additional persons are part of the single family unit), except along the Pacific Crest Trail, where up to a combined total of 12 persons or stock is permitted to camp only at the Three Lakes trailside camp. Larger groups must obtain permits for group sites in trailside camps. Group size in trailside camps is limited to 12 persons. Up to 12 persons (with a minimum of 2 persons, except as noted below under item 3.) are permitted to climb in the Alpine Zone, with the exception of the guide service concessionaire, which is limited to 35 persons (including guides) for the Muir routes. Guide service groups of this size are permitted to camp only at Camp Muir.

Climbing registration is required year-round for those wishing to climb Mount Rainier, Little Tahoma or travel on glaciers (with the exception of the Guide Service going to Camp Muir). This permit serves as the backcountry permit and generally applies to alpine areas above Camps Muir and Schurman or on any glacier. All climbing permits are entered into the computerized Backcountry Permit System data base on a daily basis. In order to obtain a climbing permit, the following regulations must be met:

1. all persons must be a minimum of 18 years of age or have written permission to climb from a parent or guardian;
2. climbing permits are completed for each party member in order to facilitate search and rescue activities if necessary;
3. each party must consist of a minimum of two persons unless a climber has received special written permission for solo climbing from the Superintendent.
4. Party size is limited to 12 persons.

Public Education and Interpretation

The park Division of Interpretation is responsible for developing and disseminating information on the role of Wilderness in the park, and promoting public understanding of wilderness values and ethics to encourage wise use of the resource. Interpretive activities will be expanded to provide wilderness messages to users. Support from the private sector and the natural history association will be explored to provide public education on minimum impact wilderness use philosophy and techniques.

Training

National Park Service employees will be trained in Wilderness mandates, policy and management through attendance at workshops, conferences and training sessions. An annual training session open to all employees will be provided at the beginning of the summer season. A Wilderness Plan meeting, open to all employees, will be held annually to discuss policies and management strategies and to provide employees with an overview of the state of the Mount Rainier Wilderness. Additional training sessions may be offered on impact monitoring techniques and the use of the minimum tool concept.

Cooperation with Adjacent Landowners

The Mount Rainier Wilderness is surrounded by the Snoqualmie and Gifford Pinchot National Forests, and by Champion Paper Company lands on the west side. The National Forest lands include several Wilderness areas: Glacier View, Tatoosh, William O. Douglas, and the Clearwater Wilderness. Interagency coordination is necessary for visitor use and resource management and information dissemination. Park management will communicate and work cooperatively with adjacent landowners to enhance Wilderness management.
### Staffing and Funding

The following are estimates of current funding and staffing levels for Wilderness management:

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<thead>
<tr>
<th>Position</th>
<th>FTE</th>
<th>Current Base Funding</th>
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<tr>
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<td><strong>Total for Park</strong></td>
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IX. MANAGEMENT ALTERNATIVES

Numerous alternatives exist for managing the Wilderness of the park. They range from virtually no action to imposing the most severe controls on visitor use. When the first Backcountry Management Plan was written in 1973 many alternatives were considered. The one selected was the most appropriate for the time and problems encountered. The park staff will review and update this plan annually and determine if additional management actions are warranted. The following alternatives have been considered:

No Action

Under this alternative no permits would be required; no limits would be imposed on party size, campsite locations, numbers of parties/area; and stock use would be unregulated.

Permits Only, No Quotas

No use quotas would be imposed however permits would be issued to all overnight visitors for Wilderness use. This system could impose limits or restrictions on fires, horses, and campsite location. Since permits are required park management could monitor use levels and advise visitors regarding crowding.

Trailhead Quotas; No Requirement to Use Trailside Camps

Backcountry permits would be issued and similar restrictions as mentioned under PERMITS ONLY would occur. This alternative would limit trailhead use rather than place quotas on trailside camps and zones on total numbers of people. This alternative may affect day hikers, although it would be unlikely.

Quotas Only Where Crowding or Resource Damage is Evident

This option would include permits and quota restrictions similar to the alternative, "Permits Only, No Quota. Actions could only be taken after unnecessary environmental impacts had occurred and action taken would likely be very restrictive to permit mitigation of resource damage.

Quotas Only at Trailside Camps

This alternative would include permits and limits similar to those noted under, "Permits Only, No Quotas." Limits would be placed on camping in Trail Zones but not Crosscountry or Alpine Zones (with the exception of designated camps).

Quotas at Trailside Camps, Some Subalpine Crosscountry Zones, and Some Alpine Routes

This alternative limits use at trailside camps in the Trail Zone, subalpine crosscountry zones that can tolerate only limited use, and limits on use of certain popular alpine routes where sanitation and damage to the fragile
alpine ecosystem is a concern. Limits on use are determined from qualitative and quantitative documentation of resource impacts occurring in these areas. Routine monitoring of bareground impacts, damage from social and way trails, sanitation, and water quality problems is conducted. Management strategies are evaluated and refined as appropriate.
X. RECOMMENDED ALTERNATIVE AND REASONING

Experience has shown that the "No Action" and "Permits with no quotas" alternatives have resulted in overcrowding and unacceptable impacts on the Wilderness resources of popular camping areas.

The "Trailhead Quotas" alternative deserves consideration where one trail is the primary access into an area. However, the nature of the trail system at Mount Rainier, with many trailheads leading to common areas, makes such a system impractical.

The alternative, "Quotas Only At Crowded or Damaged Areas," assumes that crowding or damage has already occurred before action is taken. Since the National Park Service is required by legislation and policy to prevent such damage and crowding, this option is not satisfactory.

"Quotas Only at Trailside Camps" would provide inadequate protection to more popular Crosscountry Zones, and add to the existing problem of poorly prepared visitors camping in Crosscountry Zones because adjacent trailside camps are full. Experience has shown that these users camp near the trail in the Trail Zone, often failing to use low impact techniques and frequently cause significant resource damage.

Recommended Alternative

Since 1973, "Quotas at Trailside Camps and Certain Crosscountry Zones and Alpine Routes" has been the selected alternative for management of the area now known as the Mount Rainier Wilderness. This management technique has proven effective in greatly reducing resource damage and overcrowding. Impacts are concentrated in trailside camps and trails within the Trail Zone, thus allowing large numbers of users to camp along trails while protecting the surrounding environment they have come to enjoy. Sensitive subalpine Crosscountry Zones are also better protected through this alternative. When problems are observed in one area, limits are also imposed on areas with similar habitat where use would likely result in similar impacts. Consequently, impacts are prevented before serious damage occurs.
XI. MANAGEMENT NEEDS, RESEARCH AND MONITORING

Site Restoration/Rehabilitation

Many Wilderness trails, trailside campgrounds, and crosscountry areas are severely eroded, and trampling and other camping impacts are numerous. Water quality concerns may also be present where campsites and toilets are located too close to lakes or streams. At least 35 trailside campsites are located less than 100 ft. from surface waters; some less than a five feet away. At least two pit toilets have been inappropriately placed in poorly drained soils and too near the groundwater table and adjacent surface waters. Site restoration may include erosion stabilization, protection of rare plants, revegetation with native species; and relocation of trails or campsites to more appropriate areas. A significant amount of additional funds are needed to support work crews and supplies and materials to perform site restoration; and for support of greenhouse operations for plant propagation.

Protection of Wilderness from Resource Damage

A visible protection program including ranger patrols, appropriate signing and interpretive media is necessary to protect sensitive areas from user damage. Many user impacts could be prevented by the presence of uniformed field rangers. Additional backcountry rangers are desirable for protecting heavily used areas, and for assisting in monitoring programs.

Wilderness Training

Routine and periodic training courses, workshops and seminars should be conducted for park employees to educate them on responsibilities and techniques for managing Wilderness, recognizing impacts, and in restoration techniques. Additional funding may be necessary to support these actions.

Review Wilderness Zones and Area Delineation

Crosscountry and Alpine Zones should be periodically reviewed to determine if area delineations reflect appropriate geographical areas, following logical contour lines and use and associated impacts.
Monitoring

Trail Zone

Inventories of Trailside Camps should be completed to determine compliance with standards for landscape conditions. Inventories of trails and camps open to stock should be conducted in order to determine appropriate standards for stock conditions and to monitor compliance with Wilderness standards.

Crosscountry Zones

Quantitative inventories of user impacts in crosscountry zones will be the responsibility of the Natural Resource Planning Division, with assistance from the Ranger Division. Monitoring will include a quantitative assessment of impacts associated with social and way (Type C) trails and bareground areas, and development of a campsites condition class inventory system. Emphasis will be placed on those areas receiving heavy use, where observations indicate a high amount of user impacts, and areas where rare plants are present. After quantitative assessments, rehabilitation/restoration plans will be prepared and include recommendations for site restoration and/or use limits, where appropriate. Additional funding is needed for monitoring and restoration work.

Alpine Zones

The highest resource management priority for Mount Rainier National Park is human impact in high elevation ecosystems. Quantitative and qualitative monitoring to document high elevation campsites, trails and their impacts, vegetation recovery rates, and long-term changes in native plant communities is being conducted by the Natural Resource Planning Division. Additional funding is needed to continue to support and expand these monitoring efforts and to study appropriate techniques for restoring alpine ecosystems. Monitoring will facilitate systematic development of management recommendations (including acceptable limits and campsites) for alpine areas with high visitor use and impacts, and including an active program of rehabilitation of disturbed sites.

All Zones

Inventories of abandoned telephone lines, insulators, aircraft wreckage, leftover or stockpiled trail construction materials and other man-made items should be completed and actions taken to mitigate their effects on Wilderness resources.

Aircraft overflights and influences of adjacent land use practices that affect Wilderness values should be routinely documented.

Research

Day-Use and Effects

Day-use of the Wilderness area may be significant. Approximately 66% of visitors to Mount Rainier National Park are day-users. The Backcountry Permit System provides user data only for overnight camping. There is currently a lack of adequate data on day-use of park trails. In order to quantify day-use in heavily impacted areas,
trail counters have been installed at some of the more popular trailheads since 1986. Area Rangers are responsible for installation and data collection. The Natural Resource Planning Division is responsible for data analysis. Additional funding is needed to improve methods of data collection and statistical analyses to gain a more accurate perspective of day users and their contribution to user impacts.

**Conduct Baseline Inventorying and Monitoring**

It is the policy of the NPS to assemble baseline inventory data describing the natural resources under its stewardship, and to monitor those resources forever - to detect or predict changes that may require intervention, and to provide reference points to which comparisons with other, more altered areas may be made (NPS, 1987). Baseline inventories of Wilderness resources need to be conducted. Inventories are the process of acquiring, managing, and analyzing information on park resources and include documenting the presence, distribution and condition of plants, animals, soils, water, air, natural features, biotic communities, and natural processes. Long-term monitoring is the systematic collection and analysis of those resource data at regular intervals, in perpetuity, to predict or detect natural and human-induced changes, and to provide the basis for appropriate management response. Inventorying and monitoring are fundamental elements of Wilderness management that includes, 1) scientific investigation to understand the ecological and anthropogenic processes that underlie park resources; and 2) the management of those resources and regulation of visitor activities based on the information acquired. These interdependent activities are all necessary for the protection of Wilderness resources.

There is limited information on aquatic systems, wildlife, (e.g., mountain lions, mountain goats), invertebrates, and air pollutant effects on soils, vegetation, and other organisms. The Natural Resource Planning Division is responsible for assembling a panel of field experts to determine major information gaps in natural resource data available for Mount Rainier National Park. Additional funding will be needed to conduct long-term monitoring efforts to assure the perpetuation of Wilderness resources.

**Determine Visitor's Opportunity for Experiencing Solitude in the Mount Rainier Wilderness Area**

One of the most important attributes of Wilderness is that it provides users with the opportunity for experiencing solitude by virtue of its relative isolation from urban areas and absence of past human activities. Measurable standards must be established for determining visitor's opportunity for experiencing solitude, and defining opportunity classes in the Mount Rainier Wilderness. Factors such as encounters with other visitors, presence of trails in crosscountry zones, and intrusions such as military aircraft overflights, need to be considered in establishing standards and recommended management actions. Additional funding is necessary to establish methodology for defining standards and monitoring protocols for assuring compliance with the standards.

**Improve and Refine Wilderness Impact Monitoring Methods and Standards for Resource and Social Conditions**

Quantitative monitoring for backcountry impacts has been conducted in the now designated Mount Rainier Wilderness for the past 15 years. However, data has never
been collectively analyzed to determine how effective management actions have been in protecting the Wilderness. In addition, methods and the quality of information collected has varied over the years. A comprehensive and systematic review of past data and methodology is needed to determine quantitative changes that have occurred since 1973. Development of better standards for resource and social conditions and long-term monitoring systems is needed. Additional funding is needed to conduct this research.

**Determine the Extent and Severity of the Human Waste Problem in the Mount Rainier Wilderness**

Human waste problems may exist in Trail, Crosscountry and Alpine Zones, but especially along climbing routes in the high elevations, above 6000 feet. Visitors climbing Mount Rainier have increased significantly over the past 30 years from 238 in 1950; 1037 in 1961; 3192 in 1970; and 8358 in 1982. These visitors spend at least one night on the mountain where no effective sanitation or human waste disposal facilities or methods exist, except for limited facilities provided at Camp Muir and Schurman, outside of the Wilderness. Wastes do not break down rapidly on snowfields, and as spring melt occurs, the past season's accrual begins to show. As snow is melted for drinking water, the potential for contamination exists, especially if wastes are obscured by new snowfall. Visitor complaints are frequently received about human wastes along the most commonly used climbing routes and on the mountain's summit.

Some pit toilets that have been placed in trailside camps are rapidly reaching maximum capacities. Some toilets are located in soils with poor drainage and within seasonal high groundwater levels. Alternative methods such as composting toilets, should be explored. Areas littered with human wastes cause aesthetic and sanitation problems. Additional funding is needed to determine the extent and severity of the human waste problem in the Wilderness. Information will assist in defining an appropriate "standard" for this indicator, as required in the Wilderness Management Plan. Research will specifically address: location of problems; potential for water contamination; threats to human health; effects on natural resources; and recommend appropriate alternatives given limiting factors such as climate, site restrictions and accessibility. Inventories of sanitation conditions should be completed for all zones in order to develop more measurable standards. In addition, long-term monitoring programs should be developed to ensure compliance with Wilderness standards.

**Wildlife Habitat and Population Inventories**

Indicator species need to be identified and habitat inventoried and the quality assessed to determine the effects of human use on these species. Existing data should be analyzed and critical habitat mapped using the park's GIS. Assessments of habitat quality and surveys of population dynamics are also needed. Long-term monitoring programs should be developed to assure compliance with Wilderness standards. Additional funding is needed for these projects.

**Monitor Elk Impacts on Vegetation**

The result of adjacent clearcutting operations has artificially opened the forest canopy allowing forage species to propagate. Logging practices may have elevated elk
populations by providing additional winter range to that normally existing on river valley floors. Many of these same animals migrate into the park during summer and utilize supalpine meadows. Elk impact sensitive subalpine vegetation by wallowing, trampling, grazing and browsing. *Castilleja cryptantha*, a sensitive endemic subalpine plant, may be threatened by elk in some locations. Monitoring, including aerial counts, observation and classification of animals, photographing impacts, and monitoring vegetation plots continued through 1988. Additional funding beyond 1988 may be needed to continue monitoring elk impacts in the Wilderness.

**Inventory and Monitor Rare, Threatened and Endangered Species**

There is a paucity of information on rare, threatened and endangered animal species. There are no known animal species listed on the federal list of Endangered and Threatened Species (except for some migratory raptors), but very few inventories have been conducted in the park. Little information exists on raptors, gray wolf, several species of salamanders and frogs, wolverine, heather vole, water shrew, orea angle-winged butterfly, great gray owl, northern pocket gopher, and the Cascade vole. Several animal species are listed on the state rare, threatened and endangered species list but again, little is known of their occurrence in the Mount Rainier Wilderness. These include fisher, marten, and bobcat. The northern spotted owl is listed as "threatened" in the State of Washington and baseline information is being collected on their occurrence and productivity in the park. Funding is needed to inventory additional animal species and to continue and expand northern spotted owl surveys.

Several species of rare plants listed on the State list of endangered, threatened, and sensitive species are present within the Wilderness. *Castellija cryptantha*, the Mount Rainier paintbrush, is under consideration for listing on the federal Endangered and Threatened Species list. Funding is needed to continue and expand inventory and monitoring efforts for rare plants in the Wilderness.

**Investigate trampling effects on Lower Forest Ecosystems**

Some studies have demonstrated that forest floor vegetation is generally more highly altered by camping than is the vegetation of open sites. Use of forested campsites removes most of the dominant shrubs and erect forbs and creates a compacted surface which is invaded by a few trampling-resistant species (Cole, 1981). Additional studies are needed to determine the trampling effects in the lower forested areas of the Mount Rainier Wilderness.
XII. ANNUAL WILDERNESS REPORTS

Two annual reports will be submitted to the Superintendent:

1. State of the Wilderness: This report will identify areas where current conditions fail to meet established standards for resource and social conditions and management actions necessary to meet these standards. This report will also address conditions of the backcountry over the past year and will include a summary of all management activities including monitoring; rehabilitation and restoration efforts; relocation of trailside campsites, toilets, or other developed facilities; use statistics; documented impacts; and other management and funding needs, including funding needs. The Natural Resource Planning Division is responsible for preparing this report with coordination from the Ranger, Interpretation and Maintenance Divisions, as appropriate.

2. Mechanized Equipment Use Report: These reports will include any use of mechanized equipment with a brief project description and justification for use of aircraft and power tools and equipment in the Wilderness. The Maintenance, Ranger, and Natural Resource Planning Divisions are responsible for preparing reports on their respective activities and submitting them to the Superintendent by December 1 of each year.
Glossary

Type A Trails: Paved trails that are improved and maintained for foot traffic. These trails usually reach many of the main visitor attractions and serve as a terminus for Type B or Type C trails. Minimum tread width is usually 24 inches, and overall grade is less than 10 percent. For grade distances less than 150 feet, grade should not exceed 15 percent. There are no Type A trails in the Wilderness.

Type B Trails: Trails that are improved and maintained to accommodate foot and stock traffic but contain an overall lower construction standard than Type A trails. These trails serve scenic areas, fishing areas, and access points. These developed trails contain the necessary trail construction items such as bridges, culverts and other types of drainages, puncheon and etc. Trail tread may be limited to the space required to form a single-file trail except on grades where the maximum is justified. The overall grade is less than 15 percent. For distances less than 150 feet, grade should not exceed 18 percent. Type B trails exist only in the Trail Zone of the Wilderness and include the Wonderland trail.

Type C Trails: These are "way trails" or frequently used travelways, mostly created by hikers. Type C trails are normally used by experienced Wilderness users and are generally not marked except to protect natural resources. These trails are routinely inspected by Rangers for erosion and other resource damage. Maintenance is limited to preventing additional resource damage. Trail width should normally not exceed 18 inches. These trails will not be signed and will not be published on public information brochures or maps. Visitors requesting permits for crosscountry areas with Type C trails will be given information regarding their location and requested to use Type C trails, where they exist, rather than creating new social trails.

Social Trails: These trails are generally user-created "spurs", off of Type A, B or C trails, or trails surrounding lake basins or within sensitive vegetation, which have been identified as creating or contributing to resource damage. Many social trails exist throughout the Wilderness and are being rehabilitated as time and funding permit.

Limits of Acceptable Change (LAC): A planning framework developed by Stankey, et al., 1985, for establishing acceptable and appropriate, or desirable resource and social conditions (factors) in recreation settings. The Mount Rainier Wilderness Plan has incorporated a modification of the LAC system for developing standards and addressing area issues and concerns.

LAC Factors: Key resource and social conditions that can be measured to aid in describing the state of the Wilderness. Examples are: Aquatic Resources, Sanitation, Landscape Conditions, etc.

LAC Indicators: Provide an indication of the state of the resource or social condition when conducting inventories; specify the variable to be measured; and identify the unit of analysis. For example, in selecting indicators to define landscape conditions, an indicator may be the amount of bareground that is present at any one site, (measured in square meters) as a result of camping impacts.

LAC Standards: Measurable aspects of the indicators that provide a base against which a particular condition can be judged as acceptable or not.
Minimum tool: The Wilderness Act states, "...except as necessary to meet minimum requirements for the administration of the area for the purpose of the Act...(there shall be) no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport..."

The minimum tool is the tool that is least disruptive to Wilderness resources, including resource and social considerations, and yet is adequate for accomplishing management tasks (such as trail construction, restoration projects, removal of human wastes with aircraft, and research). Appendix E lists several factors to consider in determining the minimum tool.

Backcountry Cards: Backcountry cards include Non-compliance and Backcountry Impact Cards. Observed violations of park regulations and impacts to resource and social conditions are documented on these cards. Cards are summarized annually to provide information of Wilderness and backcountry conditions and to highlight problems.
References and Literature Cited


APPENDIX A

MANAGEMENT OF NON-WILDERNESS BACKCOUNTRY AREAS

This plan serves as an appendix to the Wilderness Management Plan to provide guidance to employees and the public on management of areas within the park that are excluded from the Mount Rainier Wilderness. The non-Wilderness zone includes all of the developed areas, outside of the designated Wilderness boundary. See Figure 1, pg. 2a of the Wilderness Management Plan.

Developed Facilities

Developed visitor and employee facilities are at Longmire, Nisqually, Paradise, Sunrise, White River, Carbon River, Ipsut Creek, Cougar Rock, Ohanapecosh, and Camps Muir and Schurman.

Road Corridors

This zone includes road corridors adjacent to the Wilderness boundary. Road corridors generally extend from 100 ft. of the center line of unpaved roads and 200 ft. of the center line of paved roads. The Mount Rainier Wilderness Act requires, "...To the extent practicable, undeveloped areas adjacent to all roads shall be managed as if designated as Wilderness."

Water Systems

Several water systems are located throughout this zone and are noted in Figure 1.

Frontcountry Campgrounds

Frontcountry campgrounds are at Sunshine Point, Ipsut Creek, Cougar Rock, White River, Ohanapecosh and Mowich Lake. Group campsites can be reserved at Ipsut Creek and Cougar Rock campgrounds. Frontcountry campground regulations are provided in Attachment 1.

Backcountry Camps

Backcountry camping is available at Camps Muir and Schurman, Emmons Flat, and Sunrise Trailside Camp. Quotas have been established on the number of persons or permits issued per night. (See Appendix C to the Wilderness Plan).

Public Shelters

A public climbing hut is located at Camp Muir. A Guide House is operated by the concessionaire at Camp Muir. The Camp Muir structures are eligible for nomination to the National Register as historic structures.

Cabin

Patrol cabins are located at Camps Muir and Schurman.
Archaeological Sites

Very few cultural sites utilized by prehistoric Indians and historic human activities have been identified in the park. These sites receive appropriate protection in accordance with the Archaeological Resources Protection Act and National Park Service policies.

Signs

Numerous signs are located throughout this zone in the developed facilities and road corridors. Interpretive points are noted in Figure 1. Destination signs and informational bulletin boards are present at Camps Muir and Schurman and Sunrise Trailside Camp. Most of these signs are on metal posts and are constructed of buffed aluminum plate with engraved and painted lettering. Signs note mileage to destination points, mark intersections, designate points of interest, detail rules and regulations and give other information. Minimum signing will be utilized in this zone for public health and safety and resource concerns. Further information on signs is available in the park's Sign Plan.

Plaques or Memorials

The Stevens-Van Trump historical monument and the Marine Memorial monument are located within this zone.

Administrative Use of Aircraft

Helicopters are frequently used for human waste disposal and other uses in this zone. Administrative use of helicopters is permitted in accordance with Office Order 87-1 and 79-8. Permission to use aircraft in the park is granted by the Superintendent, except in emergency operations. Except in very special situations, helicopter use for other than emergencies will not be approved between July 1 and Labor Day and use is restricted to Mondays through Thursdays. Approval for use of helicopters in non-emergency situations will be granted only if it has been determined to be the minimum tool since helicopter use will affect the adjacent Wilderness area.

There are constructed helipads at Camp Muir and Kautz Creek.

Fixed wing aircraft are used in compliance with FAA regulations for administrative purposes such as for resource management, search and rescue and fire management operations.

Administrative Use of Mechanized Equipment

Park use of power equipment is dictated by Office Order 87-1.

Fire Management

Response to wildlands fire is in accordance with the park's approved Fire Management Plan.
Research

Research activities are permitted in accordance with 36 CFR. Research projects are permitted if they meet the following requirements: the project addresses an identified management need; addresses a stated management objective; there is no alternative to conducting the research in the park; and the project will not adversely affect or interfere with natural resources, ecosystem processes, aesthetic values, or recreational or conservation purposes of the area.

Use of mechanical forms of transportation

Use of bicycles or other non-motorized mechanical forms of transportation by visitors is not permitted off of park roads, with the exception of wheelchairs used by disabled visitors.

Hang-gliders or Paragliders

Hang-gliders and paragliders are not permitted for use in the park in accordance with 36 C.F.R., Sec. 2.17.

Firearms

Visitor use of firearms is not permitted in this zone, in accordance with 36 C.F.R.

Pets

Dogs (except seeing eye dogs) or other pets (including sled dogs) are permitted only in developed areas and frontcountry campgrounds, subject to restrictions as noted in Attachment 1. Pets are not permitted in backcountry camps or along trails except the Sunrise pet trail.

Snowmobiles

There are four roadway areas within the park which have been designated as snowmobile use areas. See Attachment 2.

Sanitation

Restroom facilities are located throughout developed areas, frontcountry campgrounds and along some roads.

A pit toilet is located at Panorama Point. Two pit toilets and a solar-assisted toilet are located at Camp Muir. A pit toilet is located at Camp Schurman. Latrines with privacy screens are located at Emmons Flat. A pit toilet is located in the Sunrise Camp. No toilet facility will be placed less than 200 feet from lakes, tarns, streams or other wetlands. Toilet design and siting in backcountry camps will minimize visual impacts. Where no toilet facilities are available visitors should use surface, "cathole," or the blue bag methods of human waste disposal. Use of surface disposal is encouraged in more isolated areas. In surface and cathole disposal toilet paper waste must be carried out with other litter, and not left or buried. No washing or use of cleansing agents, disposal of food, human or stock wastes is permitted within 200 feet of lakes, tarns, streams or other wetlands.
Visitors and staff will remove all litter and trash, including toilet paper waste. Trash will not be deposited in crevasses.

Sanitation impacts will be documented. Long-term monitoring programs will be developed where necessary to assure protection of resources and public health and safety. Public education, interpretive media and enforcement will be utilized to gain compliance. Research on alternative techniques for human waste disposal should be explored to provide safe and simple methods that minimize damage to the environment and on visitors' experience.

**Backcountry Permits and Climbing Registration**

Backcountry Permits or Climbing Registration is required year-round for any camping at Camps Muir, Schurman, Emmons Flat, and Sunrise Trailside Camp. A permit is also required for winter camping at Paradise, Sunrise, White River and Mowich Lake areas. Backcountry and Climbing permits will be entered into the computerized Backcountry Permit System on a daily basis. The Backcountry Permit System is administered by the Interpretation Division although permits are also issued and entered by Rangers and other personnel. Permits are issued on a first-come, first-serve basis and are issued no more than 24 hours in advance of beginning date. Permits are written for a maximum of seven nights but visitors who wish to extend their stay can obtain another permit for an additional 7 nights; maximum stay is 14 days. Permits are issued at Ranger Stations and Hiker Information Centers in the summer and at the Longmire Museum in the winter. Data on camping location, length of stay, party size and locations of entry and exit, etc. are entered into the computerized data base. Permits reserve a space at the location and date indicated on the permit. Strict adherence to stated locations and dates of camping is required in order to manage overcrowding and potential resource damage.

Climbing registration is required for those wishing to climb Mount Rainier, Little Tahoma or travel on glaciers (with the exception of the Guide Service going to the summit via Camp Muir). In order to obtain a climbing permit, 36 CFR 7.5 (b) (c) as follows, must be met:

1. all persons must be a minimum of 18 years of age or have written permission to climb from a parent or guardian;

2. climbing permits are completed for each party member in order to facilitate search and rescue activities if necessary;

3. each party must consist of a minimum of two persons unless a climber has received special written permission for solo climbing from the Superintendent;

4. Party size is limited to 12 persons.

**Camping**

Camping is permitted in the non-Wilderness zone at backcountry campgrounds. Camping is also permitted in the following areas with restrictions:

* Refer to Wilderness Plan Appendix C to determine when to issue a backcountry or climbing permit.
Year-round camping is permitted with a Backcountry Permit at:

Sunrise Trailside Camp: from June 15 through September 30 camping is permitted in designated campsites (8 individual, 2 group sites). Between October 1 and June 14 when snow cover is two feet or more maximum group size is limited to 12 and camping is not restricted to designated campsites. Gas, propane, butane or similar fueled stoves are permitted. No camping is permitted within 100 feet of lakes, streams or other wetlands.

Camping is permitted in the designated areas at Camps Muir (limit 110 persons), and Schurman (limit 35 persons), and Emmons Flat (no use limits). Permits are required.

Between October 1 and June 14 when snow cover is five feet or more:

Paradise area, a minimum distance of 100 yards from buildings. No camping is permitted within 100 feet of streams, lakes, or other wetlands. Use of gas, butane, or propane stoves is permitted. Restroom facilities are available at the Paradise Visitor Center. Group size is limited to 12 persons. Larger groups may be accommodated only if provisions are made for human waste disposal and with permission of the Superintendent. Backcountry permits are required.

Between October 1 and June 14 when the Sunrise road is closed and snow cover is two feet or more:

Sunrise area, a minimum distance of 100 yards from buildings. No camping is permitted within 100 feet of streams, lakes, or other wetlands. Use of gas, butane, or propane stoves is permitted. Maximum party size is limited to 12 persons. Backcountry permits are required.

Camping is permitted beyond 200 feet from road sides but a minimum of 100 ft. from lakes, streams and other wetlands. Maximum party size is limited to 12 persons. (Most of these camping areas are Wilderness). Backcountry permits are required.

No camping is permitted within road corridors at any time of year. Except as noted above, no camping is permitted within 1/4 mile of roads and Type A and B trails.

Restrictions on use may be amended based on sanitation concerns, damage to natural resources or success of rehabilitation or natural recovery of impacted areas. Climbers may be denied permission to use popular routes if natural resources are threatened. Users may be requested to show field rangers their permit at any time. Permit requirements will be enforced. Annual statistics will be compiled from permit data in order to determine patterns of use.

Camping impacts will be monitored using methods as described in the Wilderness Plan. Use of non-Wilderness backcountry areas will be monitored for effects on Wilderness values and natural resources.
Campfires

Wood and charcoal fires are permitted only in the frontcountry campgrounds in accordance with regulations as noted in Attachment 1.

Stock

Stock are permitted only on the Tipsoo Lake trail in this zone. All other stock use is limited to Wilderness areas noted in Appendix G of the Wilderness Plan.

Day-Use

The following areas are designated as Day-Use only when the Sunrise road is open; from June 15 through September 30; and when snow cover is less than two feet:

Burroughs Mountain, Sunrise trails (areas both in Wilderness and non-Wilderness, see Figure 2).

The following area is designated as Day-Use only from June 15 through September 30 and when snow cover is less than five feet:

Paradise area (see Figure 3)

The following area is designated as Day-Use only, year-round:

Ghost Lake, Klickitat Creek

Trails

Type A, B and C trails exist within this zone and will be maintained according to standards outlined in the Trails Management Handbook. Refer to the Paradise Meadows Plan for maintenance of trails in this area. No trails will be permitted where they threaten adjacent aquatic resources, sensitive vegetation, or rare, threatened or endangered species.

Miscellaneous items such as abandoned telephone lines, insulators, aircraft wreckage, trail construction materials and other items will be removed as park personnel and funding permit. Social trails and old roadbeds will be obliterated and restored to natural conditions. Trail and camp construction material will not be stockpiled for more than two years.

Inventories are being conducted to document trail impacts and measure vegetation recovery rates as well as to assess long-term changes in native plant communities. Refer to the Paradise Meadows Plan for management and restoration of specific trails in this area.

Endangered, Threatened and Rare Species

Visitor use will not be allowed to compromise protection of endangered, threatened and rare species. There will be no loss or threats to rare plants as a result of visitor use. Additional baseline inventories and long-term monitoring programs are
needed to determine the presence of endangered, threatened, and rare animal and plant species in this zone.

**Exotic Plant Species**

Exotic plant species will be removed from this zone in accordance with integrated pest management policies and under the guidance of the park Botanist.

**Public Education and Interpretation**

The park Division of Interpretation is responsible for developing and disseminating information on recreational use in the park and promoting public understanding of park values and ethics to encourage wise use of the area.
Figure 3: Paradise Day Use Area
CAMPGROUND REGULATIONS

MOUNT RAINIER NATIONAL PARK

Welcome to Mount Rainier National Park. Your cooperation in helping to preserve the natural features and facilities is needed.

Only one CAMPING UNIT (persons living in the same household or travelling in the same vehicle) per campsite is permitted. Maximum of one vehicle plus trailer and two tents per site or as otherwise designated. Ask a ranger about parking extra vehicles. Camping is limited to no more than 14 DAYS.

Keep FIRES small and within the closed grating provided and leave no trash in the grate. To preserve the forest integrity collection of WOOD for fires is NOT permitted, except from riverbeds at Sunshine Point and Ipsut Creek Campgrounds, where dead and down wood may be collected.

Dogs, cats and other PETS are welcome but must be caged, leashed, or otherwise under physical restrictive control at all times. Pets are NOT permitted in amphitheaters, buildings, on trails, or in other areas outside the campground or away from roadways.

In order to preserve the NATURAL FEATURES around you, driving nails into trees and ditching around tents is NOT permitted. Likewise, for your safety, wild animals must be left alone. Feeding them human foods can cause digestive problems and result in their deaths.

All VEHICLES (cars, trucks, RV's tent-trailers and utility trailers) must park on the gravel or paved area of your site and NOT beyond the barriers. If you are leaving your vehicle for more than 24 hours, report your intentions to the campground ranger so it is not considered stolen or abandoned property.

BICYCLES and MOTORBIKES may be operated in the campground on the roadways only. Travel on trails with bikes and the use of SKATEBOARDS is NOT permitted in the park.

To insure adequate SANITATION; use restroom for their intended purposes. RV sink drains may empty into containers outside the vehicle but these must be emptied into service sinks or toilets only. Please do NOT use water fountains or spigots for cleaning purposes.

Please respect QUIET HOURS, which must be maintained between 10 pm and 6 am.

Questions about the park or its regulations should be directed to a ranger in the area.

HELP PREVENT THEFTS -- PROTECT YOUR VALUABLES.
FOLLOW INSTRUCTIONS POSTED ON BULLETIN BOARDS.
SNOWMOBILE REGULATIONS

A "snowmobile" is defined as a self-propelled vehicle weighing not more than 1000 lbs., intended for travel on snow, driven by track(s), and steered by ski(s). Wheeled off-road vehicles are therefore not permitted on snowmobile routes.

SNOWMOBILES ARE PERMITTED ON DESIGNATED ROADWAYS ONLY, WHEN SUCH ROADWAYS ARE CLOSED BY SNOW TO NORMAL TRAFFIC. DO NOT ATTEMPT TO TRAVEL CROSSCOUNTRY, ON TRAILS, OR ON UNDESIGNATED ROADS.

SNOWMOBILES MUST BE PROPERLY REGISTERED IN ACCORDANCE WITH STATE LAW.

SNOWMOBILES MUST BE EQUIPPED WITH BRAKES IN GOOD WORKING ORDER.

SNOWMOBILES MUST EXHIBIT A LIGHTED WHITE HEADLIGHT AND RED TAILLIGHT FROM ONE-HALF HOUR AFTER SUNSET TO ONE-HALF HOUR BEFORE SUNRISE, OR WHEN PERSONS AND VEHICLES ARE NOT CLEARLY VISIBLE FOR A DISTANCE OF 500 FEET.

THE FOLLOWING ACTS ARE PROHIBITED

- OPERATING A SNOWMOBILE THAT MAKES EXCESSIVE NOISE
- RACING OR OPERATING A SNOWMOBILE IN EXCESS OF 45 MPH.
- OPERATION OF A SNOWMOBILE BY A PERSON UNDER THE AGE OF 16 UNLESS SUPERVISED WITHIN LINE OF SIGHT BY A RESPONSIBLE PERSON 21 YEARS OF AGE OR OLDER.
- OPERATION OF A SNOWMOBILE BY A PERSON UNDER THE AGE OF 12 UNLESS ACCOMPANIED ON THE SAME MACHINE BY A RESPONSIBLE PERSON 21 YEARS OF AGE OR OLDER.
- TOWING OF PERSONS ON SKIS, SLEDS, OR OTHER DEVICES BY A SNOWMOBILE.

WHERE TO GO

There are four roadway areas within the park which have been designed for snowmobile use. Use your machines only on these roadways:

1. WEST SIDE ROAD - Snowmobile travel is permitted from the junction of the West Side Road with the Nisqually-Longmire Road to Round Pass, but not north beyond Round Pass. Be wary of a large avalanche track at Dry Creek, where one first comes into an open area at the base of Mount Wow.

2. COUGAR ROCK CAMPGROUND - Snowmobile travel is permitted throughout the campground on the unplowed roads.

3. STEVENS CANYON ROAD - The road is usually closed at the Ohanapecosh or Stevens Canyon junctions with Hwy. 123. The unplowed road is open to snowmobiles from the road end 10 miles to Box Canyon, where a highway tunnel provides a sheltered picnic spot. Travel beyond Box Canyon is prohibited due to avalanche hazard.

4. WHITE RIVER AREA - Snowmobiling is permitted from the north park boundary, on Highway 410, southward to the junction of the White River-Sunrise Road, and then west on that road to White River Campground. Do not travel by snowmobile beyond the campground road junction toward Sunrise! Likewise, snowmobile travel is prohibited south on Highway 410 from the junction of the White River-Sunrise Road.

REGISTRATION AND SAFETY

No registration is required but let Rangers or others know your plans. STAY ALERT FOR POSSIBLE AVALANCHE DANGER on obvious avalanche tracks as well as all steep areas. Check with a Ranger for current avalanche forecasts.

R7 (REV. 12/85)
CRITERIA TO DETERMINE WHETHER A NEW TRAILSIDE CAMP SHOULD BE CONSTRUCTED
(to be revised by 1990)

1. Demonstrated Demand:

   Such as . . .

   A. Large areas of bare ground site exists in the general area of the proposed camp indicating a previous or existing degree of use, and attempt at restoration and other mitigation actions have failed.

   B. Parties have frequently been observed illegally camping along the trail in the general vicinity of the proposed camp.

   C. The hike between the two closest existing trailside camps in the area is unreasonably long or difficult to do in one day.

   D. Crosscountry zones adjoining the proposed camp are being used rather heavily.

   AND

2. Next closest camp is at least two miles away (or 1000' elevation difference).

   AND

3. Score of 60 or better on Campground Rating Criteria.

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SITE SELECTION CRITERIA TO BE CONSIDERED FOR WILDERNESS AND BACKCOUNTRY TOILET FACILITIES

Site selection criteria: dry soils with fine and close textures (not too porous or impervious; medium to coarse sands and soils with high clay content will be avoided); soil depth should be adequate to accommodate a five foot privy, yet still remain four to five feet above the water table at its highest level; ten feet of soil depth should be adequate in most cases.

If a structure encloses the toilet, the portion of the structure in contact with soil should be rodent proof to a depth of 18 inches and surrounding soil should be compacted and free of vegetation to discourage rodent burrowing. The door should be self-closing and fly-tight; adequate venting should be provided; roof vents should be fly screened and rainproofed. Toilet design and siting will minimize visual impacts.
The attached Campsite Selection Criteria has been developed as a tool that can be used when developing and improving trailside camps for backpackers. In particular, the purpose of the selection criteria is:

1. To determine whether a trailside campground should be constructed in a given area.
2. To determine how well an existing camp protects natural resources from unacceptable human impacts and provides user satisfaction.

Some assumptions and value judgments have been made. These include that resource values along the trails are best preserved by limiting camping along trails to designated camps where impacts can be concentrated in durable locations; that backpackers visiting the Trail Zone, in general, want neither total isolation or excessive crowding where they camp but want the areas along the trails preserved in their natural state, without excessive sign of human impacts or an overabundance of trailside camps.

When attempting to determine whether an additional trailside campground should be built along a particular trail, refer to the sheet titled, "Criteria for Determining Whether A New Trailside Camp Should Be Constructed". A score of 65 or better indicates that the location is an excellent one for a campground. Generally, construct no new camps that score below 60.

When attempting to improve existing campground facilities, score the camp according to the attached ten selection criteria. Low scores on any one criteria will indicate deficiencies. Attempts can then be made to correct or minimize the problem. Note that these criteria are appropriate for forest and subalpine environments in the central Cascade Mountains and may not be appropriate in other places.

Scoring:

65 or better = Excellent
60 - 64 = Good
50 - 59 = Fair
Below 50 = Poor

Campsite Selection Criteria

A. Resource Protection, Site Durability:

7-10 points

Thick duff layer, open stand of trees with little herbaceous understory, able to withstand considerable impact; neither the campground nor the surrounding land (within 500 feet of camp) will suffer significantly from heavy use.
4-6 points Campground is able to withstand considerable impact as described above, but surrounding areas are much less resistant to impact.

0-3 points Both the campground and surrounding areas are subject to significant impact damage.

B. Campground Desirability (Aesthetics):

7-10 points Attractive view from most campsites; campground is situated in a pleasant setting, either in an open, well-lighted area or in an open stand of mature trees with little understory.

4-6 points Some views from the camp but is in an unpleasant setting otherwise, or no views in a pleasant setting.

0-3 points No views, unpleasant setting (dark and dreary, wet, brushy).

C. Distance from Camp to Attractions:

7-10 points Camp is within one-quarter mile of such attractions as lakes, meadows, waterfalls, overlooks, or other obvious attractions.

4-6 points Camp is one-quarter to one-half mile from attractions.

0-3 points Camp is more than one-half mile from attractions.

D. Water Supply Protection and Availability:

7-10 points 150 feet or more from lakeshores and streams, but not more than 300 feet.

4-6 points Less than 150 feet from lakeshores or streams, or more than 300 feet from the drinking water source.

0-3 points Less than 100 feet from lakeshores or streams, or the source of drinking water is from lakes or snow (instead of streams), or the water source is not dependable throughout the summer.
E. Drainage:

7-10 points Well-drained sites; soil is gravelly or sandy or duff is thick; campsites are slightly inclined to assist with drainage but water running into sites is not a problem.

4-6 points Fair drainage; presence of silt or clay may delay drainage; problems may occur during moderate rainfall.

0-3 points Poorly drained sites or ones in which water runs into them because of steep slopes; soil is silt or clay; evidence of standing water may be present; sites are slow to dry out after rains.

F. Toilet Site:

7-10 points At least 200 feet from streams or lakes and 50 feet from the nearest campsite; access to toilet is well laid out so that people walking to it do not interfere with other camps; well screened, good privacy.

4-6 points At least 200 feet from streams and lakes but fails in other respects mentioned above.

0-3 points Less than 200 feet from lakes or streams.

G. Campsite Quality:

7-10 points All sites are essentially flat with just enough slope to assist with drainage; large enough for at least one three-person tent; free of protruding roots, hummocks, holes, etc.

4-6 points Some sites are good, others not so good according to above description.

0-3 points Most sites are too small, uneven, or otherwise poor for tents.

H. Site Separation:

7-10 points All sites are essentially out of view of the main trial; sites have at least 30 feet distance between them or there is adequate buffering to make the next closest party out of view.
4-6 points

Some sites are within view of the main trial, or some sites are less than 30 feet apart or poorly screened from other sites.

0-3 points

Sites are next to or within view of the trail, or most sites have inadequate separation from each other as described above.

I. Potential Hazards:

7-10 points

No obvious hazards in or directly adjoining the camp; campground is somewhat protected from severe weather by trees, hillside, etc., or low elevation.

4-6 points

Some possible hazards nearby such as cliffs, embankments, rockfall, flooding, etc., or severe weather is more a problem because of elevation or scarcity of natural cover.

0-3 points

Hazard trees are currently standing in the campground, or because of very high elevation and scarcity of natural cover the camp is subject to very severe weather.

J. Season of Use:

7-10 points

Snow melted from the camp by mid-June and snowfree until late October; score higher for larger camps.

4-6 points

Snow melted from camp by July 1 and snowfree until mid-late October.

0-3 points

Snow not melted from camp until mid-July and snowfree until early to mid-October or sooner.
APPENDIX C

WILDERNESS ZONES

DAY USE ZONES

The following camping closure applies when snow cover is less than five feet and during the period from June 15 through September 30:

Muir Fellfields: camping is prohibited anywhere on bareground and vegetation within the boundaries of the Muir Snowfield between Pebble Creek and Anvil Rock. Camping is permitted only on permanent snow or ice.

The following camping closures apply when snow cover is less than two feet in depth and during the period from June 15 through September 30 (no camping is permitted within 100 ft. of lakes, streams or wetlands during anytime of the year, regardless of depth of snow cover):

- Clover Lake: within one quarter mile of the lake.
- Reflection Lake: within one quarter mile of the lake.
- Louise Lake: within one quarter mile of the lake.
- Burroughs Mountain: the entire mountain.

Camping is prohibited anywhere within one quarter mile of paved and unpaved roads when snow cover is less than two feet and during the period from June 15 through September 30. When snow cover is two feet or more during the period from October 1 through June 14, camping is permitted beyond 200 ft. from unplowed roads.

DESIGNATED CAMPS

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*Camps Muir and Schurman are excluded from the Wilderness. Limits established for these camps are for number of people, not sites.*
<table>
<thead>
<tr>
<th>Code</th>
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**CROSSCOUNTRY ZONES**

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</tr>
</tbody>
</table>

*Sunrise Trailside Camp is excluded from Wilderness.*
*Emmons Flat is excluded from the Wilderness.*
KEY TO ISSUING BACKCOUNTRY CAMPING PERMITS AND CLIMBING REGISTRATION CARDS

1. Party will camp between June 15 and September 30 - All Wilderness and non-Wilderness backcountry.
   Go to #2

   Party will camp between October 1 and June 14 - All areas except Paradise.
   Go to #3

   Party will camp between October 1 and June 14 - Paradise area
   Go to #5

2. Camping between June 15 and September 30 regardless of the depth of snow cover, or from October 1 through June 14 - all areas except Paradise, when snow cover is less than two feet - PERMIT REQUIRED.

Wilderness

Trail Zone: Camping is permitted at designated camps only. Each site has a capacity of five persons or one single family unit; some camps have group sites accommodating up to 12 persons.

Crosscountry Zone: Camping is permitted beyond 1/4 mile distance of Type A and B (maintained) trails and a minimum distance of 100 ft. from lakes, streams and wetlands. Party size is limited to five persons. Quotas as noted for each zone will be enforced.

Alpine Zone: Camping is permitted on snow or ice, not on vegetated areas; beyond 1/4 mile distance of Type A and B trails; a minimum distance of 100 ft. from lakes, streams, or tarns. Party size is limited to 12 persons. Quotas as noted for each zone will be enforced.

Day-Use Zone: No camping is permitted in the following areas: Muir Fellfields, Burroughs Mountain, Clover Lake, Reflection Lake, Louise Lake, Ghost Lake/Klickitat Creek. No camping is permitted within 1/4 mile of the Trail Zone and paved and unpaved roads.

Non-Wilderness Backcountry

Camps Muir and Schurman and Emmons Flat: Camping is permitted in designated areas. Quotas as noted for each area will be enforced.

Sunrise Trailside Camp: Camping is permitted according to the same regulations governing Wilderness Trailside Camps, as noted above under Trail Zone.

Day-Use Zone: No camping is permitted in the following areas: Paradise area, Sunrise Area (see zone maps).

As noted above, no camping is permitted within 1/4 mile of paved and unpaved roads and Type A and B trails.
3. Party will camp between October 1 and June 14 - all Wilderness and non-Wilderness backcountry, except Paradise. Snow depth is less than two feet.
   Go to #2

4. Party will camp between October 1 and June 14 - all Wilderness and non-Wilderness backcountry, except Paradise. Snow depth is two feet or more. Non-Wilderness includes Camps Muir and Schurman, Emmons Flat, Sunrise Trailside Camp; when roads are closed and/or unplowed, Mowich Lake, White River, and Sunrise areas. No quotas on the numbers of parties permitted each night but groups are limited to 12 persons. Special permission from the Superintendent and arrangements to dispose of human wastes is needed to exceed this group size limit. No camping is permitted within 200 ft. of roadsides. No camping is permitted less than 100 ft. distance from lakes (including Reflection and Louise Lakes), streams, or other wetlands.

5. Party will camp between October 1 and June 14 - Paradise area. Snow cover is less than five feet.
   Go to #6

6. In the Paradise area when snow cover is less than five feet and from June 15 through September 30, NO CAMPING IS PERMITTED and this area remains a designated Day-Use Zone.

7. Party will camp in the Paradise area between October 1 and June 14 when snow cover is five feet or more. Camping is permitted a minimum distance of 100 yards from buildings. No camping is permitted within 100 feet of lakes, tarns, streams or other wetlands. PERMIT IS REQUIRED. No quotas on numbers of parties per night but group size is limited to 12. Special permission from the Superintendent and arrangements to dispose of human wastes is needed to exceed this group size limit.
Appendix A — The Wilderness Act

Public Law 88-577
88th Congress, S. 4
September 3, 1964

AN ACT

To establish a National Wilderness Preservation System for the permanent good of the whole people, and
for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress
assembled,

SHORT TITLE

SECTION 1. This Act may be cited as the "Wilderness Act".

Wilderness System Established Statement of Policy

Sec. 2. (a) In order to assure that an increasing population, accompanied by expanding settlement and
growing mechanization, does not occupy and modify all areas within the United States and its possessions,
leaving no lands designated for preservation and protection in their natural condition, it is hereby declared
to be the policy of the Congress to secure for the American people of present and future generations the
benefits of an enduring resource of wilderness. For this purpose there is hereby established a National
Wilderness Preservation System to be composed of federally owned areas designated by Congress as
"wilderness areas", and these shall be administered for the use and enjoyment of the American people in
such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to
provide for the protection of these areas, the preservation of their wilderness character, and for the
gathering and dissemination of information regarding their use and enjoyment as wilderness; and no
Federal lands shall be designated as "wilderness areas" except as provided for in this Act or by a subsequent
Act.

(b) The inclusion of an area in the National Wilderness Preservation System notwithstanding, the area
shall continue to be managed by the Department and agency having jurisdiction theretover immediately
before its inclusion in the National Wilderness Preservation System unless otherwise provided by Act of
Congress. No appropriation shall be available for the payment of expenses or salaries for the
administration of the National Wilderness Preservation System as a separate unit nor shall any
appropriations be available for additional personnel stated as being required solely for the purpose of
managing or administering areas solely because they are included within the National Wilderness
Preservation System.

Definition of Wilderness

(c) A wilderness, in contrast with those areas where man and his own works dominate the landscape, is
hereby recognized as an area where the earth and its community of life are untrammeled by man, where
man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act
an area of undeveloped Federal land retaining its primeval character and influence, without permanent
improvements or human habitation, which is protected and managed so as to preserve its natural
conditions and which (1) generally appears to have been affected primarily by the forces of nature, with
the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a
primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size
as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain
ecological, geological, or other features of scientific, educational, scenic, or historical value.

National Wilderness Preservation System—Extent of System

Sec. 3. (a) All areas within the national forests classified at least 30 days before the effective date of this
Act by the Secretary of Agriculture or the Chief of the Forest Service as "wilderness", "wild", or "canoe" are
hereby designated as wilderness areas. The Secretary of Agriculture shall—
(1) Within one year after the effective date of this Act, file a map and legal description of each wilderness area with the Interior and Insular Affairs Committees of the United States Senate and the House of Representatives, and such descriptions shall have the same force and effect as if included in this Act. Provided, however, That correction of clerical and typographical errors in such legal descriptions and maps may be made.

(2) Maintain, available to the public, records pertaining to said wilderness areas, including maps and legal descriptions, copies of regulations governing them, copies of public notices of, and reports submitted to Congress regarding pending additions, eliminations, or modifications. Maps, legal descriptions, and regulations pertaining to wilderness areas within their respective jurisdictions also shall be available to the public in the offices of regional foresters, national forest supervisors, and forest rangers.

(b) The Secretary of Agriculture shall, within ten years after the enactment of this Act, review, as to its suitability or nonsuitability for preservation as wilderness, each area in the national forests classified on the effective date of this Act by the Secretary of Agriculture or the Chief of the Forest Service as "primitive" and report his findings to the President. The President shall advise the United States Senate and House of Representatives of his recommendations with respect to the designation as "wilderness" or other reclassification of each area on which review has been completed, together with maps and a definition of boundaries. Such advice shall be given with respect to not less than one-third of all the areas now classified as "primitive" within three years after the enactment of this Act, not less than two-thirds within seven years after the enactment of this Act, and the remaining areas within ten years after the enactment of this Act. Each recommendation of the President for designation as "wilderness" shall become effective only if so provided by an Act of Congress. Areas classified as "primitive" on the effective date of this Act shall continue to be administered under the rules and regulations affecting such areas on the effective date of this Act until Congress has determined otherwise. Any such area may be increased in size by the President at the time he submits his recommendations to the Congress by not more than five thousand acres with no more than one thousand two hundred and eighty acres of such increase in any one compact unit; if it is proposed to increase the size of any such area by more than five thousand acres or by more than one thousand two hundred and eighty acres in any one compact unit the increase in size shall not become effective until acted upon by Congress. Nothing herein contained shall limit the President in proposing as part of his recommendations to Congress, the alteration of existing boundaries of primitive areas or recommending the addition of any contiguous area of national forest lands predominantly of wilderness value. Notwithstanding any other provisions of this Act, the Secretary of Agriculture may complete his review and delete such area as may be necessary, but not to exceed seven thousand acres, from the southern tip of the Gore Range-Eagles Nest Primitive Area, Colorado, if the Secretary determines that such action is in the public interest.

(c) Within ten years after the effective date of this Act the Secretary of the Interior shall review every roadless area of five thousand contiguous acres or more in the national parks, monuments and other units of the national park system and every such area of, and every roadless island within, the national wildlife refuges and game ranges, under his jurisdiction on the effective date of this Act and shall report to the President his recommendation as to the suitability or nonsuitability of each such area or island for preservation as wilderness. The President shall advise the President of the Senate and the Speaker of the House of Representatives of his recommendation with respect to the designation as wilderness of each such area or island on which review has been completed, together with a map thereof and a definition of its boundaries. Such advice shall be given with respect to not less than one-third of the areas and islands to be reviewed under this subsection within three years after enactment of this Act, not less than two-thirds within seven years of enactment of this Act, and the remainder within ten years of enactment of this Act. A recommendation of the President for designation as wilderness shall become effective only if so provided by an Act of Congress. Nothing contained herein shall, by implication or otherwise, be construed to lessen the present statutory authority of the Secretary of the Interior with respect to the maintenance of roadless areas within units of the national park system.

(d)(1) The Secretary of Agriculture and the Secretary of the Interior shall, prior to submitting any recommendations to the President with respect to the suitability of any area for preservation as wilderness—

(A) give such public notice of the proposed action as they deem appropriate, including publication in the Federal Register and in a newspaper having general circulation in the area or areas in the vicinity of the affected land;

(B) hold a public hearing or hearings at a location or locations convenient to the area affected. The hearings shall be announced through such means as the respective Secretaries involved deem appropriate, including notices in the Federal Register and in newspapers of general circulation in the
area. Provided, That if the lands involved are located in more than one State, at least one hearing shall
be held in each State in which a portion of the land lies;
(C) at least thirty days before the date of a hearing advise the Governor of each State and the
governing board of each county, or in Alaska the borough, in which the lands are located, and Federal
departments and agencies concerned, and invite such officials and Federal agencies to submit their
views on the proposed action at the hearing or by no later than thirty days following the date of the
hearing.
(2) Any views submitted to the appropriate Secretary under the provisions of (1) of this subsection with
respect to any area shall be included with any recommendations to the President and to Congress with
respect to such area.
(e) Any modification or adjustment of boundaries of any wilderness area shall be recommended by the
appropriate Secretary after public notice of such proposal and public hearing or hearings as provided in
subsection (d) of this section. The proposed modification or adjustment shall then be recommended with
map and description thereof to the President. The President shall advise the United States Senate and the
House of Representatives of his recommendations with respect to such modification or adjustment and
such recommendations shall become effective only in the same manner as provided for in subsections (b)
and (c) of this section.

USE OF WILDERNESS AREAS

Sec. 4. (a) The purposes of this Act are hereby declared to be within and supplemental to the purposes for
which national forests and units of the national park and national wildlife refuge systems are established
and administered and—

(1) Nothing in this Act shall be deemed to be in interference with the purpose for which national
forests are established as set forth in the Act of June 4, 1897 (30 Stat. 11), and the Multiple-Use
(2) Nothing in this Act shall modify the restrictions and provisions of the Shipsread-Nolan Act
(Public Law 339, Seventy-first Congress, July 10, 1930; 46 Stat. 1020), the Thye-Blatnik Act (Public
Law 733, Eightieth Congress, June 22, 1948; 62 Stat. 568), and the Humphrey-Thye-Blatnik-
Anderson Act (Public Law 607, Eighty-fourth Congress, June 22, 1956; 70 Stat. 320), as applying to
the Superior National Forest or the regulations of the Secretary of Agriculture.
(3) Nothing in this Act shall modify the statutory authority under which units of the national park
system are created. Further, the designation of any area of any park, monument, or other unit of the
national park system as a wilderness area pursuant to this Act shall in no manner lower the standards
evolved for the use and preservation of such park, monument, or other unit of the national park
system in accordance with the Act of August 25, 1916, the statutory authority under which the area
was created, or any other Act of Congress which might pertain to or affect such area, including, but not
limited to, the Act of June 8, 1906 (34 Stat. 225; 16 U.S.C. 432 et seq.); section 3(2) of the Federal
(b) Except as otherwise provided in this Act, each agency administering any area designated as
wilderness shall be responsible for preserving the wilderness character of the area and shall administer
such area for such other purposes for which it may have been established as also to preserve its wilderness
character. Except as otherwise provided in this Act, wilderness areas shall be devoted to the public purposes
of recreational, scenic, scientific, educational, conservation, and historical use.

PROHIBITION OF CERTAIN USES

(c) Except as specifically provided for in this Act, and subject to existing private rights, there shall be no
commercial enterprise and no permanent road within any wilderness area designated by this Act and,
except as necessary to meet minimum requirements for the administration of the area for the purpose of
this Act (including measures required in emergencies involving the health and safety of persons within the
area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no
landing of aircraft, no other form of mechanical transport, and no structure or installation within any such
area.

SPECIAL PROVISIONS

(d) The following special provisions are hereby made:
(1) Within wilderness areas designated by this Act the use of aircraft or motorboats, where such uses
have already become established, may be permitted to continue subject to such restrictions as the Secretary
of Agriculture deems desirable. In addition, such measures may be taken as may be necessary in the control
of fire, insects and diseases, subject to such conditions as the Secretary deems desirable.
(2) Nothing in this Act shall prevent within national forest wilderness areas any activity, including prospecting, for the purpose of gathering information about mineral or other resources, if such activity is carried out in a manner compatible with the preservation of the wilderness environment. Furthermore, in accordance with such program as the Secretary of the Interior shall develop and conduct in consultation with the Secretary of Agriculture, such areas shall be surveyed on a planned, recurring basis consistent with the concept of wilderness preservation by the Geological Survey and the Bureau of Mines to determine the mineral values, if any, that may be present; and the results of such surveys shall be made available to the public and submitted to the President and Congress.

(3) Notwithstanding any other provisions of this Act, until midnight December 31, 1983, the United States mining laws and all laws pertaining to mineral leasing shall, to the same extent as applicable prior to the effective date of this Act, extend to those national forest lands designated by this Act as "wilderness areas"; subject, however, to such reasonable regulations governing ingress and egress as may be prescribed by the Secretary of Agriculture consistent with the use of the land for mineral location and development and exploration, drilling, and production, and use of land for transmission lines, waterlines, telephone lines, or facilities necessary in exploring, drilling, producing, mining, and processing operations, including where essential the use of mechanized ground or air equipment and restoration as near as practicable of the surface of the land disturbed in performing prospecting, location, and, in oil and gas leasing, discovery, exploration, drilling, and production, as soon as they have served their purpose. Mining locations lying within the boundaries of said wilderness areas shall be held and used solely for mining or processing operations and uses reasonably incident thereto; and hereafter, subject to valid existing rights, all patents issued under the mining laws of the United States affecting national forest lands designated by this Act as wilderness areas shall convey title to the mineral deposits within the claim, together with the right to cut and use so much of the mature timber therefrom as may be needed in the extraction, removal, and beneficiation of the mineral deposits, if needed timber is not otherwise reasonably available, and if the timber is cut under sound principles of forest management as defined by the national forest rules and regulations, but each such patent shall reserve to the United States all title in or to the surface of the lands and products thereof, and no use of the surface of the claim or the resources therefrom not reasonably required for carrying on mining or prospecting shall be allowed except as otherwise expressly provided in this Act. Provided, That, unless hereafter specifically authorized, no patent within wilderness areas designated by this Act shall issue after December 31, 1983, except for the valid claims existing on or before December 31, 1983. Mining claims located after the effective date of this Act within the boundaries of wilderness areas designated by this Act shall create no rights in excess of those rights which may be patented under the provisions of this subsection. Mineral leases, permits, and licenses covering lands within national forest wilderness areas designated by this Act shall contain such reasonable stipulations as may be prescribed by the Secretary of Agriculture for the protection of the wilderness character of the land consistent with the use of the land for the purposes for which they are leased, permitted, or licensed. Subject to valid rights then existing, effective January 1, 1984, the minerals in lands designated by this Act as wilderness areas are withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to mineral leasing and all amendments thereto.

(4) Within wilderness areas in the national forests designated by the Act, (1) the President may, within a specific area and in accordance with such regulations as he may deem desirable, authorize prospecting for water resources, the establishment and maintenance of reservoirs, water-conservation works, power projects, transmission lines, and other facilities needed in the public interest, including the road construction and maintenance essential to development and use thereof, upon his determination that such use or uses in the specific area will better serve the interests of the United States and the people thereof than will its denial; and (2) the grazing of livestock, where established prior to the effective date of this Act, shall be permitted to continue subject to such reasonable regulations as are deemed necessary by the Secretary of Agriculture.

(5) Other provisions of this Act to the contrary notwithstanding, the management of the Boundary Waters Canoe Area, formerly designated as the Superior, Little Indian Sioux, and Caribou Roadless Areas, in the Superior National Forest, Minnesota, shall be in accordance with regulations established by the Secretary of Agriculture in accordance with the general purpose of maintaining, without unnecessary restrictions on other uses, including that of timber, the primitive character of the area, particularly in the vicinity of lakes, streams, and portages. Provided, That nothing in this Act shall preclude the continuance within the area of any already established use of motorboats.

(6) Commercial services may be performed within the wilderness areas designated by this Act to the extent necessary for activities which are proper for realizing the recreational or other wilderness purposes of the areas.
(7) Nothing in this Act shall constitute an express or implied claim or denial on the part of the Federal Government as to exemption from State water laws.

(8) Nothing in this Act shall be construed as affecting the jurisdiction or responsibilities of the several States with respect to wildlife and fish in the national forests.

STATE AND PRIVATE LANDS WITHIN WILDERNESS AREAS

SEC. 5. (a) In any case where State-owned or privately owned land is completely surrounded by national forest lands within areas designated by this Act as wilderness, such State or private owner shall be given such rights as may be necessary to assure adequate access to such State-owned or privately owned land by such State or private owner and their successors in interest, or the State-owned land or privately owned land shall be exchanged for federally owned land in the same State of approximately equal value under authorities available to the Secretary of Agriculture: Provided, however, That the United States shall not transfer to a State or private owner any mineral interests unless the State or private owner relinquishes or causes to be relinquished to the United States the mineral interest in the surrounded land.

(b) In any case where valid mining claims or other valid occupancies are wholly within a designated national forest wilderness area, the Secretary of Agriculture shall, by reasonable regulations consistent with the preservation of the area as wilderness, permit ingress and egress to such surrounded areas by means which have been or are being customarily enjoyed with respect to other such areas similarly situated.

(c) Subject to the appropriation of funds by Congress, the Secretary of Agriculture is authorized to acquire privately owned land within the perimeter of any area designated by this Act as wilderness if (1) the owner consents to such acquisition or (2) the acquisition is specifically authorized by Congress.

GIFTS, BEQUESTS, AND CONTRIBUTIONS

SEC. 6. (a) The Secretary of Agriculture may accept gifts or bequests of land within wilderness areas designated by this Act for preservation as wilderness. The Secretary of Agriculture may also accept gifts or bequests of land adjacent to wilderness areas designated by this Act for preservation as wilderness if he has given sixty days advance notice thereof to the President of the Senate and the Speaker of the House of Representatives. Land accepted by the Secretary of Agriculture under this section shall become part of the wilderness area involved. Regulations with regard to any such land may be in accordance with such agreements, consistent with the policy of this Act, as are made at the time of such gift, or such conditions, consistent with such policy, as may be included in, and accepted with, such bequest.

(b) The Secretary of Agriculture or the Secretary of the Interior is authorized to accept private contributions and gifts to be used to further the purposes of this Act.

ANNUAL REPORTS

SEC. 7. At the opening of each session of Congress, the Secretaries of Agriculture and Interior shall jointly report to the President for transmission to Congress on the status of the wilderness system, including a list and descriptions of the areas in the system, regulations in effect, and other pertinent information, together with any recommendations they may care to make.

Approved September 3, 1964.

LEGISLATIVE HISTORY:

HOUSE REPORTS: No. 1538 accompanying H. R. 9070 (Comm. on Interior & Insular Affairs) and No. 1829 (Comm. of Conference).

SENATE REPORT No. 109 (Comm. on Interior & Insular Affairs).

CONGRESSIONAL RECORD:


Vol. 110 (1964): Apr. 9, considered and passed Senate.

July 28, considered in House.

July 30, considered and passed House, amended, in lieu of H. R. 9070.

Aug. 20, House and Senate agreed to conference report.
Public Law 100-668
100th Congress

An Act

To designate wilderness within Olympic National Park, Mount Rainier National Park, and North Cascades National Park Service Complex in the State of Washington, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Washington Park Wilderness Act of 1988".

TITLE I—OLYMPIC NATIONAL PARK WILDERNESS

SEC. 101. DESIGNATION.
(a) WILDERNESS.—In furtherance of the purposes of the Wilderness Act (16 U.S.C. 1131 et seq.; 78 Stat. 890), certain lands in the Olympic National Park, Washington, which—
1. comprise approximately eight hundred and seventy-six thousand six hundred and sixty-nine acres of wilderness, and approximately three hundred and seventy-eight acres of potential wilderness additions, and
2. are depicted on a map entitled "Wilderness Boundary, Olympic National Park, Washington", numbered 149/60,051A and dated August 1988,
are hereby designated as wilderness and therefore as components of the National Wilderness Preservation System. Such lands shall be known as the Olympic Wilderness.

SEC. 102. WOLF CREEK POWERLINE.
The Secretary is authorized to upgrade, maintain and replace, as necessary, the Wolf Creek underground powerline to Hurricane Ridge: Provided, That to the extent practicable, such maintenance and operation shall be conducted in such a manner as to remain consistent with wilderness management.

SEC. 103. PAYMENT TO CLALLAM COUNTY.
There is hereby authorized to be appropriated not to exceed $155,000 to the Secretary of the Interior to make a payment to the Clallam County Historical Society and Museum of Port Angeles, Washington, to compensate the Society for its possessory interest in the National Park Service Visitor Center. Pioneer Memorial Museum, Olympic National Park, Washington. Upon relinquishment by the Clallam County Historical Society of all interests and use in the facility, the Secretary of the Interior shall make payment to the Clallam County Historical Society and acceptance of payment shall be considered full and just compensation for the Society's participation in the construction of the Pioneer Memorial Museum.
SEC. 104. GENERAL PROVISIONS.

(a) MISDEMEANOR PENALTIES.—Section 3 of the Act of March 6, 1942 (56 Stat. 136; 16 U.S.C. 256(b)) is revised by deleting all after the phrase "or situated therein," and inserting the following: "shall be deemed guilty of a class B misdemeanor in accordance with provisions of title 18 of the United States Code."

(b) FORFEITURE OF PROPERTY.—Section 4 of the Act of March 6, 1942 (56 Stat. 135; 16 U.S.C. 256c) is hereby revised to read as follows:

"Sec. 4. All guns, bows, traps, nets, seines, fishing tackle, clothing, teams, horses, machinery, logging equipment, motor vehicles, aircraft, boats, or means of transportation of every nature or description used by any person or persons or organizations within the limits of the park when engaged in or attempting to engage in killing, trapping, ensnaring, taking or capturing such wild birds, fish or animals, or taking, destroying or damaging such trees, plants, or mineral deposits contrary to the provisions of this Act or the rules and regulations promulgated by the Secretary of the Interior shall be forfeited to the United States and may be seized by the officers in the park and held pending prosecution of any person or persons or organization arrested under or charged with violating the provisions of this Act, and upon conviction under this Act of such persons or organizations using said guns, bows, traps, nets, seines, fishing tackle, clothing, teams, horses, machinery, logging equipment, motor vehicles, aircraft, boats, or other means of transportation of every nature and description used by any person or persons or organization, such forfeiture shall be adjudicated as a penalty in addition to the other punishment prescribed in this Act. Such forfeited property shall be disposed of and accounted for by and under the authority of the Secretary of the Interior. Provided, That the forfeiture of teams, horses, machinery, logging equipment, motor vehicles, aircraft, boats, or other means of transportation shall be in the discretion of the Court."

(c) TECHNICAL CORRECTIONS TO BOUNDARIES.—The Act of November 7, 1986 (Public Law 99-635; 100 Stat. 3527) revising the boundaries of Olympic National Park is hereby amended as follows:

1. In section 1(a)(2) after "48 degrees 23 minutes north and 47 degrees" strike "38" and insert in lieu thereof "34".
2. In section 1(a)(2) after "all surveyed and unsurveyed islands", insert ", above the point of lowest low tide.", and at the end of the paragraph, strike "north," and insert "north: Provided. That such lands as are identified in this paragraphs shall continue to be open to fishing and to the taking of shellfish in conformity with the laws and regulations of the State of Washington."
3. In section 1(b) after "numbered 149/60,030A. sheets 1 through" strike "10" and insert in lieu thereof "9".
4. In section 2(a) after "within section 15, township", strike "15" and insert in lieu thereof "24".
5. In section 2(a) after "Provided, however, That the Secretary of Agriculture shall" strike "not"; and
6. Section 4 is renumbered as section 5 and a new section 4 is inserted as follows:

"Sec. 4. Effective upon acceptance thereof by the State of Washington, the jurisdiction which the United States acquired over
those lands excluded from the boundaries of Olympic National Park by this Act is hereby retroceded to the State.”.

SEC. 105. KALALOCH VISITOR CENTER.

The Secretary is directed to complete a study for the location of a year round visitor center in the Kalaloch area of Olympic National Park. Such study shall include the location, size and cost estimates for the design, planning and construction of the visitor center and support facilities. The study shall be submitted to the Committee on Interior and Insular Affairs of the United States House of Representatives and to the Committee on Energy and Natural Resources of the United States Senate by March 1, 1989. The Secretary is authorized to construct such visitor center subject to the appropriation of funds.

TITLE II—NORTH CASCADES NATIONAL PARK SERVICE COMPLEX WILDERNESS

SEC. 201. DESIGNATION.

(a) WILDERNESS.—In furtherance of the purposes of the Wilderness Act (16 U.S.C. 1131 et seq.; 78 Stat. 890), certain lands in the North Cascades National Park, Ross Lake National Recreation Area, and Lake Chelan National Recreation Area, Washington, which—

(1) comprise approximately six hundred and thirty-four thousand six hundred and fourteen acres of wilderness, and approximately five thousand two hundred and twenty-six acres of potential wilderness additions, and
(2) are depicted on a map entitled “Wilderness Boundary, North Cascades National Park Service Complex, Washington”, numbered 168-60-186 and dated August 1988,

are hereby designated as wilderness and therefore as components of the National Wilderness Preservation System. Such lands shall be known as the Stephen Mather Wilderness.

SEC. 202. HYDROELECTRIC PROJECTS.

Section 505 of the Act of October 2, 1968 (82 Stat. 930; 16 U.S.C. 90d—1) is amended as follows: strike “in the recreation areas”, and insert in lieu thereof “in the lands and waters within the Skagit River Hydroelectric Project, Federal Energy and Regulatory Commission Project 553, including the proposed Copper Creek, High Ross, and Thunder Creek elements of the Project; and the Newhalem Project, Federal Energy and Regulatory Commission Project 2705, within the Ross Lake National Recreation Area; the lands and waters within the Lake Chelan Project, Federal Energy and Regulatory Commission Project 637; the Company Creek small hydroelectric project at Stehekin within the Lake Chelan National Recreation Area; and existing hydrologic monitoring stations necessary for the proper operation of the hydroelectric projects listed herein”.

SEC. 203. LAND ACQUISITION FOR ADMINISTRATIVE FACILITIES.

Section 301(a) of the Act of October 2, 1968 (82 Stat. 927; 16 U.S.C. 90b) is hereby amended to add a new subsection as follows:

“(b) The Secretary is hereby authorized to acquire, with the consent of the owner, lands outside of the authorized boundaries of North Cascades National Park Service Complex for the purpose of
construction and operation of a backcountry information center not to exceed five acres. The Secretary of the Interior is further authorized to acquire with the consent of the owner, lands for the construction of a headquarters and administrative site or sites, for the North Cascades National Park, Ross Lake National Recreation Area, and Lake Chelan National Recreation Area not to exceed ten acres. The lands so acquired shall be managed as part of the park.

SEC. 204. AUTHORIZATION OF APPROPRIATIONS.

There are hereby authorized to be appropriated to the Secretary of the Interior such sums as may be necessary to complete the land acquisitions authorized pursuant to section 203 of this Act.

SEC. 205. RENEWABLE NATURAL RESOURCE USE IN RECREATION AREAS.

Section 402(a) of the Act of October 2, 1968 (82 Stat. 928; 16 U.S.C. 90c-1) is hereby amended to read as follows:

"The Secretary shall administer the recreation areas in a manner which in his judgment will best provide for (1) public outdoor recreation benefits and (2) conservation of scenic, scientific, historic, and other values contributing to public enjoyment. Within that portion of the Lake Chelan National Recreation Area which is not designated as wilderness, such management, utilization, and disposal of renewable natural resources and the continuation of existing uses and developments as will promote, or are compatible with, or do not significantly impair public recreation and conservation of the scenic, scientific, historic, or other values contributing to public enjoyment, are authorized. In administering the recreation areas, the Secretary may utilize such statutory authorities pertaining to the administration of the national park system, and such statutory authorities otherwise available to him for the conservation and management of natural resources as he deems appropriate for recreation and preservation purposes and for resource development compatible therewith. Within the Ross Lake National Recreation Area the removal and disposal of trees within power line rights-of-way are authorized as necessary to protect transmission lines, towers, and equipment; "Provided. That to the extent practicable, such removal and disposal of trees shall be conducted in such a manner as to protect scenic viewsheds."

SEC. 206. MINERAL RESOURCE USE IN RECREATION AREAS.

Section 402(b) of the Act of October 2, 1968 (82 Stat. 928; 16 U.S.C. 90c-1b) is hereby amended to read as follows:

"The lands within the recreation areas, subject to valid existing rights, are hereby withdrawn from all forms of appropriation or disposal under the public land laws, including location, entry, and patent under the United States mining laws, and disposition under the United States mineral leasing laws: "Provided. however. That within that portion of the Lake Chelan National Recreation Area which is not designated as wilderness, sand, rock and gravel may be made available for sale to the residents of Stehekin for local use so long as such sale and disposal does not have significant adverse effects on the administration of the Lake Chelan National Recreation Area."
TITLE III—MOUNT RAINIER NATIONAL PARK WILDERNESS

SEC. 301. DESIGNATION.

(a) WILDERNESS.—In furtherance of the purposes of the Wilderness Act (16 U.S.C. 1131 et seq.; 78 Stat. 890), certain lands in the Mount Rainier National Park, Washington, which—

(1) compromise approximately two hundred and sixteen thousand eight hundred and fifty-five acres of wilderness, and

(2) are depicted on a map entitled "Wilderness Boundary, Mount Rainier National Park, Washington", numbered 105-20,014A and dated July 1988,

are hereby designated as wilderness and therefore as components of the National Wilderness Preservation System. Such lands shall be known as the Mount Rainier Wilderness.

SEC. 302. BOUNDARY ADJUSTMENTS.

(a) PARK BOUNDARY ADJUSTMENTS.—The boundaries of the Mount Rainier National Park as established in the Act of March 2, 1899 (30 Stat. 993), as amended; (16 U.S.C. 91-110b), are further revised to add to the Park approximately two hundred and forty acres, and to exclude from the park approximately thirty-one and one-half acres, as generally depicted on the map entitled "Mount Rainier National Park Proposed 1987 Boundary Adjustments", numbered 105-80,010B and dated January 1987, which shall be on file and available for public inspection in the Washington office of the National Park Service, United States Department of the Interior and at Mount Rainier National Park.

(b) FOREST BOUNDARY ADJUSTMENT.—The boundaries of the Snoqualmie National Forest and of the Gifford Pinchot National Forest, are hereby revised to include in the Snoqualmie National Forest approximately thirty-one and one-half acres, to exclude from the Snoqualmie National Forest approximately thirty acres, and to exclude from the Gifford Pinchot National Forest approximately two hundred and ten acres, as generally depicted on a map entitled "Mount Rainier National Park Proposed 1987 Boundary Adjustments", numbered 105-80,010B, and dated January 1987, which shall be on file and available for public inspection in the Washington, District of Columbia office of the Forest Service, United States Department of Agriculture and at the Snoqualmie and Gifford Pinchot National forests.

(c) ADMINISTRATION OF PARK LAND.—(1) Federal lands, and interests therein formerly within the boundary of the Snoqualmie National Forest and the Gifford Pinchot National Forest, which are included within the boundary of the Mount Rainier National Park pursuant to this Act are, subject to valid existing rights, hereby transferred to the administrative jurisdiction of the Secretary of the Interior for administration as part of the Park, and shall be subject to all the laws and regulations of the Park.

(2) The Secretary of the Interior is authorized to accept either concurrent or exclusive jurisdiction over lands and waters included within Mount Rainier National Park by this Act. The Secretary shall notify in writing the Governor of the State of Washington of the acceptance of any such jurisdiction ceded to the United States by the State. The existing exclusive Federal jurisdiction, where it exists
in the Park, shall remain in effect until such time as the Secretary and the Governor shall agree upon the terms and conditions of concurrent legislative jurisdiction for said Park pursuant to section 320(i) of the Act of October 21, 1976 (90 Stat. 2741).

(3) AUTHORIZATION OF LAND ACQUISITION.—The Secretary of the Interior is authorized to acquire from willing sellers by donation, purchase with donated or appropriated funds, exchange, bequest, or otherwise all non-Federal lands, waters, and interests therein included within the boundary of the Mount Rainier National Park pursuant to this Act.

(d) ADMINISTRATION OF FOREST LAND.—(1) Federal lands and interests therein formerly within the boundary of the Mount Rainier National Park, which are excluded therefrom and are included within the boundaries of the Snoqualmie National Forest pursuant to this Act are, subject to valid existing rights, hereby transferred to the administrative jurisdiction of the Secretary of Agriculture for administration as part of the Forest, and shall be subject to all the laws and regulations applicable to the National Forest System.

(2) For the purposes of section 7 of the Land and Water Conservation Fund Act of 1965 (78 Stat. 903, as amended; 16 U.S.C. 4601-9), the boundaries of the Snoqualmie National Forest and the Gifford Pinchot National Forest, as modified pursuant to this Act, shall be treated as if they were the boundaries of those national forests on January 1, 1965.

(3) Effective upon acceptance thereof by the State of Washington, the jurisdiction which the United States acquired over those lands excluded from the boundaries of the Mount Rainier National Park by this Act is hereby retroceded to the State.

SEC. 303. PARADISE POWERLINE.

The Secretary is authorized to upgrade, maintain and replace as necessary, the Paradise powerline from Longmire to Paradise: Provided. That to the extent practicable, such maintenance and operation shall be conducted in such a manner as to protect scenic viewsheds.

TITLE IV—GENERAL ADMINISTRATIVE PROVISIONS

(a) ADMINISTRATION.—(1) Subject to valid existing rights, the wilderness areas designated under titles I, II, and III of this Act shall be administered by the Secretary of the Interior in accordance with the provisions of the Wilderness Act governing areas designated as wilderness, except that reference to the Secretary of Agriculture shall be deemed, where appropriate, to be a reference to the Secretary of the Interior, and any reference to the effective date of the Wilderness Act shall be deemed, where appropriate, to be a reference to the effective date of this Act.

(2) Lands designated as potential wilderness additions shall be administered by the Secretary of the Interior insofar as practicable as wilderness until such time as said lands are designated as wilderness. Any lands designated as potential wilderness additions, upon publication in the Federal Register of a notice by the Secretary of the Interior that all uses thereon that are inconsistent with the Wilderness Act have ceased or that non-Federal interests in land
have been acquired, shall thereby be designated as wilderness and managed accordingly.

(3) Congress does not intend that wilderness areas designated under this Act lead to the creation of protective perimeters or buffer zones around such wilderness areas. The fact that nonwilderness activities or uses can be seen or heard from areas within the wilderness shall not, of itself, preclude such activities or uses up to the boundary of the wilderness area.

(b) Map and Description.—(1) As soon as practicable after the effective date of this Act, the Secretary of the Interior shall file maps of the wilderness areas and legal descriptions of its boundaries with the Committee on Energy and Natural Resources of the United States Senate, and the Committee on Interior and Insular Affairs of the United States House of Representatives. Such maps and legal descriptions shall have the same force and effect as if included in this Act, except that correction of clerical and typographical errors in the maps and legal descriptions may be made. Such maps and legal descriptions of the boundaries shall be on file and available for public inspection in the office of the Director of the National Park Service, Department of the Interior, and in the office of the appropriate Superintendent.

(2) Boundaries adjacent to paved and unpaved roads shall be drawn as narrowly as is practicable to allow for necessary maintenance and repairs to existing roads. Such boundaries should not, in general, exceed two hundred feet from the centerline of paved roads and one hundred feet from the centerline of unpaved roads: Provided, however, That larger boundaries may be drawn only as the Secretary deems necessary to exclude from the wilderness existing developments, improvements, and structures adjacent to existing roads, as well as areas needed to maintain and repair existing roads: Provided further, That to the extent practicable, undeveloped areas adjacent to all roads shall be managed as if designated as wilderness:

TITLE V—MISCELLANEOUS PROVISIONS

SEC. 301. WILD AND SCENIC RIVERS.

Section 301, paragraph (60), of the Wild and Scenic Rivers Act, which designates the Klickitat River in the State of Washington as a component of the National Wild and Scenic Rivers System, is amended to add the following sentence at the end of the paragraph:

"The boundaries of the designated portions of the Klickitat River shall be as generally depicted on a map dated November, 1987, and entitled 'Klickitat National Recreation River, River Management Area: Final Boundary', which is on file in the office of the Chief, Forest Service, Washington, District of Columbia."
SEC. 502. RESERVATION OF WATER RIGHTS.

Subject to valid existing rights, within the areas designated as wilderness by this Act, Congress hereby expressly reserves such water rights as necessary, for the purposes for which such areas are so designated. The priority date of such rights shall be the date of enactment of this Act.

APPENDIX E

MINIMUM TOOL GUIDANCE

CONSIDERATIONS

Is the project an emergency? Fire? SAR?

Can the project be accomplished successfully and safely with non-motorized equipment?

What is the comparative cost of motorized versus non-motorized?

Will the cost of non-motorized equipment use be greater than that of motorized use?
(or whatever factor may be determined as the "cutoff" point)

Will use of non-motorized equipment itself result in resource deterioration?

Will motorized use result in less resource damage than non-motorized use?

Will inaction result in resource derogation?

Can motorized use be scheduled during low visitor use periods or off season?

What is the visitor perception of noise pollution?

Will the proposed task improve the resource condition?

Will the wilderness management standard itself require the use of motorized equipment?

Will visitor use be denied if the task is not accomplished?

Will visitor use be unreasonably delayed if non-motorized equipment is used?

Can the task be accomplished with an integrated effort of motorized and non-motorized?
OFFICE ORDER NO. 87-1

NPS USE OF MECHANIZED EQUIPMENT AND STOCK
FOR ADMINISTRATIVE ACTIVITIES OTHERWISE NOT PERMITTED

This Office Order establishes the procedures for administrative activities that are otherwise prohibited in Title 36 Code of Federal Regulations (CFR).

36 CFR section 1.2(e) states: "The regulations contained in Parts 2 through 7 shall not be construed to prohibit administrative activities conducted by the National Park Service, or its agents, in accordance with approved general management and resource management plans, or in emergency operations involving threats to life, property, or park resources." Thus 36 CFR regulations may be waived for administrative purposes and emergencies.

Policy on authorized activities otherwise prohibited is included below and in the Compendium to 36 CFR. Unless specifically delegated here or in the Compendium, prior approval of the Superintendent is required for administrative activities otherwise prohibited.

Specific Park Policies are:

1. Approval is hereby given for administrative actions, otherwise prohibited, in emergency operations involving threats to human life.

2. Individual employees are hereby authorized to enter closed areas when entry is required in order to perform assigned duties.

3. Audio disturbances (chain saws) (36 CFR 2.12 a(2) and (3)): It is recognized that use of chain saws may be the most efficient method of project accomplishment in certain areas. The discretion for official use of chain saws in frontcountry locations is delegated to project supervisors, when such use is necessary to perform required duties and is deemed more efficient and/or less damaging to the environment or the visitors experience than other methods. The use of chain saws and other mechanized equipment in Wilderness and non-Wilderness backcountry will adhere to minimum tool guidelines. Any power tools used in the Wilderness will have a modified muffler.

4. Horses and pack animals (36 CFR 2.16(b)): It is recognized that stock use may be essential in providing practical transportation of supplies and materials to remote areas. However, such use may create extraordinary impact on areas and trails not constructed to stock use standards. Therefore:

   park stock use on trails not open to public stock must have the prior written approval of the Superintendent, on a project basis. The Chief Ranger and appropriate Area Ranger will be advised beforehand.
To minimize area resource damage, stock will not leave the constructed trail tread unless absolutely necessary.

Use the minimum number of stock to transfer supplies and materials not passengers. Riding stock utilized by other than the park packer(s) in areas not open to public riding is not authorized.

5. Aircraft and air delivery (36 CFR 2.17): Such use requires prior approval of the Superintendent. Policy and procedures are outlined in Office Order No. 79-8. Use of aircraft for non-emergency situations is limited to the period before July 1 and after Labor Day.

6. Snowmobiles (36 CFR 2.18(c) and 7.5(d)(1)): It is recognized that snowmobiles may be the most efficient means of accomplishing routine or emergency operations. The Superintendent's approval is required for administrative use in closed areas. Such use will be reported, beforehand, to the Chief Ranger and appropriate Area Ranger.

7. Explosives (36 CFR 2.38(a)): The authority for approval of administrative possession, storage, transportation, and use of explosive materials is delegated to the Superintendent. Such use will comply with applicable federal and state laws. Use of explosives in the Wilderness will adhere to the minimum tool guidelines.

8. Boating on closed waters (36 CFR 3.6): Administrative use of motorized or non-motorized boats on park waters closed to public boating, when such use is necessary to accomplish required duties, is authorized. The Chief Ranger and appropriate Area Ranger will be notified of such use beforehand.

9. Group size limitations (36 CFR 7.5(c)(2)): Waiving backcountry camping group size limits for large work parties requires prior approval of the Superintendent.

Impacts to park resources resulting from such activities will be recorded according to procedures in the Wilderness Management Plan, using prescribed forms.

/s/Neal G. Guse

revised May, 1989
OFFICE ORDER NO. 79-8 (Revised 11/14/84)

AIRCRAFT USE/REQUEST POLICY

This Office Order defines the policy of Mount Rainier National Park on official use of aircraft and procedures to be used when requesting aircraft.

POLICY

It is recognized that aircraft has an essential role in providing management with support in conducting and successfully carrying out search and rescue missions and engaging in operational programs that could not be undertaken in an economical or practical manner due to terrain and physical limitations. To assure that adequate administrative control is maintained over all mission oriented aircraft use, the following procedures will be followed:

Wilderness

Any use of aircraft within the Wilderness, except in emergency operations, will be consistent with minimum tool guidelines. All aircraft use will be reported in the Annual Mechanized Equipment Use Report. Non-emergency use of helicopters is limited to before July 1 and after Labor Day.

Flight Manager:

A Flight Manager will be appointed for each aircraft operation. His/her responsibility will be:

1. Preplanning of each operation.
   a. Insures all equipment and crews are ready for aircraft operations.
   b. Assures that accurate load calculations are made.
2. Total responsibility and control over the operations.
3. Coordinates all takeoffs and landings.
4. Completes appropriate paperwork as described in "Procedures" section.
5. Operation safety to include traffic in and around the helipad/landing zones.

Helipads, Landing Zones and Prohibited and Restricted Areas:

1. Fixed Wing Aircraft - Fixed wing aircraft will utilize the closest appropriate airfield outside the park.
2. **Rotary Wing Aircraft** - Attachment III contains a detailed collection of maps identifying hulipads, landing zones and prohibited and restricted areas within the park.
Legend:

PROHIBITED AREAS - Absolutely no landings:

LONGMIRE MEADOWS
OHANAPECOOSH CAMPGROUND
SUNRISE
PARADISE
WHITE RIVER CAMPGROUND
TPSUT CREEK CAMPGROUND
COUGAR ROCK CAMPGROUND

RESTRICTED FLIGHT CORRIDORS - Flight below 1500' AGL is not permitted unless on approach for landing at a designated landing zone (LZ). Approach and departure flight paths into these areas should be planned to spend the least amount of time possible in the corridor. Corridors are 1/2 mile wide on either side of the roads leading to Paradise and Sunrise.

HELIPADS OR LANDING ZONES (LZ) - Preferred landing direction indicated by arrow.

CARBON RIVER LZ
SUNRISE LZ
KAUTZ CREEK LZ
FOURTH CROSSING LZ
ROUND PASS LZ
CAMP MUIR LZ

CHECKPOINTS

PROCEDURES:

Following are procedures to be used when requesting aircraft for planned, emergency, or military use:

Planned Aircraft Use Request (Fixed Wing or Helicopter)

1. The originating office will submit an Aircraft Use Request (form A-70, SEE ATTACHMENT I), and a Requisition (form DI-1), through the Division Chief to the Visitor Management Specialist (VMS). This must be submitted at least seven (7) days in advance of the planned flight. The A-70 will contain all the required information for the flight requested (i.e., task, dates, hours of operation, justification, etc.).

2. The VMS will review the A-70 and the DI-1 for appropriateness of aircraft and coordination with other divisions who may be planning flights at the same time, and advise the originating office of any recommended modifications or potential options for aircraft coordination. Based on the above review and coordination with other divisions, the VMS will determine the type of aircraft best suited for the task at hand.

3. After resolving any aircraft modifications and potential aircraft coordination, the VMS will forward the A-70 and the DI-1 with his/her recommendations to the Superintendent for approval.
4. Upon approval by the Superintendent, both the A-70 and the DI-1 will be returned to the VMS. The VMS will contact the Budget Assistant to obtain the next MT number, which he/she will then enter on a blank Aircraft Use Report (form OAS-23, SEE ATTACHMENT II). The VMS will then follow the steps outlined below:

   a. The VMS will call the Procurement branch to inform them of the approved aircraft use request, the type of aircraft best suited for the task, and possible vendors. This will give Procurement some lead time to find the most economical source for the aircraft required.

   b. The Communication Center is notified of upcoming aircraft activity in the Park.

   c. The originating Division Chief is informed of the approved aircraft use request via phone and is sent a copy of the approved A-70 and the original OAS-23.

   d. The District Ranger is notified of upcoming aircraft activity in the Park via phone and sent a copy of the approved A-70.

   e. A copy of the approved A-70 and the white copy of the DI-1 are sent to the Mails and Files branch for filing.

   f. The original A-70 and the remaining copies of the DI-1 are sent to Procurement.

5. Based on recommendations from the VMS, Procurement will analyze and procure the most economical and efficient aircraft available. The Procurement branch is the only office authorized to place an order for aircraft services. They will follow the steps outlined below when ordering aircraft:

   a. The order will be placed from an authorized OAS contractor.

   b. The contractor will be given specific parameters:

      1. Estimated flight hours

      2. Not to exceed dollar authorization

      3. Anything in excess of the above must receive prior authorization from a Contracting Officer

      4. Name of the VMS who will be contacting them to coordinate the flight.

   c. The Procurement branch will notify the VMS after the order has been placed with the following information:

      1. The name of the contractor

      2. The name of the contact person
3. Phone number(s)

d. The VMS will then contact the contractor to coordinate pre-flight planning by supplying the following types of information:

1. Nature of the flight(s)
2. Name(s) of Flight Manager(s)
3. Special equipment requirements
4. Etc.

6. When the original OAS-23 is received by the originating Division Chief, it is given to the Flight Manager for completion at the time of the flight (SEE ATTACHMENT II). If the pilot shows up with an OAS-23 already started, the park's MT number will be entered on that form and used instead of the one started by the VMS.

7. The Flight Manager signs the OAS-23, certifying that the services were received.

8. After the flight is completed, the vendor (pilot) will be given the blue copy of the OAS-23, and the remaining copies (white and yellow) are to be sent to the Procurement Office.

9. After obtaining the actual flight data, the Procurement branch will distribute the remaining copies of the OAS-23 (white and yellow) as follows:

   -- Original Copy (white) - mailed to: Office of Aircraft Services
      P.O. Box 15428
      Boise, Idaho 83715-9998

   -- Finance Copy (yellow) - mailed to: Pacific Northwest Region - Finance

   -- Photocopy of OAS-23 to VMS

10. Procurement will send MORA-Finance the blue copy of the DI-1 with all the final data on the flight (i.e. - actual hours, MT, etc.).

   NOTE: The concessioner may use contract aircraft on a reimbursable basis with the Superintendent's approval. Other non-NPS uses may be authorized with the Superintendent's approval only. If reimbursement to NPS is needed, a copy of the OAS-23 for billing appropriate hours, fuel, etc., will also be submitted to the MORA Finance Office.

   The yellow copy of the DI-1 will be sent to PNR - Finance as an attachment to the OAS-23.

11. The VMS will compile an annual aircraft use report at the end of each calendar year and submit it to the Superintendents office for the annual report.
Emergency Aircraft Request

Following are procedures to be used when requesting aircraft in an emergency situation:

1. In an emergency, employees needing aircraft are to request one from the Visitor Management Specialist (VMS) or his/her acting designate.

2. The VMS reviews the circumstances to determine if it is life or limb threatening, or other bona fide emergency (i.e., fire, searches, etc.). If so, the VMS will determine the type of aircraft needed, based on location, elevation, terrain, etc.

3. Procurement will order all aircraft in emergency situations except when unavailable. When a Level I or II Contracting Officer is not available in a bona fide emergency situation, the VMS can order aircraft, but must follow-up with Procurement as soon as possible.

4. The VMS will notify the Superintendent or his/her acting designate of the emergency situation as soon as possible.

5. During normal work hours, the VMS will obtain an MT number from the Finance Branch, otherwise, the MT number will be obtained as soon as possible on the next working day, at which time the VMS will call the vendor with the MT number.

6. The flight manager will initiate the Aircraft Use Report (OAS-23, SEE ATTACHMENT II). The MT number, if available, is entered on the OAS-23 prior to the flight. If the MT number is not available, it will be entered on the OAS-23 as soon as possible on the next working day.

7. The Flight Manager is responsible for the completion of the OAS-23 at the time of the flight.

8. The Flight Manager signs the OAS-23, certifying that the services were received.

9. After the flight is completed, the vendor will be given the blue copy of the OAS-23, and the remaining copies (white and yellow) sent to the Procurement Office.

10. The Procurement Office will make three copies of the OAS-23; one for the MORA Finance Office, one for the Division initiating the request and one for the VMS.

11. The remaining copies of the OAS-23 (white and yellow) are distributed as follows:

   -- Original Copy (white) - mailed to: Office of Aircraft Services
      P.O. Box 15428
      Boise, Idaho 83715-9998
12. After the emergency, the VMS will prepare an Aircraft Use Request (A-70) and a Requisition (DI-1) to document the aircraft use.

13. The A-70 and the DI-1 will be forwarded to the Superintendent for approval.

14. Upon approval by the Superintendent, both the A-70 and the DI-1 will be returned to the VMS, who will follow the steps outlined below:
   a. A copy of the approved A-70 and the white copy of the DI-1 are sent to the Mails and Files branch for filing.
   b. The original A-70 and the remaining copies of the DI-1 are sent to Procurement.

15. Procurement will send MORA-Finance the blue copy of the DI-1 with all the final data on the flight (i.e., actual hours, MT number, etc.).

Procurement will send the yellow copy of the DI-1 to PNR-Finance as an attachment to their copy of the OAS-23.

Military Aircraft Use

The same basic procedures will be followed for requesting, procuring and coordinating military aircraft as are used for non-military aircraft with the following changes:

1. A DI-1 need not be submitted.

2. Procurement is not involved because there is no obligation of funds.

3. The VMS will coordinate and procure military aircraft.

NOTE: There are special regulations, policies, procedures and written agreements regulating the use of military aircraft which will preclude their use for some types of operations.

/s/Neal G. Guse
Superintendent

(revised May, 1989)

Attachments:

A70 (8/84)
OAS-23(Sample)
APPENDIX G
PUBLIC STOCK USE

Mount Rainier National Park

Horse Use Information

Approximately 100 miles of park trails and four trailside camps are open to stock use, however the park is not often used by stock parties because:

- due to snow, use of stock is practical only from mid July to late September.
- glacial rivers must be forded. By mid day in summer such rivers may be raging torrents with tumbling boulders.
- park trails are rarely level, there are steep climbs and descents. Stock, like people, become exhausted.
- stock is not permitted in most scenic, fragile, subalpine meadow areas. Trails open to stock are mostly in wooded areas where views are limited.

Pack or saddle stock is defined as horses, mules, burros, or llamas. Dogs are not pack stock.

Parties camping overnight in the backcountry must obtain a free backcountry permit, available at any ranger station. Stock must be tied or stabled only at hitching rails or corrals provided.

Stock party size limits are a maximum of 12 people and stock (in combination) on the Pacific Crest Trail, and a maximum of 5 stock on other park trails.

Stock is not permitted in auto campgrounds, picnic areas, or within 100 yards of trail shelters or backcountry campsites, unless the campsite is a designated horse camp.

Grazing is not permitted in the park. Adequate compact feed must be carried. To prevent the spread of exotic plants, animals should be fed compact feed for at least two days prior to entry into the park.

Stock may be loaded or unloaded at points where designated horse trails cross roadways and adequate parking exists. Animal waste may not be dumped or left in parking areas or along roadways.

Stock are not permitted in crosscountry (trailless) areas, only on roads and trails open to stock use. They are:

- **WEST**
  - Wonderland Trail from Ipsut Creek campground to North Puyallup horse camp (along the road shoulder at Mowich Lake).
  - North Puyallup Trail from North Puyallup horse camp to Klapatche Point at the north end of the Westside Road.
  - Westside Road (gravel, auto traffic) from Klapatche Point south to Round Pass.
  - Mowich Lake west on the Mowich Road to the Grindstone Trail, cutting across the road's switchbacks on the trail, and continuing west on the road to the trailhead at Paul Peak (0.7 mi. inside the park on the Mowich Lake Road).
  - Paul Peak Trail from the Mowich Road to Wonderland Trail near North Mowich River horse camp.

- **SOUTH**
  - Wonderland Trail from Longmire to Box Canyon (along the road shoulder past Reflection Lakes).
  - Rampart Ridge loop trail from Longmire back to Longmire.

- **EAST**
  - Pacific Crest Trail along the east boundary of the park.
  - Naches Peak trail from Tipsoo Lake to the Pacific Crest Trail.
  - East Side Trail from Chinook Pass along Hwy 410 to the trailhead at Tipsoo Lake, then south on the trail to Stevens Canyon Road.
  - East Side Trail from Stevens Canyon Road south to Silver Falls loop trail, and along the Laughingwater Creek trail to Hwy 123.
  - Wonderland Trail from Box Canyon to the top of Cowlitz Divide.
  - Cowlitz Divide trail from the top of Cowlitz Divide to Stevens Canyon Road and the Silver Falls loop trail.
  - Laughingwater Creek trail from Hwy 123 to the Pacific Crest Trail near Carlton Pass.
  - Owyhigh Lakes trail from Hwy 123 to White River Road.

For current trail conditions or additional information, call (206) 569-2211 or write Superintendent, Mount Rainier National Park, Star Route Tahama Woods, Ashford, WA 98304.

Thank you for being a responsible backcountry visitor, and helping protect Mount Rainier National Park.

R27 (6/88)
Mt. Rainier superbly dominates the Pacific Northwest landscape. To really feel the pulse of this wild land is to hike along some of the 300 miles of trails winding through flower-strewn alpine meadows, steep-walled canyons and virgin forests.

Looking at the vastness of Mt. Rainier's ice, rocks and ancient trees it seems difficult to believe this could be a fragile land. Trampled vegetation, eroded trails and campfire scarred meadows bear witness to the thousands of hikers who have passed through the backcountry of Mt. Rainier National Park. How can adoration, appreciation and exploration destroy? Primarily it's because there are so many of us. The surge in popularity of wild explorations has led to a new way to treat the land — a sort of wilderness ethic. The essence of this new approach is to have a minimum impact on the land . . . to leave no trace of one's presence. Implementing this new approach is not easy and is a real challenge to the wilderness visitor.

Minimum impact hiking and camping is a gentle art. Along the trails camp only in designated sites where damage can be localized. When resting in camp or along the trail sit on a sleeping pad on the already bare ground rather than on plants. Alpine plant communities are fragile. A heather plant, for example, may grow only an inch in ten years. If even one hiker tramps across its brittle stems, it may take a generation to recover.

Preservation of the backcountry and wilderness is everyone's concern. Please share your thoughts with us:
Superintendent
Mount Rainier National Park
Star Route, Tahoma Woods
Ashford, Washington 98304

APPENDIX H
MINIMUM IMPACT TECHNIQUES

CAMPING REQUIRES PERMIT
NO PETS IN BACKCOUNTRY
FIRES WHERE PERMITTED ONLY
LITTER — PICK IT UP, PACK IT OUT.

handle
with
care.
Crosscountry zones impact can be prevented by not camping where others have, and limiting your crosscountry camp to one night at a given spot — let the plants recover. Camp in forested or rocky areas, avoiding fragile meadows, lake shores and stream banks. Trenches dug around ents for runoff scar the land for decades so choose a well-drained campsite, or use a tent with a waterproof floor.

The proliferation of freeways is too often a fact of daily life, but the wilderness can be spared this by staying on trails and walking right through the muddy spots and snow patches. Avoid going around such obstacles and trodding vegetation or shortcutting switchbacks. New trails are quickly worn through to become permanent and lead to erosion.

A sure way to leave one's mark on the mountainside permanently is to dig in heels when descending a steep slope or digging in toes when ascending one. Switchback the route rather than going straight up or down. Where possible, hike on rock or snow or through the forest. Walk as flat footed as possible — save the plunge step for snowfields.

Using a lightweight collapsible water bucket cuts down on the number of trips to — and wear and tear on — the streamside and lake shore (and saves a little wear and tear on the hiker as well).

Though the lightweight backpacker's stove is no substitute for the warmth and smell of a campfire, it is gentler on the land. Much of the usable wood has been stripped from most high country camps. This interferes with the natural recycling of nutrients through decomposition and eventual return to plant life, and gives the area a cleaned out look rather than the natural one of a wild forest. The remaining silver snags are works of art and are as much a part of the backcountry experience as mountain goats and avalanche lilies. They should be left intact.
The climate at Rainier from mid-June through October is usually mild and sunny, but sudden violent storms often arise and last a few hours to several days. To the naive, Mt. Rainier's pristine beauty can turn into a landscape of cruelty and misery. Cold, wet and windy weather can lead to hypothermia for the unprepared. Part of the challenge of exploring Mt. Rainier, or any other area, is to come well equipped and fully aware of one's abilities and physical condition. The old warnings to carry the ten essentials and rain gear, wear wool and take it easy are time honored mountain truths that countless people have learned the hard way. Take advantage of their collective knowledge and experience.

A hiker comfortable in the wilderness has time and energy to enjoy the surroundings. Take it easy on yourself. Allow time for enjoyment — time to watch a ptarmigan ... an elk grazing ... alpenglow stealing over a ridgetop. Taking back only memories of how many miles hiked misses many of the subtle pleasures that await the hiker who takes the time to probe. Remember that Mt. Rainier's trails gain and lose considerable elevation. Plan the hike to fit the conditioning of the least able member of the group. Fatigue can reduce a backcountry trip to an exercise in endurance.

In addition to unpredictable climate, there are hazards on Mt. Rainier not found in areas with gentler topography and less snowfall. Glaciers are riddled with hidden crevasses and only the skilled and well equipped should attempt traveling on them. As a lot of people also have learned the hard way, it's easier climbing up than it is coming back down. To avoid falls or being caught half way up with no way either to go up or come back down, realistically evaluate skills and equipment before challenging a pitch. Even an apparently easy crossing of a stream can be complicated by slippery logs and rocks. Avoid log walking if the logs are wet or have loose bark.

Being chilled or overheated detracts from a trip. Up to 50% of one's body heat can be lost through the head. When hands and feet begin to get chilled, put on a hat, preferably wool. The heat saved will quickly warm the extremities.

On hot days a hat soaked in water and worn really helps cool off; or try splashing cold water on the back of the neck — it's one of the wildest sensations in the mountains. For the full treatment submerge wrists and feet in cold water.
Drinking boiled or disinfected water to prevent contracting dysentery in the wilderness isn't an acceptable substitute for scooping up a cupful of ice cold, tasty mountain fresh water — but it is recommended. There is no sure way to determine if water is free of Giardia lamblia — the dysentery producing protozoan — as it can even lurk in ice cold rushing water. Prevent further contamination by disposing of water used for washing mess gear, clothes and bathing where it will percolate through the soil at least 100 feet from lakes and streams. Avoid using soap as the chemicals even in biodegradable soap can pollute water. Litter! Remember to pick it up and pack it out.

Where pit toilets aren't provided, and visitation is heavy, select a screened spot at least 200 ft. from water and dig a shallow hole, 6 to 8 inches in diameter and 5 to 6 inches deep within the biological decomposing soil layer. Cover the hole with soil and duff and make its location indistinguishable from the surroundings. In more remote areas wastes should be deposited on the surface and smeared with a rock or stick to maximize exposure to sunlight and air and encourage more rapid decomposition. Sanitation in alpine and sub-alpine areas is important as many areas are saturated with water and contamination and alteration of lake and stream ecosystems can readily occur.

Do bright colors psychologically shrink the wilderness by visually intruding into wide spaces and solitude? When drab colors (browns, greens, blues) are used for tents and clothing, hikers are less visible and more can use the same general area without knowing of others' presence. As more and more seek the solitude of the wilderness, visual impact will become increasingly important. While it is true bright colors provide visibility for safety purposes, this can be provided for unobtrusively by a light-weight inexpensive plastic yellow tarp carried in the first aid kit (a vital part of one's gear) and used in the event of an emergency. Let the issue of bright colors give you some food for thought.

Personal freedom is a cherished part of many people's lifestyle. Rules and restrictions, however necessary and valid, are proliferating at an alarming rate. The plain truth of the matter is this: Freedom is a joy and a responsibility. The less impact on the backcountry an individual has the less restrictions will be imposed. The less backcountry problems there are necessitating ranger or search and rescue assistance, the less likely strict safety rules or area closures will be imposed on wilderness travelers. Less impingement of our personal freedom will depend on how this challenge is met.
Map and compass skills give the confidence to explore. "What peak is that over there?" . . . "Was that Panther Creek we just crossed?" . . . "How high up have we gone?" . . . "Where are we?" . . .

Part of the challenge is the unexpected. Ease your mind by taking the basic preliminary steps: prepare for emergencies as well as enjoyment. Register and let someone know your plans.

Mt. Rainier is home to fifty species of mammals and 130 species of birds. It is tempting to feed these residents— as the deer along the park roads demonstrate. However, the easy life afforded by generous handouts can alter habits, population numbers and living areas. Creatures made dependent on people are less than wild — less than what the hiker came to Mt. Rainier to see. Animals that have lost their fear of people can be dangerous. To avoid the danger to life, limb and camp from a rampaging bear, never feed one. Caching food, fish bait and even cosmetic items whenever away from camp or at night prevents the hassle of food loss and equipment damage from squirrels, mice, bear and deer — and their unnatural dependence on handouts. Carry out litter, food rather than scattering it near camps.

Pets are the source of many backcountry hassles and consequently it is illegal to take them in the backcountry. Most problems relate to the animals just doing their thing: Snitching food being prepared at ground level, urinating on packs, tents, and sleeping bags, chasing or killing wildlife, barking and threatening other hikers.

The presence of a pet, even if it were on a leash, in the backcountry disturbs the delicate ecosystem of the wilderness beyond the effects of hiker’s presence. Native wildlife often shy away from areas used by dogs, preventing the observations hoped for by most hikers. Pets preclude the aesthetic experience of seeing a dog-like track and knowing it could be a coyote, fox, bobcat or cougar.