ARTHUR CARHART NATIONAL WILDERNESS TRAINING CENTER

WILDERNESS RANGER FIELD GUIDE

A supplemental handbook providing direction, technical information and forms for documenting field observations

UNITED STATES
DEPARTMENT OF AGRICULTURE
FOREST SERVICE

WILDERNESS RANGER FIELD GUIDE

REGION _____

FOREST _____

DISTRICT _____

August 1993
Arthur Carhart National Training Center
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Huson, MT 59846

Recyclable paper

ACKNOWLEDGMENTS

Contributors

Many individuals across a broad spectrum of backgrounds and regions have contributed their ideas and current handbooks to produce this publication. Particular appreciation goes to the people who produced the 1990 electronic Data General version; a large portion of this publication remains unchanged and is included. They are Anne Fege, R5; Michael Olwyler, R5; David Cole, R1; and David Michael, R3. Deserving special thanks are Rich and Susan Brame from the National Outdoor Leadership School for permission to reprint, "Leave No Trace Outdoor Skills and Ethics". Francis Mohr, R5 provided the "Light Hand Tactic" supplement included in the vinal pocket. Linda Merigliano, R2 provided examples of field forms being used in the Bridger Teton. Ralph Swain, R2 provided handouts, graphics and ongoing support and enthusiasm. Rick Smith, R6 and Jim Claar, R1, were also important contributors. Marsha Kearney, R2 provided ongoing inspiration and support. Melissa Gray from the Wilderness Medicine Institute provided assistance with first aid topics.

Compilers

Converting the text and graphics for this publication to a consistent format was an involved and laborious process. For scanning and formatting, Jeanne Daly and Jenny Daniel displayed considerable patience, persistence and enthusiasm. Deb Kanter, R2 and Marga Lincoln were proficient in editing and rewriting portions of the text. Gerry Shimada, R1 was instrumental in computer assistance and Bill Antonich, R1 responded quickly and pleasantly to contract requests. Bob Zingimark's creativity is displayed in the cover and spine of the notebook. Connie Myers' dedication, support, enthusiasm, and guidance have been never ending and forever appreciated. Special thanks are extended to Connie for her help and hard work on this project.

Supporters

In addition to daily district duties, Ninemile Ranger District employees strongly supported this and other national wilderness projects. Their willingness to lend a hand when needed was invaluable.

Special thanks are extended to Lynne Sholty and Holly Blaylock for responding quickly, efficiently, and creatively to purchasing and contracting requests. Pat Whitlatch was instrumental in computer assistance.

For their vision of excellence in wilderness management and their genuine support of this project, special thanks are extended to John Twiss and Jerry Stokes, National Wilderness Group Leaders; Regional Wilderness Specialists: Liz Close, Steve Morton, Lee Carr, Ron Bradsby, Ruth Monahan, Jim Shiro, Margaret Petersen, Larry Phillips, Gaylord Yost, and Arn Albrecht; Field Advisory Council members: Bob Oset, Lee Carr, Sue Kozacek, Tom Streft, Garry Oye, Mike Rowan, Emmanuel Hudson, Barbara Soderberg, Don Stewart; and, countless dedicated field-going wilderness personnel.

DIANE TALIAFERRO
Arthur Carhart National Wilderness Training Center
August 1993

PUBLICATION ORGANIZATION

Background

In late 1989, the Chief of the Forest Service chartered the National Wilderness Filed Advisory Group to provide recommendations on maintaining quality wilderness field programs. In late 1991, the National Group Leader for Wilderness Management, John Twiss, and the Wilderness Field Advisory Group met and identified several objectives for achieving excellence in wilderness field management. Regional Wilderness Specialists and Field Wilderness Excellence Team members reviewed and validated these specific objectives. Responsibility for completing this and other national wilderness objectives in 1992 was given to the National Wildlands Training Center at Ninemile.

One of five key areas identified as a priority was to provide Wilderness Rangers with the knowledge, skills and abilities to do a quality job of field management. This field guide supplements the *Wilderness Ranger Training Module* and is intended for field use.

In 1990, Anne Fege, then National Leader for Wilderness Management, in the Washington office, produced a Wilderness Ranger's handbook to provide guidance, direction and technical information. Several Forests and Regions modified the original handbook to fit their specific need. This *Wilderness Ranger Field Guide* resulted from the original handbook and other regional versions. We updated the information, reformatted the content, added graphics and an appendix of data and monitoring forms. The field guide is generic for use by all Wilderness Rangers throughout the Forest Service and can be easily modified to meet specific needs.

Purpose

This *Wilderness Ranger Field Guide* is designed as a supplement to be used at trainings, and to be taken to the field. It is intended to be used during patrols, work assignments, educational programs and other activities relating to wilderness management. It provides quick and easy reference information needed for day to day activities and an organized notebook for documenting and recording information. It is

not intended to be a comprehensive resource for Wilderness direction. More detailed information can be gained through training, additional reading and communication with your supervisor. This field guide is physically designed so that you may easily insert additional material, or remove obsolete or inappropriate text to meet your level of expertise and specific needs.

The appendix has a number of different forms for documentation and gathering information during your field work. They include recreation and other resource information pertinent to wilderness management and research.

The overall goals of this field guide are to:

1) Provide a useful reference for use in the field.
2) Promote accountability and safety for Wilderness Rangers.
3) Provide examples for collecting information needed for management decisions and problems encountered.
4) Improve veteran rangers performances and provide baseline data for new rangers.
5) Provide an easy format for adding or deleting information.
6) Enhance wilderness opportunities for the public.
7) Improve the quality of the wilderness, both socially and biologically.

Organization

This field guide is organized into chapters, then further subdivided by headings and subheadings. It is recommended that you tab these chapters for easy access. Feel free to take out a chapter or insert other material to meet your specific needs. This field guide is an attempt to be somewhat generic in spectrum but it cannot and does not provide all the specific information needed by each unique wilderness area. We have also tried to keep the size and weight to a minimum for backcountry use. It is your responsibility to tailor the field guide to suit your specific needs.

The appendix has a wide assortment of monitoring, data gathering forms, trip reports, inspection forms, first aid and other observations. It is important that you talk to your supervisor, and local experts about management policy, concerns and priorities. Some of these forms are

appropriate for some areas and are currently being used. Other forms may not be applicable. Your supervisor may already have a specific form or format they like better. Decide what works best for the wilderness you work in.

The binder is waterproof and the text has been printed on "Rite in the Rain" paper for use in wet and humid weather. The vinal envelope in front of the field guide is for pencils, pens, and CFR's, warning notices, tickets, and carbon paper. You can tape another pocket to the binder, or insert another vinal envelope if needed.

After each tour of duty in the field take out the forms and tickets you need to turn in. Make sure you replace the forms you have used. A recommendation is to photocopy the originals and keep them available for copies in the future. Use the copies in the field. You also might want to carry more than just one form. For example, you might want five campsite inventory forms or three outfitter inspection forms on the tour of duty. Obviously, you will want to keep your notebook as lightweight and uncluttered as possible. Make sure you turn in this information you have compiled to your supervisor at the end of the hitch. Some of these forms may need to go to a local expert. Follow up on any changes that may occur due to your observations. Keep your supervisors informed. Your knowledge of conditions occurring in your wilderness is vital to planning and management decisions. It is important that you capture appropriate information accurately and completely.

Improvements

As with many efforts, there is undoubtedly room for improvement. We would like to incorporate your suggestions regarding content corrections, format, and additional information. Please use the enclosed comment form at the back of this publication to forward your suggestions.

INTRODUCTION

As a Wilderness Ranger you have a unique opportunity to help preserve our planetary environment and maintain healthy wilderness ecosystems. You will influence people to further this preservation effort by fulfilling management policies. *You are essential.* You are *the* most important person in carrying out the mandate of Congress written in the Wilderness Act of 1964 stating that wilderness ". . . 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 those areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use as wilderness . . ."

As a Wilderness Ranger, you are the primary representative of the Forest Service in the field. In fact, you may be the ONLY one who knows the conditions throughout your area, and the only Forest Service representative the visitor ever meets. Because of your field expertise, it is important that your comments and suggestions be presented to wilderness managers in the office. *The Wilderness Ranger' s observations are a vital component for the preservation of wilderness and future management decisions.*

This field guide is dedicated to the cadre of wilderness rangers throughout the nation. The abundance of responsibilities, long days on the trail, and endless dedication is imperative to sustaining the wilderness resource. Thank you for your wilderness stewardship, passion and professionalism.

"There is just one hope of repulsing the tyrannical ambition of civilization to conquer every inch on the whole earth. That hope is the organization of spirited people who will fight for the freedom and preservation of wilderness."

Bob Marshall

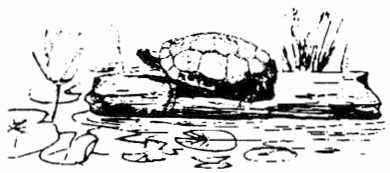


Table of Contents

Put this list on inside cover of your field notebook.

Your Personal Emergency Phone Numbers:

District office:_____

Sheriff's office:_____

Other policing authority:_____

Mountain rescue:_____

Home phone number
of your supervisor:_____

Local SAR Leaders:_____

_____

Other District Contacts:_____

_____

Fire Dispatch:_____

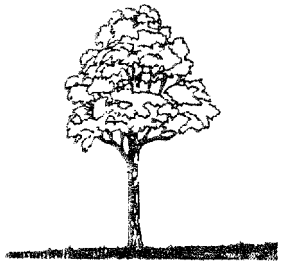
Ambulance:_____

Air Service:_____

Radio Channels:_____

Emergency Channel_____

1. Wilderness History



History of the Wilderness Concept

Wilderness has always had special meaning for the American people. From the discovery of our land and through centuries of its development, wilderness has been part of our national culture and the character of our people. As America began its spread from the Atlantic to the Pacific, the land and its boundaries seemed limitless and were often used with careless disregard and abandon. Eventually, voices raised in protest. Slowly, toward the turn of the century, the idea of preserving some American lands began to take hold. Congress created Yellowstone National park in 1872, the first national park in the world. Other national parks followed: Yosemite. Sequoia and Mt. Ranier.

Forest reserves, which later became National Forests, were set aside to be wisely managed or used. Yet, early in Forest Service history, there were also voices for preservation. In 1919, landscape architect, Art Carhart was asked to design a vacation home development at Trapper's Lake in Colorado, He also traveled that summer *to the* Quetico-Superior area in Minnesota and recommended *that* the best use for both areas was wilderness recreation. Young for-ester Aldo Leopold argued that some National Forest land be pre-served without human influence, and was instrumental setting aside more that 500,000 acres in the Gila National Forest as a reserve for wilderness recreation in 1924

Within 5 years, the Forest Service promulgated Regulation L-20, which defined primitive areas as those managed to maintain primitive conditions of "environment, transportation, habitation, and subsistence, with a view to conserving the value of such areas for the purposes of public education and recreation." Tighter regulations for primitive area management were formulated largely by Bob Marshall, Chief of the Division of Recreation and Lands, who had devoted much of his career and leisure time to wilderness preservation. These 1939 1J-Regulations defined wilderness areas, wild areas, and roadless areas, all to be established by the Secretary of Agriculture or the Chief of the Forest Service.

Wilderness Legislation

Out of the increasing demand for natural resources after World War II and the concern that the Forest Service could reverse administratively-designed wilderness came the first efforts to protect wilderness legislatively. Howard Zahniser, Executive Director of the Wilderness Society, drafted the first bill that was introduced in 1956. After 8 years, 65 different wilderness bills, 18 hearings, and considerable compromises with the grazing and mining interests, the Wilderness Act was passed by Congress and was signed into law on September 3, 1964. The 9.1 million acres of National Forest land set aside as wilderness areas became "instant wilderness,"

Since then, there have been 81.7 million acres of wilderness designated by more than 100 wilderness bills. Among the more significant are the 1975 Eastern Wilderness *Act, that allowed for* small tracts of wilderness near major population centers. The Endangered American Wilderness Act established 16 wilderness areas that had been highly controversial and the Alaska National Interest Lands Claims Act of 1980 designated about 50 million acres of wilderness in Alaska.

The process of designating land as wilderness continues in the political area, based on agency recommendations. The Forest Service reviewed the suitability of roadless areas in 1972 and, more comprehensively, in 1979, Statewide wilderness bills have passed for most states (except Idaho and Montana), designating wilderness and releasing other areas for multiple use. Some National Forest Plans contain further recommendations for wilderness. The National Park Service and Fish and Wildlife Service have recommended about 12 million acres, that Congress has yet to act on. The Bureau of Land Management is currently reviewing the suitability of lands it manages in wilderness study areas.

The National Wilderness Preservation System

The National Wilderness Preservation System now spans 91.5 million acres, an area almost the size of California. It includes mountains and valleys, alpine lakes, wetlands, seashores, deserts, unusual geologic formations, wildlife habitat, streams and swamps. The largest is the 8.7 million acre Wrangell-St. Elias National Park

in Alaska. The smallest is the 6-acre Pelican Island National Wild-life Refuge off the coast of Florida. The largest in the lower 48 States is the Frank Church-River of the No Return Wilderness in the National Forests of Idaho. These areas are administered by four federal agencies; U.S. Forest service, National Park Service, Bureau of Land Management, and the U.S. Fish and Wildlife Service.

Arthur Carhart
(1.892-1980)

Lyndon Baines Johnson
(1908-1973)

Aldo Leopold
(1887-1948)

Robert Marshall
(1901-1939)

John Muir
(1838-1914)

Gifford ***Pinchot***
(1865-1946)

Theodore Roosevelt
(1858-1919)

Howard Zahniser
(1906-1964)

2. Wilderness Management

Wilderness Act

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**

Section *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 eandition, 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* ***designed 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 thereover imme-

diately before its inclusion in the National Wilderness Preservation System unless otherwise provided by Act of Congress. No appropriation shall be available for 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 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

Section 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 Agri-culture 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 advise 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, 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 acres or by more than one thousand two hundred and eighty acres 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 areas 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 non-suitability 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 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

Section 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 wildlife refuge systems are established and administered and--

(1) Nothing in this Act shall be deemed to be 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 Sustained-Yield Act of June 12, 1960, (74 Stat. 215).

(2) Nothing in this Act shall modify the restrictions and provisions of the Shipstead-Nolan Act (Public Law 539, Sev-

enty-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. 326), 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; 156 U.S.C. 432 et seq.); section 3 (2) of the Federal Power Act (16 U.S.C. 796 (2)); and the Act of August 21, 1935 (49 Stat 666; 16 U.S.C. 461 et seq.).

(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 so 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 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) With wilderness areas designated by this Act the use of aircraft or motorboats, where these 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 on 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 service of the land disturbed in performing prospecting, location, and, in oil and gas leasing, discovery work, 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 the timber is not otherwise reasonably available, and if the timber is cut under sound principals of forest management as defined by the national forest rules and regulations, but each such patent shall reserve to the United States all titles 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 forest designated by this 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 live-

stock, 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 grazing 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

Section 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 owners 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 concurs in such acquisition or (2) the acquisition is specifically authorized by Congress.

Gifts, Bequests, and Contributions

Section 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 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

Section 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.

Related Laws Affecting Wilderness Management

Hundreds of laws and thousands of administrative policies affect wilderness management today. Below are a few of the most important acts of Congress relating to management of the National

Tilderness Preservation System.

General **Mining** Act of 1872

Enacted to promote the development of mining resources in the United States. This act declared the public lands free and open to mineral exploration and purchase, and all lands with valuable mineral deposits open *for occupancy. Established* the procedure for mining claims and operations. Though it is 100 years old, this act still influences management in some wilderness areas with mineral resources.

Organic Act of 1897

Established the procedure to set aside federal forest reserves, which later became National Forests. The bill was enacted to securing favorable conditions of water flows, and to produce a continuous supply of timber for the use and necessities of U.S. citizens.

Multiple-Use, Sustained Yield Act (1960)

Clarifies policy of the Forest Service in managing the national forests-to be administered for outdoor recreation, range, timber, watershed, wilderness, and wildlife and fish purposes. The Secretary of Agriculture was directed to administer the renewable surface resources of the forests for multiple use and sustained yield, to best meet the needs of the American people.

Wilderness Act (1964)

The purpose of the act was to preserve and protect these areas in their natural condition, and for the use and enjoyment of present and future generations. Part of this act defines management guide-lines in wilderness areas, describing allowed and prohibited uses and other management conditions. At first, the Wilderness Act included 54 areas with over 9 million acres, set up studies for millions of additional acres.

Wild and Scenic **Rivers Act (1968)**

Established a national system of rivers to be preserved in free-flowing condition, with their immediate environments protected. Congress selected certain rivers that possess outstandingly remark-able outdoor values. They established an initial system of eight rivers, and set up methods and procedures for adding new rivers to

the system. There are three classifications of rivers in the system: wild, scenic, or recreational depending on the level of development near the stretch of river.

National Environmental Policy Act of 1969

Enacted to declare a national policy, encouraging productive and enjoyable harmony between man and his environment, to pro-mote efforts which will prevent or eliminate damage to the environment, and stimulate the health and welfare of man. Also to enrich our understanding of ecological systems and natural resources. This Act established the Council on Environmental Quality. It also set up procedures for preparation of environmental impact statements on any major federal action significantly affecting the quality of the human environment.

Endangered Species Acts of 1973, 1978, 1982

Enacted to provide a program for the conservation of wildlife and plant species that are threatened or endangered with extinction. The Act recognized that several species of plants are in danger of extinction, and these species are of esthetic, ecological, educational, historical, recreational and scientific value. The act sets up specific procedures to determine which plant and animal species are added or removed from protective status. It also sets up cooperative pro-grams with states, and civil penalties for violation of the act. Subsequent amendments to this act were made in 1978 and 1982.

"Eastern" Wilderness Act (1975)

Added several areas in the Eastern United States (east of the 100th meridian) to the National Wilderness Preservation System. Although many of these eastern areas are smaller than those in the west, and have had more historic human influences, they are to be managed in a consistent manner with all wilderness areas. Unlike the Wilderness Act, this legislation allowed the power to condemn private lands in these areas and authorized funding to purchase private lands.

Alaska National Interest Lands Conservation Act (1980)

This act provided for designation and conservation of certain public lands in Alaska. The bill added about 56 million acres to the National Wilderness Preservation System in 35 areas administered by the National Park Service, U.S. Fish and Wildlife Service, and U.S. Forest Service. Also added several Wild and Scenic Rivers to the national system. It was the intent of Congress to preserve unris

valed scenic and geological values associated with natural landscapes, and to preserve vast unaltered arctic tundra, boreal forest, and coastal rainforest ecosystems. Another major purpose was to protect wildlife habitat for species dependent on large undeveloped areas.

Individual Wilderness Bills (1978, 1980, 1982, 1983, 1984)

Since 1964, Congress has passed 64 laws adding 386 areas and over 77 million acres to the National Wilderness Preservation Sys-tem. From 1965 through 1983 legislation focused on individual areas and occasionally packaged several areas in one bill. More recently Congress has acted on legislation packaging several areas in a state together in one bill. In 1985 there were almost 88 million acres in the National Wilderness Preservation System. Over 60% (56 mil-lion) of these acres are in Alaska. Become familiar with your state wilderness bills.

Specific Wilderness Orders

Wilderness is thus recognized by Congress as requiring the above described attributes of naturalness, opportunities for solitude, and minimum size and may include other desirable natural features of scientific, educational, scenic or historical value.

Congressional Acts designating individual wildernesses may contain language specific to a wilderness. This specific language is not applicable to other units of wilderness, but applies only to that specific wilderness. If you work in a wilderness that was designated after the 1964 Wilderness Act, be familiar with any specific language in legislation that may differ from the 1964 Act.

Insert these specific provisions or orders below (write in). Another option is to place with other CFRs in front pocket of field guide.

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2._____

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Department of Agriculture Direction

Management direction for the Wilderness Act is further interpreted through U.S. Department of Agriculture regulations. The Code of Federal Regulations, Title 36, Part 293, provides the following objectives for wilderness management by the Forest Service, a USDA agency.

"Except as otherwise provided in these regulations, ***National Forest Wilderness shall be*** *so* ***administered*** *as* ***to*** *meet* ***the public purposes of recreational, scenic, scientific, educational, conservational and historical uses;*** *and it shall also be administered in such a manner as to preserve and protect its wilderness character. In carrying out such purposes, national forest wilderness resources shall be managed to promote, perpetuate, and where necessary, restore the wilderness character of the land and its specific values of solitude, physical and mental challenge, scientific study, inspiration and primitive recreation. To that end (a) natural ecological succession will be allowed to operate freely to the extent feasible; (b)* ***wilderness*** *will* ***be made available for human use to the optimum extent consistent with the maintenance of primitive conditions;*** *(c)* ***in resolving conflicts in resource use, wilderness values will be dominant to the extent not limited by the Wilderness Act, subsequent establishing legislation or these regulations."*** *(36 CFR* 293.2)

Title 36, Sections 293.3 - 293.15 also deal with wilderness but are concerned primarily with allowable but non-conforming uses such as mining, grazing, structures, and so forth. Grazing is often the most controversial of the *"accepted non-conforming uses" of* wilderness and is allowed where grazing was permitted prior to establishment of the wilderness.

Forest Service Direction

National direction for Forest Service wilderness management is provided in the Forest Service Manual (FSM), Chapter 2320. Sections 2320 through 2320.3 contain definitions, objectives and policy. The Wilderness Act and interpretations of the law by the Secretary of Agriculture and Forest Service, prescribe definite direction for wilderness management. They direct that wilderness will be man-aged to feature naturalness, opportunities for solitude, challenge and

inspiration; and within these constraints to provide for recreational, scenic, scientific, educational, conservational and historical uses.

Regions can further define wilderness management policy in various supplements (blue pages) to the FSM 2320 section.

Exceptions allowed by the Act for non-primitive uses specified in Section 4(d) of the Act will be carried out under restrictions designed to minimize their impact on the wilderness. **The decisive criterion in all** conflicts will **be to preserve and protect the** wil**derness character of the resource.**

Wilderness Management Objectives

The following objectives were established by the Forest Service to implement the Congressional directive for wilderness management to the Chief. They are outlined in FSM 2320.2.

1. Maintain and perpetuate the enduring resource of wilderness as one of the multiple uses of National Forest System land.
2. Maintain wilderness in such a manner that ecosystems are unaffected by human manipulation and influences so that plants and animals develop and respond to natural forces.
3. Minimize the impact of those kinds of uses and activities generally prohibited by the Wilderness Act, but specifically excepted by the Act or subsequent legislation.
4. Protect and perpetuate wilderness character and public values including, but not limited to, opportunities for scientific study, education, solitude, physical and mental challenge and stimulation, inspiration, and primitive recreation experiences.
5. Gather information and carry out research in a manner compatible with preserving the wilderness environment to increase understanding of wilderness ecology, wilderness uses, management opportunities, and visitor behavior.

Forest Service Manuals and Handbooks

Direction for management of wilderness areas is found in Forest Service Manual and Handbook 2320, filed in each District and National Forest office. Forest Service Manuals contain definitions of terms used in wilderness management, authorities and responsibilities from the President to District Rangers, and policies and guidelines regarding wilderness uses and activities.

This is the most important written information on the direction that managers will take on the ground and applies to all wildernesses.

In the front of each manual or handbook is an index of tides and chapters. To find what you want check this first then refer to the section indicated. There are four colors of pages:

White *is* for national direction and applies to all National Forests in the United States.

Blue pages give regional direction and often are the most pertinent to on-the-ground work.

Pink pages are emergency directives issued by the Chief of the Forest Service, Regional Forester, or a Forest Supervisor as an interim mandate and expire one year from the date of issue or are incorporated as a supplement.

Green pages are Forest direction providing specific information for your area.

Management Plans

Wilderness management is not an exact science. It is through implementation plans for **individual wildernesses** that the hierarchy of applicable direction, i.e., legislation, departmental regulation, and agency policy, is translated into action.

The Land and Resource Management Plans contain broad management directions for managing each wilderness. Ask for and read through the section of your Forest Plan that addresses wilderness. A Wilderness Implementation Schedule (WIS) has been developed or is in the process of development for each wilderness. Become acquainted with your (WIS).

Relationships With Other Agencies

National Park Service

The National Park Service (NPS) is an agency within the Department of the
Interior. The NPS philosophy is very similar to Forest Service wilderness management philosophy, though regulations do vary. The

purpose of national parks is to preserve outstanding areas of our country for the enjoyment of this and future generations. Similar wording is used in the Wilderness Act.

You are encouraged to become familiar with other agencies in your area and, instead of feeling a separateness from them because they are administered by "a different agency," find the similarities and help to preserve all backcountry and wilderness area. Some wilderness areas are contiguous with other agencies backcounlry areas; an exchange of information is essential for proper management of both areas.

A few differences in NPS regulations are listed below. There may be others particular to a specific area.

1. Pets are not permitted in National Park backcountry areas. Stock is permitted because they are not considered pets.
2. Some motorized equipment, such as chain saws, is permitted for administrative work.
3. Party size and length of stay may be different.
4. Hunting is not permitted within National Parks and Monuments.

Bureau of Land Management

The Bureau of Land Management (BLM) is another agency in the Department of Interior. It manages the largest acreage of land of all government agencies and collects the largest revenues, mainly through mineral leases. There are about 700,000 acres of designated wilderness and about 25 million acres of proposed wilderness areas on BLM land.

Fish and Wildlife Service

The Fish and Wildlife Service (FWS) within the Department of the Interior manages about 18 million wilderness acres in Alaska on Wildlife Refuges, and less than a million acres in the lower 48 states. Little distinction is made for wilderness designation.

State Agencies

State agencies are responsible for all wildlife on public land within the state. The Forest Service is technically responsible only

for the habitat but works very closely with Departments of Fish and Game (DFG). You may be involved in hunter patrols with DFG officers or wildlife census with DFG biologists.

The State Departments of Forestry are responsible for forestry on state-owned public lands, rural fire protection and enforcement of forestry practice laws on private land. The Forest Service has mutual agreements to assist with fires on each other's land. You may be on a fire working next to a State employee.

There are also state wilderness areas that are administered by the Department of Parks and Recreation, notably to Adirondack Park Reserve in New York State.

3. Roles and Responsibilities

The Wilderness Ranger's function is to carry out management direction on the ground by: maintaining or rehabilitating wilderness facilities (a trail is a facility), collecting needed information, disseminating information to the public and to permittees, monitoring use and resource conditions, demonstrating no-trace camping, and sharing observalions with the wilderness manager. Most of the Ranger's major responsibilities are included in this Handbook.

As a Wilderness Ranger, you are also the "on-the-ground" information source, the necessary link between the office and the field. You are important if an emergency arises, because you are trained in first aid and carry a two-way radio. You are expected to handle dangerous situations with care and deal with law enforcement as you are trained. You are also expected to handle your equipment as if it were your own, taking good care of expensive radios and cameras.

You are constantly in the public eye, both on duty and off. Project an image of professionalism and pride in your work in the way that you wear your unifolm, pack your animals, or cut a log from the trail. Impressions that users and permittees form of Forest Service activities are shaped by your contacts with them, and so we expect you to be outgoing and competent.

Wilderness Living

"Home is where you sleep at the moment."
Unknown.

The selection of your campsite is extremely important. It will set an example for the visitor. Refer to Chapter 5 for "Leave No Trace" practices. A few things to consider:

Should the site be located out of view for privacy?

Should the site be within view of the visitor?

If **there** is an emergency, how will the visitor find the ranger? If anyone has a **question,** how will he get an answer? Is it **a "hardened,"** highly impacted site?

Is it **a pristine site?**

Are specific campsites under the process **of** restoration and **need time to rejuvenate?**

legal campsite, 200 t. from water and the trail o**cated on mineral soil, duff, sand or rock?**

Much of the your time will be spent with the public and it's good to have some privacy.

You must also consider theft and vandalism while you're out patrolling.

Water must be available, but you should pack in containers for hauling water to your campsite away from the water source.

Check with your supervisor to see what direction they would like you to follow in regards to selection. Some districts prefer hardened sites, others do not.

Often, you will have to look around for awhile to find the ideal site.

Base Stations and Barracks

Living quarters must be kept clean at all times. you are staying in a cabin, you may need to stain the wood or paint it; replace broken windows, re-shingle the roof, do rock work, re-chink, etc, Visitors are often invited in to your cabin so the interior must

be clean a well. In most wildernesses, cabins are not allowed to remain, but if you live in one, keep it neat.

Fences need annual ihaintenance or reconstruction. Boards or poles should be plaoau. ir:br veen the tree and the barbed wire to prevent the wire from stronit Ling the Ire and killing it. If old wire has been embedded in tot tote, it si. br pulled out, Broken wire must be mended „and loose wire tights led,' here snowfall occurs the fence is usually a dop fenetc "clwered at the end of the season and put up in the spring, To - ais job. easier, two staples are hammered in close to reach otac: with the barbed wire running between the];eure it once the wire bi in place _nether staple is dropped i Me .oop made by tip or we

Know me loch *tri 'USA FS* sch nology and Develop' 'cation "Fences" July 1985, 2400-Range.

Patrol Cabins

Often there ovir surrounding cabins within wilderness. Some fee'. riot perroitted because they are non-conform in 'a the cabins clean and well-maintained iviii co ... .. control id visual impact on visitors. Some cabins are salte old anc , significant historical value. Leave information on builetin d or on the door as to where to get emertehey help nd other t. neat into, Breains are common in patrol :sacs 'ib one cabals are available for pi. c use. Find out what your local , rolicy is.

pry-bar non sr, whisk broom to _ i for sign placeiJnt, shovels, Pulaskis, pry bar, cross -cut saw, hand axe, smallsaw, Tent with stakes, rgunny ac ni tooM iipu may need. Stove with fuel, First Aid kit, pot grabber. radio, leather ash - Tools roes and grour clean tent, Je Aga. Pots, pails, pot sawn biodegradable soap,

Tool Maintenance and Use

Safety. Many accidents are caused by improper tool maintenance procedures. Safety is for your health. In the backcountry you may be alone, and medical help may be far from reach. Use gloves, guards, and all safety gear.

Keep tools in good repair. Replace them if they are question-able. A broken shovel handle means you may fail to meet your objectives. Check handles carefully for breaks, splinters and rough spots. The heads should be securely mounted on the handles. Force-fully wiggle the head on the handle to assure it is not going to come off. Wear heavy tough boots for protection. e aware of your partner's safety. Don't take risks.

Stock Use

Mock can be very useful in accomplishing your objectives. Base camps are often packed in by mule and *they can* haul out trash you've collected. They also supply trail crews.

Llamas

Llama use is increasing in wilderness areas. Hikers like these usually congenial animals who can carry 70 to 90 pounds at a 2 m.p.h. leisurely rate. They have a padded foot which lessens dam-age to the terrain. Llamas are very safe and easy animals for inexperienced stock *packers.* They are easy to restrain in camp and at work stops. Aside from small amounts of pelletized grain little food has to be packed for them. They mainly browse for their food eating only 4 to 6 pounds a day, Make sure you're providing ad-equate selection and time for their grazing every day on the trail as well as on their days off. On hot dry days they need more water. Britchin straps are recommended. Carry a first aid kit and check often during the day for saddle sores. When meeting a horses on the trail, ask their leader to halt to give you time to move your llamas down slope off the trail before the horses pass by. Pack in back-packer gear - keep it light. Geldings are recommended. Prevent jumping across obstacles by holding the lead rope short neat the halter, then hold his head down low, which will focus him to walk rather than jump. A llama who has laid down can be made to stand by pulling him from a 45 degree angle rather than dead ahead.

Expect to spend a few weeks getting your llamas in strong *shape* gradually at the start of the season. Budget for a 4WD pickup, stock rack with full rear gate, overcab cargo area and a rubber bed mat. Many rangers prefer llamas for simplicity, minimum impact and because trail and campsite work is more thorough when traveling on foot. Be sure to find a local vet who knows llama care.

Llama Packer Tack List

Saddles
Saddle pads
Panniers
Britchin Strap
Spare Cinch
Scales
Curry Brush Halters
and 1 Spare
Lead Ropes
Stake Lines
Halter Bells*
Roll-on Insect repellent
First Aid Kit
Grain
Feed Pans or Mats
Opt.-Stake Screw
Piggin' Strings on Saddles
Trash Bags

* Very important where bears or horses are plentiful.

Use this as a (./') check off list before going out and in the field. Fee free to modify.

Horse and Mules

Stock are used in different ways in wilderness areas by Wilderness Rangers. It is most common to have a packer who oversees the use of stock, takes care of their health and trains employees in their use. The ranger may take a horse and pack one or more mules by her/himself, or she/he may lead an animal and walk. Saddle panniers are an excellent option. Some packers and rangers feel that packing a mule and leading it doesn't make sense, but in some wilderness areas this arrangement works exceptionally well. Rangers pack their gear, food, tools, and feed for the animal and easily do trail maintenance. If you ride a horse, it is unlikely that you will get off the horse to pick up a small piece of trash. You must tie the horse and mule up every time you stop to work and your working time is cut down.

Special care around horses, mules and burros must be taken as they are unpredictable animals.

Some important rules for working with these animals:

V Always assume that the animals will kick.

- Always mount a horse or mule (yes, sometimes mules are ridden) from the left side (the horSe's left if you are facing the same way it is).

When moving around an animal while packing, stick **close** to its rear or beyond kicking range. Don't duck under the lead rope when it's tied to rails or buildings.

i/ Never approach stock from behind and/or without making yourself known to the animal. The constant talking to the animals around barns and corrals is not because cowboys are lonely.

- Animals get rowdy at feeding time. Don't get crushed in the feeding frenzy.

V Always use a quick release tie, with no sharp stabs or points and tie to an object that can't be pulled out. Be organized before you start down a trail.

- Keep close tabs on your cinches and loads.

Generally, never let a mountain horse trot.

Water a horse at crossings, have others wait in sight across the stream.

/ Know symptoms and treatment of colic.

Know how to load your horse into a trailer and drive slowly. Take care of stock before yourself.

If you have a packer, s/he will generally be in charge of all stock. Listen to what s/he says and take care of stock the way s/he wants them to be taken care of. This does vary from packer to packer, so, if you go to another wilderness area, find out how and why procedures may differ.

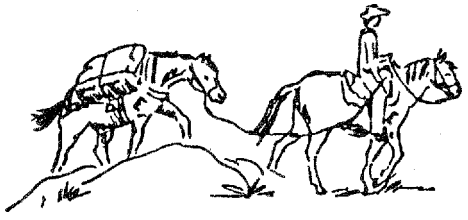
The packer is responsible for taking care of shoeing veterinary needs and animal health, buying feed, pastures, fences, water troughs, tack, barns and buildings. If you have questions, ask, If you notice something s/he should be aware of, let him know. These responsibilities may differ from unit to unit.

If the Wilderness Ranger is responsible for stock, s/he should be trained in care and maintenance, trailering and restraining in camp. Horses and mules can be dangerous if handled improperly. It's not a source of pride to say you've been kicked. Packing stock is an art that must be learned and can take years before even the best will be recognized as competent. Don't get into the bad habit of pretending you know it all. Most Wilderness Rangers don't. But learn packing. Most packers will be glad to show you what they know and they should teach you how to handle and feed stock and recognize health problems. There also are a number of pack schools or clinics that can be attended and are recommended.

Obtain and read *"Horse Safety Guidelines"* (USDA publica*tion), "Guide for Using Horses in Mountain Country"* (Robert W. Miller, 1974), *"Horses, Hitches, and Rocky Trails"* (Joe Buck), or *"Packin' In on Mules and Horses"* (Smoke Elser and Bill Brown). Also quite good is *"Working Safely With Horses and Mules"* by Leo Porterfield (Inyo National Forest). Ninemile Wildlands Training Course, (Lola N.F.) and Smoke Elser's Horsepacking Class are recommended.

Stock Policy

Know your local stock policy. Also read up on the files of the individual animals you are using, or ask your packer about their personality quirks.



Horse Tack List

Halter and Lead Rope
Bridle
Saddle
Saddle pads
Saddle bags
Breast strap
Pack saddle and pads
Britchin
Lash cinch - can also be used as highline
Mantle (tarp)
Hobbles and picket hobble
Feed bags (nose bags) (or use top lids of hard panniers)
Grain /pellets - in sack (supplemental feed) High line rope (hitch line)
Panniers
Scale
First aid kit
Fly repellant
Tools: cross-cut saw, axe, pulaski, shovel (sign kit: vice grips, hammer, file, mag screws, washers) Burlap Sack
Tree saver straps
Brush and Hoof Pick
Saddlehobbles
Bells
Trash bags
Nylon picket rope - not your lash rope!
Prussik loops for highline or cinch rings
Fringed eye guards (option)
Large stirrups (during hunting season for boots)

Stock First Aid
Wilderness Outfitters Horsepacking Course - *Smoke Elser*

CALL YOUR VETERINARIAN FOR GOOD *PROFESSIONAL* HELP FOR YOUR HORSE.

Below is a list of aerosols, ointments, and ***powders*** that can ' used on an injured horse. The first thing to ***remember, in*** ion, is that any injury below a horse's knee is a very ***serious one.*** There is little muscle tissue in this area. It is in ***continual motion,*** and of course, being in close contact with the ground is hard to keep clean. Chances of infection are ***greater. Injuries*** above ***the*** knee on a horse can generally be treated ***in a*** little different !homer because they have a good blood supply and muscle tissue with which o work.

The medicines I have listed are just a few that can be used on the horse. There are many more that will be suggested by your vet. However, I feel that this list has proven its value in the first aid treatment of my horses in the field.

1. Earmites-sore ears: Causes head shyness and tenderness of ears. Rub or daub a few drops of warm olive oil in the ear.
2. Deep muscle cuts and punctures, resulting ***in an open*** wound with bleeding. To ***stop the bleeding use*** Blood Stop Powder ***or Sulfa Urea Powder,*** covering the wound area thorough Use direct pressure. If there is no heavy bleeding, scarlet oil could be applied to this area, as it will help prevent proud flesh. Proud flesh is a scabbing and abnormal growth of the area.
3. Saddle sores, abrasions, cinch sores, rope burns and wire cuts. The following are all excellent: *Granule.r, Scarlet Oil, Nitrofurazone Soluble Dressing, Pytenol Lotion, Blue Lotion.*
4. To clean a wound, use a solution of hydrogen peroxide.
5. Mange or loss of hair: A one to one solution of Clorox ***helps.*** This is also good for ringworm.
6. To recover the horse's natural hair color on a wounded area, apply a solution of alum powder and water as the new hair grows into the wounded area. (This is not 100% successful on all horses.)
7. Colic - walk the horse. Some folks use cod liver oil and seek a vet.

INJURIES BELOW THE KNEE

1. Lameness due to bowed tendons and sore ligaments or ten-dons can be helped by rubbing down with Absorbine-and of course, rest and T.L.C. Ice and cold water help the first 24 hours.
2. Cuts, rope bums and wire cuts: Apply *Derrnafur Dressing or Nitrofurazone Soluble Dressing.* Loosely bandage the wound, being careful not to cut off circulation. Granulex or Scarlet Oil can also be used.
3. lnjuries to the coronet band and hoof area: Treat with *Nitrofurazone Soluble Dressing. Cracks* in the hoof can be treated with pine tar (a softening agent, for the hoof itself).
4. Nail punctures and frog injuries: Thoroughly clean the area with a solution of 50% clorox and 50% water, or hydrogen peroxide.

"These are some of the treatments that I have found to be sound and easily administered by anyone. Most products are available at a pharmacy that handles veterinary supplies."

Smoke Elser

First Aid Kit:

Granulex Sulfa-	Pytenol Lotion
Urea Powder	Gauze bandages
Scarlet Oil	Ace bandages
Cotton	Thermometer
21" Telfa pads	Eye wash
Bute past - 6 grams	Antibiotic eye ointment

Hydrogen Peroxide or Nolvasan
Nitrofurazone Soluble Dressing

Also carry an Easy boot if you have no experience in shoeing. Scissors on a Swiss army knife are helpful.

Boat Policy

Check local boat policy, safety requirements, and training/operation requirements.

It is imperative to be able to swim and recomended to have Water Safety Instructing and Lifesaving.

Boating Equipment

River map, tide charts
Boat - raft, canoe, kayak (check for leaks, breaks)
Paddles - paddle set and extra spare
Grab lines (raft)
Bowline - at least 30'
Extra rope
Lifejackets - 1 per person and 1 extra
Bail bucket and pump
Seasoc (kayak)
Spray skirt (also wetsuit, drysuit, paddle jacket if applicable)
Dry bags - for personal gear
Ammobox - camera, paperwork
Toilet box - Ammobox 1
Throwbag (line)
Water jugs (if applicable)
Tie down straps (webbing)
Extra tie down straps
Carabiners
First Aid Kit
Radio in ammo box
Bear awareness - spray or shotgun
Repair Kit (depends on boat type)

Raft: Thinner 1/2 pt.	Barge cement
Scissors	Pliers
Stitcher/scrubber tool	1 yd. patch material
2 Hose clamps - 3"	Extra valve/screens
Nylon repair material	5/16" bolts, nuts, washers
Phillips screw driver	(oar lock)
Bailing wire	Heavy nylon tread
Heavy duty curved needles	Cleaning rag
Pump parts: nozzle	Brass fittings
Adjustable wrench	Allen wrench/set screws

Rescue Gear-Prussiks, caribeaners, flares, beacon, signal mirror
If motor is allowed have fire extinguisher, extra fuel, spare parts, tools, CO detector.
Also become familiar and *know how to maintain and care for your boat.*
Have float plan.

Wash and keep clean proper inflation/deflation proper carrying (portage) techniques.
Know how to make boat repairs.
Know how to properly maneuver/operate.
Know how to dock, tie down and anchor.
Know proper loading/unloading technique (don't weight **thwarts)**

It is important to get proper boat training. Some units require boat training or refresher courses.

Wilderness Visitor's Permit

(Form FS-2300-30)

Some wilderness areas are so heavily visited that use limits are in effect. Reservations can be obtained for wilderness permits, but reservation procedures and dates vary from unit to unit. These dates change yearly to some degree, so know what are the essential dates for permit administration for your unit.

Other important functions of wilderness permits are the visitor contact made when the visitor obtains his permit and the information generated from recording the party's trip schedule. By monitoring trip schedules, visitor use patterns can be deduced. By keeping count of the number of permits issued, the trailhead quotas will not be exceeded.

Basically, the quota of a trailhead is determined by the carrying capacity of the area it feeds. Carrying capacity is defined as, the use an area can tolerate without unacceptable impact occurring. The carrying capacity of an area should not be exceeded by visitor use even though fed by the visitor use patterns of an interlacing trail system.

Know your local permit system, if applicable.

Outfitter-Guides

Your role in administering outfitter-guide permits will be as a field observer, to inspect and report on certain phases of outfitter operations. Make sure you understand their permit and also read the operating plan. Discuss these with your supervisor. You will be in a passive rather than active management role. You will not and should not be asked to take on the responsibility of giving directions to the

permittees. If you should observe an apparent permit violation, let your supervisor know. Do not assume someone already knows, because it is often difficult to know what is going on in the far reaches of the Wilderness. You may be asked to relay specific instructions to an outfitter from your supervisor.

Outfitter contacts should be handled as any other public con-tact. Identify yourself and seek out the outfitter or her/his representative in charge of the operation. Be professional, courteous, and friendly. Conduct your business in an open and efficient manner and time your visits to avoid inconvenience to the permit-tee. Also be sensitive to the guides and their guests. If disagreements arise, do not argue. State your point, listen to her/his views and tell her/him that you will relay the feelings to your supervisor.

Record comments in the appendix. The appendix also includes an Outfitter Schedule/Itinerary form and a Camp Inspection form. There is also a evaluation form of the wilderness ranger, to be given to and filled out by the outfitter.

Outfitter List/Location

List below outfitter/guides in your wilderness. It also is helpful to mark on your map the location of these base and spike caps.

	O/G	**Location**
6.		

Hunting Season Responsibilities

With the start of hunting season contacting hunter's camps will be added to your responsibilities. An information meeting be-fore you enter the field will help you to understand what your responsibilities are and to guide you with maps, files, camp inspection forms, trailhead vehicle forms, names, and "histories" of camps. After each season you may find it necessary to write letters to some hunters to address problems and concerns, or you may just want to send a "thank you" note. Camp inspection forms, law enforcement needs, and other duties should be completed at this time, too.

A base camp will may home away from home during this time, so coordinate camp set up and supply runs with the other crew members. This is also the best time to cut firewood, set up hitch lines, and dig a latrine if appropriate.

Pay special attention to your stock as they especially need the right amount of grain, pellets, salt, and water to keep them going. Keep their feet picked and free of ice balls, think about hazardous trail conditions, and start your day early as daylight fades fast in the *fall. (Wear plenty of orange-horses,* llamas *too!)*

Remember to equipment your vehicle with chains, scrapers, flashlights, etc. before you hit the road. Pack high energy food, plenty of warm clothes, spare gloves and socks and wear your snow packboots. This is no time to be on a diet! Watch out for each other, think safety, and this could be the most rewarding part of the season yet!

What to look **for . . . and to address in camps**

1. Camps too close to water
2. Trail litter, camp litter, aluminum foil in firepit
3. Buried garbage
4. Dismantle structures and take out nails!
5. Proper use of latrines
6. Cutting trees for poles or using green boughs. (Dead and down only!)
7. Leaving campfires unattended

Caches are illegal!

9. Tying stock to trees, evidence of stock impact, moving picket pins, use of highline and/or hobbles
10. Motorized equipment, chainsaw use

Using salt blocks to bait game

12. Illegal outfitting

Shooting an endangered species or poaching

14. Watch for excessive drinking and inappropriate behavior
15. Personal SAFETY is the priority. Travel with another person and notify others by radio if your going into a camp if at all possible.

Hunting Tag Validation

As a Forest Service employee, you may need to validate hunting tags during hunting season. Become familiar with hunting regulations, seasons and procedures. Not all units allow the Wilderness Ranger to validate kills and procedures vary unit to unit. *Check* with your supervisor.

Local Hunting Season Procedures and Regulations

1. _____

_____

2.

_____

3.

_____

4._____

_____

5._____

_____

6. _____

_____

7._____

_____

8.

_____

Supervision

Some Wilderness Rangers supervise other employees or volunteers, adding increased responsibilities. Being a good supervisor takes a lot of time and a dedication to people in addition to the environment. Much has been written about supervision and leader-ship styles what's important is to find your which style works for you. You have more than project work to think about, you have the personal welfare of those who work for you.

Several concepts are offered here:

You can't make people do anything. Meaning ultimately it is the individual who weighs the consequences and makes a choice to do the task.

Head by example. Never ask anyone to do something you wouldn't do yourself.

3. Develop in employees a feeling of ownership in the task to be accomplished.
4. Teach employees correct principles and why you're doing the task, then allow the employee to accomplish the task in any acceptable safe manner. There is usually more than one way to accomplish a task.
5. Never criticize nor discuss employee shortcoming in front of others.
6. Praise publicly for good work.
7. Be a good listener.
8. When laying out work explain in detail and have employee give feedback for what needs to be done.
9. Confront difficulties immediately.
10. Evaluate your people to let them know how they're doing.
11. Provide ALL necessary tools and equipment to complete assigned tasks.

Remember good supervisors you've had and follow the most basic of all guidelines: treat others in a manner you'd like to be treated.

Feedback is extremely important to your supervisor. Just as you like to be made aware of your successes and acknowledged for your work, so does your supervisor. After all, a supervisor is as human as you are. If you have complaints or suggestions, your supervisor should be made aware of them too.

Uniforms

Uniform allowance (Form AD-660) is generally submitted at the end of the season for returning employees, while new seasonals can get an advance toward the purchase of their uniform as soon as they begin work. Your district will inform you about uniform options.

Your uniform must be as clean as possible at all times but the public doesn't mind seeing you grubby if you've been working on the trail or rehabilitating campsites. It lets them know you're earning their tax dollars. Whenever possible, though, keep a clean and neat appearance. Take a spare shirt along to change into when doing dirty work.

Remember that shorts should he worn only for hiking and never when doing work with tools. One Wilderness Ranger carries her long pants in her day pack at all times so she can change into them when working on the trail or fighting fire. Official Forest Service coveralls may also be worn.

Employees will receive a uniform allowance for a uniform. Uniforms are ordered through an approval supplier. Check with your supervisor for a copy of the uniform catalog or help in ordering.

During regular patrol hours, the rangers will wear the Forest Service field uniform consisting of the following items:

L Official shirt with badge, patch, and name tag. The badge will be worn on the left pocket, the name tag on the right pocket flap.

Official green field pants or shorts (see FSM 6159.15b). The shorts should be worn only if trail work or other work requiring tools is not expected. Belt also.

Leather boots with 8" high tops and lug soles. If you're on horseback follow local policy. Packers with lug soles work well.

4. Forest Service hat (optional).
5. Forest Service Gaiters (optional).
6. Forest Service goretex jacket/pants (nice to have, expensive and don't work well if they get dirty). Also: wool jacket but it's heavy.
7. Forest Service vest (optional).

Personal Equipment List Check Off

(dependent upon temperature, water conditions and terrain)

- Wilderness Ranger Field Guide
- Pencil/Pen
- Maps/Waterproof bag
- Day pack/Fanny pack
- Ground sheet
- Tent, poles, tarp, stakes
- Air mattress/ensolite pad
- Folding chair
- Sleeping bag
- Flashlight/Headlamp
  - Extra batteries
  - Candle
- Compass
- Watch
- Signal mirror
- Radio/accessories
- Sunglasses
- Waterproof matches/Lighter
- Knife/Leatherman
- First aid kit (make sure to resupply/update)
- Sunscreen
- Lip protection
- Insect repellent
- Water filter/Tablets
- Toilet paper or Natural T.P./ *tampons*
- Nylon cord
- Large plastic bags
- Leather gloves
- Binoculars
- Camera and film
- Food/Spice Kit
- Water: (1 quart) Bottles or (6 quarts) Jug
- Extra food/Water
- Small shovel, trowel
- Two garbage bads
- Water filter/purification
- Backpack/pack cover
- Stove accessories/Repair Kit
- Fuel Bottles
- Cook kit (pots, fry pan, grip, scrubbie)
- Cup and bowl
- Fork and spoon
- Thermometer
- Stuff sacks for food/clothes (plastic bags work for clothes)
- Underwear Top (capilene, polypro)
- Long underwear (capilene, polypro)
- Tennis shoes for in camp (also plastic bags are great to keep feet dry)
- Wool/Cotton/Pile pants
- Wind pants
- Shorts
- Belt
- Wool sweater/Pile jacket
- Wind jacket
- Rain suit/Slicker
- Gaiters
- Wool *hat*
- Visor
- 2 Bandannas
- Socks (4 pairs)
- Head net
- Rain boots/Boots
- Wool gloves
- Light folding saw
- Sign Kit (pliers, bolts, flagging)
- Repair kit-duct tape, extra cord, wire, needle & thread, clevis pin, split ring, & any other special tools

Winter
Parka
Insulated pants
Wool/snow mittens/gloves
Extra layers for warmth
Overmitts/Shells
Neck gaiter
Goggles
Facemask
Supergaiters
Booties
Snowshoes or **skis**
Ski poles
Ice axe
Crampons
Snow shovel
Snow saw
Snow flukes
Ice screws/pitons
Avalanche cord/wands
Avalanche beacon
Sitting pad
Handlens/snow crystals
Avalanche pit equipment
Wax kit, skins

Technical Gear (Climbing Ranger)
Rope, 50' 9mm static
Rope, 165' llmm or 10.5 mm
Carabiners 6, 3 locking
Carabiners, extra Slings, 3
Slings, extra
Prussik slings 3
Descender
Ascenders
Seat harness
Chest harness
Waist harness
Rappel seat
Etriers
Anchoring hardware
Rescue pulley/Belay device
Helmet

Water
(note check local policy and a new water uniform is pending)
Life jacket
Knife on a jacket
Paddle jacket-waterproof top/ bottom
Neoprene booties/over shoes Hip waders/low waders
Pogies

Personal gear (e.g. toothbrush, contacts, glasses, soap, fishing gear, journal, hook)

LaW

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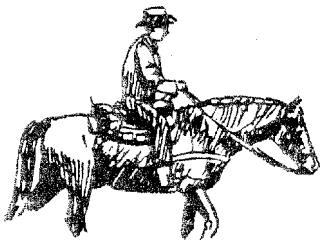


a recurre iro

ression the .user and verbal warning,

to .i„. learnt Forests have different pod-

ciec regarding citing minors. Find out whai Forest policy is.

If you start a contact by

telling a visitor she/he will be issued a

cited en find ow there were unavoidable

circa. iolAstir it is much more difficult to

drop enforce t leve.

knployei 'eo not like issuing citations

(Forrn s to jainst the grain of the idea of a

wildet iever, the ranger must. keep in mind that

faiii. ie wilderness quality to be de-

issuing a written warning (Form FS-

b. oily in order. Check with your supervisor

about ement authority you have.

as require a permit, wilderness visitors

:ware of 'eys to circumvent the wilderness

l[ei] m' iey often will enter the wilderness without a per-

, tt one is required, but they got away with it last

time, .ermit system has been in effect for over 10 years

in many areat compliance is generally between 60 and 90 per

cent_ There in atcuse for not having a permit if they're re-

quired.

cial orders teguiations related to bears, minimum im-

pact, r others e publicized on trailhead bulletin boards,

receptionist desk . ". and small handouts designed for wilder-t an

ness contacts. effort to standardize special orders with .uses

neighboring the orders come up for review.

1..tit *at make arrests.* If you feel that an

arrest contact your dispatcher and give de-

is also applies if you find yourself in a

potential ac tion (riding inadvertently into a poacher's

camp). Bac': is for help,

Regulations Related te derness

Refer to Title 36, it S. .C1:ode of Federal Regulations for a complete list of prohibntons, Also, ea·n your local regulations with CbR's, Insert these *n rr front pee.* of the field guide.

Subpant B r re. uniy if a Forest Supervisor or Regional FOreStTT order for ti nrehibitiont Subpart A regulationr - for ail th-ests. For example, the firing of guile cics and *the taking of* legal game in some wilderness treats out t nere are no restrictions in other Wilderness arts confused. areas.

2 or with CFR s.

Local to your law enforcement gu co i a n d bail schedule for a unt of prohibitions for your tutea. Bail schedules are set judicial district. Magistra·ts answer to the district judge ne assigns specific times to hear cases. Check with your Regui officer ut \\Then and where your magis-

Refer full acco within e and each it Forest law enfot e date hears eases.

Volunteers may not issue citations, but they may record information for a cite ti- to beprocessed by qualified employee. A warning (Form 1·a - ti-l) may be used for *this.*

Writing Citations

Writing a *citatien ran be a* nerve-wracking experience. Be familiar with the): -ndprocedures. Practice. To issue a citation *you must have tal: USFS Level ll Law Enforcement Training.*

Take refresher courses ane to date on changes, if your supervisor permits it. ll° you can issue a warning notice **(Form FS-**5300-I) without this training.

During your training, make a copy of a citation and set up a *simulated real-life. situation,* then issue the citation. Keep a copy of a completed example containing the location codes, magistrate's name and address, etc. This is very helpful.

If for some reason :ice tu *not* have a citation or are unsure about the applicetton of ea to a situation, it is acceptable, to take down m e a t ? pe. elal information (a Notice of Violation can be used) and inform the violator the incident will be discussed with your supervisor. You can also use an Incident Report

form. Tell the visitor that if the supervisor feels a citation is warranted, one will be sent to him by mail. This should not be standard practice. It is only for those instances where it is unavoidable or there is some question of applicability.

BASIC THOUGHTS FOR GOOD HOST **ENFORCEMENT**

1. Our #1 role is to educate 1st - then regulate. Citations are a last resort.
2. When it comes to being a Good Host, some jobs in the Forest Service are tougher than others.
3. Being a Good Host is the only approach to take in Law Enforcement; otherwise you're asking for trouble from the outset.
4. The majority of visitors are thankful for enforcement action. Regulating the behavior of an individual is being a Good Host to others.
5. Don't assume the worst when approaching a situation. Appearances can be deceiving.
6. Avoid displaying an overbearing attitude.
7. Personal risk is not asked of our employees. However, prompt response should be made to all violations which occur. This may consist of observing and recording the details of the incident and notifying law enforcement officers capable of taking direct action. Be courteous but be firm.

9. Patience should be your guiding principle.
Make a list of possible situations and consider what you might do when confronted with them.

11. Try to avoid backing people into a corner. Give them some room to save face if possible.
12. Where some area result in constant confrontation, personnel should be rotated so that they are not always being thrust into negative situations.
13. A constant stream of bad experiences can lead to a negative attitude on the part of the Forest Service officer.
14. When a citation is to be written, be businesslike. Don't launch into a long lecture.
15. Be neatly dressed and in proper uniform. Call for back-up or assistance as necessary.

16. Avoid what appears to be a dangerous situation. Call for back-up as necessary, or leave.
17. Keep enforcement policy consistent. All personnel should know how they are expected to enforce the laws.
18. Be a good listener. Many people will be happy if they have a chance to explain, even if they get a citation.
19. Catching situations early often keeps them from developing into something serious.
20. Warning people who look like they are about to commit a violation is often appreciated.
21. Be knowledgeable about the area you are operating in. Informal chatting often gives you an opportunity to point out regulations.
22. Don't feel that enforcing the law is not being a Good Host. Laws are really there for the benefit of all the people.
23. Visitors complaints about each other need to be carefully assessed before any action is taken
24. If a person believes that you are going to give him a hard time, he will try to avoid you, or, failing that, he will be unresponsive or perhaps hostile toward you.
25. Always act courteously.
26. Be confident and professional at all times.
27. Don't get into "Well, personally, I think it's a bunch of hooey".
28. Always be tactful.
29. Let visitors have their say.
30. Don't show anger.
31. Don't threaten people. Just do what must be done.
32. Don't attempt to be clever or witty when contacting a violator.
33. Don't wait for a violation to occur with the idea of making an example of someone. You will only make a bad example of yourself.
34. Evaluate your contacts. If you have a lot of violations of one kind, chances are you need a better information program.
35. Carry fire permits and other permits when it is permissible to issue them in the field.
36. Keep in mind the Regional Policy:
    "When damage to resources and property cannot be prevented without risking personal injury to the employee or to the public, the risk will not be taken".
37. Carry a map of the area so you can help people find things or get oriented if they ask for your help.

38. Try to "lead up" to the problem a little bit rather than being abrupt. Give people a chance to adjust to your presence.
39. More often than not, people will be viewing you with respect and curiosity - that is, if you are in proper uniform.
40. Practically everybody recognizes the need for regulations.
41. Avoid threatening or aggressive posture.
42. Don't come "charging in" when you approach people.
43. Be friendly, but avoid being presumptuous or conducting yourself in an overly familiar manner.
44. Always show respect to the individuals you contact.
45. Maintain your professional standing at all times.
46. Do check out complaints that people make and let them know that something is being done. Follow-up is extremely important to maintaining credibility.
47. Be accurate in the information you give. You could get some-one into trouble.
48. When you don't know about a regulation that a visitor is asking about, let the visitor know that you don't know, and *then find out.* Make every effort to get the information to the visitor as a follow-up.
49. Don't ignore an obvious violation. Other visitors will take their cue from your reaction.
50. Set an example of behavior. Visitors who see you pick up litter will emulate your actions.
51. Establish a friendly presence as much as possible beforehand, and then when a violation occurs, the situation is more relaxed.
52. **Check** that signing **is** in good condition and keeps visitors informed of regulations and boundaries.
53. Be consistent in dealing with all people.
54. Don't vacillate once you've decided the situation warrants a citation. People like to know where they stand.
55. Do your best to be reasonable at all times. Don't be bull-headed if other information comes up that changes a situation.
56. Always keep your cool. Never respond to abusive language in anger.
57. *Know the* regulation you are citing for.
58. Know the real purpose of the regulation and be able to explain it the person being cited. Often people will be much more receptive when they understand the purpose of what is happening.
59. Get all the facts before drawing your conclusions.

60. Avoid trying to judge whether a person is trying to con you. On short acquaintance it's practically impossible to sort this out.
61. In all cases our primary concern is for the safety of the public and our own employees,
62. All Forest Service. Officers have a responsibility to observe for violations of laws and regulations.
63. Have handout materials *on* rules and regulations available for frequent use.
64. Remember, a Good is one who enforces laws and regulations equitably fct al Forest users.

End-Of-HitetA a,:zs

When you come out of the field there are as variety of tasks and reports that need to be accomplished.

Administrative Reports

Trail Work Summary Sheets are used to record the amount of work accomplished on each ion of trail *and* the time involved. ~mda Include travel. times. Tbir ei be a measure of the funds needed to accomplish goals. ieii person hour to clean each waterbar, and theres funds are needed to pay for :4. b this, plus travel time, plus pre ration time, The longer these records are kept, the more accurate .ne estimaies of the average amount of time to accomplish *work.* :trim pendix for example form.)

Keep a diary. The purpose of maintaining a daily diary is so that supervisors and managers can identity problems, know how much work is being accomplished by the Wilderness Ranger, and provide statistics.

The diary can take different forms. A written diary, which ex-plains the details of trail work, public contacts, wildlife sightings, law enforcement action, Search And Rescue, first aid rendered, etc., can be maintained daily, Some units use management information cards, hitch reports, or pecific forms. Turn this information in to your supervisor (see rptietalix for examples). Also, fill out a time sheet and per diem forms for expenses. Some districts have food supply forms that are also filled our,

Wilderness Rangers Meeting

This is your opportunity to meet with your supervisor to discuss work accomplishments, problems and to plan your next hitch. It's an important information sharing time and one which you should be adequately prepared for. You'll need to coordinate transportation, post itineraries in the office and dispatch office, and make other logistical arrangements. This is the best time to plan for office support and follow-up on any problems you encountered on the last hitch.

Tools and Equipment

This is an excellent time to clean, sharpen, or replace broken handles, and round up special tools, tack, and camping equipment you might need for your next hitch. You should get your tools and gear cleaned up and organized for your next trip out. The more you do now, the less you'll have to do the first day of your hitch. If you don't know how to fix a tool, ask other crew members or the equipment manager. Don't just dump it in the tool room. Everyone is responsible for keeping the tool room in order. Label tools and equipment if it needs repair.

Stock and Tack Care

It is your responsibility to make sure that your stocks' needs are met until used again. Insure that they have adequate feed and water. If you have any concerns about leaving your stock short of feed or water, let your supervisor know. He/she can arrange to check up on the critters turning your time off.

It is also your responsibility to check your horses' shoes and hooves regularly and contact a farrier when they need to be re-shod. Farriers are often hard to find and sometimes harder to schedule. Don't wait until the last moment to contact them . . . . think ahead at least two weeks, and plan with your supervisor.

Report any stock health problems or replacement needs to your supervisor right away.

Oil tack as needed and brush blankets every hitch, if not every day. Wash cinches. Before leaving, clean up after yourself, sweep tack room and empty trash.

4. Safety

"Safety is for your health" is the motto of safety for the Wilderness Ranger. The Wilderness Ranger's job is inherently more dangerous due to your distance from help, the places you must travel, and the tools and stock you must use. Your attitude as well as your actions make safety a reality. A job hazard analysis is required for your job. It covers all aspects of that job and explains what hazards may be encountered and how to avoid them. What if you are injured in a fall? What if you are bitten by a rattlesnake? Think about this type of situation and develop a plan to get yourself out of these situations. **Prevention** is the key.

Water Purification

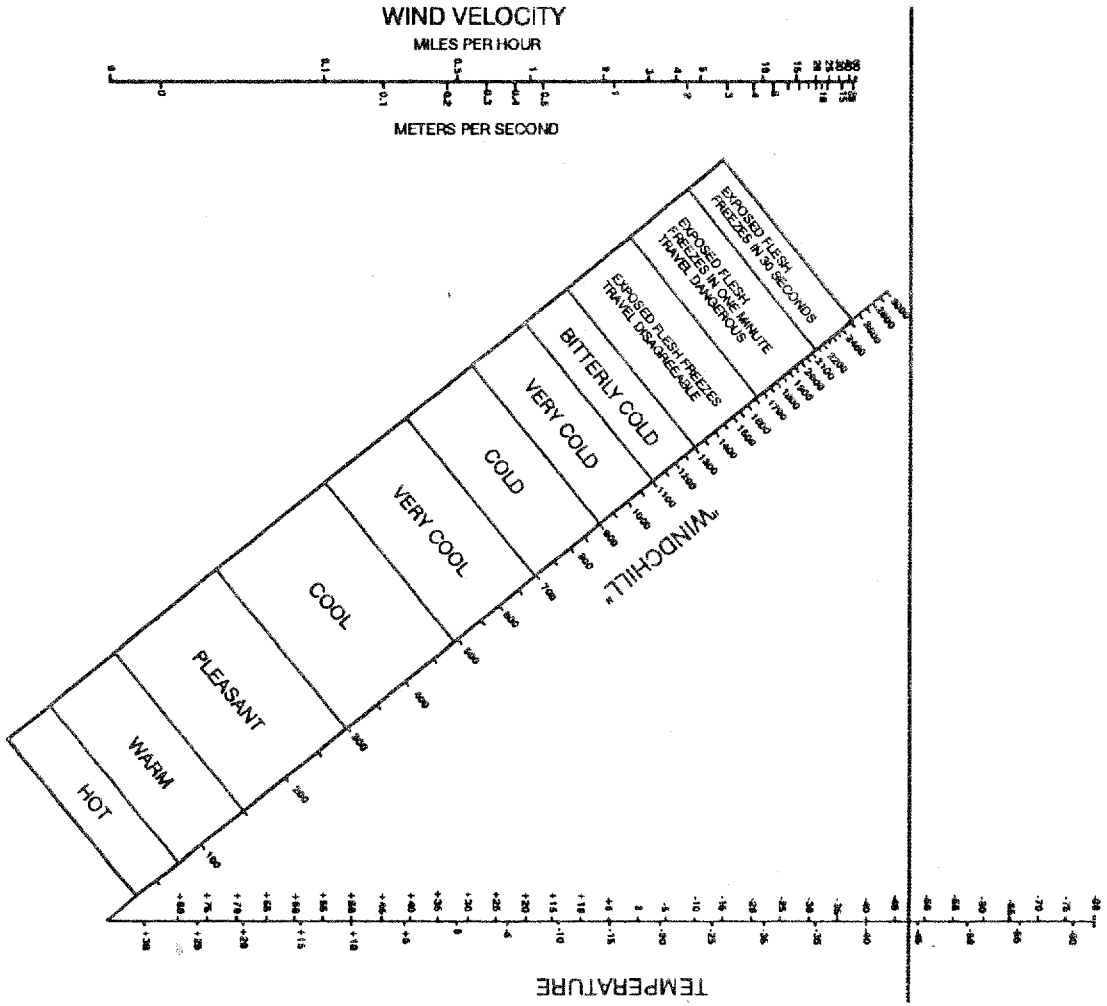
Giardia lamblia is becoming a serious problem in wilderness waters. DON'T GET IT, IT'S A MISERABLE SICKNESS. Boil water for a least 5 minutes (longer at higher elevations) after it reaches the boiling point to kill any protozoa and amoeba. This is the surest method of purification. Chemical treatments for water, such as Halazone tablets or tincture of iodine, are not as depend-able; but extending the time between treatment and consumption reduces the chances of infection. Some people experience digestive problems and problems with extended long-term use.

There are filters which claim to be a sure method of eliminating *Giardia.* Although filters have been used effectively by Wilderness Rangers, they can be expensive and may not filter out all microorganisms. Boiling is the best way to purify water to eliminate contaminates of all

sizes. Using iodine tablets also works well. There are a number of new filters on the market that are affordable and effective.

Hypothermia

Hypothermia is the rapid, progressive mental and physical col-lapse that occurs when a person's body is chilled to the core. It is


WIND VELOCITY
MILES PER HOUR
METERS PER SECOND
EXPOSED FLESH FREEZES IN 30 SECONDS
EXPOSED FLESH FREEZES IN ONE MINUTE
TRAVEL DANGEROUS
EXPOSED FLESH FREEZES
TRAVEL DISAGREEABLE
BITTERLY COLD
VERY COLD
COLD
VERY COOL
COOL
PLEASANT
WARM
HOT
WINDCHILL °F
TEMPERATURE

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caused by exposure to cold, aggravated by wet, wind and exhaustion. It occurs most often when the temperature is between 30 and 50 degrees-making it hard for people to accept its danger. Wet clothing can be a direct cause, even in moderate weather.

Cold kills in two distinct steps: (I) exposure and exhaustion and (2) hypothermia. Exposure occurs when your body begins to lose heat faster than it produces it. It compensates you with exercise to stay warm or your body makes involuntary adjustments to preserve normal temperature in the vital organs.

Either of these responses drains your energy reserves until they are exhausted.

Symptoms: Watch for yourself and coworkers. When your energy reserves are exhausted, lowered body temperature affects the brain, depriving you of *judgment and reasoning power.* ***(You do not*** **realize this is happening.) You may have uncontrollable fits of shivering; vague, slow or slurred speech; memory lapse or incoherence; fumbling hands; frequent stumbling, lurching gait; drowsiness; apparent exhaustion, and inability to get up after a rest. This is Hypothermia.** Your internal temperature is sliding downward. Without treatment, this slide leads to, collapse and death,

Treatment: Treatment must be immediate and drastic. The victim may deny being in trouble.

Believe their symptoms. Get them out of the wind and rain and strip off all wet clothes, If they are only mildly impaired, give warm drinks, keep awake, and get them into dry clothes and a warm sleeping bag. If semi-conscious, leave stripped and put in a sleeping bag with another person, who is also stripped. If possible, puts victim between two warm donors.

Defense: The best defense against hypothermia is to avoid exposure and stay hydrated. Recognize hypothermia weather and dress for it. Stay dry and protected from the wind. Avoid cotton clothing, such as jeans, and cotton thermals. Wear fabrics that wick moisture and dry fast (capilene, polypro, fleece, wool, waterproof breathable nylons, and gortex). If you cannot stay dry and warm under existing weather conditions with the clothes and equipment you have, get out of the weather. Make camp while you still have a reserve of energy, drink lots of fluids (hot), and put on dry clothes. Build a fire if you have to.

The dangerous thing about hypothermia is that victims don't realize what is happening. They may feel fine, but the fact may be that exercising is the only thing preventing hypothermia. When they stop, the rate of body heat production instantly drops by 50 percent or more. Violent shivering may begin and the victim may slip into hypothermia in a matter of minutes.

Altitude

Acclimatization to high altitude involves complex change to the body. Breathing is more rapid, and the blood increases its amount of oxygen carrying blood cells. At high altitude the amount of oxygen available is much less. Your body starts adapting to this lack of oxygen. About 90% of acclimatization occurs in 10 days and 98% occurs in 6 weeks. Symptoms that indicate you are not acclimatized are: shortness of breath, tiredness, nausea, vomiting, dizziness, and a headache. Rapid ascent usually results in mountain sickness. Some people become weak, pale, and cyanotic. Sleep may be difficult and "Cheyni stokes" breathing may be common. This is shallow breathing followed by rapid breaths. Resting during the first 24 hours at a new altitude is helpful. Take a lay over day or go down in elevation for a day or two. Usually symptoms go away after 24-48 hours. A good rule of thumb is go down at least 2,000' and gain altitude at the same interval. Proper diet and fluid intake is also very important. Drink at least 2 quarts, 4 is preferable. Also be aware of the symptoms and prevention of HAPE (High Altitude Pulmonary Edema) and HACE (High Altitude Cerebral Edema). Both of these are extremely dangerous and may cause death. Treatment for both is **rapid descent.**

Thunderstorms

In some areas, local thunderstorms are common in the summer. Some signs indicating the advent of a thunderstorm are Formation of massive cumulous clouds, quiet calm air combined with hot temperatures, and oppressive, sultry atmosphere with a cloudless morning **sky.**

The distance to the center of a thunderstorm can be determined by dividing the time in seconds between the lightning and the thunder by five with five seconds being equal to one mile. Thunder can usually be heard over a distance of between 6 and 16 miles, depend-

ing upon intervening elevations. The direction of a storm may be predicted by watching the upper wind about 2 or 3 miles high since thunderstorms normally move with the main air current. The speed of these upper clouds will also give you some idea of the likely speed of the approaching storm.

Lightning is the principal hazard in any thunderstorm. It is an electrical discharge between two clouds or between a cloud and the earth. In order for this discharge to be made, there must be a "negative" charge of electricity in one place, and a "positive" charge in another. When these two charges meet each other, the lightning flash is produced.

The presence of an electrical charge generally makes itself felt as follows: insect-like buzzing noise, unprotected parts of the skin feel as though they were touched by a spider's web, tickling of the scalp, standing-up of the hair, or "signing" of metal objects.

The frequently expressed theory that lighting strikes only the highest point is only partly correct. Electricity travels downward in lightning flashes and upward along ridges to the sky. Because you are low down on the ridge does not mean you are safe. An electrically charged cloud may be just below the summit so that the lightning discharges into a lower secondary peak or ridge. Also certain trees, including oaks and poplars, are more susceptible to lightning strikes.

During lightning storms, do not pass between or stay under boulders, as lightning has been known to flash through one boulder to another.

Avoid Summits and ridges or any exposed points at all costs, and do not approach them nearer than about 15 yards. Avoid lone trees, streams, gullies containing water and rocks. Over hangs and recesses are no protection against earth currents. Find shelter in dense forest areas at lower elevations. If no shelter is available, sit on your foam pad with only your buttocks and feet touching the pad. Clasp your hands around your knees. Stay out of shallow caves. Remove metal from backpack and metal from tent poles, as lightning is attracted to them. Crouch in the middle of your tent and do not touch the walls if the tent is pitched in an unprotected opening.

Stream Crossings

There are few bridges and footlogs in the wilderness. Most stream crossings may be accomplished by rock hopping or by using a fallen log as a bridge. **Extreme** care should be used with either method since rocks and logs around streams can be very slippery. Occasionally it may be necessary to wade the stream, particularly during times of high water.

Pick a spot with the least rapids or current. It may not necessarily be the most shallow spot.

Cross streams whose source is in snowfields or glaciers in the early mooring when their flow is lower.

Wear your pack in a normal position, but with the waistband unfastened and shoulder straps loosened. In case of a fall the pack can be easily removed if necessary. Use a stick for balance. Face upstream, placing the pole into the river bottom while moving side-ways, and forward at an ngle.

Wear your boots to prevent injury to your feet. River shoes or tennis shoes work well also. Do not ford barefoot. Remove socks and lace boots firmly. Once across, wipe out the inside of the boots with a handkerchief or sock top before putting on. (This is a good chance to clean out your boots!) Getting your boots wet will not hurt them if they are dried properly.

From *The Wilderness Handbook* by Paul Petzoldt.

Bear Proofing

Until recently, managers have made clear distinctions between grizzlies and black bears in regulating visitors and special use permits. There is a growing awareness recently however, that:

1. Black bears can present as much danger to humans as grizzlies do; and
2. Black bears are equally susceptible to learning undesirable habits by obtaining food rewards, resulting in exterminating of the unwitting individual "bad bears" by managers.

We hope to remove this distinction between the 2 species for some management purposes, and we urge all rangers to regard all bears as needing protection from food rewards. Your contacts with visitors and special use permittees should emphasize bear proofing in all areas known to have either species. Education should include handouts and focus on voluntary compliance with smart bear country techniques, regardless of whether you have regulations to support you. Don't help a good bear go bad - griz or black!

Some national forests are bear habitats and grizzly country. To reduce your chances of having a confrontation with a bear, we recommend that you always remember .. .

FOOD AND **ODORS** ATTRACT **BEARS**

Always **Store Food Properly**

A bear will eat anything that you, your livestock or your pets will eat or drink. All human and livestock food and garbage including cooking grease must be stored unavailable to bears. Wash dishes after each use. Check your pockets and saddlebags for forgotten food every night before sleeping.

Odors Attract **Bears**

Store food in plastic bags. Use freeze-dried foods. Avoid smelly foods like bacon. Gut and clean fish by water away from your campsite. Puncture fish air bladder and throw remains into water. Personal cleanliness is good insurance. Keep sleeping bags and personal gear clean and free of food odor. You may wish to wash your sleeping bag and tent before going into grizzly country. Don't sleep in the same clothes you wore when cooking. Don't sleep in the cooking tent. It is best to sleep 100 yards from properly stored food. Leave perfumes, cosmetics and scented products at home. They also may attract bears.

Never **Bury** Garbage

Properly store and pack out all garbage. Bears remember where they got food before and will often return. It helps to double bag in plastic.

BEARS DON'T LIKE SURPRISES

Never Approach Bears

Not even to take their picture. Some bears may seem "tame," until you get too close or threaten their young.

Make Noise

Most bears will avoid people and leave an area when they know people are present. Making noise allows the bear to move away before a confrontation occurs. Talking, singing, whistling, yodeling or wearing bells or other noise makers all help to let bears know you are coming.

Most bear attacks are caused when a bear is startled at close range.

Safety in Numbers

Travel with someone else and avoid hiking at night. Stock and llamas seem to be advantageous to travel with.

Keep Your Dogs Under Control

Roaming dogs can easily disturb a bear and may lead an angry bear back to you. In national parks, dogs must be leashed and are not allowed on trails.

AVOID HIGH USE AREAS

You can avoid encounters with bears by avoiding areas that they like. If you can't avoid these areas, be extra careful when traveling through them. Bears like to travel on saddles, ridges, game trails and along water. They eat carcasses whenever they can find them and like vegetation that grows in wet areas. They often rest **in cool, dark, thick forests.**

In the spring and early summer, bears are often in lower elevations along rivers. They love to catch fish when the spawning runs are going. They also feed on fresh green grasses and winter killed animals.

In the summer, bears are usually in higher elevations, often in open park-like areas. They like to eat berries when they are ripe. Berry pickers should be extra careful, make lots of noise and keep children near them at all times.

In the fall, bears are often found in whitebark pine stands eating pine nuts. Be sure you know what this tree looks like Bears also dig for roots in mid-elevation meadows, especially in years when there are fewer pine nuts.

AVOID AREAS **WITH** RECENT **GRIZZLY BEAR ACTIVITY**

Learn to identify the signs of bear activity and avoid using these areas. Typical signs of grizzly bear use include fresh tracks, scat greater than 2 inches in diameter, diggings and partially consumed or buried animal carcasses.

Some national forests and national parks are grizzly country. If you choose to recreate or hunt in this area, you need to learn about grizzly bears and how you can avoid having a confrontation with one. If you encounter a bear even after following all the recommendations for avoiding contact, there are many things you can do to avoid escalating the situation.

ENCOUNTERS IN THE FIELD

If a grizzly bear is encountered, your actions can affect the outcome. You can provide options for both you and the bear by maintaining a safe distance and by acting in a manner that does not threaten the bear. A `cool' head is necessary to avert harm to your-self or the unnecessary killing of a grizzly bear. Shooting a grizzly bear often escalates the situation to a dangerous and unnecessary level.

If you encounter a grizzly bear, you should first try to back out of the situation. Keep calm, avoid direct eye contact, back up slowly and speak in a soft monotone. Never turn your back on the bear and never kneel. Most encounters end with the bear leaving at this point.

Never run, and do not climb a tree unless you have time to climb at least 10 feet before the bear reaches you. Remember, bears can run very fast. If you do have time to climb a tree, you may want to drop a non-food item, such as a camera, to distract the bear while you climb.

If the bear charges, stand your ground. Bears often mock charge, or run past you. The bear may charge you several times before leaving the area. Shooting a bear when it is charging is not recommended. The bear almost always lives long enough to maul the shooter severely.

As a last resort, play dead. Curl into a ball, covering your neck and head with your hands and arms. If you have a backpack, leave it. on as it will help protect your back. If the bear swats you, roll with it, Stay in a tucked position and do not try to look at the bear until

you are sure it is gone. Many people have survived bear attacks using this tactic.

Report all encounters, no matter how insignificant, and even if it is much later. Your report may prevent someone else from getting hurt. Refer to Appendix, (Section H) for forms.

ENCOUNTERS IN CAMP

Bears that come into your camp are a completely different situation. They have chosen to approach you and have most likely become habituated to human food and garbage. These bears are dangerous because they are no longer avoiding confrontations with humans. It is important that you store your food properly, If the bear does not get a food reward, it will be more likely to leave quickly.

Stay calm, avoid direct eye contact and speak to the bear. Get to safety as quickly as possible by slowly backing out of the area while looking for suitable trees to climb. Climb a tree as high as you can since some grizzlies can climb trees. Stay in the tree until you are sure the bear is gone.

If the bear attacks you, fight back by punching, slapping or using any object available as a weapon. Try to evade the bear by climbing up a tree or onto a boulder. Playing dead will NOT work in this situation. The bear has made a conscious choice to attack you.

Before retiring for the night, note climbable trees in the area. Sleep in tents large enough to stack gear between you and the tent wall. If a bear attempts to enter your tent, there are spray repellents marketed for bear confrontations that may be useful.

Again, report the incident as soon as possible, even if the bear simply walks through the camp. We do not recommend that you remain in a camp that has been visited by a bear.

BEAR BEHAVIOR

Victims of grizzly attacks are often unaware of why they were attacked. Many attacks are caused by unexpected close encounters, where the bear has been surprised and feels threatened by human presence. A female with cubs will be especially aggressive and will defend her cubs from any perceived threat. Many attacks can be averted if the bear perceives a way out of the situation.

Because bears do not have a spoken language, they rely heavily on body language and a variety of simple sounds to communicate their intent. Understanding their `language' may help you to better understand a bear's intent and allow you to respond appropriately to an encounter.

Body **Language**

A bear that stands on its hind feet is investigating an unknown situation. *This is not an aggressive posture.* It simply means that the bear is unsure of what is in front of him. By standing on its hind feet it can get a better look and smell, and thus can better identify whatever is in front of it.

A bear that swings its head from side to side, or presents a side view of its body, is expressing a reluctance to charge. It is looking for a way out of the situation.

If the bear looks at you directly and has its ears back, it is warning you that you are too close and it feels threatened. The bear may make a barking, woofing or moaning sound to further indicate its distress.

If the bear "pops," his jaws, the bear is very agitated and likely to charge. Charges are often a test of your resolve and are often "mock charges" where the bear stops short of you, veers off or runs right past you. A bear may mock charge many times before leaving.

A bear that does charge and knocks you down is attempting to remove a threat. The bear will use as much force as it believes is necessary to remove that threat. This is why lying down on the ground and playing dead is often the best thing to do in an attack situation.

Women are often warned that they should not travel in Grizzly Country during their menstrual period. We disagree with this recommendation. There is no evidence that grizzlies are overly attracted to menstrual odors more than any other odor and there is no statistical evidence that known attacks have been related to menstruation.

We do recommend some very common sense precautions, however.

BEARS ARE ATTRACTED BY ODOR

Because bears are attracted to odors, we recommend that you keep yourself as clean and odor free as possible.

1. Use premoistened, unscented cleaning towelettes
2. Use tampons instead of pads
3. Never bury garbage

4 Pack it in-Pack it out

Do not bury used tampons or pads. A bear could smell them and dig them up. They will provide a small food `reward' and may attract bears to other women menstruating.

Place all used tampons, pads and towelettes in double zip-lock baggier and store them unavailable to bears just as you would food. This means in a bear resistant container or hung 10 feet off the ground. Enclosing aspirin in plastic bags helps with odor.

Those using a base camp with an established latrine may wish to set up a tin can with a tightly fitted lid on a rope which would be easily accessible for those using the latrine. The can should be suspended at least 10 feet off the ground. A plastic liner in the can will make it easy to keep the can clean and odor free as well.

Tampons can be burned in a campfire, but remember that it takes a very hot fire and considerable time to completely consume them. Any charred remains must be removed from the fire pit and stored with your other garbage.

Many feminine products are heavily scented. Bring only unscented or lightly scented items. Cosmetics and perfumes may act as an attractant.

Follow food storage regulations and recommendations, so that you can avoid attracting a bear into your camp with other odors. All food and beverages; including canned food, pop and beer; garbage; grease; processed livestock or pet food; and scented or flavored toiletries (toothpaste) are bear attractants.

All of these items must be stored in a bear-resistant container or vehicle, or hung at least 10 feet off the ground and 4 feet from any vertical support. Cars, pickup cabs, hard-sided campers and camper shells are all considered bear resistant.

Poles and bear-resistant boxes and barrels may or may not be in your wilderness. Maps of the locations of these structures can be

obtained from the nearest ranger station, trailhead host or at many information bulletin boards. Most areas *do not* provide these structures.

Remember, bears can sense fear. If you are uncomfortable traveling in grizzly country, you should familiarize yourself with the available literature. If you are still uncomfortable, perhaps you should choose to recreate in another area. But let this be your decision. Don't let others create artificial barriers to your enjoyment of this area.

(Note: Information is from Wyoming Game and Fish Department and U.S.F.S. and U.S.F.W.S. brochures.)

Mountain Lions

Mountain lions are carnivorous at the top of the food chain and their actions are often unpredictable. Adult lions can vary in weight from 85-180 pounds. Lions were once the most widely distributed land mammal in the western hemisphere, and were distributed throughout nearly every state. Now the cougar is restricted to only the western states with a small population in Florida. Listed below are some of their characteristics:

Attack prey many times their own size.

- Lions feeding on a kill are potentially dangerous and should never be approached. They are carnivores and often unpredictable.
- They are most active at dusk and dawn but you can see them at any time.
- Eyes are specially adapted for seeing at night
- Lions are semi-territorial and leave scent in "scrape" along boundaries. A scrape is 4-6" mound of dirt, forest duff, with urine and dung.
- Females give birth at 2-3 year intervals usually 1-5 kittens.
- Prints are round in shape, have a deeply bi-lobed main pad and normally do not show claws.

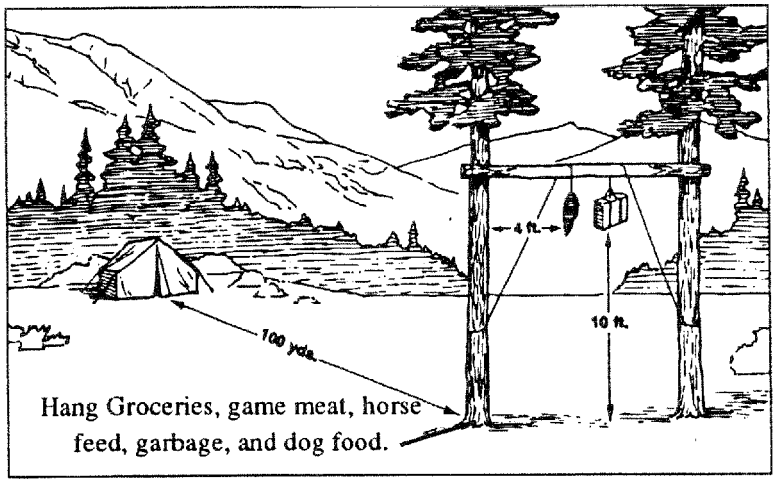
Tips if you encounter a lion:

- Make noise to prevent surprising a lion, it helps to be with another person.

  Never approach a lion, normally they avoid people but give them a way out.

- Stay calm if you have a confrontation.
- Do not run or turn your back on a lion move slowly and try to back away - no sudden movements.
- Try to enlarge your image, do not crouch down or hide.
- If a lion behaves aggressively arm yourself with a stick, throw rocks, speak loudly and try and convince them you are a threat.
  Fight back if a lion attacks. Remain standing and use rocks, sticks, fists, etc.

Over the last 100 years there have been 50 recorded attacks on humans causing 10 fatalities. More incidents have occurred in the past 20 years. Nine our of 10 victims have been children.



Note: Cooking area should also be 100 yards from where you sleep.

Poison Plants, Insects, and Snakes

Ivy, Oak and Sumac

Instruct all employees in identification of hazardous plants. Highly sensitive persons should not be exposed. When working in affected areas, employees should fasten trouser legs closely over boot tops. Wear gloves, and keep them away from face or exposed parts of the body.

After work, wash exposed parts thoroughly with thick soapsuds. Yellow laundry soap is best in hottest possible water. Clean tools with cleaning solvent before putting them away. Wash exposed clothing in thick, hot suds separately from other clothes.

Destroy poisonous plants around improvements where practicable. Apply approved chemicals to kill plants.

Burn only in isolated areas. Avoid contact with smoke; particularly avoid getting in the eye or inhaling it.

Immunization or application of body ointments or salves is recommended.

Rocky Mountain Spotted Fever Ticks

Ticks are carriers of agents that cause Rocky Mountain Spotted Fever, Colorado tick fever, tick paralysis, Lyme Disease, and tularemia.

When working in an area likely to have infected ticks, wear clothing that fits tightly at wrists, ankles, and waist. Each outer garment should overlap the one above it.

Cover trouser legs with high socks or boots and tuck shirttails inside trousers.

Search the body repeatedly (rest periods, lunch, etc.), especially hairy regions and inside clothing, as ticks seldom attach themselves within the first few hours.

Remove any ticks that may have become attached. Do this with your fingers or tweezers. Grasp the tick as close as possible to the point of attachment and pull gently and repeatedly. Do not jerk it loose, as the mouth parts will often break off and remain embedded in the skin. This could cause infection. Treat the bite wound with an antiseptic and wash your hands thoroughly with soap and water. NOTE: Do not try to burn the tick or cover it with heavy oils.

Once the tick is removed, do not kill or throw away. Place it in an empty pill bottle or other container. Record dates of tick expo-sure and removal. Should you experience general malaise with fever, headache, chills, and muscle ache within 2 weeks of removal, seek prompt medical help, give the physician the tick and record of exposure data.

Chiggers

Persons working in areas with chiggers should avoid sitting on ground or on logs and avoid low vegetation when practicable, apply powdered sulfur to legs and hands, bathe in hot, soapy water, and use insect repellants such as dimethyl pthalate and indalone.

Black-Widow Spiders and Scorpions

In black-widow spider and scorpion areas, you should wear work gloves, turn them inside out after placing them on ground temporarily, inspect material before handling be careful in outdoor toilets, and see a doctor if any bite shows rapid inflammation and **pain.**

Bees, Wasps, and Yellow Jackets

Prevention: Persons who are known to be allergic to insect stings should obtain vaccine and/or allergy medication before going into the field. Wear long-sleeved shirts with close-fitting collar and sleeves, with trousers tucked in boots.

First Aid: Remove stinger if possible. Apply paste of baking soda and cold cream. Cold applications will relieve pain and calamine lotion will relieve itching. Take anti-allergy medication if reaction is severe. If the reaction is unusual, apply constricting band above bite, apply cold packs, and rush to doctor.

Snakes

Prevention: Wear high boots in poison snake country. Be observant around places obscured by foliage or otherwise when walking in rocky country or climbing ledges.

Use a bar for moving materials and timbers that have been stacked or piled in snake areas. Do not put hands under any stored material where snakes might be present. Take care not to step over any logs. Step on them and look down before stepping off.

First Aid: If bitten, remain quite and, if possible, avoid movement under your own power. If necessary to walk, move slowly with frequent rests. Carry a snakebite kit in poisonous snake infested areas. It should be used only if unable to get to a doctor or hospital within an hour. In isolated areas 2 hours or more from medical attention, employees should be trained to use anti-venom.

Other Plants, Insects, Snakes

Be aware of any other plants, insects, snakes in the area and *know* the proper treatment. **Prevention** is the key. Also refer to a *First Aid* supplement.

Trailside Meetings

(More commonly called *tailgate safety meetings* by the Forest Service, but since there are no tailgates in the wilderness, they are often called trailside meetings.)

Trailside safety meetings are your responsibility as a first-line supervisor. These meetings are meant to stimulate your crew's safety juices and hopefully prevent some near misses and accidents. The challenge for you is to take your responsibility seriously, display a good attitude about these meetings, make them pertinent and applicable, and maybe even make them fun.

Examples of subjects to discuss might be camping hazards, took use and sharpening, stock use, public contact, first aid, stream crossing, food handling and cooking, bears, giardia, hypothermia, law enforcement ha2ards, etc., etc., etc. There's no shortage of hazards to talk about in wilderness work.

Document the meeting, who attended, what was discussed, the date and time, and any near misses, new procedures, or suggestions that you came up with. You guessed it, there are safety meeting forms that you can fill out and submit with your hitch reports. Try to have at least two of these meetings each week, and more if you need to.

Our goal is to have a good safety record each year. Not because we want a good record, but because we want you to come out of the woods in one piece.

Avalanches

General rules for avalanche survival

INTRODUCTION

Large and small avalanches can have tremendous force and are a serious threat to winter travelers.

The more time that you spend in skiing, snowshoeing, snowmobiling, and other winter activities, the greater are your chances of being caught by snow avalanches.

Knowledge can help you avoid being caught by a snow avalanche; it will help you survive if you are buried.

Snow avalanches are complex, natural phenomena. Experts do not fully understand all the causes. No one can predict avalanche conditions with certainty. But the general guidelines in this folder will aid a thinking observer develop judgment about the presence and degree of avalanche danger.

Play safe. If in doubt, stay out of avalanche hazard areas.

Also, take avalanche beacons, ski probe poles, and a shovel.

SNOW AVALANCHES

There are two principal types of snow avalanches. These are loose snow and slab avalanches.

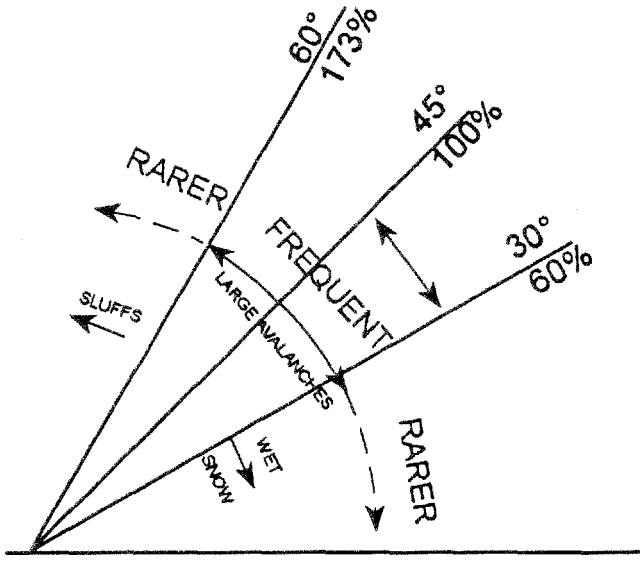
Loose snow avalanches start at a point or over a small area. They grow in size and the quantity of snow involved increases as they descend. Loose snow moves as a formless mass with little internal cohesion.

Slab avalanches, on the other hand, start when a large area of snow begins to slide at once. There is a well-defined fracture line where the moving snow breaks away from the stable snow. Slab avalanches are characterized by the tendency of snow crystals to stick together. There may be angular blocks or chunks of snow in the slide.

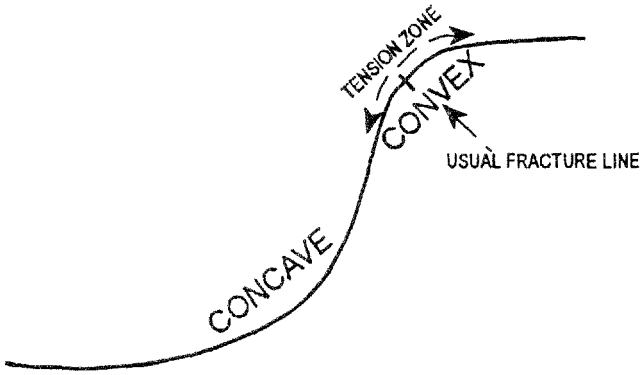
Practically all accidents are caused by slab avalanches. Many times the victims have triggered the avalanche themselves. Their weight on the stressed snow slab is enough to break the fragile bonds that hold it to the slope.

TERRAIN FACTORS

Slope Steepness - Avalanches are most common on slopes of 30 to 45 degrees (60 to 100 percent), but large avalanches do occur on slopes ranging from 25 to 60 degrees. The diagram below shows the slopes where avalanches are most common.

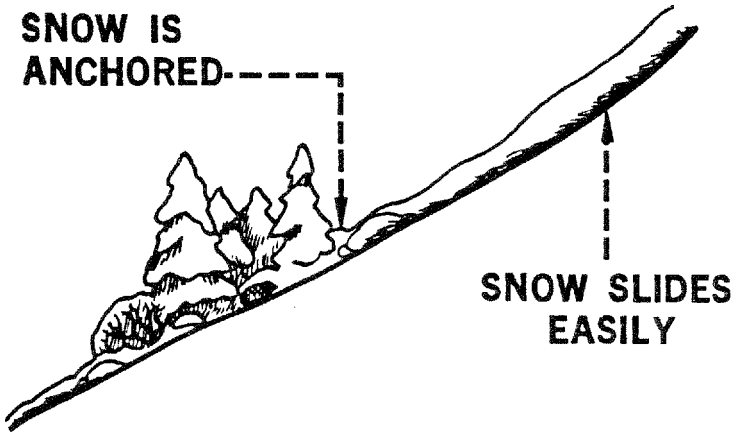


Slope Profile - Dangerous- slab avalanches are more likely to occur on convex slopes, but may also occur on concave slopes. Short slopes may be as dangerous as long slopes!



Slope Aspect - Snow on north-facing slopes is more likely to slide in midwinter. South-facing slopes are dangerous in the spring and on sunny days. Leeward slopes are dangerous because wind-deposited snows add depth and create hard, hollow-sounding wind slabs. Windward slopes, generally, have less snow; and the snow is compacted, but usually strong enough to resist movement.

Ground Cover - Large rocks, trees, and heavy brush help anchor the snow. Smooth, grassy slopes are more dangerous, but avalanches can start even among trees.

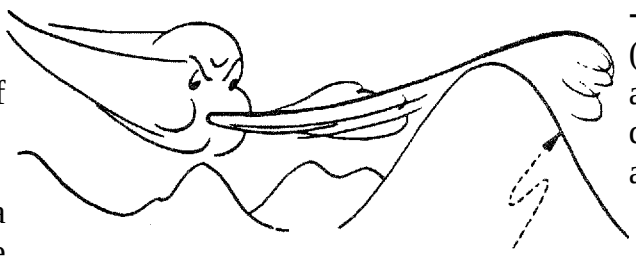


WEATHER FACTORS

Old **Snow** - When the old snow depth is sufficient to cover natural anchors - such as rocks and brush - additional snow layers will slide more readily. The nature of the old snow surface is important. Rough surfaces favor stability; smooth surfaces, such as sun crusts, are unstable. A loose, underlying snow layer is more dangerous than a compacted one. Check the underlying snow layer with a ski pole, ski, or rod.

Wind - Sustained winds of 15 miles per hour and over cause danger to increase rapidly. Snow plumes from ridges and peaks indicate that snow is being moved onto leeward slopes. This can create dangerous conditions.

Storms - A high percentage (about 80 percent) of all avalanches occur during, and shortly after, storms. Be extra cautious during these periods. Loose, dry snow slides easily. Moist, dense



SNOW IS DEPOSITED ON LEEWARD SLOPE ,° AND FORMS SLABS

snow tends to settle rapidly, but during windy periods can be dangerous.

Rate of Snowfall - Snow falling at the rate of 1 inch per hour, or more, increases avalanche danger rapidly.

Crystal Types - Observe general snow-crystal types by letting them fall on a dark ski mitt or parka sleeve. Small crystals - needles and pellets result in more dangerous conditions than the usual, star-shaped crystals.

New Snow - Be alert to dangerous conditions with a foot, or more, of new snow.

Temperature - Snow persists in an unstable condition under cold temperatures. It will settle and stabilize rapidly when temperatures are near, or just above, freezing.

Storms starting with low temperatures and dry snow, followed by rising temperatures, are more likely to cause avalanches. The dry snow at the start forms a poor bond and has insufficient strength to support the heavier snow deposited late in the storm.

Rapid changes in weather conditions (wind, temperature, snowfall) cause snowpack adjustments. Therefore, be alert to weather changes. Snowpack adjustment may affect its stability and cause an avalanche.

Wet Snow - Rainstorms or spring weather with warm winds and cloudy nights can warm the snow cover. The resulting free and percolating water may cause wet snow avalanches.

Wet snow avalanches are mare likely on south slopes and slopes under exposed rock.

GENERAL OBSERVATIONS

Old Slide Paths - Generally, avalanches occur in the same areas. Watch for avalanche paths. Look for pushed-over small trees, trees with limbs broken off. Avoid steep, open gullies and slopes.

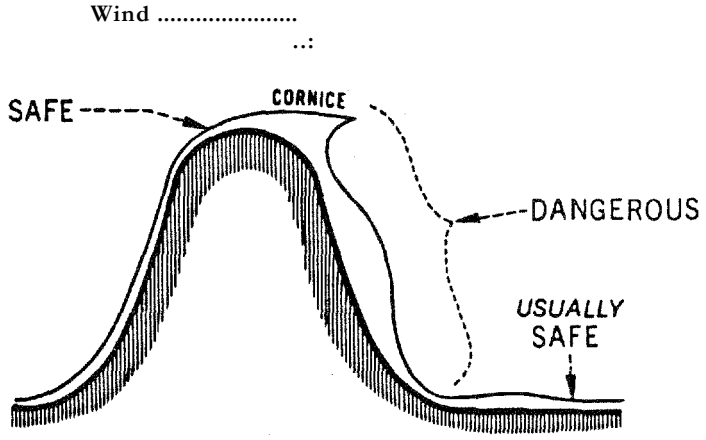
Recent Avalanche Activity - If you see new avalanches, suspect dangerous conditions. Beware when snowballs or "cartwheels" roll down the slope.

Sounds and Cracks - If the snow sounds hollow, particularly on a leeward slope, conditions are probably dangerous. If the snow cracks and the snow cracks run, this indicates slab avalanche danger is high.

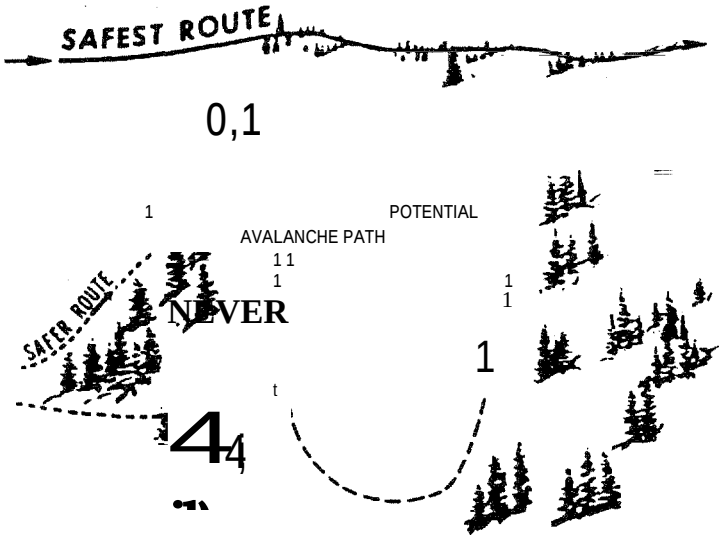
Information - Check the local weather forecasts. Contact the Forest Service snow ranger or the nearest winter sports area ski patrol.

ROUTE SELECTION AND PRECAUTIONS

The safest routes are on ridgetops and slightly on the windward side, away from cornices. Windward slopes are usually safer than leeward slopes. If you cannot travel on ridges, the next safest route is out in the valley, far from the bottom of slopes.



Avoid disturbing cornices from below or above. Gain ridgetops by detouring around cornice areas.



Route Selection - If you must cross dangerous slopes, stay high and near the top. If you see avalanche fracture lines in the snow, avoid them and similar snow areas. Some wide valleys may be safe in the middle.

If you must ascend or descevd a dangerous slope, go straight up or down; do not hake traverses back and forth across the slope.

Take advavtage of areas of dense timber, ridges, or rocky outcrops as islands of safety. Use them for lunch and rest stops. Spend as little time as possible on open slopes.

Do not cross the lower part of slopes. Do not drive a snowmobile across especially long open slopes or known avalanche paths.

Obey signs closing slopes due to avalanche danger.

Onty one person at a time should cross a dangerous slope. All others should watch him. Remove ski pole straps, ski safety straps, loosen all equipment, put on mitts, cap, and fasten clothing before you travel in any areas where there is avalanche danger.

Carry and use an avalanche cord; carry a sectional probe.

AVALANCHE SURVIVAL

If You Are Caught in an Avalanche:

- Discard all equipment.
- Get away from your snowmobile.
- Make swimming motions. Try to stay on top; work your way to the side of the avalanche.
- Before coming to a stop, get your hands in front of your face and try to make an air space in the snow as you are coming to a stop.
- Try to remain calm.

If You Are the Survivor:

- **Mark** the place where you last saw the victim.
- Search for him directly downslope below the last seen point. If he is not on the surface, scuff or probe the snow with a ski pole or stick.
- You are the victim's best hope for survival.
- Do not desert him and go for help, unless help is only a few minutes away. Remember, yop must consider not only the time required for you to get help, but the time required for help to return. After 1 hour, the buried victim has only a 50-percent chance of surviving.

If There Is More Than One Survivor:

- Send one for help while the others search for the victim. Have the one who goes for help mark the route so a rescue party can follow back.
- Contact the ski patrol, local sheriff or Forest Service.

First Aid

- Treat for suffocation and shock.

Radio Procedures

It is not good practice to travel alone in the wilderness without a radio. You should also have a radio for your tour, leave an itinerary with the supervisor or the district office and then stick to it. If you have no radio, consider traveling in pairs.

You're on the air, and everyone can hear you! Be professional and clear. *Use plain English.* The "ten code" is no longer used because National Park Service ten codes were different from Forest Service codes, which were different from County Sheriff codes. If you speak English, everyone will understand you.

When contacting your dispatcher, use the Forest's call name first, then younassigned call number or your last name.

Your supervisor will supply you with a list of call numbers for your District. (These should be listed on the inside cover of the handbook.)

Key your radio and wait one second before you begin talking, otherwise you may cut off the call number of the person you are trying to contact. Then, be sure you don't release the key until you have finished talking or you will cut off the end of your transmission.

Most Forests have a repeater system. Generally, channel one on your radio transmits on a direct line of sight and reaches a short distance with limited range. Channel two transmits through a repeater. Your radio sends out the message which is then retransmitted more powerfully with a wide range. It takes a moment for the repeater to engage and therefore, if you begin speaking too quickly, **the first part** of the transmission will not be heard.

Check-in times are established by your supervisor so that if you are injured and can't respond, a search will begin. Emergency messages and other information is also transmitted at this time. Check-in

times are scheduled for the least interference with other Forest radio traffic. It is not always possible to make contact with the outside world from many areas of the backcountry. There are lots of dead spots and you should get to know where they are and go to a different location if you can't "get out." Mark on a map radio contact spots and also try locating new reception points. See Appendix for radio log.

Vehicle Travel

Motor vehicles are one of the greatest killers. All drivers shall adopt a policy of defensive diving. This means driving so as to avoid accident situations created by the mistakes of others or by weather and road conditions, yielding the right-of-way even when, by all rules of the road, it is actually yours, and making an unbroken series of concessions to other drivers who are thoughtless, unskilled, or ignorant of the hazards they create.

Search and Rescue

Wilderness Ranger initiation or involvement in search and rescues is common and you should be well prepared to assist. First aid skills are of primary importance and if you don't have the skills, inform your supervisor and take a Wilderness First Responder class or become a wilderness EMT. Refer to page 98 for a small light-weight reference book. There are also other publications specific to Wilderness First Aid. It is important to include an updated reference book in your First Aid Kit.

The County Sheriff is responsible for search and rescue (SAR). The Sheriff may request that you assist in the incident or s/he may request you handle the incident. Read and be familiar with any SAR agreement your District has with the Sheriff's Department. (Search and Rescue is covered in FSM 1599.)

Initiating Search and Rescue

When initiating Search and Rescue:

1. Contact the Forest dispatcher. If it is a life-threatening emergency, you can say, "Emergency" after the call numbers.
2. Indicate your needs, such as a helicopter, horse, medical assistance, additional personnel, etc. Describe the extent of injury, where person was last seen, and other known de-tails.
3. Communicate information from Primary/Secondary First Aid Survey Report' and `Air Operations-SAR' if applicable.

Local Search And Rescue Procedures

List Procedures:

1. _____
2. _____
3. _____
4.
5. _____
6. _____

8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____

SEARCH TIPS

Restricting Areas

Immediately upon receiving a search or rescue-call, all areas (entrances and exits to roads, trails, pertinent canyons, etc.) should be closed off to the public where possible and to people not directly connected with the search operation. This may not always be possible because of manpower shortages, but the importance of this is great. Life of the victim may be at stake due to the obliteration of his tracks by horsemen or untrained personnel, or in the case of a tracking dog, by confusing the scent, and it also provides a contact with the victim if he should wander out of the area while the team is being mobilized. In any event, get an experienced tracker to the scene first.

Topography Maps

A complete set of U. S. Government topographical maps should be available of the search area. A running record of all areas searched should be marked on the map with the names of crews covering each area. This is necessary for consultation with various crews regarding questions that might arise if search continues.

Victim Data

During the mobilization, gather as much information about the victim as possible.

1. Size and type of footgear - this is very important. Each rescuer should jot down or draw a quick sketch of the tread, if any, or type of shoe - sharp heels, smooth soles, etc. (See shoe type graphic on pages 83-84.)
2. Weight
3. Height

4 Age

5 Sex

6. Name
7. Objects worn and carried-any clue that might indicate the victim's trail such as gum wrappers, lunch scraps, urination spots, etc.

8, Physical and mental conditions

9. Habits __ smoking, drinking, etc.
10. Destination
11. Route

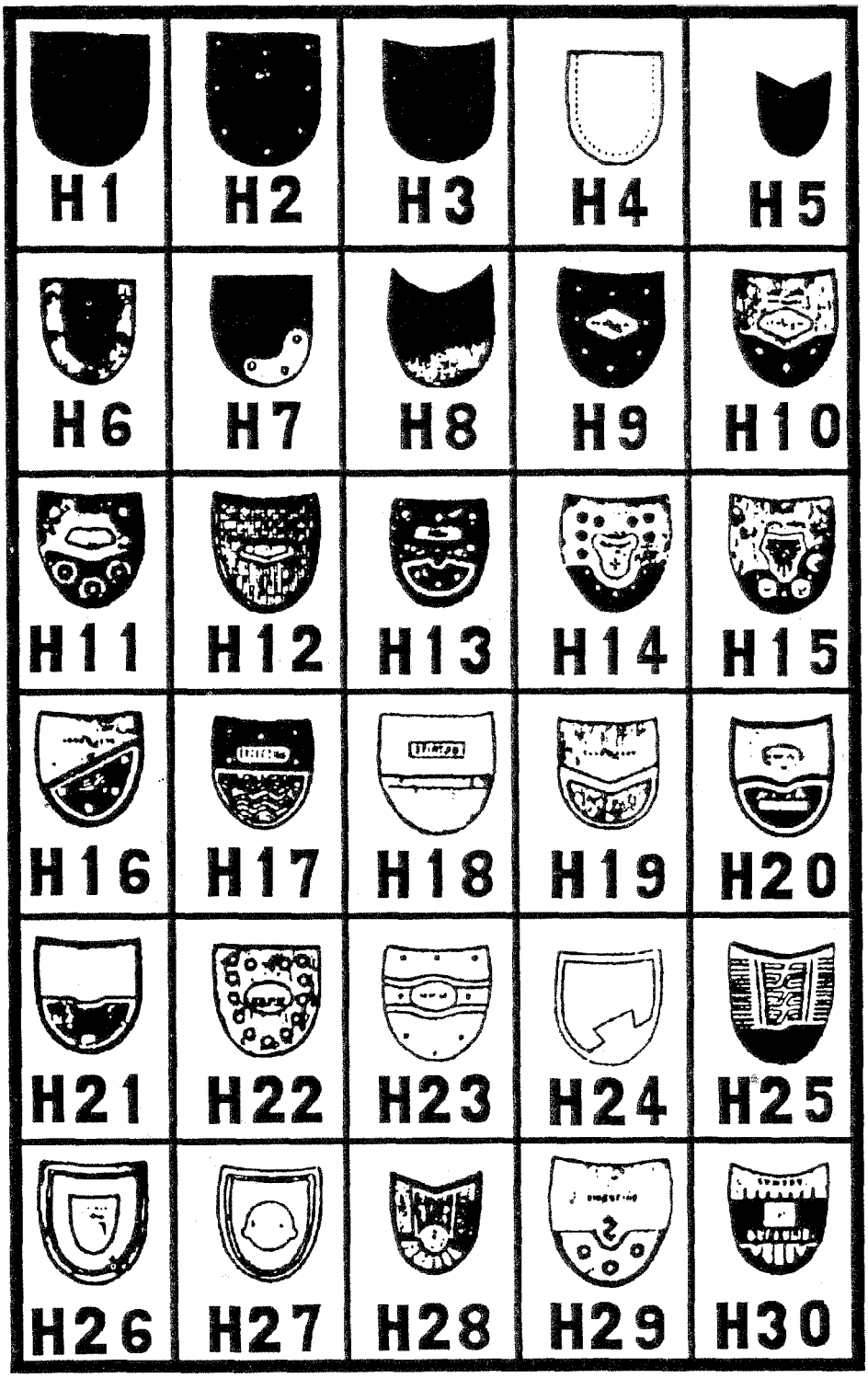
12. Experience level-is victim a mountaineer or a city dweller.
13. Last seen point
14. Name and location of informant

Much of this information is generally available from the parents, friends, or relatives. Ask them.

SEARCH METHODS

Several methods may be employed when the victim is lost. The area the victim was last seen is probably a good starting point, depending on the circumstances. Check immediate area, trails, roads, etc., for tracks fitting the description. This should take as little time as possible, and cover about a'/a of a mile.

If this doesn't produce any results communicate with the dispatcher for further help and instruction.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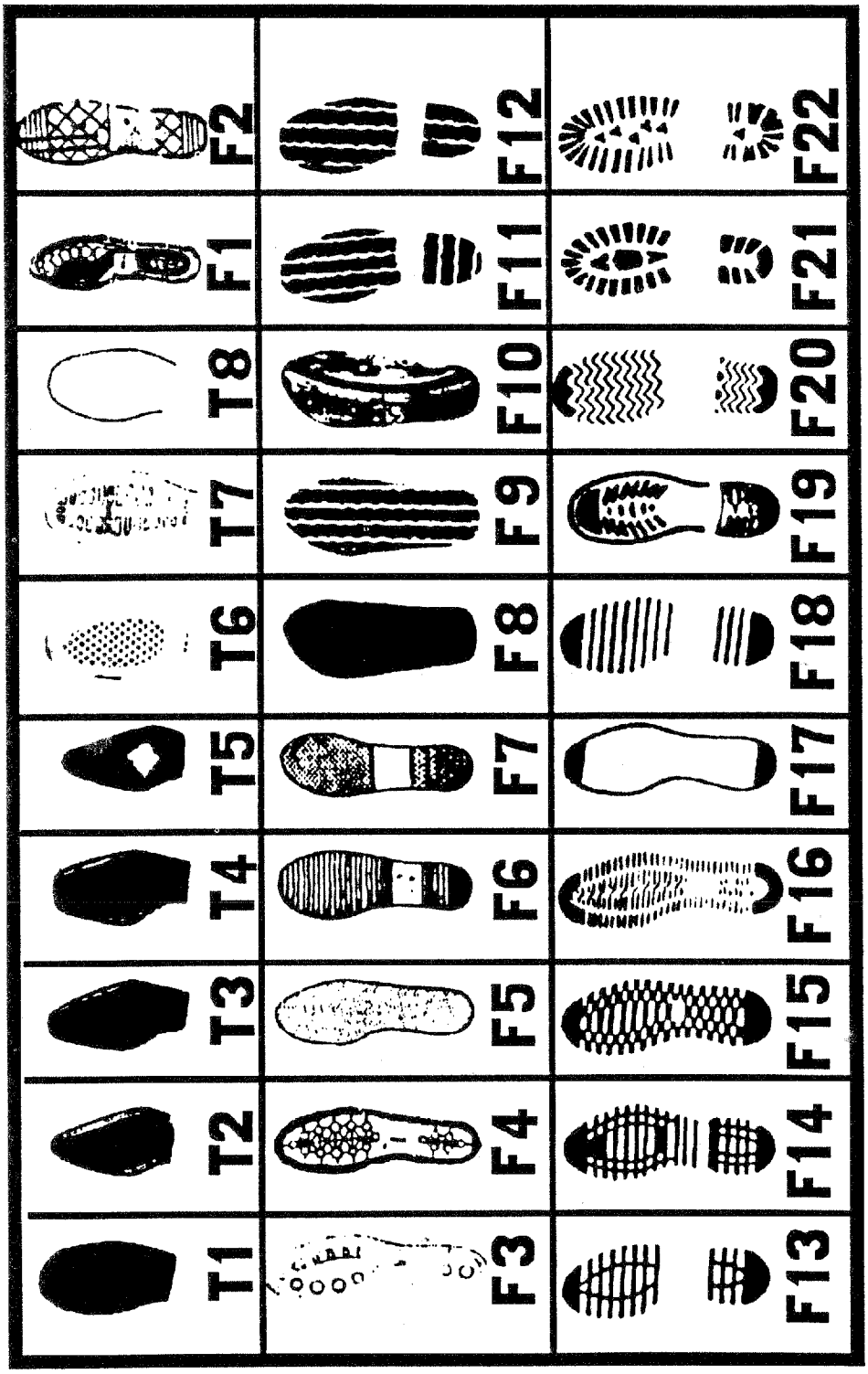
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F21
F22

Air Operations During Search and Rescue

A disabling injury or life *and* death emergency are the only justifiable uses of helicopters within wilderness areas. Other options are F.S. stock or pack station stock to transport a victim to a pick up point. Other sources may be a boat volunteer stock user or local packers.

The following information is needed for helicopter rescue:

Is it a search, or is it a rescue?

2. Nature of injury, if known.
3. Is the patient ambulatory? Can the victim sit in a helicopter seat? Or is a litter needed?
4. Is a doctor, search and rescue team or qualified first aid person at the scene? Will someone accompany the victim?
5. Exact location where helicopter must land. Legal description and nearby prominent landmark.
   a) size of helicopter landing site
   b) surrounding terrain and vegetation
   c) altitude and temperature
   d) wind direction and speed (steady, gusty), up or down canyon
   e) distance from victim
   I) number of persons at scene
   g) weight of victim and his/her gear
6. Medical supplies needed? What?
7. Are there any fixed-wing aircraft in the area on another search?
8. Who is the reporting party? Telephone number/Radio channel.
9. Keep the helicopter informed of any changes in the original information while the helicopter is in enroute.
10. Destination after pickup of victim (for fuel computation).

LANDING AREAS

If a helicopter use has been approved by the Forest Supervisor find a landing site and verify the specifications for a landing area with the dispatcher or helicopter service.

Heliports

Base of operations for one or more helicopters must be accessible by road, have wind indicator, dust-free landing pad and parking area for vehicles and helicopters. It may have lights, telephone and radio communications. It is desirable to have barricades and signs around the area to keep unauthorized personnel out.

It is helpful if the heliport and the base of rescue operations are in close proximity.

Helispots (Landing Zone)

Any designated landing spot for helicopters. Distinguished from heliport by lack of road access for fueling and supply. This must have a clearance of at least 75' in diameter for a medium size chopper (Llama, Bell etc.)

Locations

Ridges

1. The best helispots are located on exposed knobs. This gives a 360° choice of landing and takeoff directions.
2. Preferably choose a spot where a drop off is possible for takeoffs. The higher the elevation, the more important the drop off becomes. If a helicopter has to make a vertical takeoff, it does so on power alone. With a drop off the craft may use less power, carry a larger payload and have a greater safety margin.
3. Locate helispots so that landings and takeoffs can be made into the prevailing wind. The higher the elevation, the more im-portant this is.
4. Remove all obstacles such as brush and trees within at east a 50-foot diameter around the touchdown pad for small helicopters and at least 100 feet for larger models.
5. Be sure to clear landing and takeoff lanes.
6. Make touchdown pad level and at least 15 X 20 feet for small helicopters. The pad should not slope more than 10%. No slope for wheel equipped helicopters.

Level or Bottom Lands

1. A truly vertical takeoff should not be considered safe at any elevation. Remember that a small helicopter must be at least 300 feet above the ground to autorotate safely.

2. Be sure takeoff path is into prevailing wind. Avoid "dead air" or downdraft spots, such as areas on the lee side of ridges.
3. The safest takeoff path in a level or bottom land situation should be ideally 300 feet long and slightly downhill.

4 Be sure the helicopter has some place to go when it gains forward flight at the end of the takeoff path.

Lakes and Rivers

1. Water furnishes a poor ground effect base for hovering. River currents move ground cushion and can cause pilot disorientation. If a helicopter is operating from a helispot on shore, it may need at least 300 feet of water over which to gain flying speed.
2. Ice locations should be used only if no other locations are available. There are many variables over ice: unevenness of thickness, overflow, shell ice with air pockets, snow covered but frozen water. Avoid outlets or inlets.

Many pilots will not land over ice locations without prior inspection but may hover with skids or wheels just touching. Sudden wind gusts or loss of power could be disastrous and snow blown by rotor wash creates visibility problems.

Canyon Bottoms

1. Beware of dead air holes and be sure the canyon does not have downdrafts from neighboring ridges.
2. If the canyon is deep, the helicopter will need a long for-ward run to pull out or a wide enough area in which to circle to gain elevation.

Meadows

Beware of meadows with high grass. The grass will tend to dissipate helicopter ground cushion. High grass may also hide rocks, logs, swampy areas. Dry grass can be a serious fire hazard.

Roads and Trails

A straight, wide (consider rotor diameter) down-road stretch is best, as most power failures occur during takeoff. Turnouts or parking areas with dropoffs can also be used.

Snow and Glaciers

1. Depth perception on snow and glacial ice is often poor, so it is important to clearly mark helispot with objects of contrasting color. Wands about 3' high with streamers attached, packs, tarps (securely anchored), tramping a trench to create shadows, signal panels, or smoke grenades are some methods.
2. If conditions are icy, do not select locations with over 10% slope. Under flat light conditions, if a helispot is not marked, pilot may have difficulty determining percent of slope and iciness. A few prepared foot-long pipes (heavy - not aluminum, to avoid going up into rotor) with attached streamers can be dropped to help indicate conditions. Smoke grenades may also work and may stain surface to provide semi-permanent reference. Helicopter should have ice pads on skids and pilot experienced in glacier landings. On icy surfaces, stay well clear of helicopter during landings and takeoffs - torque may cause the tail rotor to swing around.
4. Be sure helispot is large enough to keep main and tail rotors from striking seracs and pressure ridges. Keep touch-down pad off of snow bridges, thinly covered crevasses, crusts and cornices.
5. In loose snow, smoke grenades, flares, wands with fluorescent streamers may help guide pilot when rotor wash creates blowing snow. Every effort should be made to tramp helispot firm.

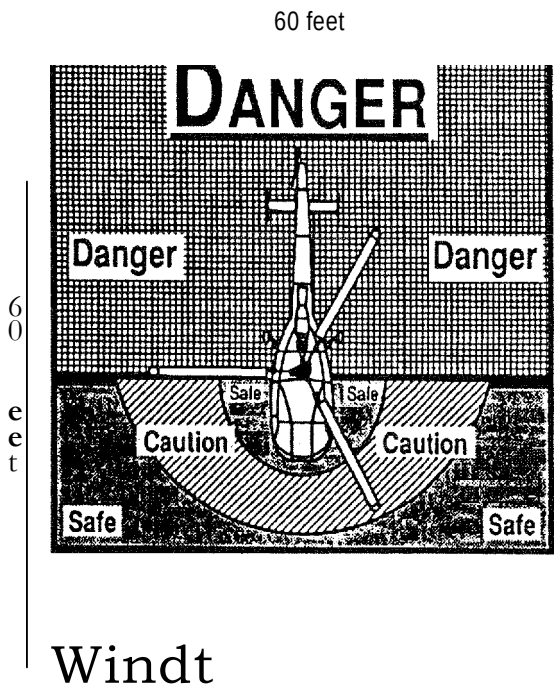
   During landings in loose snow, stay clear until pilot gives OK to approach or exit. Should helicopter settle further in snow than pilot expects, the rotor may come down on you.

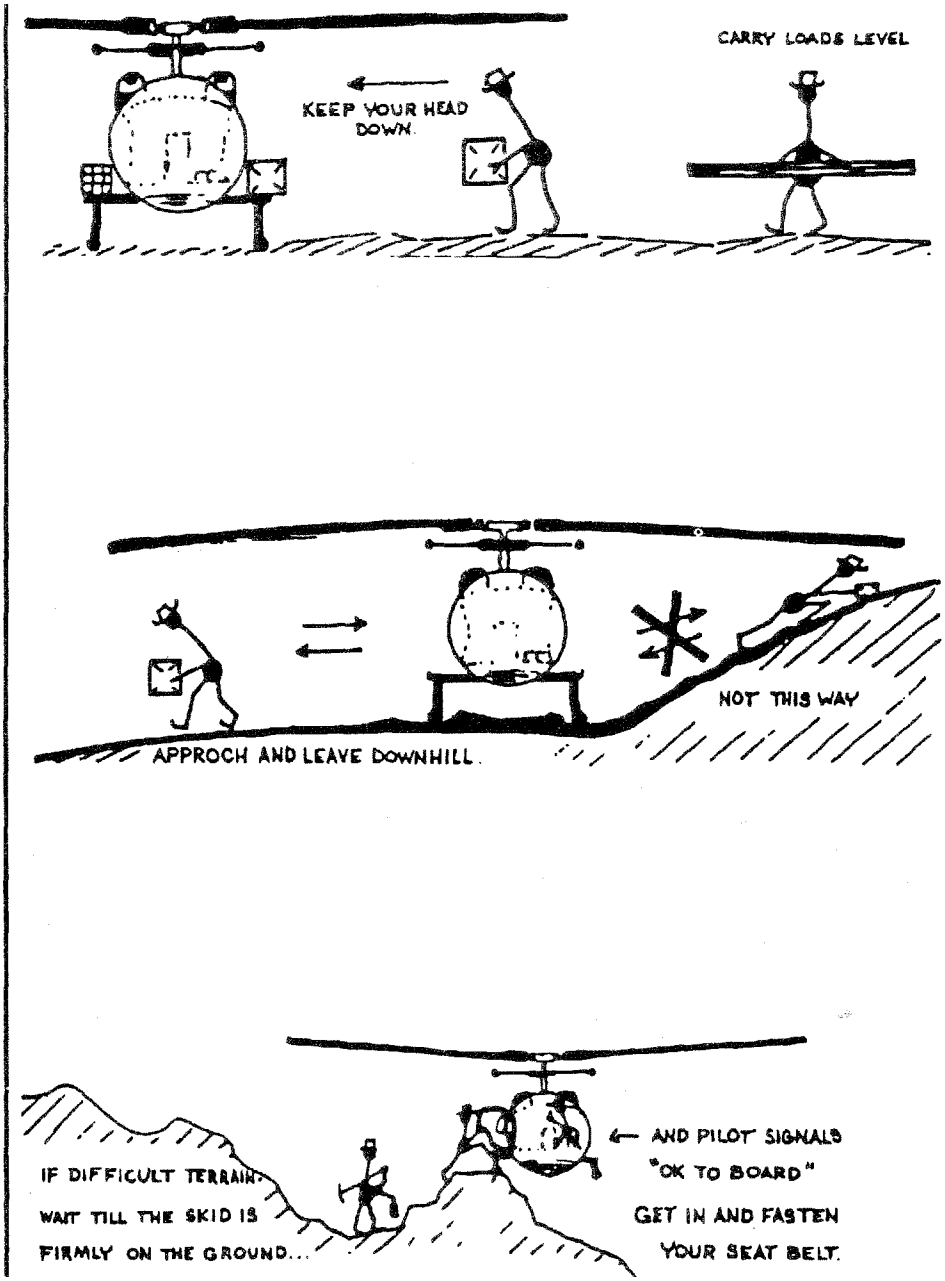
SAFETY R U!.FS

1. All personnel should stay at least 50 feet from small helicopters (2-3 place models) and 100 feet from larger models. When the helicopter is close enough to see you in the clearing you want it to land in, put your back to the wind and point straight ahead of you to indicate the direction the wind is blowing.
2. Always approach or leave the helicopter from near the front so the pilot can see you at all times.
3. Keep your head down at all times. Remember that the slower the rotor is moving, the lower it will dip.
4. Never approach or leave a helicopter from any side where the ground is higher-than where the helicopter is standing - you may walk into a rotor.
5. No smoking within 100 feet of helicopters.
6. Keep well away from the tail rotor at all times.
7. Personnel working with helicopter should crouch down and cover your face with your arms as it approaches the ground.
8. Passengers should wear hardhats with chin straps fastened at all times and seat belts secured until pilot or crew chief OKs removal:
9. Keep long handled tools, ice axes, skis, litters, radio antenna and similar items low and parallel to the ground when approaching or leaving helicopter.
10. Ropes should be coiled and secured. Loose, light items such as sleeping bags and parkas and small pieces of gear should be secured in packs or bags.
11. Do not load without pilot's supervision, as only he can best Judge weight distribution and proper tie-down methods. Keep tie-down straps short to eliminate loose ends which might get tangled in control cables or motor. Re-secure tie-down straps after unloading.
12. Passengers should not enter helicopter until pilot or crew chief gives OK. Enter carefully so not to interfere with controls, cables or pilot. Don't approach until **pilot** indicates to do so.

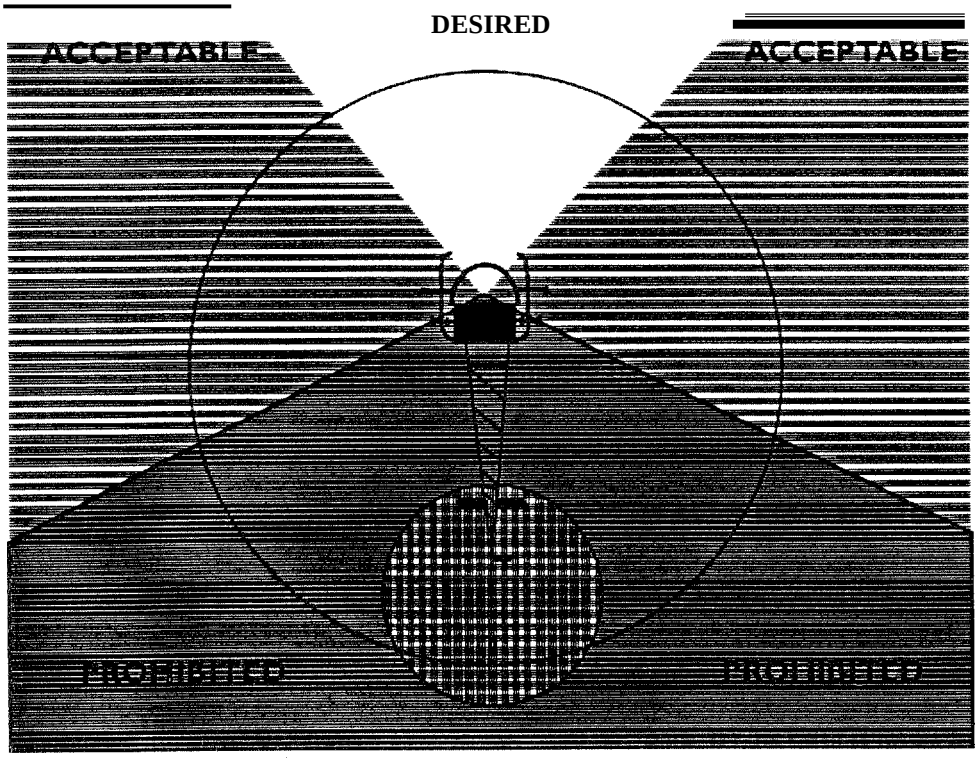
13. Do not exit until pilot or crew chief gives OK. Ground personnel should not approach helicopter until engine is off and rotors stopped or pilot or crew chief signals OK. Even after touchdown, pilot may want to shift helicopter's position. Follow pilot's directions at all times. Ask if your not sure.
14. Never stand directly beneath helicopter or its take-off or landing pattern unless directly authorized to hook sling loads.
15. At takeoffs and landings, all personnel should be well away from helicopter. Main rotors may dip to one side as craft moves and tail rotor may swing around. Trained personnel should be in control to signal pilot and keep personnel away. Forest Service employees may not fly in a military helicopter without authorization.

Helicopter Safety




CARRY LOADS LEVEL
KEEP YOUR HEAD DOWN.
NOT THIS WAY
APPROCH AND LEAVE DOWNHILL.
IF DIFFICULT TERRAIN-
WAIT TILL THE SKID IS
FIRMLY ON THE GROUND...
← AND PILOT SIGNALS
"OK TO BOARD"
GET IN AND FASTEN
YOUR SEAT BELT.

SAFE APPROACH ZONES



Patient Injury Report

Patient's Name _____

Date_____

Age _____

Time of accident _____

Sex _____

Orientation:

1. Knows name? _____
2. Knows date? _____
3. Knows where he/she is? _____

Is patient unconscious?_____

If yes, how long? _____

Has patient been drinking alcohol? _____

Was patient using drugs?

Describe injury:

_____

_____

Eyes:

Pupils are:

Small Medium____ Large _____

Same size ____ Different size_____

Draw pupils in diagram below:

Right eye Left eye

Do Pupils constrict
in response to light? _____

Ears Right _____ Left _____

Ears: Fluid or blood in ears? _____

Pulse rate:_____per minute.

Regular _____ Irregular

Respiration rate:_____ per minute.

Patient can move:

Right arm_____

Left arm

Right leg _____

Left leg _____

Patient feels touch of hand on:

Right **arm** _____

Left arm_____

Right leg _____

Left leg _____

Comments:

_____

_____

_____

_____

Your name

Canoe, River and Kayak Safety

Wilderness Rangers should become aware and knowledgeable of the boat policy for the wilderness they are working in. Rangers should have excellent swimming skills and have certifications in Water Safety Instruction and Lifesaving. It is imperative that rangers have training specific to boating skills, to perform water rescues and boat safety pertinent to the wilderness area they are working. Boat training should be attended and also refresher courses offered. It is best to practice all boating skills hands on in the field with proper supervision and instructional training and to go out with your supervisor in the field. Key areas and topics are listed below:

1. Be familiar with standard personal flotation devices and how to use them. Always wear your lifejacket.
2. Be able to check PFD's for buoyancy.
3. Be familiar with operating fire extinguishers (motor boats in boundary waters) and also standard lighting equipment required on a boat.
4. Use several rescue signal systems.
5. Demonstrate safe boating/canoeing techniques.
6. Know how to use safety equipment on canoe or boat.
7. Be able to navigate by reading maps and a compass.
8. Always leave a float plan.

Skills

1. Boarding and leaving a boat
2. Loading gear and tying it down (know load capacity)
3. Proper navigational skills-know how to read water and the weather
4. Paddling techniques (turns, stops, reverse, landings)
5. Tying the boat, anchoring
6. Portaging
7. Packing equipment (extra paddle, dry bags, first aid, radio, lighting, radio, extra fuel, bailer, navigational equipment)
8. Cleaning and repairing boats
9. Self rescue techniques
10. Rescue techniques and equipment

Additionally, River Rangers should be proficient in:

1. Identifying characteristics and dynamics of water (how to read water)
2. Risk management on rivers-identify, evaluate and communicate risks in white water boating, specific to a river, changing water flows, weather conditions, craft limitations, and boater skills and experience
3. Self rescue positions in white water-positions/techniques dependent on water class 1-6
4. Practice and demonstrates river rescues and recognize any variables of a rescue
5. Identify priorities and positioning needs of downstream and upstream boats on a multiple boat trip (lead boat and sweeper)
6. Demonstrate proficiency in tying knots applicable to boat rigging and rope rescue work (ex: family of 8's)
7. Identify and evaluate the strength of materials the lines of force and anchors in any rope system
8. Practice rescue techniques with available flotation devices, reaching and throwing equipment and use them properly
9. Demonstrate the use of mechanical advantage rope system (2-1 pulley system or 3-1)
10. Communicate to other occupants in the boat, high siding, and tube punching to prevent flipping rafts
11. Demonstrate rescuing two people back into a boat from the river
12. Demonstrate the use of a paddle raft, oar raft or canoe and the appropriate ferry angles
13. Know how to care and repair your boat

Sea Kayaks

• Have float plans

Know self rescue techniques and how to rescue another kayaker

Demonstrate how to use rescue gear, (paddle float, sear anchor)

Proper entering and exiting cockpit

Know how to navigate by reading maps and compass

Demonstrate knowledge in reading water and weather; when to leave or not to leave

Know how to read tide charts and water (swells, wind, rain)
How to maneuver around other boats or marine animals safely
Demonstrate proper loading and packing

- Demonstrate proper anchor techniques and tying knots
- Demonstrate proper paddling techniques and strokes
- Proficient cleaning and repair skills
- Tying gear down on the dock
- Surf landing or surf take-offs

• Carry the proper boating equipment and rescue gear • Be aware of obstacles and rocks while paddling

- Extreme care in regards to exposure and hypothermia

CONTENTS

BACKCOUNTRY

First Aid

and

EXTENDED CARE

BUCK TILTON
Director
Wilderness Medicine Institute

Good reference for all rangers and crews to carry. AH rangers should have first aid training, preferably Wilderness First Responder or Wilderness E.M.T. This is a great lightweight supplement for a first aid kit.

Where to order: Wilderness Medicine Institute
P.O. Box 9
PitkiD,CO 81241
(303) 641-3572
Written by Buck Tilton

Dimensions $4^{1}/_{8}$ x 5½ Cost .50/piece

Recommended First Aid Kit Items

Cravats (Triangular bandages)

- Roller Gauze
- Gauze pads (4 x 4 .and 3 x 3)
- Large abdominal dressing
- Comnre 7 (sanitary napkins)

Adhesi "

- Ace banile
- Wire or "Sam" splint

Bandaids

- Tampons (can us as absorbent sponges)
- Aspirin, Tylenol, or *Ibuprofen*

Aintr. si 1 tablets

- B:t .or Neospolin ointment
- *Antiseptic* toweiettes
- IvIoleskin/Second skin
- Safety pins

Disposable razor

- Tweezers
- Penlight
- Needle
- Snake kit

Accident Report *Form* (see Appendix)

First Aid book

Waterpmof container for kit

This kit can fit in as small/medium fanny pack. Be prepared and it carry with you at all :imes. Have this kit easily accessible.

5

Visitor Contact and Wilderness Education

Public Contact

One of the most important parts of your job as a Wilderness Ranger is public contact. *You* are the one who is in the eye of the public. After talking with you, the visitor will form an opinion of you as an individual, of the management of the Wilderness, and of the Forest Service in general. The visitor will look upon you as one of the ways "their" tax money is spent and you must make visitors feel that it is spent wisely. Remember, you are a public servant.

One of the major purposes of your public contacts will be to **educate** the visitor on low impact camping and stock use techniques, and inform visitors of wilderness regulations. Most parties in heavy-use areas should be contacted and a special effort made to visit groups that might leave unnecessary impacts.

There are situations where approaching the person will take sensitivity, or where you will want to wait until another time, but these are rare. Portray a positive attitude and smile with a friendly greeting. People like to talk so don't be timid. Take off your **sun**-glasses and make eye contact. Make a point to listen.

As you approach the group and begin talking, observe the situation. Look around camp and see if it is littered or if they aredamaging the resource, and think of what message might be the most appropriate for the situation. Be ready to discuss and even demonstrate low impact camping techniques, but do not get yourself into arguments or confrontations. If visitors wish to argue, it is best to back off on the preaching, inform them of regulations if need be, and go on with your duties. Always stay **alert** to potentially dangerous situations. Your job is not easy when you see someone damaging wilderness values. You must handle this situation tactfully and firm.

If you can, it is helpful to gather information about where they are going, what they are doing, how long they will stay, and other bits of information we are interested in.

R et .t what it is you are trying to do by contacting users. You want to educate them, inform them, and collect visitor use inCormation.

&erg el-al Information

ire essential. Review your Forest map and a good topo-
, csi map of your unit with someone who knows the area well.

show you obsolete or incorrect info on your maps. If Tactical, carry field guides on flora and fauna for your own use as *well as that of the visitor. Know* wilderness management policies, as you will be asked questions like "Why are wilderness permits required?" "What's so bad about tying my horse to a tree?" Be
are of distances, trails, outfitters etc. Programs for groups should
'eveloped to *educate* them before they use wilderness areas.

..mum Impact Philosophy

Yeaching and using minimum Impact (or "no trace camping") techniques may be the single most important practice for the perpetuation of a high-quality wilderness. Minimum impact is described as the users' ability to cause the least amount of change in the environment.

Minimum impact rules may be stated in different ways, but the intent is *the same; to* minimize impacts on resources. Not all minimum impact rules are regulations. Know which one you can and can't take law enforcement action on. Check your Forest orders to see which rules you can enforce, and what policies you practice. (Concentrating impacts verses spreading use?)

All minimum impact techniques are to be applied by wilderness ranges and all Forest Service employees and are applicable even outside wilderness. We need to set the example.

Distances are not easily measured in the wilderness. To a visitor, 100 feet is a guess. It is recommended that along with a distance, the number of paces be included. "100 feet" would be followed by the average number of paces the average adult would take, i.e., "Camp at least 100 feet (45 paces) from water and trail." "Stock must be 'high lined' at least 200 feet (90 paces) from water."

For rationale on minimum impact or leave no trace methods refer to USDA Forest Service Intermountain Research Station General Technical Report 1NT-265 "How Impact Recreational Practices

for Wilderness and Backcountry," David Cole, 1989; "Low and Soft Paths," Bruce Hampton and David Cole, 1988. David provided valuable information on low impact recreational practices. Enclosed is the latest "Leave No Trace Outdoor Skills and Ethics" booklet produced by The National Outdoor Leadership School.

"Leave No Trace Outdoor Skills & Ethics"

LEAVE NO TRACE Principles *Practices*

developed by the
National Outdoor Leadership School

Since 1965, the National Outdoor Leadership School has pioneered the teaching and development of practical conservation techniques designed to minimize impact. These conservation practices are now incorporated into the national Leave No Trace education program as the following Leave No Trace Principles:

Principles of Leave Trace

aaclccount Trip Manning and Preparation

- **Concentrate Impacts in High Use Areas**
- **Spread Use and Impact in Pristine Areas**

® **Avoid Places Where Impact** is just Beginning

- **Pack it In, Pack It Out**

∗ **Properly Dispose of What You Cannot Pack Out**

- **Leave What You Find**
- **Campfire Building in the Backcountry**

These principles are recommended as a guide to minimizing the impact of your backcountry visits. This pamphlet discusses *factors* to consider under each principle when making judgments about how to minimize impact and the rationale behind recommended practices. Before traveling into the backcountry, we recommend that you check with local officials of the Forest Service, Park Service, Fish and Wildlife Service, Bureau of Land Management or other managing agency for advice and regulations specific to the area.

Leaving no trace depends more on attitude and awareness than on rules and regulations. Low impact camping practices must be flexible and tempered by judgment and experience. Consider the variables of each place-soil, vegetation, wildlife, *moisture level*, *the amount* and type of use the area receives and the overall effect of prior use-then *use these* observations to determine which practices to apply. Minimize your impact on the land and on other visitors, but be sure to enjoy your visit as well.

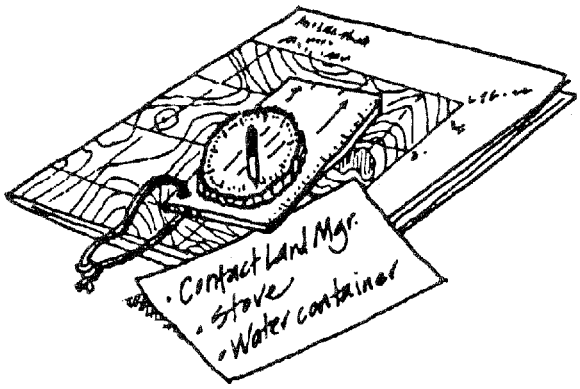
Backcountry Trip Planning and Preparation

Unnecessary impact in backcountry areas can be avoided *by carefully* preparing for your trip. For example, if backcountry users do not have the proper clothing to stay warm and comfortable in an unexpected snow storm they may be forced to build large highly impacting fires in areas where they should not *be built. Proper preparation* includes: knowing what to expect, repackaging food supplies, having the proper equipment and knowledge about the area you plan to visit.

Expectations. Taking time to think about what you expect from your trip will help you prepare for it. If you know the area you are visiting is remote and sees few visitors then you should be prepared to *camp in pristine areas* and practice stringent Leave No Trace techniques. Conversely, in popular highly visited areas you can expect to see more people and should camp in existing campsites. As part of your planning check with the land managers for information and suggestions on your route.

Repackage food. Plan your meals carefully and repackage food into reusable containers or plastic bags. This will reduce the amount *of potential trash or* litter *you* bring into the backcountry, and carefully planned rations reduce waste from leftovers.

Equipment. Taking the proper equipment can help you to Leave No Trace. For example, gaiters that



protect your feet and boots will allow you to stay on the main trail when they are wet or muddy from melting snow or rain. Lightweight campstoves and water carrying containers allow the flexibility to camp in the most impact resistant site available.

One choice when selecting clothing and other equipment such as tents and backpacks is color. Brightly colored clothes and equipment have limited advantages in the backcountry, despite their great appearance in store windows. To minimize the likelihood that others will see you and your camp,

attempt to wear and carry earth-colored clothes and equipment, particularly tents.

Knowledge of the Area. If possible, visit the backcountry during seasons or days of the week when use levels are low. This should be tempered with a concern for avoiding travel when the environment is particularly fragile (for example, during snow melt when trails are muddy). Similarly, by visiting places that receive little use, contact with others is minimized. Again, this should be tempered by a concern for avoiding disturbance of such little-used and little-impacted places. Large groups can disturb these places rapidly.

ncentrate Impacts in High Use Areas

Concentrating use in popular or high use areas is a simple and effective method to reduce the impact of a backcountry visit. In the backcountry, main travel corridors and popular destinations typically will have well established trails and campsites.

Respect other visitors' need for solitude. When traveling in the backcountry, care is required to minimize disturbance of other visitors. This disturbance is minimized when contacts are infrequent, party size is small and behavior is considered appropriate by others. Travel quietly in the backeountry, whether hiking by trail or cross-country. Others will appreciate the solitude.

Respect wildlife. By traveling quietly you will be more aware of your environment, and wildlife will be less disturbed.Respect birds' and animals' needs for undisturbed territory. After all, the backcountry is their home. When tracking wildlife for a photograph or a closer look, stay downwind, avoid sudden movement and never chase or charge any animal. Give the wildlife plenty of space, for their safety and yours.

Hike on existing trails. Impacts on wildlife, soil and vegetation can be *minimized by walk*ing on constructed trails that *are* already highly disturbed and *in* many cases have been designed to accommodate heavy use. When following existing trails, walk single-file on the designated path. Walking outside the tread, to walk abreast or to avoid rocks or mud, breaks down the trail edge and widens the trail. It can also lead to

the development of multiple trails. Muddy stretches and snow banks should be crossed, rather than skirted, to avoid creation of additional paths. Shortcutting switchbacks causes erosion and gullying. If a trail is impassable, walk on hard surfaces (such as rock, sand or snow) as much as possible and notify the agency officials responsible for that area.

Rest breaks. When taking a break along the trail, move off *the* trail some distance to a durable stopping place. Here you can enjoy more natural surroundings and other parties can pass by without contact. Durable stopping places include rock outcrops, sand, other non-vegetated places and sites with durable vegetation, such as dry grasslands.

Encountering horses. When you meet a stock party on the trail, allow them plenty ' of room as stock are frightened easily. The entire party should move off to the same side of the trail, *if possible the down-* hill side, and stand quietly until the stock party **passes.** Sometimes it helps to talk in a Iow voice to the first rider so the horses have advance notice of your presence.

Choosing a high use campsite. Selecting an appropriate campsite is perhaps the most important aspect of low impact backcountry use. It requires the greatest use of judgment and information and often involves making trade-offs between minimizing ecological and social impacts. A decision about where to camp should be based on information about the level and *type of use in* the area, the fragility of vegetation and soil, the likelihood of wildlife *disturbance,* an assessment of previous impacts and your party's potential to cause or avoid impact.

Avoid camping close to water and trails and select a site which is not visible to others. Even in popu- *lar areas the sense of* solitude *can* be enhanced by screening camp-sites and choosing a more out-of - the-way site. Also, be sure to obey any regulations in *the area* related to campsite selection. Allow enough time and energy at the end of the day to select an appropriate site. Tiredness, bad weather and lateness of the day are not accept-able excuses for choosing a poor or fragile campsite.

Generally it is best to camp on sites that are so highly impacted that further careful use will cause no additional impact. In popular areas these sites are obvious because they have already lost their vegetation cover. It may,also be possible to find a site which naturally lacks vegetation, such as exposed bedrock or sandy areas.

On high impact sites, tents, traffic routes and kitchen areas should be concentrated on already impacted areas. The objective is to confine impact to places which already show impact and avoid enlarging

the area of impact. When leaving camp, make sure that it is clean, attractive and will be appealing to other campers who will follow.

Spread Use and Impact in Pristine Areas

Pristine areas are typically remote, seldom visited and have few obvious impacts from camping. Consider the trade-off of ecological impacts when deciding whether to travel by trail or cross-country. Visit pristine areas only if you are committed to and knowledgeable in the specific techniques required to Leave No Trace.

Hike in small groups. The impacts associated with crosscountry travel are minimized when group size is small, routes are carefully selected to avoid fragile terrain and critical wildlife habitat, and special care is taken to avoid disturbance. If you are traveling with a large group, hike in groups of no more than 4-6 people.

Cross-country travel is undesirable where user-created trail systerns are developing, in wet places, on steep and unstable slopes, on crusted desert soils, and in places where wildlife disturbance is likely. *It is most* desirable on rock, sand, snow and ice, or stable non-vegetated surfaces.

When traveling cross-country it is generally *best* to spread out rather than have everyone follow the same route. This will minimize the amount of trampling any one spot. receives and avoid the creation of undesired trails. In some places it is not practical to spread out; avoid such routes if other groups are likely to follow your footsteps, particularly if incipient paths are developing. In extremely fragile places, such as desert cryptogam soils, it is best to walk single-file so only one trail is created. Cross-country travel should be avoided in such fragile places.

Choosing a pristine campsite. When selecting an undisturbed site, choose one that either has no vegetation or a durable vegetation cover. Camp away from trails, other campers, lakes, streams and critical wildlife habitat. Avoid "beauty spots" that might attract other campers. Select a site well away from high impact areas that shows no evidence of previous use and is unlikely to be used after you leave.

Durability of the ground surface is the most important consideration in determining exactly where to set up tents and the kitchen. Non-vegetated areas such as slickrock, rock outcrops, gravel bars, beaches and snow are best. Forest duff is accept-able if it is possible to avoid crushing any plants or seedlings (forest-floor vegetation is highly fragile). Grassy areas and dry meadows can also make good pristine campsites. *They are* quite resistant and capable of recovering rapidly from the effects of one night of low impact use. When deciding whether or not to camp in a meadow, consider whether you will impact other users or wildlife.

Camping in remote areas. On pristine sites it is best to spread out tents, avoid repetitive traffic routes and move camp every night. The objective is to minimize the number of times any part of the site is trampled. In setting up camp, disperse tents and the kitchen on durable sites. Wear soft shoes around camp. Minimize activity around the kitchen and places where packs are stashed, and watch where you walk to avoid crushing vegetation. Take alternate paths to water and minimize *the* number of trips by carrying water containers. Check the regulations, but camping 200' from water is a good rule of thumb.

When breaking camp, take time to naturalize the site. Covering scuffed up areas with native materials (such as pine needles), brushing out footprints and raking matted grassy areas with a stick will help the site recover and make it less obvious as a campsite. This extra effort will help hide any indication that you camped there and make it less likely that other backcountry travelers will camp in the same spot. The less often a pristine campsite is used the better chance it has of remaining pristine.

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Avoid Places Where Impact Is just Beginning

Most campsites can withstand a certain level of use which will still allow the site to recover. However, a *threshold is* eventually reached where the regenerative power of the vegetation cannot keep pace with the amount of trampling. Once this threshold is reached the **site** will deteriorate more rapidly with continued use. This will result in the development of an established campsite with a discernible "barren core." The threshold for a particular site is affected by many variables including climate, soil type, elevation and aspect.

Hike on durable surfaces. Seek *out durable surfaces when traveling cross country, such as bedrock, sandy or* gravel *areas, or* snow. On these surfaces it is not important to spread out. Use care when ascending or descending steep slopes. If slopes are so steep that it is necessary to dig toes and heels into the soil to get a grip, some other route should be located. Either look for durable surfaces or spread out.

Avoid sites and trails that show slight signs of use. Campsites which show slight but established use are best left alone. In remote pristine areas, camp on a previously unused site, and in a popular area, select a campsite which is well established.

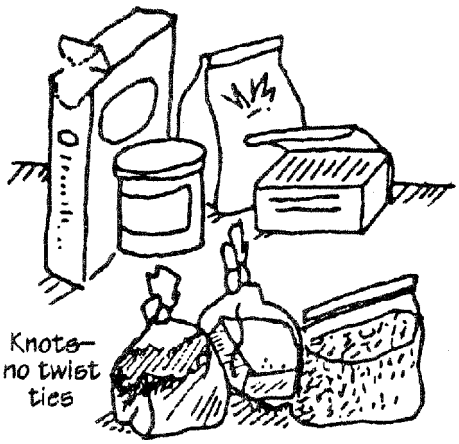
In pristine areas, adhere to the hiking practices described earlier and either spread out or hike on durable surfaces. Many times faint user created trails are formed without consideration of the potential amaging effects of erosion. Once they are established and the top soil is worn away the damage caused by running water increases the likelihood of the trail becoming permanent. As with slightly used campsites, avoiding faint trails will allow them to gradually recover.

Allow time for recovery. *Often,* lightly *used campsites and* trails have not been so heavily damaged that they cannot recover. Over the course of time and non-use these campsites and trails will revegetate and revert back to their natural appearance. By spreading out while hiking and camping on durable surfaces in remote areas and staying on well established trails and campsites in popular areas, it is possible to minimize or prevent the proliferation of many unnecessary user created campsites and trails.

Pack It In, Pack It Out

Pick up and pack out all of your litter. Burying or leaving trash and litter in the backcountry is unacceptable. On the way out-when your pack is light-try to pick up litter left by others.

Reduce litter at the source. When preparing for your trip, repackage food into reusable containers or remove any excess unnecessary packaging. This simple practice lessens the likelihood that you will inadvertently leave litter behind.



Trash. Trash is the inorganic waste brought into the backcountry, usually from over-packaged products. It is best to get in the habit of packing out all your trash. Some paper trash items can be burned in a campfire, but much of the paper packaging used today is lined *with* non-burnable foil or *plastic. Other items such as tin and* aluminum cans, plastic, tin foil and glass are not burnable and must be packed out.

Garbage. Garbage is organic waste leftover from cooking. This type of waste can be easily reduced by careful planning and preparation of meals. Food scraps should be picked up from around the kitchen area and packed out. Careful meal planning will reduce the amount of leftovers, but in the event you have some it should be either saved and eaten later or put in a plastic bag or other container and packed out. Burning and burying this type of waste are ineffective and inappropriate methods of disposal. It requires a very hot fire to burn garbage thoroughly, and animals will dig it up if buried. Keeping food waste away from animals is important so they do not become habituated to people as a food source and their normal activities are not disrupted.

Consider the words "Leave No Trace" a challenge to take out everything that you brought into the backcountry.

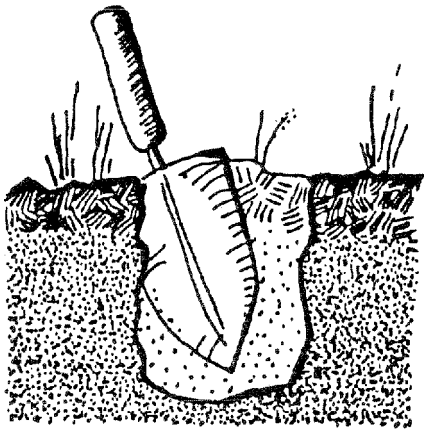
Properly Dispose of What You Can't Pack Out

Visitors to the backcountry create certain types of waste which cannot be packed *out. These* include human waste and waste water from cooking and washing.

Human waste. Proper disposal of human waste is important to avoid pollution of water sources, avoid the negative implications of someone else.finding it, minimize the possibility of spreading disease and maximize the *rate of decompo*sition. Burying human feces in *the* correct location and manner is the most effective method *to meet* these criteria.

Contrary to popular opinion, recent research indicates that burial of feces actually slows decomposition (at least in the Rocky Mountains). Pathogens have been discovered to survive for a year or more when buried. However, in light of the other problems associated with feces, it is still generally best to bury it in the ground. The slow decomposition rate emphasizes the need to choose the correct location, far from water, campsites and other frequently used places.

Catholes. Catholes are the most widely accepted method of waste disposal. Locate catholes at least 200 feet from water, trails and camp. Two hundred feet is about 70 steps for an adult. Select a site which is inconspicuous, where other people will be unlikely to walk or camp. With a small garden trowel dig a hole 6-8 inches deep and 4-6 inches in diameter. When finished the cathole should be covered and disguised with natural materials. If camping in the area for more than 1 night or if camping with a large group, cathole sites should be widely dispersed.



Latrines. Though catholes are recommended for most situations, there are times when latrines may be more applicable, such as when camping with young children or if staying in one camp for longer than a few nights. Use similar criteria for selecting a latrine location as those used to locate a cathole. *Since this* higher concentration of feces will decompose very slowly location is especially important.

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***Toilet* Paper.** Use toilet paper sparingly and use only plain, *white,* non-perfumed brands. Toilet paper must be disposed of properly! It should either be thoroughly buried in a cathole or placed in plastic bags and packed out. NOLS has used "natural" toilet paper for years and advocates its use in most situations. When done correctly, this method is as sanitary *as* regular toilet *paper, but without* the impact problems. Popular types of natural toilet paper include stones, vegetation and snow. Obviously some experimentation is necessary to make this practice work for you, but it is worth a try!

Urination. Urination has little direct effect on vegetation or soil. In some instances urine may draw wildlife which are attracted to the salts. They can defoliate plants and dig up soil. It is best to urinate on rocks and in places where urine is unlikely to attract wildlife.

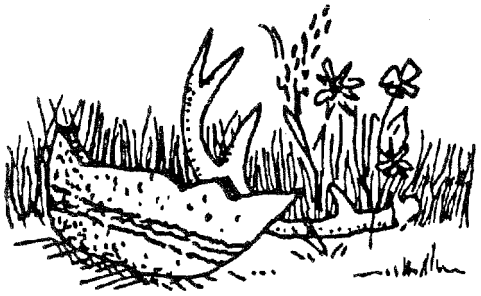
Waste water from cooking. Soap is unnecessary for most dish washing jobs. It is often difficult to rinse thoroughly and introduces unnatural chemicals to the backcountry. Hot water and a little *elbow grease can tackle* most cleaning chores. Waste water should be scattered over a wide area away from camps and all water sources. Remove all food particles from the water before disposing of it and *pack them out with excess food* and other litter. If you are in grizzly bear country or expect to create large amounts of waste water, it may be best to concentrate it in a sump hole.

Waste water from washing. The primary consideration when washing yourself or your clothes is to avoid contamination of water supplies. Soap must not enter lakes or streams, so it is best to minimize its use. If bathing with soap is necessary, get wet, lather up on shore far from water (200') and rinse off with water carried in a pot. This procedure allows the biodegradable soap to break down and filter through the soil before reaching any body of water. Clothes can be cleaned by thorough rinsing. Soap is not necessary and residual soap. can cause skin irritation.

Fish viscera. Fish viscera are generally a natural part of the ecosystem. In remote areas they should be scattered widely, out of sight and away from campsites. In high-use areas and in bear country they should be scattered a long way from camps, or buried cathole-fashion a half mile or more from camp. Do not throw viscera back into lakes and streams (unless bear danger is high and viscera can be thrown into deep water); the cool temperatures in most mountain waters prevent rapid decomposition.

Leave What You Find

Allow others a sense of discovery by leaving rocks, plants, archaeological artifacts and other objects of interest as you find *them.*



Minimize site alterations. *On all sites, leave the* area as you found it. Do not dig trenches for tents or construct lean-tos, tables, chairs or other rudimentary improvements. If you clear the area of surface rocks, twigs or pinecones, replace these items before leaving. On high impact sites, it is appropriate to clean up the site and dismantle inappropri-*ate user-built facilities, such as* multiple fire rings and constructed seats or tables. Consider the idea that good campsites are found and not made.

Properly-located and legal facilities, such as a single fire ring, should be left. Dismantling them will cause additional impact, because they will be rebuilt with new rocks and thus impact a new area.

Avoid damaging live trees and plants. Avoid hammering nails into trees for hanging things, hacking at them with hatchets and **saws, or tying tent guy lines to** trunks and thus girdling the tree. The cutting of boughs for use as a sleeping pad creates minimal benefit and maximum impact. Inexpensive sleeping pads are readily available at stores catering to backcountry travelers.

Picking a few flowers does not seem like it would have any great impact. If only a few flowers were picked it wouldn't, but if every visitor thought "I'll just take a few," a much more significant impact might result. Take a picture or sketch the flower instead of picking it. Enjoy an occasional edible plant, but be careful not to deplete the surrounding vegetation or to disturb plants that are either rare or do not reproduce in abundance.

Leave natural objects and cultural artifacts. Natural objects of beauty or interest, such as antlers *or* petrified wood, *are* appealing when you find them in the backcountry and should be left for others so that they too can experience that sense of discovery. In National Parks and some other areas it is illegal to remove natural objects.

The same ethic is applicable to the *discovery* and removal of cultural artifacts found on public land.

Cultural artifacts are protected by lands. This act protects all artifacts the Archaeological Resources ranging from seemingly insig-Protection Act, and it *is illegal to nificant* potsherds and arrowheads remove artifacts from *any* public to ornate pots and clothing items.

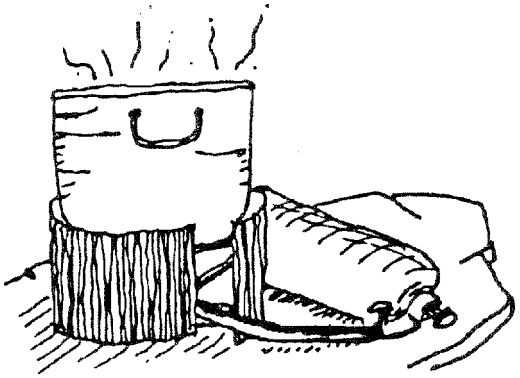
Campfire Building in the Backcountry

The use of campfires in the backcountry was once a necessity and is now steeped in history and tradition. This tradition is so entrenched in our minds that for some *the thought of* going on a backcountry camping trip and not having a fire is almost unthinkable. However, a new attitude is developing toward campfires. This attitude is a direct result of the past misuse of campfires and the ugly scars caused when fires are built incorrectly or built *in the wrong* places.

Fires vs stoves. *Though* cooking on a fire is a skill and an art, backcountry visitors should not embark on a trip intending to do all cooking on fires. A lightweight gas stove is essential equipment for any overnight backcountry trip, no matter how long or short. *The use* of a stove for cooking allows the greatest degree of flexibility in selecting a low-impact campsite and avoids the problem of building fires in inappropriate places.

The most important factors in determining whether or not to have a fire are:

I . The availability of the right amount and type of firewood
2. Wind conditions and overall fire danger
3. Administrative restrictions.



Firewood selection and gathering. There is only one type of wood which is acceptable for building a low impact campfire-dead and downed wood. Do not break dead branches off live standing trees; this leaves a very discernible and long lasting impact. Breaking branches off downed or fallen trees makes a subtle distinction from the term dead and downed wood. This is not an acceptable source of firewood.

There is a certain aesthetic appeal I I

to a large fallen tree laying on the forest floor with its branches aimed skyward.

The size of firewood is critical to building a Leave No Trace fire. Firewood should be no larger in diameter than an adult's wrist. The burning of this smaller firewood has a very small effect on the ecology of the forest, because it is not large enough to significantly contribute nutrients to the forest Large rotting trunks, on the other hand, are significant and should be left alone. These downed trunks provide crucial habitat to a variety of insects and other creatures and return nutrients to the soil.

Firewood should be gathered from a wide area, not just in the immediate vicinity of camp. Take the time to walk 15 or 20 minutes away and then begin to gather the wood. Pick up the wood as you are walking so that no single place becomes devoid of wood.

In all campfire situations, the use of saws, axes and hatchets is unnecessary. Sawing and chopping leave more impact and further detract from the naturalness of the area. Small firewood can easily be gathered by hand.

Care and feeding of your fire., Keep the wood in its natural lengths. When feeding the fire, break the wood into burnable lengths as needed. If there is any unburned wood left when breaking camp it can be scattered around the forest and will blend in naturally.

All firewood should be burned down to white ash or very small coals. Doing this may require some extra time, but is a significant step in minimizing the impact of the fire. All fires should be cleaned up before breaking camp.

Fires in high use areas. In high use areas, where impacts should be concentrated, campfires should be built in existing fire rings. In these sites, it is almost a sure bet that there will be a fire ring present when you arrive. If there is still abundant firewood, build your fire in the existing ring.

One of the simplest alternatives to rock fire rings is to build a fire right on the ground surface. In highly visited, high-impact campsites where the vegetation has long been removed and the ground is compacted to almost a concrete surface, this is a perfectly acceptable practice. The ground under the fire may become a little blackened, but that is of little concern if every visitor builds his or her fire in the same spot.

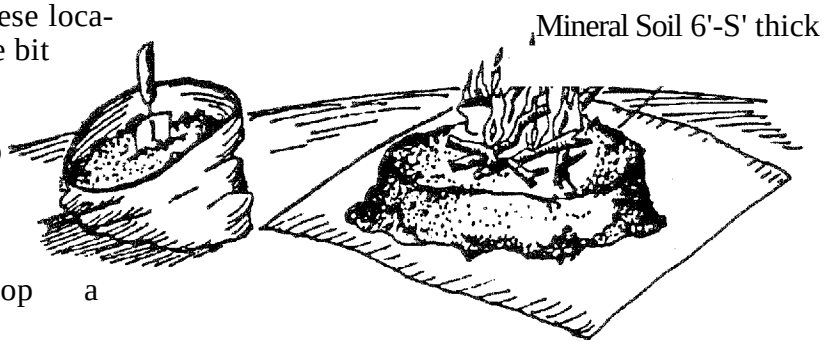
In popular campsites which will be used by many people during a season the intent is to get other campers to use the same fire ring. Cleaning up the fire ring of food waste and trash plus burning wood completely and scattering the coals and ashes when out, will make it more likely that it will be used again. This helps avoid the proliferation of multiple fire rings in a popular site.

Fires in pristine areas. In remote or pristine areas, it is possible to enjoy a fire and Leave No Trace that it was ever there. The development of techniques for these types of fires has evolved over the years to the point that there are some very practical alternatives to the traditional fire ring.

When camping near large rivers or creeks, building a fire on exposed gravel bars well below the high water line is an acceptable practice. In these locations the little bit of evidence left behind after clean up will be swept away by the next flood. Scoop a shallow pit in the gravel or sand and then cover those last little bits of charcoal to hide any sign of the fire until the next high water. Whenever building a fire near water, it is important to take care to keep any food or waste products from entering the water source if *you are cooking on the fire*.

In pristine areas away from water sources, any areas of exposed mineral soil can be used for fires in the same method as described above. Be sure there is no small inconspicuous vegetation growing in the mineral soil. Mineral soil is a term used to describe dirt which contains no organic material. Fires built in non-mineral soil will blacken it by burning the organic material. Fires built in pits dug in organic soil risk the chance of forest fire. The heat from the fire can ignite the organic material which can burn underground and flare up into a forest fire under the right circumstances.

When building a campfire in a more remote area, special care and extra effort must be taken to obliterate any signs that there was a fire. 13y burning wood completely it will be possible to scatter *the cold ash*



and small coals around the area. Fire is a natural process in the forest and a few small coals will not be noticed.

The mound fire: An innovative method for building a Leave No Trace fire is the mound fire. Mound fires can be built virtually anywhere and with simple tools: a garden trowel, large stuff sack and a ground cloth.

This type of fire is constructed by first locating a ready source of mineral soil. The best places are stream beds where dry gravel is accessible during low water or from the cavity left when a tree is blown over.

The key concept to remember is to

gather the mineral soil from a spot which is already disturbed by the forces of nature and where the impact of digging and collecting the mineral soil will not damage live vegetation.

With the garden trowel and stuff sack (turned inside out to keep the inside of the bag clean), carry a load of mineral soil to the fire site. Lay a tarp or ground cloth on the fire site and then spread the soil into a circular, flat-topped mound about 6 - 8 inches thick. The ground cloth is important only in that it makes cleaning up the fire much easier and adds some degree of flexibility to the system. At NOLS we have been using retired forest fire emergency shelters cut into 3x3 foot squares on which to build mound fires. They are light weight and durable and will not melt from the heat of the fire.

The thickness of the mound is critical for insulating the surface underneath from the heat of the fire. This will also prevent the nylon ground cloth from melting if one is used under the mound. The circumference of the mound should be larger than the size of the fire to allow for the inevitable spreading of coals. It may take more than one bag of soil to make an adequate mound.

After the fire is out and you are ready to break camp, the little bit of **ash** and coals which are left can be scattered away from camp and the mineral soil returned to the source.

The beauty of this type of fire is that it can be built on flat exposed bedrock or on an organic surface such as litter, duff or grass. Even with a thick mound, sometimes the heat generated can be enough to kill grass or other plants, but it is only temporary and does not sterilize the soil the way a traditional fire **can.**

Portable fire pans: Another alternative which is becoming more popular is the portable fire pan. Fire pans were first used by river runners to minimize the impact of their fires. Some backcountry hikers have been known to carry a fire pan with them on hiking trips. There are now companies building and marketing portable fire pits. These are small lightweight stoves which require very small amounts of fuel and can burn as hot as a gas powered stove. They can also burn almost anything! One model burns dried cow dung. These stoves can be used in place of gas stoves as long as you know there will be a ready supply of fuel. They also burn very completely and the result is a small tray of fine ash which is easily dispersed.

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This supplement was reprinted from *the "Leave No Trace Outdoor Skills & Ethics,"* booklet, published by the National Outdoor Leadership School, Lander, Wyoming. © NOLS 1991

The following sections include more information that is needed and important to F.S. personnel. Special considerations and practices should be used pertinent to the ecosystem you are working in. Some areas require more detailed practices,

Trip Preparation

Clothing and Equipment

To help you travel and camp inconspicuously, select earth colored tents, clothing, and packs whenever possible.

Major exceptions are the increases safety provided by bright equipment for winter camping (to improve visibility during inclement weather) and bright clothes during hunting season (to decrease the likelihood of being shot). Bright equipment during hunting sea-son is not a problem because the likelihood of encounters is generally low. **Safety** (bright clothes) takes precedence.

Repackage food and carry lightweight equipment. Rafts, horses, and to a lesser extent canoes and kayaks, have the ability to carry specialized and often heavier equipment designed to minimize impact. Portable toilets of varying degrees of sophistication have be-come an increasingly common means of dealing with problems of human waste at popular campsites, as well as firepans.

Planning

Be sure that you have a topographic map of the area you will be hiking. Also be sure that you know how to read a map and compass. Plan your route with your supervisor before going in the field. (Refer to the Appendix for Trip Planning Form.)

Ethics

Where pets are allowed (they are prohibited in all National Parks and in some backcountry areas managed by other agencies), they should be kept under vocal or physical restraint (leashed). They disturb wildlife, hikers, campers and stock.

Observe animals from a distance. Find out as much as you can, before entering the area about the species, places and times when disturbances are likely. Examples: Moose with young, previous en-counters, resting sites and feeding ground animals are especially stressed during winter. Do not give animals any food, accidently or deliberately.

Do not give animals food, either accidentally or deliberately leaving food scraps behind. Help maintain a natural, balanced ecosystem. Feeding animals produces many undesirable effects.

Backcountry Travel

Do not use closed trails. Walk on constructed trails or off trail some distance away. Most visitor contacts will be made on trails. Never short-cut switchbacks. Switchbacks are designed and built into trails on steep terrain to minimize erosion and to conserve your energy as well.

If you travel cross country do not leave cairns blazes. Leave as undisturbed as possible. When on snow, ice, and rock pick a safe route.

Traveling through a desert environment requires sensitivity and awareness to plants, soil and riparian areas. A desert appears lifeless and hardy at times but it also is a very fragile environment, dependent upon water and soil resources. Choose your travel routes and methods carefully. Cryptogamic soil makes up much of the ground surface in the desert. This soil is a combination of mosses, algae, lichen and fungus. It reproduces by spores. Cryptogamic soil pre-pares the ground for future plant communities by providing anti-erosion and nitrogen enriching abilities. This soil looks soft, lumpy, often with a gray rust with jagged upraised towers. Try to avoid stepping on this crust. Stay on trails when possible or if you cannot avoid the microbiotic soil follow in one another's footstep. Concentrate other travel in sandy washes, arroyos or on slickrock and avoid vegetation. Mineral soil, gravel, sand and sterile spaces are excel-lent campsites. A group should spread out if there is not an apparent trail and there is no cryptobiotic crust.

Campsite Selection and Behavior

Heavily Used Areas

In popular locations, select a well-impacted site, unless your trying to restore it or it is a illegal campsite. Sites that are already impacted, if used with care, need not deteriorate substantially over

time. Select a concealed site if possible 200' away from water, meadows, the trail, and other parties. In the desert try to choose an already used site 200' from water.

Many wilderness areas, particularly those managed by the National Park Service, prohibit camping except on designated camp-sites. One should always adhere to regulations of the managing agencies, or specific wilderness. Some managers prefer rangers no to use these sites.

Remote Areas/Light Use Sites

Never camp on a lightly impacted campsite. They are on the verge of becoming permanent. If unused, they should recover rapidly.

When in areas without trails and campsites, camp where there is no evidence that others have camped there before. These sites can recover rapidly if not used again. Widespread dispersal rotation, and low use will make this strategy successful. Use levels must be low for this strategy to be successful. A durable site is a key factor. In the desert look for an area free from vegetation and on a durable surface, such as a dry wash, slickrock or mineral soil. Keep your group site small and length of stay to a minimum.

Concentrate Activities

Leave a single firering (but dismantle any additional rings) and any structures. Primitive log seats should *probably* also be left, and there are situations where user built stock facilities should be left. Also check with archaeologist for historic structures.

The basic philosophy is to keep facilities to a minimum, but to avoid having them rebuilt on different parts of the site, spreading impact around. This requires striking a balance between the ideal goal of having no "permanent" facilities and the practical value of confining the impact associated with a facility to a small area. It is also important to leave the site clean and attractive so that other parties will use the site.

Disperse Activities

On previously unused sites disperse activities and try to avoid moving over the same piece of ground. Take a slightly different

route each time, and try not to mill around in the same area. Spend no more time than one night in the same area. Fluff up matted vegetation and spread duff, cones, on places scuffed up. Naturalize the area.

Campfires

Site Selection

1. Limit the use of campfires. They are among the most serious visual impacts in the backcountry. Use of a stove is always preferable.
2. Select site on mineral soil, rather than duff, vegetation or rock. Keep far enough away from trees, roots, overhanging branches and large rocks. Avoid fires in dense vegetation. Keep your fire small.
3. Burn the wood as completely as possible and soak the pit thoroughly with water. Know the fire danger for the area and enforce it.
4. Most often there is low productivity of wood in the desert. Fires are unadvisable. The one except in the desert is if there is an abundance of dead dry wood in a wash after a flood. A wash is an ideal place for a fire since it usually is sand or mineral soil. Be aware of scorpions in the wood.

Heavily-used Areas

When selecting among several firerings, select one that will make it easy to concentrate on site activities.

Attempts to make universally applicable rules about either always building fires in existing firerings or building fires on previously unused sites have been contradictory. Use of existing firerings is most appropriate in frequently used areas, while previous fire sites should be rehabilitated and avoided in remote places. The concept is to concentrate use in impact in popular places and to disperse use and impact in little-used places. The controversy results from attempting to develop a single simple rule.

A small, clean fire site should be left. If there was originally a ring of rocks, leave a ring of rocks. If the ring was overly large and built up, excess rocks should be scattered, away from campsite. If it was clogged with charcoal and ash scatter them lightly in a number

of places, to be as inconspicuous as possible. Other firerings on the site should be dismantled completely. Scatter rocks, charcoal, and ash away from the site and attempt to camouflage the fire scar. Any litter should be carried out. As a universal suggestion, dismantling all firerings is not recommended in high use areas. Having a light-weight shovel, even plastic works well, and aids in clean-up. Rangers can spend a large amount of time doing campfire clean-up.

Remote Areas

When in a infrequently used area without well-developed campsites, dismantle and camouflage any firerings that you find. Do not use them and do not camp there. Select a site without obvious disturbance for camping and fire building.

If a firering shows signs of recovery, such as plant recolonization, disassemble the fire ring and camouflage the area. Fires can be built either on a mound or in a pit.

In remote settings use a pit fire in mineral soil or a mound fire. These are described in detail on 116-118. If you have been using a firepit, in mineral soil, drown the ashes and coals, scatter all remaining ashes, and return most of the mineral soil or sand you removed back to the hole. Now look at the surrounding ground cover, and camouflage the top of the firepit to match. Use duff, aspen leaves, pine cones, whatever it takes to restore the surface to its natural state. Always be careful not to over camouflage. A big pile of duff is a sure giveaway that there is something underneath. Good camouflaging is an art that takes a subtle touch. If you have built a mound fire, scatter the ashes and replace the soil.

Many educational brochures also describe a technique for building fire in a hole cut in dense vegetation. This technique has a high potential for causing damage and has been abandoned, due to poor success, by the National Outdoor Leadership School (NOLS), which was largely responsible for developing the original technique.

Waste Disposal and Sanitation

Organic Garbage

Remember to plan your food carefully in advance to minimize leftovers and waste. Burying food is unacceptable.

Nonorganic Litter

Pack out all garbage, don't bury it. Burying is inefficient and inappropriate.

Do not burn toilet paper if fire hazard is high or regulations prohibit it. One or two wildfires are started each year from someone burning toilet paper. It also doesn't burn well. So do not recommend this to wilderness visitors in hazard areas. Have them pack it out as an alternative in a plastic bag inside a brown paper bag. Burying is the less than desirable compromise.

Tampons should be packed out (unless you are in grizzly bear country) or burned in a very hot fire; they should never be buried. Enclosing powdered aspirin in plastic bags helps with odor.

In addition to packing out your own litter, pack up as much as possible that's been left by others. If you're in bear country follow recommendations on pages 60-67.

Human Waste Disposal

Human waste should be disposed of in catholes, where it will not pollute water sources or where people may find it. If toilets or a latrine are available, use it. Catholes should be widely dispersed. It is best to urinate on rocks and where it is unlikely to attract wildlife. This is especially true in the desert.

Certain environments offer unique opportunities for human waste disposal. Crevasses on glaciers can make good disposal sites. Otherwise, proper waste disposal on snow and ice is difficult. Selecting a site far from places that are used during any season becomes critical. Waste disposal below high tide offers an opportunity on low-use beaches. On rivers, equipment is available that permits all waste to be carried out in portable toilets. This is an extremely effective means of minimizing problems. Some areas prefer urination to occur in the river. Waste deposition on the surface may be appropriate in very lightly used areas where excavation of holes can cause long-term impact. Spreading the feces on a dry and exposed sites will maximize exposure to sunlight and therefore, decomposition (desert). catholes in the desert should be exposed directly to sunlight and be somewhat shallow (no more than 6" deep). Sun and heat break down feces. It is also advantageous to be near trees and bushes.

Generally, do not build latrines unless a large group is in the same area for a long period of time. Try to avoid this situation,

because decomposition is slow, and excavation by animals is a serious problem.

Large groups and outfitter camps (sever or more) that are camping in the same location for **more** than one night should use the trench method. In a well screened location, several hundred feet away from any water, dig a narrow trench approximately 2 feet long and 10 inches deep. Some camps have pit latrines. Inspect these and make sure they are located in a proper area, not too close to water or a trail (200' at least). Check when performing a camp inspection. Have them move the latrine if it is full or not meeting location standards.

After each use sprinkle a small amount of dirt over the excrement. The trench can be used to within four inches of surrounding ground level and then filled completely and the site naturalized.

Waste Water Disposal

Bathe, wash and dispose of waste water away from water and campsites. Minimize use of soap. Water sources in the desert are minimal. Visitors must protect springs, seeps, and potholes form becoming polluted. Wildlife also need this water for survival. Conserve the use of water by keeping personal washing and dish washing to a minimum. Use a clean cup or pot to scoop water fro the source, and avoid washing directly in a pothole. If you wash using a spring or running water, do so 200' away from the source and empty into filtering sand or gravel.

It is important that the minimum impact techniques you are using are applicable to the ecosystem and terrain you are working **in.** Consider the variables in the environment such as, soil:vegetation, wildlife, humidity and the amount of use in the area. If you are in another unique environment such as coastal, rivers, snow and ice, alpine or arctic tundra, know what practices are currently being used, and which are successful for minimizing impacts and leaving no trace. *"Soft Paths" by* Bruce Hampton and *"Minimizing Impact on the Wilderness"* by Michael Hodgson, and *"Wilderness Ways"* by Colorado Outward Bound, are excellent resources.

In grizzly bear country it is important to wash dishes immediately after use, in an area far from sleeping places. Where risk is very high, waste water can be poured in a sumphole as a means of minimizing orders.

SHOULD YOU LITTER?
WHY NOT?

Because Litter Lasts This Long . .

Cigarette butts	1-5 years
Aluminum cans and tabs	80-100 years
Plastic six-pac holders	100 years
Orange and banana peels	**up to** 2 **years**
Plastic film containers	20-30 years
Plastic bags	10-20 years
Glass bottles	1,000,000 years
Plastic coated paper	5 years
Plastic bottle	indefinitely
Nylon fabric	30-40 years
Leather	**up to 50 years**
Wool sox	1-5 years
Tin cans	50 years

PACK IT IN-PACK IT OUT

Stock Use

It is acknowledged that stock use is proportionately more damaging to resources than hiking.

Because of this, care must be taken where possible to minimize the impacts of stock. Often, in his need to defend the use of stock and his income, a packer will argue that stock do not significantly affect resources. But the packer must be made to understand that by using minimum impact techniques, their resource (and their livelihood) can be perpetuated.

Refer to *"Techniques and Equipment for Wilderness Horse Travel" from* the USDA Forest Service Equipment Development Center, Missoula, Mont. Publication 2300-Recreation 8123 2403, or *Backcountry Horseman.*

A course is recommended in horsemanship and minimum impact.

General Considerations

Use stock familiar with hobbles, picketing, high lines, ropes and traveling on a trail. Take the **minimum** number of stock to make your trip successful. Use **lightweight** gear whenever possible. Refer to tack list on page 30.

Parties with stock should travel as much as possible on designated trails, rather than taking off-trail routes. When on trails, stock should be tied together and led single file along the main tread. They should not be allowed to spread out or to walk on parallel or developing trails. Neither should they be turned loose and herded down the trails. Horses should be shod with flat plates or not at all.

When encountering a trail obstacle, such as a fallen log, stock parties should remove it and make the main trail passable again. Do not leave the trail to skirt the obstacle. Notify your supervisor if the obstacle cannot be removed.

Move to another campsite before forage is overgrazed and before the area shows excessive trampling damage. In fragile areas and during particularly vulnerable times of the year this may mean moving every day. In places with abundant forage and durable sites for confining stock, long stays are acceptable. Find out about forage conditions before going into an area. All picket pins should be moved 2-3 times per day.

Never confine or allow stock to roam on the campsite. They should be kept some distance away, where they will not foul the site. If necessary, bring them into the campsite to be quickly loaded or unloaded. If they relieve themselves during this period, be careful to remove the manure. In bear country many people like to have stock nearby. Create a triangle with your sleeping area, kitchen and stock.

In addition to normal camp cleanup, several of the disturbances unique to stock parties must be dealt with. If picket pins were used, they should be removed. If salt and feed are left over, they should be packed out. Temporary hitch rails and corrals are dismantled, and manure piles are scattered to aid decomposition, discourage flies, and as a courtesy to others. *Use of the highline is recommended over hitchrails.*

Feed and Water

Plan on carrying supplemental feed for your stock. In many backcountry areas forage is limited and grazing may be restricted or unavailable.

Weed-free oats or pelletized feeds are preferable to hay, which is much bulky to pack. If hay is used it should be certified weed-free. A number of wilderness areas require all feed to be packed in. A number prohibit the use of hay or unprocessed feed.

Pick a spot downstream from your camp and others in the vicinity to water your stock. Pick a spot that can handle the trampling, preferable a place with low banks that are hard and rocky or gravelly. Take stock to this place shortly after arriving in camp. Watering stock with a bucket can also reduce streambank impacts.

Use processed feed, with salt added, so there is no need for supplemental salt. Supplemental feed should be placed in a nosebag or on a trap. Do not place directly on the ground. When feeding hay or grains that have been packed in, lay the hay out on a pack trap, sheet of plastic, or in a collapsible manger.

Confinement

Where confinement is necessary, use a hitch line (high line). Remember, any time stock are restrained, particularly if they are away from home and their special partners, they can cause consider-

able damage to trees, plants, and soil by pawing and tramping. If it is necessary to keep stock tied for any length of time, use a rope highline at least 200 feet from any water, trail, or campsite. Select a site where they cannot tramp on tree roots and where damages to plants will be minimized. Rocky, hard ground is usually best. An animal inclined to paw should be hobbled while tied. If some horses are kept tied, while others are turned loose to graze at night or in the day-time, it is almost always best to keep two horses tied rather than one. Two will usually stand quieter. Tie stock to hitch line so their noses can't touch the ground. You don't want them to be able to step over the rope.

A highline is a good idea. Stock can be quickly tied, kept in order and easily watched. Wide nylon "tree-saver straps" with quick-adjusting buckles are used for speed and convenience. A lash rope is run between the straps, tied with a quick-release knot, and pulled taut. Cinch rings, butterfly knots or prussik loops work well for tie ins for the lead ropes. Refer to page 131.

When it is time to take a break, move off the trail far enough so that other parties can pass unnoticed. For breaks that last only a few minutes, it is acceptable to tie stock directly to trees, if they are larger than about S inches in diameter. **(Never tie stock to any tree longer than 10 minutes.)** Use a hitch line between two trees instead.

It is important to know how to set up a highline for the safety of the horse as well as informing visitors. Be able to teach using hands on explanations even if your backpacking.

At rest stops___even short ones-stock are tied well off the trail. It's courteous and minimizes trail wear. If it's a scenic overlook, historic site, or other popular stop, stock are kept out of the area.

Grazing

Grazing minimize confinement of stock. When grazing, move picketed stock frequently.

Some wilderness managers are more favorable toward picketing than others. This probably reflects their tradition of use. Meadow deterioration is likely to occur wherever stock are picketed, unless great care is exerted. Temporary corrals have also been suggested as a means of confining animals, particularly for long periods of time. This is likely to result in overgrazing of the corral area and, there-fore, is not generally recommended.

Restrained animals can do considerable damage by pawing and trampling the vegetation. Hobbles are the best device for **restraining stock.** The animal can move enough to graze but is not confined as **in** picketing. However, it often depends on the stock.

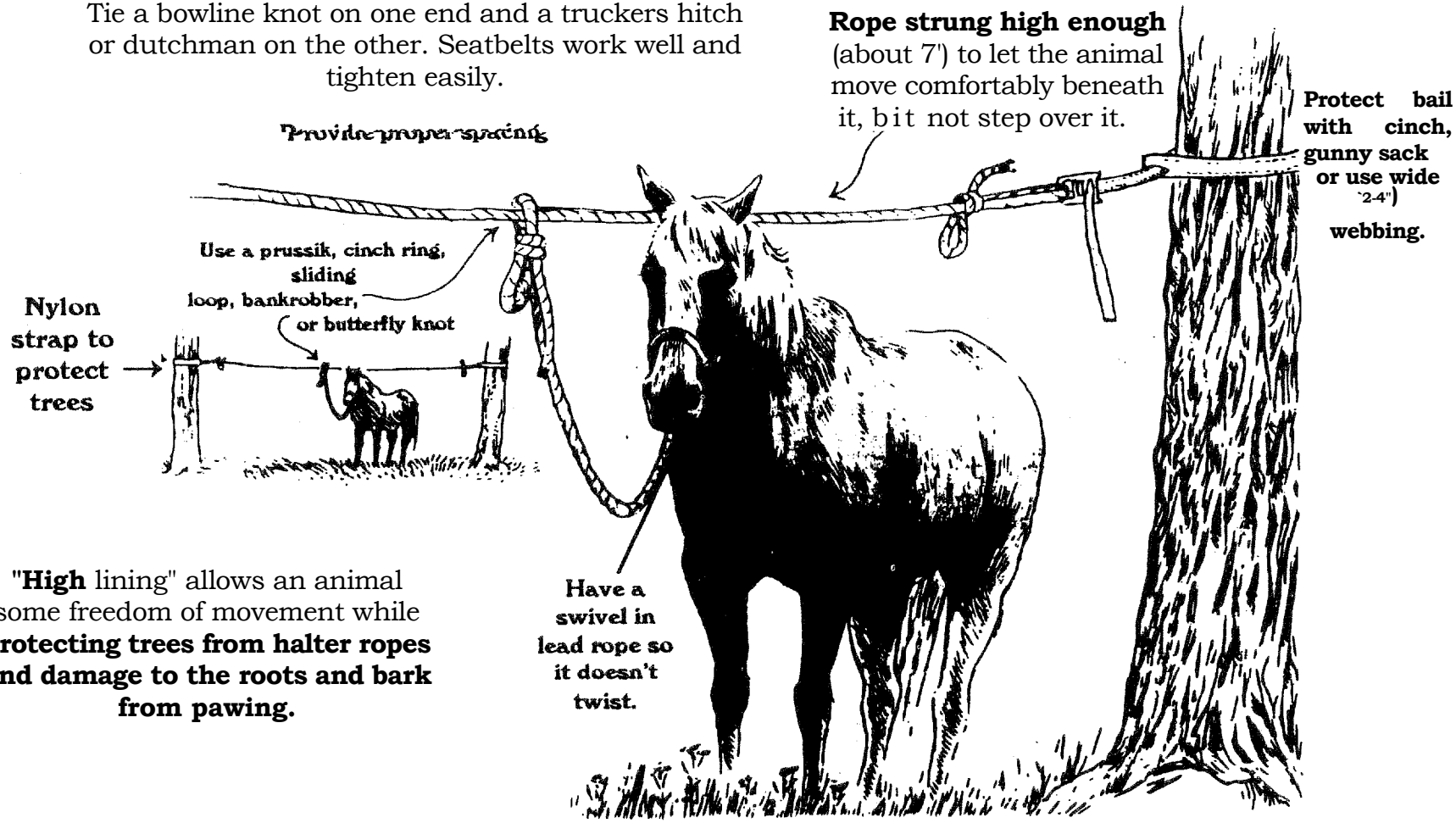
Once in camp, travelers can allow their stock to graze. Because picketing can cause considerable plant and soil damage, most stock should be hobbled. Picket only enough horses to keep other from straying. Since they know it is illegal and environmentally improper to cut green trees, carry metal picket pins for moving the horses easily (two or three times a day).

Be certain meadows in the areas will support the grazing needs of the livestock. Both water and grass supplies should be carefully examined. Frequently used areas are often exposed to heavy grazing through the season. Overgrazing contributes to a reduction in the active strength of the grasses, adds to the trodden-out appearance of the meadows, provides opportunities for unwanted weeds to grow, may lead to stream bank erosion, and generally adds to the degradation of the area. The amount of feed available or the amount of feed packed in will determine the length of your stay.

In some areas, overgrazed meadows must be closed to grazing. Refer to Range Analysis Form in the Appendix.

High Picket Line

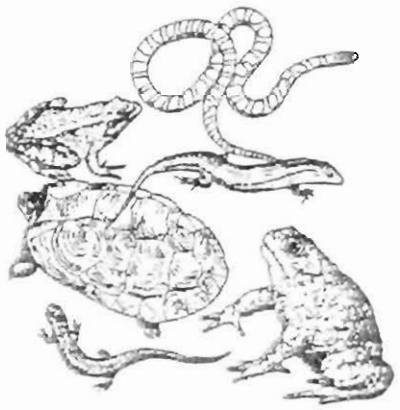
Tie a bowline knot on one end and a truckers hitch or dutchman on the other. Seatbelts work well and tighten easily.



"**High** lining" allows an animal some freedom of movement while **protecting trees from halter ropes and damage to the roots and bark from pawing.**

6

Interpretation



Interpretation is the art of translating what the five senses are absorbing into another sense and is usually done verbally or through visual aids. Not only must you interpret for the public the natural history of the wilderness and its ecological niches, but you must also interpret for them the philosophy behind wilderness management and the laws you are enforcing. Take out field guides and get acquainted with the natural history of the area. Develop your interests and become familiar with other subjects such as geology, birds, fish, weather, mammals, plants and a history of the wilderness you are in. Start observation lists, sketch plants, be creative and understand and learn about the ecosystem you are working in. Insert a bird list, mammal list, geology, soils, plants, fish, early settlers, native cultures, weather patterns, temperature, etc. that interest you and are helpful with interpretation.

Wilderness Information

Visitors often have many questions about the wilderness before they start a trip. This information must be collected and disseminated to the public information points in your District. Sources of public information are bulletin boards, District offices, wilderness information booths, Supervisor's Offices, adjacent Districts, entrance stations, and trailheads. These should be updated as needed.

An example of information contained in a visitor information sheet are given below. A note like this with current information together with the wilderness Rangers comments will usually be read whereas a lot of printed material isn't. It's an effective way to add a personal no-trace message also. This works well at a trailhead.

MINARETS WILDERNESS INFORMATION

(West of the Ritter Range) As of _____

Clover Meadow Office Hours - 8 a.m. to 5 p.m.

1. Safety Tip -

2. Snow Conditions/Elevation -

3. Water (availability, *not* potability!)

4. Trail Conditions -

5. Wildflowers -

6. Mosquitos -

7. Fishing -

8. Bears -

9. Problem Areas -

7

Site Maintenance, Restoration and Monitoring

General Considerations

The actions of managing a wilderness vary considerably. As stated earlier, wilderness management is not an exact science. Because of the differences in wilderness units, the actions taken often differ. In one wilderness overuse of a lake may require the closing of camping within a certain distance of that lake while in another wilderness reducing or shifting quotas at trailheads may accomplish the same goal.

The question to ask is, "Does this action benefit the quality of this wilderness in the long run, biologically, and/or socially?" We must look to the future 50, 100 and even more years from now. As stated in the Wilderness Act, wilderness areas shall be preserved *". . . for the benefit of all American people of present and future generations."* To this end, consider the following considerations before taking action on a site:

1. Is this good or poor camp site location?
2. Will impacts be elsewhere if these sites are removed?
3. What are alternate sites for ones that are removed?
4. Can use be discouraged by "trashing" site with manure, logs, rocks, etc?
5. Allow revegetation only if a loss of the wilderness resource has occurred due to human influence and there is no reasonable expectation of natural regeneration.
6. Is restoration of over used sites (a cost- and time-consuming affair) effective?

Refer to Campsite Restoration Worksheet in the Appendix.

Firerings

Fire rings are the center of activity in the campsite and the area around the campsite that is the most impacted. Good fire rings should be small in size with enough rocks to put a small grate on and away from rocks and cliffs that may get soot scarred. Dispose

of rocks from unwanted fire rings by scattering them widely under bushes, and burial in "dishes" created by stock pawing the ground and removing the dirt at the base of trees. The effects on fisheries habitat and water quality must be considered when rocks are to be disposed of in streams or lakes. The stream should not be blocked.

Remove all litter, burned cans and plastic as well as foil from the charcoal and ashes before dispersal or burying. You will have to stir up the charcoal. A full size shovel works well for this job. Wear leather gloves and use a shovel, or trowel, and carry an ash bag to put soot in for dispersal.

Disperse charcoal from unwanted fire rings (make sure the fire is dead out) by widely scattering it in bushes or by digging a hole in sandy soil with no vegetation and burying it. If you use water to make sure the fire is dead, it will also keep you clean by reducing dust, and make it easier to gather and disperse charcoal if it's wet. After a fire ring has been eradicated, cover the soil site with forest litter, or other available native material.

It is a common sight to see charcoal remains in a meadow where years before a campfire was built. Usually no vegetation has grown back because the charcoal absorbs radiant heat and effectively kills off plant growth. The same will be true of campfires you naturalize unless you cover the old fire scar with native material to reflect some of the heating rays of the sun. To assure regrowth get as much charcoal out as possible, mix the rest up with soil. This aerates the soil and keeps old fire rings from getting over grown with moss. Some rangers are also planting native seeds.

Old campfires that are not surrounded by a used campsite and are in meadows or a more fragile community can be handled in the following ways.

1. If rocks still surround the charcoal, remove and scatter them as above.
2. Remove litter and foil disturbing the charcoal as little as possible.
3. Use sharp end of shovel or a trowel to gently cut into soil, give it a twist to help aerate the soil. Usually well-used fire rings have a layer of baked clay soil below the ash, and has to be broken up and preferably mixed with duff or organic litter.
4. Transplant a few plugs of grass, forbs, or spread seeds in soil.

5. Cover the charcoal on site with a layer of pine needles, dirt, etc., at least ½" thick, water transplanted material.
6. Small branches laying on the ground can be placed over the site also.

Removing Improvements

Improvements include old fences, boards nailed to trees, structures, and everything else imaginable! Do not remove a structure unless you have District Ranger or Forest Supervisor approval, since it may be an historic site or belong to an outfitter, grazing permittee or other wilderness user.

You may need the following tools: fence stretcher, pry bar nail puller, hammer, screwdriver, wire cutters, adjustable wrench, gloves, hacksaw, plastic bags, burlap sacks, nylon ropes.

Disassemble and remove unauthorized structures including: nails, wire, bear bars, tables, seats, swings, hitching posts, pipes and plastic from springs, lean-tos, rock wind barriers, etc., and fill in trenches. It's important for the wilderness ranger to know the location of and authorized structures in permitted (outfitter) camps so they are not inadvertently removed. This might also mean sending in a crew or packstring to remove some objects.

"Dishing" By Stock

Stock tied to trees paw at the base of the tree causing a "dishing" effect. Roots are exposed and damaged and water collects in the depression causing root rot. Trees with dishing often die. Also, halter rope, abrasions where the bark has been girdled causes death to trees. Some dishes measured up to 4 feet deep.

Fill in the dishes with the dirt that surrounds the tree, seen as a slight mound a few feet from the tree. These are generally around the entire circumference of the tree. It is acceptable to put manure and rocks from campfires in the dish and then bury them with the dirt. Don't put charcoal in these dishes as it may be scattered later by pawing stock. Large rocks can be planted in the surface area when done. They will stick out, look natural, and will discourage further use of that tree to tie up to.

Site Recovery

Transplanting for site and abandoned trail recovery is time consumptive. It takes much work for the benefit derived. So only attempt this if you feel fairly confident of success, you will not scar the borrow area too severely and there is no reasonable expectation of natural revegetation.

Transplant plugs by removing dirt from the naturalized site to a depth that will accommodate the roots of the new plant and the sod. Find an area that is away from the site and has plenty of species of the type you wish to transplant. Be sure you know which species transplant well in your area. Some do fine, others are impossible to propagate. Check with your Forest's Range conservationist or botanist for help. Push a spade or shovel deep into the earth around the entire sample, then slowly pry it out. Put it in the new location and fill around the edges so there is no air under or around the sample. Be sure to water it. Fill the "home" site with free dirt and forest litter.

Use only native plant species for re-seeding. **". . . the introduction of non-indigenous species is never justified."** Transplanting plugs of *vigorous* species (grass) works in the early season. Later, seeds can be gathered from plants in the immediate area. Transplanting works again in the late season when it's raining. For further reading see *"Propagation of Plant Material for Subalpine Revegetation,"* Joseph W. Miller, Margaret M. Miller, North Cascades N.P., Sedro Woolley, Wash. USFS No. R-6-001-1979.

Compaction of soil is a serious problem that discourages natural revegetation. To encourage natural seeding, loosening or scarifying the soil is quite effective in furthering the establishment of grass, shrub and tree seedlings. Loosening soil with a shovel or spade to a depth of approximately 6" will be adequate in most cases.

If you want to discourage further use of the site, put large logs and rocks in a natural-looking arrangement to provide microclimate for new plants as well as to keep people off it.

Enforcing closures can be difficult though they may be effective through proper education and signing. The most effective approach consists of helping visitors understand the reasons for closures and letting them know about alternatives. Closures signs should be placed at the site, and attached as a supplemental flyer to wilderness permits.

Toilet Structures and Areas

Toilets may be necessary in some locations where there is heavy use and no other reasonable alternative exists. If provided, use them, rather than the dispersed cathole method. Decomposition and solar dehydrator toilets cost the least in the long run, but more studies and research must be conducted for these types of toilets at high elevations.

Generally, toilets are not acceptable facilities within wilderness areas. The "cat method" of human waste disposal is the preferred method of human waste disposal, as described previously.

8
Trails and Signs

Trails have been used by humans for millennia. Native Americans established trails by continual use of routes and game trails. The cavalry was responsible for patrolling trails in the 1500's and early part of the 20th century and, in the 1930's, Civilian Conservation Corps crews constructed many trails that are presently in use. Stockmen used the Mountains in the west for grazing cattle and sheep and constructed many trails along deer trails or routes used by local tribes.

Trails will be constructed and maintained to the standard specifications listed in the Trails Handbook (FSH 2709.12). Differences **in** ecotypes require the use of different trail construction and maintenance techniques. Check whether there is a Regional supplemental to the Trails Handbook.

A portion of the Wilderness Ranger's time is spent on trail maintenance. The trails management system can be confusing. **You should understand fully what is expected of you from your supervisor,** This is best done by a field trip situation.

Local Standards for Trails

Write down Local Forest and Regional Standards that you need to know and what your responsibilities are.

1. _____
2. _____
3. _____

6. _____
7. _____
8. _____

Training

Differences in methods of maintenance occur due to local conditions as well as resources available. Word-of-mouth descriptions on how to perform maintenance are not enough. Your supervisor or trail crew must show you how to do it. A great deal of skill and knowledge are required to perform good maintenance.

Your supervisor will schedule specific trail projects and maintenance. Be sure that safety precautions are an integral part of your training.

Basics of Trail Maintenance

To avoid confusion, you must become familiar with the terminology of trail maintenance, i.e., trail tread, trail bed and trail way.

Loose Rock and Root Removal

Remove loose rocks from the tread that are the size of your fist or greater. These must be cast to the downhill side of the trail below the level of the trail tread, *not stacked on the berm. It is common to* find deep ditches in trail beds with large rock berms on either side, especially with switchbacks. This piling of rocks channels water down the trail bed and does not permit runoffs. If this occurs on a series of switchbacks, it may be necessary to haul the rock a short distance. Watch out for people coming up slope!!!

Generally, remove rocks and roots that project above the surface of the trail tread 2" or more that can be removed by hand or pried out with a tool. If erosion may be accelerated by removal, it is better to leave it.

Slough and Berm Removal

Material that accumulated in the trail bed should be scraped or shoveled to the daylight (fill slope) side of the trail. Dirt berms may be shoveled onto the trail tread to fill the depression in the center. There should be a slight incline or outslope to the daylight side of the trail to permit water runoff. Logs should be placed at right angles to the trail rather than paralleled. Remove parallel logs and rock berms to allow for natural drainage.

Routine Drainage Maintenance

Clear culverts, waterbars, drainage dips, ditches, stream fords and gully crossings of any debris that may divert water onto the trail instead of across it. There are often low spots in the trail where

water collects after rainstorms and during spring runoff. Generally, breaking open several one-foot sections of the berm on the downslope side is sufficient to permit the water to drain.

Waterbars **Maintenance**

Maintaining proper drainage on a trail is the single most important task in preserving it. Waterbars must be cleaned in the spring as the snow recedes, in the fall in preparation for winter, and at other times during the summer as necessary. Clear the drainageway on the upgrade side of the waterbar. Use soil cleared from this area to backfill down grade behind the waterbar and pack in place by stomping. One to two feet of level outslope at the mouth (where the water runs off the trail) is necessary for good water drainage. The end result of maintenance on a waterbar will be a sweeping turn from approximately 6' uphill from the waterbar, out the spillway at the mouth.

Logging Out

Logging out involves removing trees, down brush, logs or a section of log or tree fallen on or across the trail, to permit passage. Falling half-down trees that are hung up or jack-strawed should only be accomplished by experienced sawyers due to additional risks.

Logging out is done with 1 or 2 person cross cut saws, bow saws, and small folding saws. Kerosene poured over the saw helps when your cutting a log with lots of pitch and prevent the saw from binding.

Determine which way you want the section of log to roll, then make the cuts slightly angled away from each other so the log will roll free. Roll the cut section of the log well off the trail and preferably left in as natural appearing position as possible. Use underbrush or soil to screen fresh cut ends where possible. The space left after bucking out a log must extend beyond the trail bed sufficiently to allow for a loaded pack mule to pass through without hitting its load; usually 2' on each side of the trail bed with a minimum total clearance of 8'.

Cross cut saws requires special tools and skills for sharpening. Let someone who is experienced sharpen them.

For more information on cross cut saws and how to sharpen them, refer to the "Cross Cut Saw Manual," from the Missoula Technology Development Center.

Brush Cutting

Brushing involves cutting back and pruning plant growth near the trail. Clearing should normally be 8' wide and 10° high to allow safe passage of stock. It is important to cut limbs of trees or brush at the junction to the next largest limb or at the trunk. "Limbing" correctly is esthetically pleasing, safer, and reduces disease infection from trees. *Do not leave stubs and use methods to protect tearing bark.*

Dispose of this brush out of sight on the downhill side of the trail or use it to block off switchback shortcuts. *Don't leave it in the* trail.

Other Maintenance Activities

Obliterate abandoned trails to a point out of sight of used trail intersections or for at least 100 feet with wood, rocks, dirt, etc. This is called putting a trail "to bed." Transplanting, reseeding, and fertilizing is sometimes necessary to naturalize an abandoned trail if there is no chance for natural revegetation.

Bridge decks that are covered with dirt and debris rot faster. Take a few moments to clean the bridge deck and push dirt out between the planks. Check for structural problems, loose bolts, rot-ten planks, or unusual movement and report these immediately to your supervisor and the engineering department. Keep a log of what maintenance you have performed and projects that need further attention and work performed. Refer to the Appendix.

Signs

Wilderness rangers must remember that signs are not provided for the convenience of the visitor. Wilderness visitors should not need or expect much help in finding their way. Along with materials, provide a minimum number of signs for either the routing or located of the traveler or the protection of the wilderness resource.

Warning signs for safety may be necessary, Signs will be used only at confusing trail junctions, wilderness boundaries, trailheads and, locations where special regulations may be in effect (i.e. lakes where special restrictions apply), and for scientific purposes such as enclosed research plots. Wilderness signs should blend into their

surroundings, but still be visible. Distances within wilderness will not be used so visitors have a more primitive experience and also to eliminate incorrect information. *Place name signs will not be used* to name lakes, creeks, etc. Any sign, when no longer required for its function, should be removed.

Sign Inventory and Specifications

Signs are planned, designed, produced and installed with the assistance of the Engineering Staff, and details found in the engineering sections of the manual (Refer to FSM 7160 and FSH 7109). Signs should be included in the log and prescription survey. Look at signs and note if they need to be replaced, due to weathering or confusion.

Usually a sign at a confusing intersection will have no more than three lines of writing on it. In all situations (except for extremely rare cases), the direction that the sign faces *away from* should be listed on the top line. This will indicate the straight ahead direction first. Second should be the direction to the left and thirdly, the direction to the right. If there are two features that are to be indicated in the same direction, the closest one is listed first.

A single sign can be used at a majority of intersections, and an attempt will be made to reduce the number of signs within the wilderness by consolidating old signs. Careful observation at the site is crucial for precise directional signing. It is not possible to select directional signing from a map. Along with the wording of the sign and directional arrows, a simple map describing the site should be drawn describing the site where the sign will be erected. This should indicate the intersection of the trails and the exact location of the sign, which way it will face, and whether it will be mounted on a post or a tree, (Sign Inventory Form, see the Appendix.)

When possible, wilderness trail signs should be mounted on a tree, but the tree must be large enough (at least 10' in diameter dbh) so that the screws used for mounting will not affect the tree adversely. Trees must be in exactly the right location to be useful for sign mounting so that it will not be damaged by traffic or bumped by pack stock. The outer layer of bark should be removed, but not to the cambium layer, to permit a flush mounting. The bottom of the sign should be approximately 52" from the ground. The tree should also be pruned if necessary.

Post-mounting

If suitable trees are not available, the signs should be mounted on a post made of native materials. Cut post from the most durable species readily available at the site in the following order of priority: larch, Douglas Fir, Ponderosa pine, and lodgepole pine. In areas where these species are not found (i.e. sub-alpine and alpine zones) you will need to choose from what is most readily available.

Choose posts with no visible decay or major defects. Peel posts of all bark and cut to a length of 8' with a diameter of 7-9" at the top of post. Hence, the bottom diameter will be greater. The top of the post should be axe-beveled. Where possible, set the post into the ground to a depth of 2½' with a 2-foot high rock cairn around the base. If solid rock prevents planting the post 2½' deep, plant it as deep as possible with a 3-foot high rock cairn around the base. The objective here is to plant the post so that it will not move or become loose for the life of the post. The post length may need to be cut down so that the sign won't be too tall if it can't be buried in the ground very far. The top of the post should end up 5½ to 6' above ground level.

Dig the post hole to a size sufficient to allow 4" clearance on all sides of the post when placed in the hole. This allows the back-fill to be tamped thoroughly into place. Backfill and tamp a little at a time until the post hole is filled just above level with the post.

Rocks used in building stone cairns should be angular, solid and durable. Rocks should be the largest size available near the site that can be handled safely. Place the cairn rocks so that they slope towards the center and rest firmly against the wood post before installing. Make sure the cairn is permanently stabilized post and sign.

Sign Attachment

It is easier to attach the sign to the post before setting it in the ground. Trail signs should be attached with four ^{I}A x 5-7 inch pole barn nails and washers. Used either method according to your judgement and/or availability.

Signs should be attached 4 inches below the top of the post. On trees, signs should be mounted 5½ to 6 feet above the ground.

Wilderness Boundary Signs

These large signs may be attached to trees or posts. Use an 8-foot post with a diameter of 8-10" at the top. Again, the bottom

diameter will be greater. The sign should be mounted 4" below the top of the post. Use four 3/8 x 6" lag bolts and washers to *attach the* sign. On trees, signs should be mounted so the top of the sign is 5½ to 6 feet above the ground. Use the tree mounting instructions discussed in the previous section.

When locating the sign be sure that there is at least 4' from trail center to the near edge of the sign in order to provide clear passage. Choose the best spot close to the wilderness boundary. The sign does not have to be right at the exact location of the boundary. Also, wilderness boundary signs are designated as either right or left side of the trail signs. Most of ours are right side signs. Know the difference.

In some cases, the wilderness boundary and non motorized-use boundary are the same. In such a case, mount the non-motorized sign on the tree or post 2 inches below the wilderness boundary sign.

Sign **Mounting** Procedures

When erecting signs be sure that the direction indicated by the arrows on the signs are correct? There is no point in putting up a sign with misleading information. Keep a record of what signs are installed.

Remove and destroy old signs, Pack out old signs of historic significance or other value. Re-use old bolts and washers if possible, otherwise, pack out.

And remember, the lay of the land along the trail will influence the way the sign standards are applied. Use good judgement.

Minor sign maintenance is part of the wilderness Rangers job. See that posts are straight. To touch up vandalized signs, include stain as part of your equipment. If signs are badly damaged or stolen, make a note so replacements can be scheduled in future trips. Tighten bolts.

Wilderness entrance signs and their specifications are listed in the Catalog of Posters and Signs FSH 7109,11a.

Recording Signs

A sign inventory can be developed that will show the wording on the sign; the exact location; the status of the sign (such as "needs repair", "OK", "reword", etc. cost of the sign and any pertinent information related to that sign. A sign number will be assigned to each one.

Record information from the present sign and its present condition, and also the text for a replacement sign, if needed. You must include information telling which direction the sign should face, otherwise arrows may point the wrong direction when the sign is made.

Use the symbols, ^, <, >, for a replacement sign, if needed. Indicate straight ahead, left and right to draw a simple map of the present location of the sign and draw the new sign as it should be if the location will be different. Use Sign Inventory Form.

Their should be a District Sign Inventory Log Book available for updating.

9. Other Responsibilities

Fire Management

Fire is an integral part of the wilderness ecosystem and should be managed along with other wilderness resources. Allowing fires to function through its natural processes will maintain wilderness areas as we know them, Land Management [p]lans (LM P) and wilderness implementation plans give direction for planned and unplanned ignition and prescribed fires. Know what are the fire management plans in your wilderness.

Fire prevention should be part of your visitor contacts. Smoking and campfires start more human-caused fires than any other activity. Encourage visitors to use stoves.

If you receive a call from the dispatcher directing you to a fire, obtain all pertinent information on the location of the fire. Leave your radio on, If you feel you cannot handle a situation, call for help. Safety is a priority.

There are some restrictions on fire fighting within wilderness areas. Motorized pumps and chain saws can be used in fire suppression when approved by the Forest Supervisor. Anything that leaves wheel marks or "tracks" requires the Regional Forester's approval.

To fight a fire you must have a 32 hour basic firefighting course. You also must pass a step test. *Do not fight fire without this training or proper clothing,*

Contact your dispatcher with the following information:

I. Township/range, section, 'A section and nearest named landmark (if you are unfamiliar with figuring this info. from a map, have your supervisor show you how)

2. Size of fire.

3. Type of fuel fire burning (heavy brush, grass, light or heavy timber, etc.).

4. Rate of spread.

5. Potential for spread.

Number and type (civilian, volunteer, Forest Service, etc.) of persons assisting in suppression.

Refer to the Fire Report in *the* Appendix.

Cultural Resources

Cultural resources are frequently found within wilderness areas. Archaeological and historical sites are not renewable and cannot be replaced. Look, photograph, enjoy. But do not disturb. Climbing in, on or around ruins will speed up destruction of the site. Touching rock art will leave oils from your skill on the rock, these oils hasten the deterioration of the art work. Do not remove artifacts! Respect the time and energy these ancient inhabitants put into their work. It has survived for hundreds of years. Help preserve it for future generations.

Cultural resources are evaluated and assigned to one of the following management categories: long-term preservation, research, interpretation, data recovery, natural deterioration, and removal. The FS program includes protecting cultural resources from human-caused or natural deterioration until a management decision has been made that the property or site is eligible for the National Register of Historic Places and it has been allocated to a specific management category. Scientific research may be approved. Interpretative pro-grams are developed primarily outside wilderness (except for verbal on-site interpretation by wilderness rangers and other staff).

Old cabins are may be a cultural resource that can be a problem. At times these cabins are old and falling down and are a significant safety hazard. Your supervisor should have the archeologist visit these cabins to determine their significance, then they can be torn down or a schedule can be set for their maintenance.

Training

Wilderness rangers need the skills and knowledge to do the best job possible, and training is one of the best ways to provide these. A wilderness rangers training session should be scheduled at the be-ginning of each season. You should attend other training such as Law Enforcement, Fire School, Horse or Boating Course, First Aid, etc. Go to refresher courses if they are available. Be familiar with new policies, techniques, laws and management concerns. Become familiar with your wilderness staff in your district, the Forest Plan addressing wilderness and the Wilderness Implementation School. Also, watch any videos that might be available. Try and do educational programs in the off season at schools, clubs, universities, etc.

Native American artifacts and sites are also of significance. If you find artifacts do *not* remove. Pinpoint their location and notify the forest archaeologist. You may photograph artifacts in place where they were found. Also, talk to archaeologists to know descriptions of artifacts in the area and what to look for.

An archeological clearance must be obtained when construction of trails or significant ground disturbance will occur.

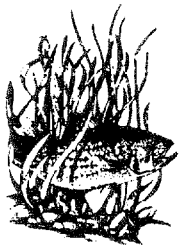
You may not be able to determine if an old garbage dump is worth considering important archaeologically and yet you may want to get all that unsightly trash out of the wilderness. If there is any question that the dump site may be near 50 years old, record the site on a map pin pointing the location, and then cover the site with forest litter and dirt. Make sure you notify the archeologist and have your supervisor arrange to have the site inspected for archeological significance.

Refer to the Archaeological Form in the Appendix.

Additional Optional Handbook Inclusions

- CliRs and Wilderness Orders 36 251
- Maps showing trails and facilities

  Annual wilderness operation and maintenance plan
- Official map and boundary descriptions
- Stock Feed Charts (weight, nutrition, etc.)
- Local Fish and Game Regulations
- Visitor Opinion Survey
- Outfitter /Guide permits
- Other inventory forms and directions not included
- Blank pages



Appendix

Data Collection

A) Statistics

Different types of surveys are used to obtain information on resources. These may include studies to evaluate conditions at individual campsites, trails, forage in meadows, fuel wood abundance, visitor use, raptors, bears, grazing, riparian areas, etc.

You may be required to collect statistics using various methods of collection. A number of examples are included in this publication. These forms have been assembled on the bases of being somewhat generic for use in a variety of ecosystems but also can be modified easily to meet specific needs. You might have other forms, information cards or incident reports that are currently used on your unit. Insert and use them instead. Discuss with your supervisor what is applicable.

B) Recreation Information Management

The Recreation Information Management (RIM) System is an electronic system of banking, or storing, recreation information. RIM data is taken from wilderness permits and other sources to determine recreation visitor days (RVD). This system is used for requesting funds and also for management decisions. Trail encounters, and visitor contacts and occupied campsites are important in this system in regards to visitor use.

Recreation management direction advises managers to maintain certain recreation opportunities over time. In order to ascertain if these objectives are being met, managers, researchers and task forces agree on key items and indicators of changes that can be measured in wilderness. The list of indicators is limited and not intended to provide a comprehensive inventory of all conditions but rather indicate that change is occurring. These indicators are both biophysical and social. Each indicator has a standard associated that dictates when change is unacceptable. When the standard is violated the desired recreation opportunity may no longer be available, at a high quality level. We then need to make changes in regard to our management decisions. It is important that you clearly understand what happens when standards are violated. Wilderness visitors often ask this question. No violation in and of itself will necessarily trigger

restrictive management action. There are several steps to decide what actions are appropriate. Indicators, standards and the monitoring process must be evaluated, problem sources must be identified and alternative actions developed for resolution.

C) Water and Air Quality Testing

Some wilderness management plans require water quality testing within the wilderness. One reason that improvements are not acceptable at springs and water sources is that improvements imply that the water is safe for consumption. Water quality is a good indicator of carrying capacities. Air quality is also another area of concern and is measured in many wildernesses.

Giardia lamblia has become a common pest in most wilderness waters. *TREAT* all your water, using iodine or a water filter, and encourage visitors to do the same. Giardia is a protozoan cyst that survives in water. It requires lab testing to identify. Symptoms are cramps, nausea, weakness and flatulence.

There are several methods of water quality testing. The most common are incubation methods. Most are difficult to perform and are not totally reliable because of the lag time between taking the samples and incubation. Check out sampling methods with your supervisor or forest hydrologist if water quality sampling is required. Water quality is a top priority named by many wilderness planning task forces, which makes its monitoring an important aspect of our duties as rangers.

Air and water quality testing stations are designated by specialists at the regional offices. Your help may be needed in data collection if a station is located in your area. If so, training will be provided. We are beginning to look at and monitor other ecological factors in wilderness not relating to recreation also.

D) Range Condition and Trend Survey

These surveys attempt to assess the effects on meadow of grazing by livestock on allotments, as well as by recreational packstock. Training for survey methods is essential and should include identification of undesirable species; identification of key species to measure utilization; sighting of soil disturbance; field methods; etc. These surveys require close 2-way contact with your range specialists all season. Be sure to follow up with her/him when you find a problem location through your surveying. These forms are intended to be modified, revised, expanded as needed.

E) Riparian Inventory (Streamside Ecosystem)

This is an interdisciplinary survey, involving botany, hydrology, soils, fisheries and wildlife expertise. Several forms are included here. Your regional office watershed specialist, or forest hydrologist, or district riparian specialist can conduct a training session, preferably over at least 2 days. Avoid fisheries - weighted options in favor of truly interdisciplinary surveys.

Riparian area are the most productive ecosystems, and one of the smallest overall proportionately. Most wildlife species are highly dependent on riparian integrity. These ecosystems are extremely fragile as well. Therefore, our mandate to preserve and protect riparian zones is an extremely important aspect of our duties as rangers. The monitoring we do is a basic step in conservation.

F) Trail Log and Prescription Surveys

Trail log and prescription surveys are necessary for maintenance or reconstruction on trails. A log describes features of the trail and the prescription describes the action needed to bring the trail up to standard.

G) Other Recreation Inventories

Other types of inventories are being done relating to recreation, such as visitor use, surveys, climbing site, and spelunking inventories. Sign maintenance and inventories are being documented. Campsite inventories, outfitter camp inspections, trail encounters and restoration forms are being used.

H) Miscellaneous

These forms can help you stay on top of it! Examples are listed below:

- Sensitive plant species
- Noxious weeds
- Archaeological or historic structures
- Photo logs
- Fire reports
- Missing person
- First Aid

I) Wildlife Observations

- Raptors - hawks, eagles, osprey
- Wolf
- Bear
- Endangered Species

J) How to Use Forms

Examples of these types of forms are located here in the appendix. These can be used, or modified to meet your specific needs. Each wilderness is a unique ecosystem, that has specific indicators and standards that need to be measured. You should go to your local specialist in each particular area and consult them for advice on documentation and inventorying. They might have additions or deletions to be made on these forms. It is important that you understand exactly what they need in regards to information and documentation, as well as making sure you use the proper procedures, and recording techniques. Make sure you understand the terminology of the study and needed information being collected. Some of these forms may not be applicable or useful in your specific wilderness or ecosystem. Others may need editing or more detail. You might need a form that is not available. We need to begin to look at what information will be useful in determining how we can protect and manage the resource appropriately. More **emphasis** is being placed on the **ecosystem**, as a whole, not just recreational impacts.

Another important aspect is to not get overwhelmed with data gathering. Prioritize what needs to be accomplished for the year. Wilderness rangers have many important roles and responsibilities. Speak to your supervisor in regards to what needs to be accomplished and in what order.

The last important point is to make sure you record information properly. Make sure your forms and observations are:

1. Readable
2. Brief
3. Descriptive
4. Accurate
5. Factual

Go through each form and practice. Make sure you understand how to fill out the form. You can do this in the office or preferably in the field with your supervisor or resource specialist. Attend training sessions specific to monitoring. Practice sketching as well as how to take accurate, sharp, photos. Do this at the start of the season so you understand completely before you begin work in the field. The last important detail is to turn these forms into your supervisor at the end of each hitch. Make sure these get distributed to the proper staff person so they can record, compile this information

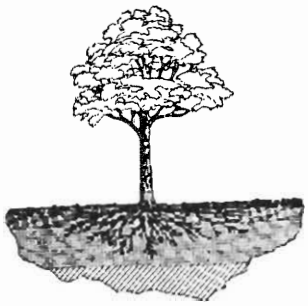
accurately, and put it in a data base. This information can help with important wilderness management decisions.

Make photocopies of the original forms so you can take 1 or 5 into the field and replace with new ones after a hitch. For example you might want 5 campsite inventory forms and only 1 range analysis. Check with the specialists in research and in your district to make sure these stay up to date and accurate. Also, photocopy your trip topo maps if you should make location marks on them. Attach to forms that list specific locations. This is very helpful having these maps marked. Another hint is to turn film in to be developed and label photos as soon as it comes back. Don't let photos pile up until the end of the season. Refer to Lesson Plan on Data Gathering in the Wilderness Ranger Training Module.

In summary, monitoring changing conditions in wilderness is a vital part of wilderness management. Future decisions and actions must be based on accurate information and data. This is provided from wilderness rangers' field work. It is imperative that inventories are of the highest quality, proper methodology, and consistent throughout a wilderness (ecosystem) unit. Become proficient in following monitoring guidelines, and communicating with your supervisor and specialist. Use common sense in evaluations, keep it simple and accurate. Develop your monitoring skills and ask questions if you are not sure. If your supervisor is not available document rationale for your decisions and ask him/her later. Don't be afraid to admit mistakes and make changes. Do your best and your work will shape the future of the wilderness. Make it right. Make it count.

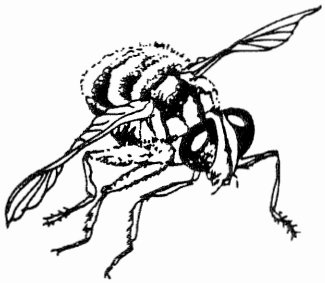
Forms List

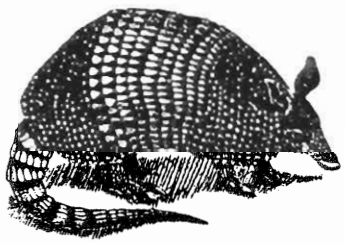
1. Trip Itinerary (Give supervisor a copy before leaving, for backcountry.)
2. Campsite Evaluation Planning Sheet
3. Itineraries/Outfitter Schedule
4. Callout Log (for radio contacts)
5. Visitor Contact
6. Visitor Contact Survey Form
7. Trail Encounters
8. Sign Inventory
9. Trail Log and Prescription Survey
10. Occupied Campsite
11. Trail Conditions Inventory
12. Cultural Resource Site
13. Cabin/Structure Inventory Form
14. Person Caused Fire Report
15. Air and Water Quality
16. Fishery Form
17. Riparian Form
18. Noxious Weed Survey
19. Range Analysis
20. Sensitive and Endangered Species (plant or animal)
21. Bear Observation Report
22. Wolf Observation Report
23. Birds of Prey
24. Lake Data Field Form
25. Outfitter Camp Inspection Form
26. Wilderness Ranger Evaluation
27. Campsite Inventory
28. Campsite Restoration Worksheet
29. Climbing Inventory
30. River Inventory Form
31. Missing Person Report
32. Rescue Report
33. Incident/Statement Form
34. First Aid Report
35. Aircraft Sighting
36. Trip Log
37. Photo Log
38. Ruler



"When you try to change any single thing, you find it hitched to everything else in the universe."

John Muir





Trip Itinerary (Route Description)

1. Name _____
2. Date starting _____ 3. Date ending _____
4. Starting trailhead _____ 5. Day/Time _____
6. Pick-up @ trailhead _____ 7. Day/Time _____
8. Mode of travel _____
9. If using stock, number of:
   - Horses _____
   - Mules _____
   - Llamas _____
10. Stock food (in pounds):
    - Hay _____
    - Grain _____
    - Graze _____
11. Total est. mileage - linear miles and elevation miles:_____
    (1,000 ft. of elev. gain on trail = 1 linear mile)
    On average 2-3 miles on the trail is = to 1 mph. Take into account elevation, terrain, altitude, trail conditions and work needed to be done. Mileage might be less. Also, remember to take lunch and 2 rest breaks.
12. Route description (trail names, landmarks passes)
    _____
    _____
    _____
    _____
13. List campsites if known _____
    _____
    _____
    _____
14. Radio contact sites _____
    _____
15. Hazards _____
    _____
16. Water sources _____
    _____
17. Alternate routes _____
    _____
18. Alternate campsites _____
    _____

Give a copy of this form to your supervisor.

Use the back for additional information and space.

Campsite Inventory Planning Sheet

1. Targeted campsites for evaluation _____

_____

_____

2. Wilderness compartment _____
3. Route plan _____
4.

Campsite number	When last inventoried	Comments

5. List of previously occupied sites (they have not been inventoried) Select ones for inventory._____

_____

_____

1. Use map showing location of compartments.
2. Use enlarged map showing just the compartment.
3. Read previous inventories and sketches. Take in the field if needed.
4. Also take camera and garbage bags.
5. Have proper 3 of inventory forms and sketch forms.
6. Have tags/number for new inventory sites.

Use the back for additional information.

Outfitter Schedule/Itinerary
Reported To Office

Name of Outfitter	Location	Date ent.	Date lv.	# Stock	# Clients	# Employees

Date you're entering:

Date leaving:

Note: The top portion is to be done before going in the field. Check outfitter use permit. Compare with your trip itinerary to see if you'll be in the same location. This form is helpful to see if user day calculations are accurate.

Other Unscheduled Encounters

Outfitter	Date ent.	Date lv.	Location	Comments

Note: List encounters in the field that were unscheduled.

CALLOUT LOG **Page _____ of _____**

Callout person _____

Date _____

Phone number _____

Address _____

Trip Location _____

Trip Date _____

Plan with your supervisor communication times on trip itinerary.

Know and have marked on a map good radio locations.

If this is a new radio location, mark it on your trip map.

Date	Loc.	Radio Channel	Time	Person Contacted	Respond yes/no	Weather/other important info.

CALLOUT LOG **Page _____ of _____**

Callout person _____

Date _____

Phone number _____

Address _____

Trip Location_____

Trip Date_____

Plan with your supervisor communication times on trip itinerary.

Know and have marked on a map good radio locations.

If this is a new radio location, mark it on your trip map.

Date	Loc.	Radio Channel	Time	Person Contacted	Respond yes/no	Weather/other important info.

Visitor Contacts from (dates) ____ to_____

Name_____

Phone_____

Wilderness Area_____

Trails or waterways used (in order of travel route)_____

Date	Party size	Starting & ending point	State of resid.	Outfitter name	Permittee name	Location	Mode of trans.	# of pack animals	Primary Activity	Comments

Return this form to your supervisor. Use this form or the following occupied campsite and trail encounter forms. Use of these forms are dependent on your LAC process.

Visitor Contacts from (dates) ____ to_____

Name_____

Phone_____

Wilderness Area_____

Trails or waterways used (in order of travel route)_____

Date	Party size	Starting & ending point	State of resid.	Outfitter name	Permittee name	Location	Mode of trans.	# of pack animals	Primary Activity	Comments

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WILDERNESS VISITOR CONTACTS

(THIS IS NOT A SURVEY!!!)

Stuff to say when inquiring of visitors whether or not you may ask a few questions:

"Please help us better manage your wilderness areas. We are currently writing wilderness management plans for the Bridger-Teton and we need your input to help us inventory present use and expectations from Forest Customers. Would you answer a few quick questions about your trip?"

Or, better yet, try to get this info through casual conversation, so that the visitor doesn't feel like s/he's being surveyed:

1. From what trailhead did you enter the Wilderness?_____
2. How long are you planning to visit the wilderness?_____
3. Method of travel?_____
4. If travelling with animals, how many pack &/or riding stock do you have?_____
   * Are you packing grain, pellets, or hay?_____
   * Do you allow your stock to graze during the night?_____
5. What trailhead will you exit from?_____
6. Do you practice No-Trace camping?_____
   * In what ways, specifically?_____
7. Did you pay someone to bring you to the wilderness?_____
   * If so, who did you pay?_____
   * Amount paid:_____
8. What pre-trip information did you receive from the Forest?

   _____
9. Why did you choose this wilderness?_____
10. How many groups have you encountered?_____
11. Trail conditions that need attention?_____
12. Name and address?_____

    Phone?_____

    What did you like? What would you like to see changed?

    _____

    _____

    _____

WILDERNESS VISITOR CONTACTS

(THIS IS **NOT** A SURVEY!!!)

Stuff to say when inquiring of visitors whether or not you may ask a few questions:

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   * Are you packing grain, pellets, or hay?_____
   * Do you allow your stock to graze during the night?_____
5. What trailhead will you exit from?_____
6. Do you practice No-Trace camping?_____
   * In what ways, specifically?_____
7. Did you pay someone to bring you to the wilderness?_____
   * If so, who did you pay?_____
   * Amount paid:_____
8. What pre-trip information did you receive from the Forest?

   _____
9. Why did you choose this wilderness?_____
10. How many groups have you encountered?_____
11. Trail conditions that need attention?_____
12. Name and address?_____

    Phone?_____

    What did you like? What would you like to see changed?

    _____

    _____

    _____

TRAIL ENCOUNTERS
INSTRUCTIONS

Indicator: The number of trail encounters with other parties per day.

Standard:

O.C. I	80% probability of no encounters in a day.
O.C. II	80% probability of 1 or fewer encounters per day.
O.C. III	80% probability of 3 or fewer encounters per day.
O.C. IV	80% probability of 5 or fewer encounters per day.

Unit of measure: number of parties

Field Measurement:

1. Count only parties actually traveling on trails. Parties observed in campsites, along rivers, at lakes, etc. should be tallied in the OTHER PTYS OBSERVED section, do not include them in trail encounters.
2. A party is a group of people readily recognized as traveling together. There should be no more than 1/8 mile and/or 15 minutes between the first and last members of the party. The key is readily recognized as traveling together. If in doubt, tally as separate encounters. Pack strings traveling separate from the main party should be counted as a separate party.
3. Count all parties met or passed on the trail (including FS crews).
4. Stationary crews (i.e. reconstruction crews) should count all parties passing their location.
5. Visitors to FS administrative sites are not counted under this standard.
6. Each time a party is met on a given day should be tallied as a separate encounter.
7. **Tally trail encounters each day you are on the trail. It is essential that days with no encounters are documented, otherwise, probabilities can not be calculated.**
8. Use the visitor contact form or equivalent to record contacts.
9. **If more than one trail segment, opportunity class or geographic area is traversed in a day, tally encounters on separate trail encounter forms.**
10. Secondary sources may be used to gather encounter data. This information should be clearly identified as coming from a secondary source (visitor, outfitter, etc.) Every effort should be made to insure that information meets the criteria listed above. If you have doubts about the quality of the information, discard it.
11. To meet trail encounter frequency guidelines, where required, trail monitoring of individual trails will be conducted on alternate weeks.

OCCUPIED CAMPSITES
INSTRUCTIONS

Indicator: The number of other parties camped within sight or continuous sound.

Standard:

O.C. I	80% probability of no other camps within sight or continuous sound.
O.C. II	80% probability of no other camps within sight or continuous sound.
O.C. III	80% probability of no more than one other camp within sight or continuous sound.
O.C. IV	80% probability of no more than three other camps within sight or continuous sound.

Unit of measure: number of camps.

Field Measurement:

1. **This indicator is measured only in an area where at least one campsite is occupied.**
2. Occupied campsites are best measured late in the day or early in the morning when the majority of visitors are in camp.
3. Select one occupied camp from which you can see the most other occupied sites in the area. From its center count the number of other occupied campsites within sight or continuous sound.
4. Continuous sound means that sounds (conversation, routine camp activities) can be regularly heard from one campsite to the next.
5. Record the number of campsites within sight or continuous sound in each area sampled using the visitor contact form or equivalent.
6. In areas where campsites are clustered, each occupied campsite will be counted separately.
7. **It is essential that occupied campsites with no other camps within sight or sound be tallied so that probabilities can be calculated. Do not utilize trail encounter data for campsite probabilities unless campsite monitoring has also been emphasized.**
8. Complete the Occupied Campsite information for each day the campsite is observed. If you are working in the same area for several days, you will complete the monitoring information for every day the camp (or additional camps) is still there.
9. Secondary sources may be used to gather campsite encounter data. This information should be clearly labeled as coming from a secondary source (visitor, outfitter, etc.). Every effort should be made to insure hat information meets the criteria shown above.

MONITORING TRAIL ENCOUNTERS AND OCCUPIED CAMPSITES

1. Refer to specific instructions on how to monitor TRAIL ENCOUNTERS and OCCUPIED CAMPSITES.
2. As a minimum, fill out one sheet for each day in the wilderness.
3. If you travel in more than one GEOGRAPHIC UNIT or OPPORTUNITY CLASS or more than ONE TRAIL in a single day, fill out a separate sheet for each one.
4. As a minimum, fill out any portions marked with an asterisk; (heading and PTY SIZE)
5. GEOGRAPHIC UNIT-Enter the Geographic Unit.
6. O.C. Enter the Opportunity Class number from the BMWC Recreation Management Direction Map.
7. DATE - enter month/day/year.
8. TR. # - Enter the number of the trail on which you are traveling.
9. TRAIL ENCOUNTERS - Fill out one line for each party encountered *on trails.* Use codes shown in the back of this field book. a) If no parties are encountered on trails enter "0" under PTY SIZE.
10. OCCUPIED CAMPSITES

    a) LOCATION - Enter the common name of the area where the camp was observed. b) OTHER OCC. SITES - *Enter the number of occupied campsites* within site or continuous sound of the site in which you are standing. c) DAYS THIS SITE - Enter the number of days this party will use this site. d) If no occupied campsites are encountered enter "0" in the first line under PTY SIZE. e) Do not combine trail encounter monitoring frequency with occupied campsites. *Only record* days when campsite monitoring is emphasized and *other* occupied campsites have been identified.
11. OTHER PTYS OBSERVED - Enter the type and number of parties you observed that *were not traveling on trails or were not located in campsites* recorded under OCCUPIED CAMPSITES. Use PARTY TYPE codes in the back of this field book. Use the first block (preprinted A/1) to record low flying aircraft. In de-

ciding whether an aircraft is low flying consider factors such as: can color and type be readily observed, is it below surrounding terrain features, how obtrusive is the noise? Other delineation of aircraft observations are listed with the codes in the back of thsi field book.

Codes

Type PTY

F - Float party on river

S - Float party on shore

H - Horse party not in camp

B - Hiking party not in camp

H/B - Hiking party with pack stock not in camp

C - Any party in their campsite or an occupied camp where no one is present

A/1 - Low flying aircraft: jets, prop driven, or helicopters. Type and color are discernible, noise is obtrusive, and/or flying below surrounding terrain features.

A/2 - High elevation flights: jets, prop driven, or helicopters.

A/3 - Jet plumes, sonic booms, or other (identify in notes).

BOB MARSHAL MONITORING FORM

* GEO. UNIT: / /	* OC:	* DATE:	PG OF
* TR. #:	* TR. NAME:	* NAME:	

TRAIL ENCOUNTERS					
TYPE PTY	* PTY SIZE	# STOCK S	# STOCK P	LGHT OF TRIP	NOTES: (FEED, START AND FINISH POINTS, INFO FROM SECONDRY SOURCE, FS CRESS, NAME OF OUTFITTER, ETC.)

OCCUPIED CAMPSITES				OTHER PTYS OBSERVED	
CAMPSITE LOCATION	OTHER OCC. SITES	DAYS THIS SITE	TYPE PTY	TYPE	NUMBER

Use back of sheet for additonal comments.

SIGN INVENTORY

Name_____

Address_____

Phone number_____

Photo attached? yes _____ no _____

Kind of sign (e.g. routed wood, painted plywood, etc.) _____

_____

_____

Description of sign (size, color of background and lettering, reflectorized, type of support, etc.) _____

_____

_____

Legal site location: Township_____ Range_____

Sec._____ ¼ S_____

U.S.G.S. quad name_____

Trail or trailhead common name_____

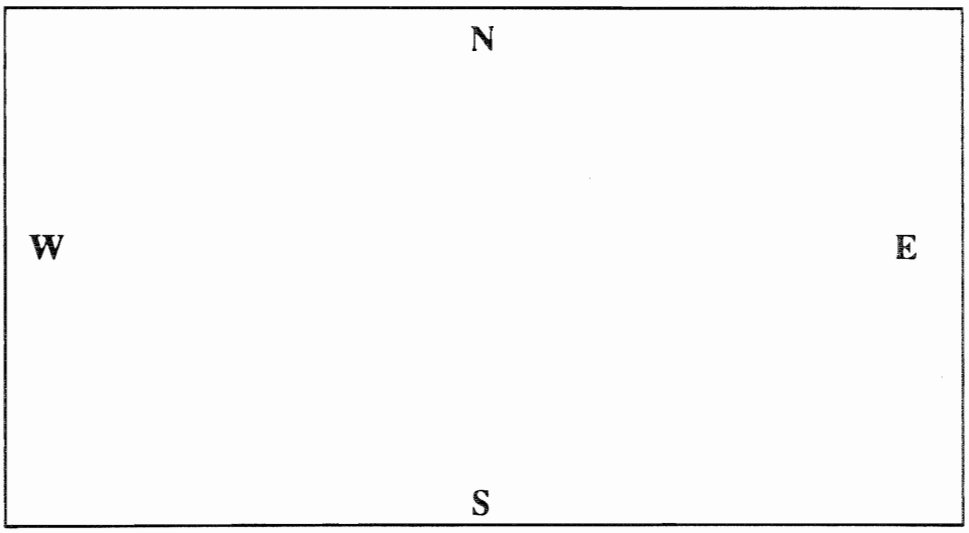
Trail number if known_____

Type of damage_____

Wording on front. (Sketch exactly as shown on sign.) (Which direction does sign face towards?)	Wording on back. (Sketch exactly.)

If present sign is confusing or inaccurate, sketch suggested changes.

Sketch of location:



Mark exact location of sign on your trip map.

Additional comment or recommendations.

Trail Log and Prescription Surveys

Trail log and prescriptions are necessary especially if maintenance or reconstruction contracting is to be performed on trails. The log describes features of the trail such as water bars, rock walls, blazes, etc. The prescription describes the actions that must be performed on the trail to bring it up to standard. (Refer to FSH 7709.12, Chapter 5, 340—3).

Proper training in how to do these is essential. The recorder must be familiar with construction requirements as well as maintenance requirements. Logs and prescriptions can be performed at the same time, but once the log is completed, it rarely needs to be changed except when adding new items such as water bars or eliminating an old trail section. The prescription is performed regularly depending on the maintenance level of the trail. The higher the maintenance level, the more often the prescription is done.

Standard abbreviations that can be used in performing a log or prescription are as follows:

1. **Meadows** WM = wet meadow DM = dry meadow
2. **Streams** WS = wet stream DS = dry stream
3. **Side Slope** = SS%
4. **Tread Grade** = TG %
5. **Switchback** = SB
6. **Waterbar** = WB
7. **Step** = S
8. **Clearing Inadequate** = CI
9. **Tread Materials**
   Tread material is humus or dirt T = A
   Tread is loose rock T = B
   Tread is solid rock T = C
10. **Rock Wall** = RW
11. **Hazard Tree** = HT
12. **Log Removal** = Lr
13. **Drainage** = Drng. (usually seasonal)
14. **Small, Medium, Large** = Sm., Med., Lg.

A form is included in the Trails Handbook that can be used to perform logs and prescriptions. A different form is used for doing a log for a trail with a cyclometer. Record the number of feet measured by the cyclometer. Record of feet measured by the cyclometer

on the left, net to it the log, and also the prescription. Another form is provided focusing on trail conditions. Discuss with your supervisor which form to use.

The beginning and end of the trail must be described clearly. Often there are no signs indicating where the trail is. New employees transferring to the area may not be able to find the trail without your accurate description.

TRAIL CONDITIONS INVENTORY

1. Name_____
2. Inventory Date_____
3. Phone number_____
4. Address_____

   _____
5. Trail name_____
6. Trail head_____
7. Destination or end point_____
8. Estimated distance_____
9. Estimated walking time_____
10. If appropriate, handicapped accessibility_____
11. Trail head accessibility

    a. easy b. moderate c. difficult
12. Degree of Difficulty to Locate Trail Head

    a. easy b. moderate c. difficult
13. General Conditions

    a. dry_____ ___
    b. damp_____
    c. wet_____
    d. flooded_____
    e. muddy_____
    f. natural letter_____
    g. grass_____
    h. bare soil_____
    i. rocky_____
    j. eroded/subsoil_____
    k. other_____
14. Trail Difficulty

    a. easy b. moderate c. difficult
15. Degree of difficulty to follow established trail

    a. easy b. moderate c. difficult
16. Vegetative Condition along trail:

    a. heavy underbrush_____
    b. open understory_____
    c. closed canopy_____
    d. open canopy_____
    e. mature forest_____
    f. area of windthrows_____
    g. other_____

17. See graph on next page.
18. General comments on work needed _____

    _____

    _____

19. Improvements made (check appropriate action)

    _____ signs repaired/installed
    _____ waterbars
    _____ cut out brush or logs
    _____ filled switchbacks
    _____ removed fallen trees
    _____ blocked off secondary trails
    _____ built cairns
    _____ posted trail markers/blaze

20. Sketch on trail topo map and key where improvements are made. Also, mark where more work is needed..
21. Campsite Opportunities

    a. Many_____ c. Few_____

    b. Some_____ d. None_____

22. General comments on trail conditions or features or suggestions that need improvements._____

    _____

    _____

    _____

If more detail is needed you can do a Trail Log and Prescriptive Survey. Refer to FSH 7709.12, Ch. 5, 340-3.

TRAIL PRESCRIPTION

Trail Prob.	Location: Townsh, Range, Sec. ¼ sec	* Habitat type	** Vegetation type	*** Work needing to be Done	Are materials avail. for repair	Est. time & people
1.						
2.						
3.						
4.						
5.						

See key on other side.

* **Habitat Type** (select appropriate number)

1. Meadow
2. Bog
3. Swamp
4. Lake edge
5. River or stream edge
6. Pioneer species forest
7. Mid-successional forest
8. Mature forest
9. Desert
10. Artic
11. Other _____

** **Vegetation Type** (list number & species abbrev.)

1. Hardwoods (list dominant species)
2. Conifers (list dominant species)
3. Understory/Ground cover (list species)

Make key to species abbrev.

*** **Work Needed**

1. Rockwork
2. Blasting
3. Removal of dead horse
4. Building corduroy
5. Bridge repair/construction
6. Turnpike
7. Needs switchbacks
8. Needs water bars
9. Reroute trail
10. Waterbars
11. Ditching
12. Other

WILDERNESS CULTURAL RESOURCE SITE FORM

1. Name_____
2. Date_____
3. Phone number_____
4. Address_____

   _____
5. Type of site:
   a. pictograph_____
   b. cabin (circle one: trapper, F.S. look out, other_____)
   c. mining site_____
   d. archeological artifacts_____
      * (circle one: tools, chips, bones, shards, other_____)
      ** Is there any evidence of previous excavation?_____
6. Location:

   Township_____ Range_____

   Section_____ ¼ Section_____
7. Description of site:_____

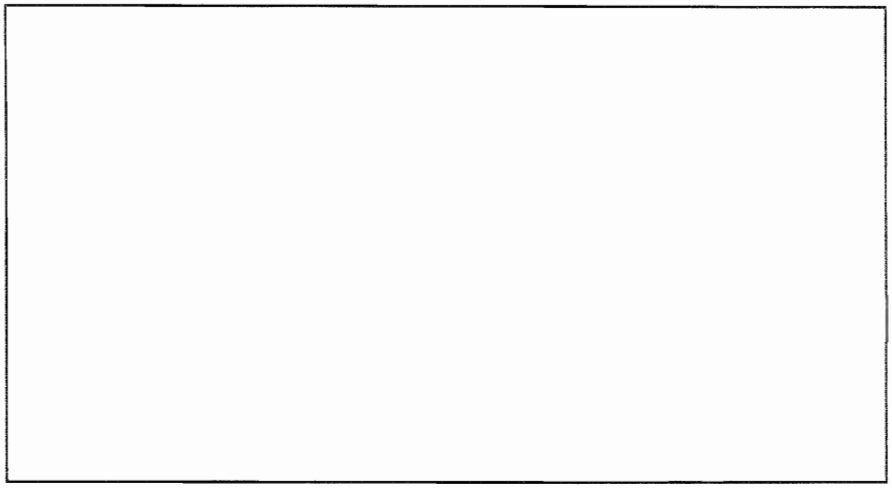
   _____

   _____
8. Recommendation:_____ 9. Reasons:_____
   a. keep locked_____ or _____
   b. interpretive signs_____ or _____
   c. keep locked_____ or _____
   d. other_____
10. Impacts—indicate whether impacts are:

    a) present or b) potential

    hunting use_____
    erosion_____
    camp site_____
    vandalism_____
    other_____

11. Sketch map of site 12. Mark location on topo map



13. Photo descriptions (attach numbered photos if available and identify below) Roll #_____.

    Photo #_____

    Photo #_____

    Photo #_____

    Photo #_____

    Photo #_____

14. Comments

    _____

    _____

    _____

    _____

Return this form to your staff archeologist. If you modify this form, please notify us of changes.

CABIN/STRUCTURE INVENTORY FORM

1. Name_____
2. Date_____
3. Phone_____
4. Address_____
5. Cabin name_____
6. Case file (if applicable)_____
7. Description of location:

   Township_____Range_____

   Section _____ ¼ Section_____
8. Land state (forest Service or private in holding)

   _____
9. Access methods _____
10. Garbage (check one)
    a. present____
    b. not present____
11. Hazardous materials or conditions (describe):

    _____

    _____

    _____
12. Distance of cabin to nearest vegetation/nearest water?_____

    _____
13. Type of vegetation: _____
    a. coniferous
    b. deciduous
    c. mixed
    d. alpine
    e. grasses
    f. shrubs
    g. other ____
14. Canopy closure
    a.) 60-100%
    b.) 25-59%
    c.) less than 25%

15. Reason for structure _____

    a. hunt
    b. fish
    c. trap
    d. mine
    e. guide
    f. unknown
    g. other ____

16. Indicate structure status _____

    a.) National Register of Historic Places or
    b.) nominated for N.R.H.P. or
    c.) historic or
    d.) nonhistoric or
    e.) F.S. use
    f.) other ____

17. Are artifacts present (50 years older or more)?

    a. yes____
    b. no____
    c. unknown____

18. Is structure in use?_____

19. If so, for what purpose?_____

    _____

20. What maintenance did you do?_____

    _____

21. What maintenance needs to be done?_____

    _____

22. What is the management direction in regards to this structure?_____

23. Condition of structure (note any damage or decay)

    Roof_____

    Walls_____

    Floor_____

    Foundation_____

    Chinking_____

    Windows_____

    Doors_____

    Stove_____

    Other_____

24. Additional notes re: repair or cabin status:_____

_____

_____

Note exact location of building on your trip map. Sketch cabin on back of form or take photos.

25. If you take photos, number them and identify below:

1)_____

2)_____

3)_____

4)_____

5)_____

Return this form to your supervisor or archeologist. If you modify this form, please notify us of changes.

Additional notes:

PERSON-CAUSED FIRE REPORT

Personal safety is your first priority. Make radio report to your district.

Know your fire management policy for your wilderness area. Be aware of existing fires and prescribed natural fire.

1. Date_____
2. Name_____
3. Phone_____
4. Address_____
5. Forest_____ 6. District_____
7. Point of fire origin:

   Township_____ Range_____

   Section_____ ¼ Section_____
8. Date of origin_____ 9. time of origin_____ am pm
10. Fire cause (choose one):

    _____equipment use (specific cause:_____)

    _____smoking

    _____campfire

    _____debris burning (specific cause:_____)

    _____railroad, urban innerface (specific cause:_____)

    _____arson

    _____children

    _____outfitter camp (specific cause:_____)

    _____miscellaneous (specific cause:_____)

    _____natural/lightning caused
11. **Look for and preserve evidence of all suspected person-caused fires.**

    Summary evidence found_____

    _____

    _____

If photos taken, attach them and fill in photo log at the end of form.

12. If caused by contractor or outfitter, list name, address, other identification_____

_____

13. Equipment used for suppression_____

_____

Do not fight fire unless you have had Standards of Survival and Fire School. You also need proper tools and clothing.

INCIDENT REPORT

1. Violation description_____
2. Name_____
3. Address_____
4. City_____ State_____ Zip code_____
5. Phone_____
6. Vehicle ID_____ License number_____
7. Witness name_____
8. Witness address_____
9. Witness phone_____

_____

Signature Date/hour

Note exact fire location on your trip map.

Photo log

1. _____
2. _____
3. _____

If needed sketch fire on additional paper.

Name_____

Date_____

Phone No._____

AIR AND WATER QUALITY DATA COLLECTION

Site Name Target I.D.	Date	Map Townsh, Range sec., ¼ sec. Elevation	Station type & Data: Samples taken

VISIBILITY MONITORING

Photographic Site and Target Specifications

Site Name_____ Site Abbre_____

Station type_____ Installation Date_____

Observations/day 3xs day time___ ___ ___ Site specs by:

Installation by_____

Elevation:

Longitude:

Latitude:

Map reference:

Network:

Target Identification

No	Name	Code	Dist.	Elev.	Bearing	Elev<	Slight	Path	Rayleigh Coef.

Target Code

No

Note: rangers often have to pick up film form automatic cameras or take photos from other photo points.

Location_____

AUTOMATIC CAMERA
VISIBILITY MONITORING STATUS ASSESSMENT SHEET

Today's Date_____ Time_____ Operator_____
Temperature____ ____ ____ % Cloud Cover_____
(°F) Now Max Min

Describe General
Weather Conditions:_____

_____

YES	NO	
☐	☐	Monitoring target visible
☐	☐	Camera found in proper condition
☐	☐	Timer found in proper condition
☐	☐	Film advanced as expected
☐	☐	Film changed and film canister properly labeled
☐	☐	Lens and window clean
☐	☐	Documentation Photograph Taken

SETTINGS VERIFIED: Circle standard setting or write in setting if not listed.

Switch/Display/Dial	**Contax 167MT Setting**
Main Switch	
Vistas with centered visibility targets	O
All other scenic vistas	
Program Mode Selection	AV
ISO/ASA	64
Aperture	f8.0
Drive Mode Selector	S
Exposure Compensation	(zero) 0
Automatic Compensating Value Lever	0 & 0

YES	NO	
☐	☐	Camera/Timer cable attached
☐	☐	Data back display "DATE/TIME" correct
☐	☐	Camera alignment correct

COMMENTS/ACTION TAKEN_____

_____

_____

Supplies Needed:_____

Enclose the original of this Status Assessment sheet with the 35 mm film and send to:

Air Resource Specialists, Inc.

1901 Sharp Point Drive

Suite E

Fort Collins, Colorado 80525 303-484-7941

FISHERY FORM

USDA -Forest Service

LEVEL II-FIELD RECONNAISSANCE LEVEL-PART A._____

LEVEL III STREAM HABITAT
INVENTORY-MINOR STATIONS_____

1. State_____ 2. Forest_____ 3. District_____
4. Catalog No._ _ _ _ _ _ _, _ _ _, _ _ _, _ _ _, _ _ _, _ _ _, _ _ _
5. Stream Name_____
6. USGS Map_____
7. Location: Longitude _ _ _Degrees, _ _Minutes 8. Reach No _ _ _
   Latitude _ _ _Degrees, _ _Minutes
9. Stream Origin_ _ 10. Flow Stage_ 11. Flow Measurement _ _._cms
12. Method_ 14. Density Aquatic Vegetation: Rooted_ Clinging_
13. Beaver_ 15. Stream Type_ _
16. Valley Bottom Width _ _ _ _ meters
17. Riparian Area Width _ _ _ meters
18. Sample Interval _ _ _ meters
19. Photo Roll Number_ _ _ _-_ _ 20. Sheet _ of _

40. Photo Number _ _ _ _ _ _ _ _ _ _ _ _
39. Habitat Imp. Pot. _ _ _ _ _ _ _ _ _ _ _ _
38. Indic. Pot. Sed. Prod. _ _ _ _ _ _ _ _ _ _ _ _
37. Indic. Pot. Sed. Prod. _ _ _ _ _ _ _ _ _ _ _ _
36. Bank Stability Rating _ _ _ _ _ _ _ _ _ _ _ _
35. Bank Stability Rating _ _ _ _ _ _ _ _ _ _ _ _
34. Lower Bank Type _ _ _ _ _ _ _ _ _ _ _ _
33. Lower Bank Type _ _ _ _ _ _ _ _ _ _ _ _
32. Side Slope (%) _ _ _ _ _ _ _ _ _ _ _ _
31. Side Slope (%) _ _ _ _ _ _ _ _ _ _ _ _
30. % Pool Area of 1,2,3 Pools _ _ _ _ _ _ _ _ _ _ _ _
29. % Stream with Pools _ _ _ _ _ _ _ _ _ _ _ _
28. % Sand/Silt _ _ _ _ _ _ _ _ _ _ _ _
27. % 3-12" Rubble _ _ _ _ _ _ _ _ _ _ _ _

26. % 1/8-3" Gravel _ _ _ _ _ _ _ _ _ _

25. Water Width (m.) _ _ _ _ _ _ _ _ _ _

24. Channel Width (m.) _ _ _ _ _ _ _ _ _ _

23. Gradient (%) _ _ _ _ _ _ _ _ _ _

22. Compass Bearing - Optional _ _ _ _ _ _ _ _ _ _

21. Sample Station No. _ _ _ _ _ _ _ _ _ _

41. Comments:_____

_____

42. Investigator(s)_____ 43. Date _ _ / _ _ / _ _

Additional information or sketch of area:

From: Integrated Riparian Evaluation Guide

Intermountain Region March 1992

RIPARIAN COMPLEX DATA SHEET (Level II)

Key ID: R___ FO___ D___ YR___ subarea_____ complex_____

COMPLEX NAME_____

Waterbody name_____

District_____ Date_____ Quad name or #_____

Geologic parent material_____ Aspect_____

Valley bottom type_____ Stream type (Rosgen) 1985_____ 1991_____

Stream gradient_____%

Elevation: Downstream elevation _____ft. Upstream elevation _____ft.

Med elevation _____ft.

Size of complex: Length _____Ft. Width _____ft. Area _____acres

Soil Family	**% Comp**	**Compactions**
_____	_____	SI/Md/Sv
_____	_____	SI/Md/Sv
_____	_____	SI/Md/Sv

ADJACENT (non-riparian area) UPLAND VEGETATION; LOOKING DOWNSTREAM

Left_____ Right_____

VEGETATIVE DESCRIPTION; DOMINANCE BY COMMUNITY TYPES

c.t. name	% of complex	estimated potential c.t. name

Successional status: PNC_____ Late_____ Mid_____ Early_____

Very Early_____

Apparent forage trend_____

Consult riparian specialist for *exact* directions and methods needed for filling out form.

BEAVER # caches in active ponds_____ # active dams_____

inactive dams_____

GREEN LINE (Hydric)_____**% PHOTO ID:**_____

LAND USE ACTIVITIES AND ESTIMATED INFLUENCE ON RIPARIAN AREA

LIVESTOCK MINING TIMBER ROADING RECREATION ORV OTHER

S&G C&H

___ ___ _____ _____ _____ _____ ____ _____

SPECIES LIST

Trees

_____
_____
_____
_____
_____
_____
_____

Shrubs

_____
_____
_____
_____
_____
_____
_____
_____
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_____

Graminoids

_____
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_____

Forbs

_____
_____
_____
_____
_____
_____
_____

RIPARIAN AQUATIC DATA SHEET (Level II)

Method:

Single Ocular_____ Representative Segment_____ Multiple Sample_____

POOL ATTRIBUTES	1	2	3	4	5
% Area in pools					
% Pool Area made up of pools>2"deep					
AQUATIC VEGETATION					
% Streambed with filamentous algae					
% Stream margin with rooted aquatic					
BANK TYPE AND VEGETATION OVERHANG: Ocular_____ Paced_____					
% Bank length vegetated, stable					
% Bank length unvegetated, stable					
% Banked length vegetated, unstable					
Average % Vegetated, Stable_____ Estimated Potential % Vegetated, Stable_____					
CHANNEL MORPHOLOGY (XXX.X feet or meters - circle unit of measure)					
Bankful: width					
: max depth					
: shore depth (L/R)					
: bankfull channel shape					
Water : width					
: max depth					
: shore depth (L/R)					
Water : wetted channel shape					

	1	2	3	4	5
SUBSTRATE COMPOSITION					
% Sand/Silt (<.1")					
% Coarse fines (>,1-.25")					
% Gravel (.25-3.0")					
% Rubble (>3.0-6.0")					
% Cobble (>6.0-12.0")					
% Boulder (>12.0-36.0")					
% Lg. bldr./Bedrock (>36.0")					
% EMBEDDEDNESS (Ocular estimate)					
Spawning habitat (glide, pool tailout)					
Food production areas (riffle)					
Rearing/ overwintering (pool)					
PEBBLE COUNT WORK TABLE # particles by size class					
Sand/Silt (<.1")					
Coarse fines (>.1-.25")					
Gravel (>.25-3.0")					
Rubble (>3.0-6.0")					
Cobble (>6.0-12.0")					
Boulder (>12.0-36.0")					
Lg. bldr/ Bedrock (>36.0")					

NOXIOUS WEEDS SURVEY

Consult your Range Technician for weeds that are known in your area. Know what to look out for. Typical weedy areas are dry, disturbed ground, such as along trails or in overgrazed areas. Weed infestations commonly occur on shallow, rocky soils; south-facing slopes; and at lower elevations.

1. Name_____
2. Date_____
3. Phone number_____
4. Address_____

   _____
5. Weed description: see table on following page.
6. Any additional description?_____

   _____

   _____

   _____
7. Describe any actions taken._____

   _____

   _____

8. If a sketch would be helpful, please provide below or on additional sheet (or log photos and attach them to this report).

Return this form to your range technician.

If you modify this form please notify us of your changes.

Date	Weed Species	* Townsh, Range Sect. , ¼ sect.	Elev.	If campsite, Ident. No.	** Type of Area	Aspect	Est. size of Ingest.	Density (low, med., high)

* Mark exact location of weed infestation on trip map, photocopy and attachments.

** Type of area (choose appropriate numbers)

1) dry 2) slope 3) rocky shallow soil 4) disturbed soil 5) trail side 6) other_____

RANGE ENVIRONMENTAL ANALYSIS HANDBOOK
APPARENT TREND

VEGETATION

Location_____ Date_____
Name_____

Up or Stable

1. Desirable frequency groupings, size of area_____x_____ and age classes of desirables, intermediates and least desirables._____
2. Forage plants not being pulled up or trampled out by grazing._____
3. Vigor of key species high as indicated by leaf length, seed stock production and normal color._____
4. Browse species showing no hedging._____

Down

1. A disproportionate amount of intermediates and least desirables. Seedlings of better plants having difficulty in becoming established._____
2. Forage species being pulled up and trampled out by grazing._____
3. Low vigor of key species as indicated by reduced size of plant, leaf length of seed stalks, and off color (sickly yellow).
4. Browse species showing moderate to heavy hedging._____

SOIL

Up or Stable

1. Ground Cover Dispersion—uniform._____
2. No detectable soil movement._____
3. Soil surface continuous and intact._____
4. No exposure of plant roots._____
5. Stones and rock fragments, where present, normal and in place—no movement of rock fragments._____
6. Lichen lines on stones and rock fragments extend to soil level._____
7. No active gullies._____
8. No recent soil deposits either alluvial or aeolian._____
9. No wind-scoured depressions._____

Down

1. Ground cover dispersion—variable to highly variable._____
2. Soil movement detectable._____
3. Cupping out between soil remnants._____
4. Plant roots exposed._____
5. Stones and rock fragments, where present, concentrating on surface as erosion pavement. Fragments loose and often moving downslope._____
6. Lichen lines on stones considerably above soil surface—no lichens on rock fragments._____
7. Active gullies—indicated by recent cutting and sloughing._____
8. Recent soil deposits—alluvial or aeolian._____
9. Wind-scoured depressions._____

Consult Range Technician for exact directions on monitoring.

VEGETATION

List and sketch below

Desirable

Intermediates

Least desirable

Forage plants

Browse species

Soil types

Erosion types

Sensitive and Endangered Species (plant and animal)

Name_____
Date_____
Phone_____
Address_____

Date	Townsh, range sect., ¼ sect,	Species	Habitat Descript.	Comment
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

Note exact locations on your trip map.

List Sensitive and Endangered Species below in your area:

Mammals

Reptile

Bird

Plants

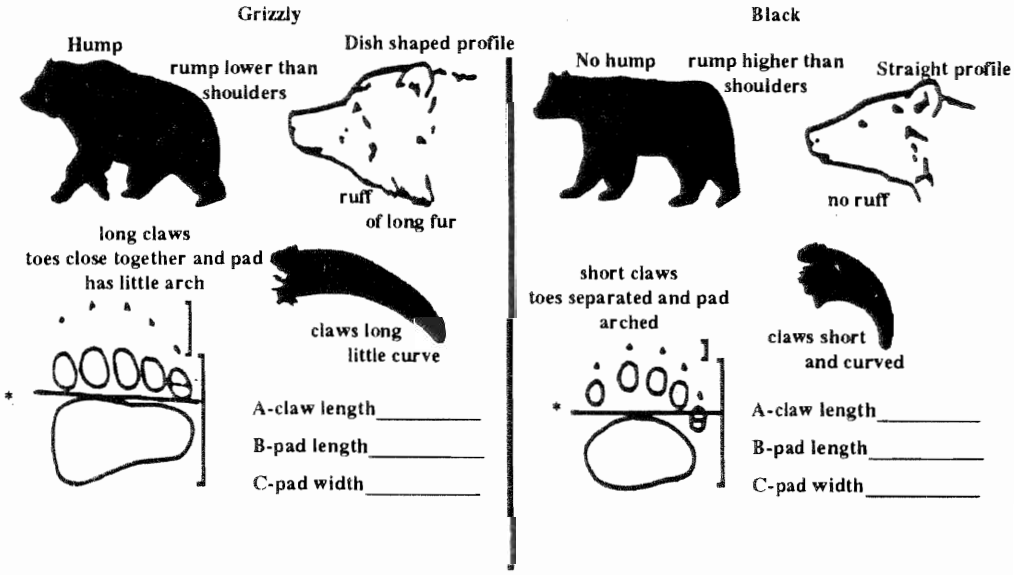
BEAR REPORT

1. Name_____
2. Address_____
3. Phone no._____ 4. Date_____
5. Name of bear observer_____
6. Observer's phone no._____
7. Observer's address_____
8. Date bear sighted_____ 9. Time sighted_____am/pm
10. Location_____ 11. Elev._____
    (Range, township, sect., ¼ sect.)
12. Location (check one)

    within develop._____ along road_____

    near develop._____ in the wild_____
13. Aspect_____
14. Habitat (dominant plant species)_____
15. Sign_____
    (track, scat, dig, den, other)
16. Species_____
17. Distance from observer to bear_____

18. **Characteristics of Black and Grizzly Bears**



* A line drawn under big toe across the top of the pad runs through the top ½ of the little toe on black bear tracks and through or below the bottom ½ of the little toe on grizzly tracks.

19.

Total number of bears_____

B. Check below for size and color of each bear:

Predominant coat color	Weight in pounds			
	10-50	51-100	101-200	201-400	Over 400
1-Other					
2-Blonde (white/yellow)					
3-Gray/Silver					
4-Light brown					
5-Reddish brown					
6-Medium brown					
7-Dark brown (choc.)					
8-Black					

(*Cubs-of-year* are usually less than ¼ of female size, or 10-50 lbs; *Yearlings*, ¼-½ of female size, or 51-100 lbs; *2 year olds*, ½-¾ of female size, or 101-200 lbs; *Sub-Adults* and *Small Adults* are 101-200 lbs; *Medium Adults* are 201-400 lbs; and *Large Adults* are 400 plus lbs.)

20. Bear activities_____

a. Preying on_____
b. Scavenging
c. Walking
d. Pigging
e. Grazing
f. Running
g. Other_____

21. Any identifying markers or tags_____

INCIDENT REPORT:

Reported by:_____ Phone #_____

Detailed description of area/incident site:_____

_____

_____

_____

Type of incident: (circle one)

Injury Property Damage Confrontation Encounter
Dead Bear Injured Bear Other_____

Description of incident:_____

_____

_____

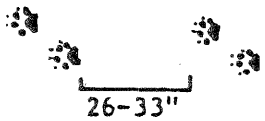
Note exact locations on your trip map.

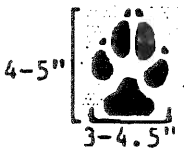
WOLF OBSERVATION REPORT

1. Name_____
2. Phone no._____
3. Address _____
4. Date of sighting _____
5. Time of sighting _____
6. State _____ 7. County_____
8. Townsh_____ Range_____ Sec_____ ¼ Sec_____
9. Drainage_____ 10. Elev._____

Wolf Natural History

Gen. Appear.: Massive **Snout**: Large & blocky
Ears: Short & rounded **Color:** White-Black, Gray
Tail Carriage: down or straight out - never curled
Height: 26-32" at shoulder **Weight:** 60-110 lbs.
Length: 5-6' nose to tail tip **Breeding Period:** Feb.
Gestation: 63 days **Litter:** 5-7 **Territory:** 70-800 sq. mi
Pack size: 6-12 **Prey:** Ungulates, some small mammals
Scat: Dia. is >1.2"
Howling: Heard 1-2 mi., (terrain dependent) low long tones. No yipping (except pups).





11. **Type of observation:** (circle)
Live Dead Howling Track Den Scat Kill Scentpost

12. **Your mode of travel:** (circle)
Foot Horse Vehicle Plane Bicycle Motorcycle Other_

13. **Optics:** (circle)

    Rifle Scope Spotting Scope Binoculars None

    Other_____

14. **Duration of Observation:**_____

15. **# Wolf** (ves) _____ 16. **Dist. from Wolf** _____

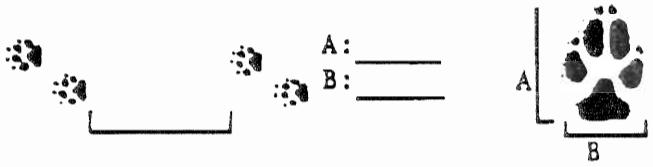
17. **Color** _____ 18. **Est. Wt.**_____**Est. Ht.**_____

19. **Tail Position** (circle)

    Curled Straight out Down

20. **Lgth. of Howl**_____

21. **Scat Dia.**_____



22. **Lgth of Stride:**_____

23. **Comments**_____

    _____

    _____

Mark exact location of sighting on trip map.

Return this form to your staff biologist.

BIRDS OF PREY SURVEY

1. Observer's name_____
2. Date_____
3. Phone no._____
4. Address_____

   _____
5. Observations:_____

   _____

* Survey Method

1) binoculars
2) scope
3) unaided eye
4) ear

** Cover density

A. Dense
B. Somewhat open
C. Open
D. Forest edge

*** Habitat description

(select numbers from below that best describe habitat and *list* dominant species)

1. Forest
2. Meadow/grassland
3. Wetland/riparian (specify)
4. Tundra
5. Treeline
6. Other_____

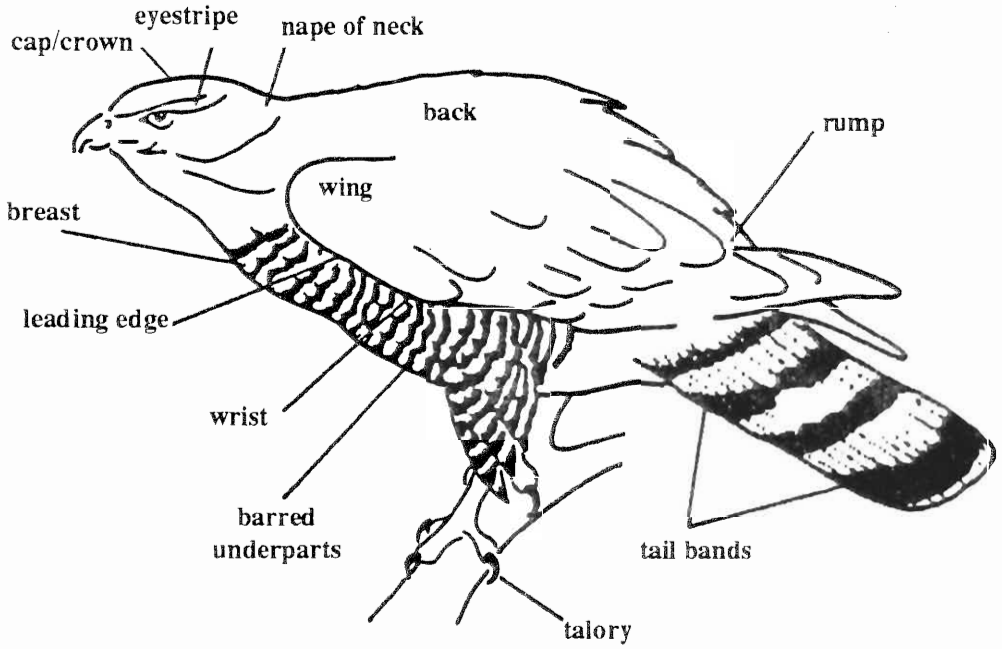
**** Activity

1. Perched
2. Flying
3. Hunting/foraging
4. Feeding adult
5. Territorial defense
6. Vocalizing
7. Grooming
8. Courtship
9. Nest building
10. Incubating
11. Brooding
12. Feeding young
13. Copulating
14. Other_____

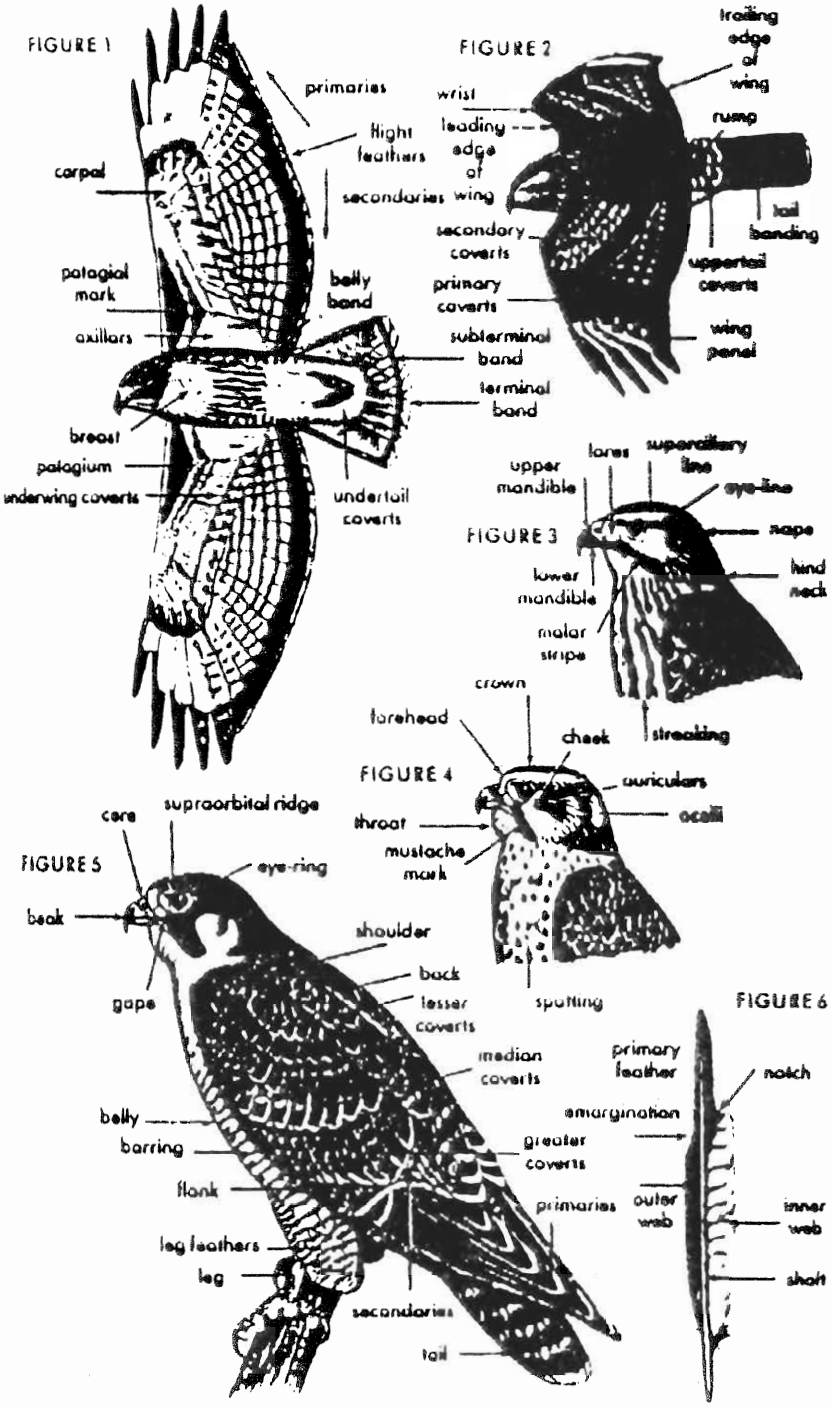
Note exact locations of sightings on your trip map.

Date	ime	Townsh, range Sec, ¼ sect.	Species	Survey* Method	# of Adults	# of sub ad	Range, townsh, sec., ¼ sec	Cover** density	Habitat*** descr	Activ.****
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

HAWK TOPOGRAPHY



From: Handy Dandy Hawk Handbook



from: Peterson Field Guide to Hawks

BIRDS OF PREY. We tend to lump all the diurnal (day-flying) raptors with hooked beaks and hooked claws as "birds of prey." Actually, they fall into two quite separate families:

(1) The hawk group (*Accipiridae*)-kites, eagles, buteos, accipiters, and harriers-of which there are 217 species in the world, 20 in the West + 3 or 4 accidentals.

(2) The falcon group (*Falconidae*)-falcons and caracaras. These are shown on pp. 184-187. There are 52 species in the world, 7 in the West + 2 accidentals.

The illustrations in the following pages present the obvious "field marks." For a more in-depth treatment of variable plumages, see *A Field Guide to the Hawks* (No. 35 in the Field Guide series) by Clark and Wheeler. For the subtelties of "jizz" (general impression and shape) at a distance, study *Hawks In Flight* by Dunne, Sutton, and Sibley

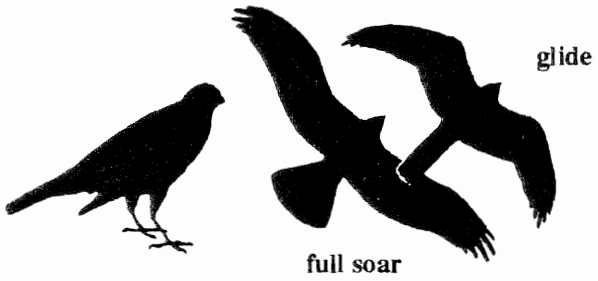
The various groups of raptors can be sorted out by their basic shapes and flight style. When not flapping they may alternate between *soaring*, with wings fully extended and tails fanned, and *gliding*, with wings slightly pulled back and tails folded. These two pages show some basic silhouettes.

BUTEOS (buzzard hawks) are stocky, with broad wings and wide rounded tails. They soar and wheel high in the open sky.

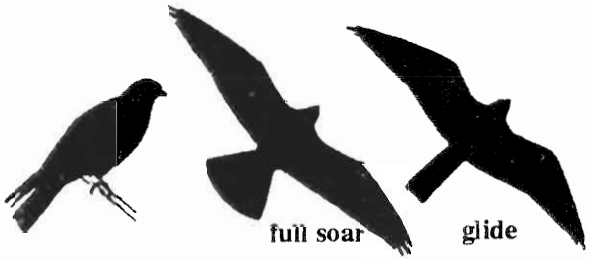
full soar

ACCIPITERS (true hawks) have small heads, *short rounded wings,* and longish tails. They fly with several rapid beats and a glide.

HARRIERS are slim, with slim, round-tipped wings and long tails. They fly in open country and glide low, with a vulture-like dihedral.



KITES (western species) are falcon-shaped, but unlike falcons, they are buoyant gliders, not power-fliers.



FALCONS have long, pointed wings and long tails. Their wing strokes are strong and rapid.

From Field Guide to Western Birds

REGION 1 LAKE DATE FIELD FORM

Lake Name_____ Wilderness Area_____

Forest_____

Sample Date_____Samplers_____

Water Temperature_____Time_____Weather_____

_____

Elevation_____Quad_____T____R____S____

EPA WS Lake ID#_____Other ID # and type_____

_____

Lake Basin Vegetation_____

_____

Geologic Type_____

_____

field pH_____ field alkalinity_____mg/l_____

ueq/l lab bottle number_____

lab pH_____ lab gran titration alkalinity_____eq/l_____

lab Potentiometric method alkalinity_____

lab conductivity_____ umhos/cm_____

duplicate sample_____field blank_____

field observations_____

_____

_____

_____

_____

_____

_____

_____

Sketch of Lake and Sampling Point

Attach Photos

Region 1 lake data field form (1991).

Check with air/water quality specialists for specific procedures and details.

OUTFITTER CAMP INSPECTION FORM

Provide carbon copy to outfitter at time of inspection or mail to outfitter.

Outfitter_____ Date of Inspection_____

Camp Identification_____ Inspection_____

Film roll #_____ Person Contacted_____

1. Camp 1 2 3 4

A. Camp in Place___ Camp Removed___

B. # of Clients___ # of Guides___ Total___

C. Location Appropriate (200 ft. from trail or lake, 100 ft. from stream)

D. Overall Appearance
(Please sketch or note location of problems)

2. Facilities 1 2 3 4

A. Tents/How Many_____ Type_____
Any bright tarps?_____

B. Kitchen Facilities
Dishwater dumped 100 ft. from water source strained?

C. Latrine Location
(200 ft. from trail or lake - 100 ft. from stream)

D. Latrine Maintenance
(Old toilets covered, lime present) Need to move?

E. Stock Containment/Type

F. Tree Conditions - record # of trees with:
(tree bases, trees girdled,
# of stumps delimbed trees, spikes)
Bases trampled_____
Girdling_____
Cut stumps_____
Cut green branches_____
Green stumps_____
Green poles in structures_____
Spikes/nails_____
Limbs gone_____
Structures lashed_____

G. Refuse Disposal
Open pit_____; Fire_____;
Sealed container_____; Trash bags_____

H. Appropriate level of development

I. Drinking water source/treatment

3. Outfitter Trail Access **1** **2** **3** **4**
(see form last page)

4. Stock **1** **2** **3** **4**

A. Number_____
B. Location (200 ft. from trail or lake, 100 ft. from stream)
C. Feed (Note any unprocessed feed)
D. Salt/How provided_____
E. Grazing/Range Mgmt. Properly Controlled Grazing
F. Water
G. Soil Impacts (explain)

5. Resource Care **1** **2** **3** **4**

A. Erosion Control
B. Fire Protection
D. Overall Resource Care (explain)
E. Bear Proofing Practice (for all bears, other wild animals)_)
F. Camp Dismantling
G. Fire Ring
H Litter on Ground
I. Streambank, Fords, Stock Watering

1=Commendable-exceptinally good or exemplary
2=In Compliance-fully complies with operating plan and permit
3=Needs Improvement-complies with the operating plan and permit, but could be improved upon.
4=Non-compliance-does not comply with the operating plan and/or the permit.
F.S. REMARKS: Explain all items which are checked "Commendable," "Needs Improvement" or "Not in Compliance" by Item No. Specify corrective action recommended.

COMMUNICATION WITH OUTFITTER OR REPRESENTATIVE:
Date_____ Location_____
Type_____ (i.e. phone, written, field)
Outfitter Remarks (Optional use) Explain special circumstances involved. Misrepresentations and corrective action taken, etc. (Use space below, or a separate sheet.)

WILDERNESS RANGER EVALUATION FORM

Please evaluate the Wilderness Ranger who inspected your camp. Put a checkmark under either neutral, excellent, good, or needs improvement. Thank you!

Outfitter:_____ Wilderness Ranger:_____

Date:_____ Camp Identification:_____

	neutral	excellent	good	needs improvement*
1. Knowledge of stock, llamas, and boat use in the backcountry.				
2. Understanding of outfitter's role in providing service.				
3. Familiarity with operating plans prior to inspection.				
4. Shows common courtesy and respect.				
5. Professional appearance.				
6. Practices minimum impact techniques - setting a good example for the public.				

* If Needs Improvement is checked, please explain below.
Other comments:

Wilderness Ranger Remarks:

FIELD GUIDE

CAMPSITE CONDITION EVALUATION AND CAMPSITE AREA REHABILITATION

USDA Forest Service
Shoshone National Forest
Wind River Ranger District
209 E. Ramshorn, PO Box 186
Dubois, Wyoming 82513

District Ranger: Tom Portice
Preparer: Frank R. Beum*
July 9, 1990

* Based on original guide prepared by Robert W. Rossman, Lander Ranger District

DEFINITIONS FROM USDA FS WILDERNESS MANAGEMENT HANDBOOK

WILDERNESS COMPARTMENT - The general area about a lake, stream segment, or other geographic feature that tends to attract concentrated recreation use. These compartments are listed in the Field Guide, and identified both by name and 5 digit number. They are depicted on a copy of the 1:24000 topographic map provided with the course field kit.

COMPARTMENT SUBAREA - A portion of a wilderness compartment. The wilderness compartment is subdivided into manageable pieces, each of which is assigned to a group of people/rangers (rating team). The subarea is identified by attaching a letter to the 5 digit inventory area number (for example, 19905A, 19905B, 19905C, and 19905D for the four subareas in the Upper Phillips Lake compartment).

CAMPSITE - An impacted area that shows evidence of man's use, and is the focus for the campsite condition rating procedure. In some instances, a number of campsites may be evident in close proximity. To distinguish one campsite from another for evaluation purposes, visualize the area which would be occupied by a *single party.*

Barren Core Camp Area. Utilizing geometric areas and pacing, estimate the area without any vegetation. Bare areas may or may not be covered with duff. Areas with scattered vegetation are not counted as barren areas. Lump together in one measure all bare areas on the campsite, including the area around the fire ring as well as any bare tent areas, if applicable. Record a separate bare area measure for stock holding areas, including where stock have been tied to trees, hitchrails, and corrals. If the combined camp and stock holding bare area is less than 50 square feet, 50-500 square feet, or more than 500 square feet, assign ratings of 1, 2, or 3, respectively.

Social Trails. Social trails are the informal trails that lead from the site to water, the main trail, other campsite, or satellite sites. Discernible trails are trails you can see but that are still mostly vegetated. Well-worn trails are mostly devegetated. Count the total number of trails, regardless of whether they are discernible or well-worn. Assign the site a 2 if there is only one

discernible trail and no well-worn trails. Assign a 3 if there are two to three discernible trails or one well-worn trail. Assign a 4 if there are more than three discernible trails or more than one well-worn trail.

Vegetation Cover. Using the five coverage classes on the form, estimate the percent coverage of the live understory vegetation. Do not include dead vegetation, duff, trees, tree seedling, or shrubs taller than a person. Estimate cover for the entire campsite, excluding stock holding areas.

With a large site it may help to divide the site into equal quarters; estimate the percent cover of each quarter, and take the average. It may also help to visually cluster all vegetation into one part of the site and estimate what percent of the site would be covered. Try to select one coverage class decisively. If you cannot, circle your best estimate and note the other coverage class it might have been.

Make the same estimate of vegetation cover on a nearby unused site similar—except for the impact—to the campsite. ***The idea here is to select a site that is relatively similar to what the campsite probably looked like before it was used.*** Choose a site that is similar to the campsite in terms of rockiness, slope, aspect, overstory composition and cover, and understory species composition.

Estimating coverages requires practice and calibration between independent evaluators, so periodically check your estimates with those of others.

Mineral Soil Exposure. Using the same five coverage classes, estimate the percent of the campsite without *either* live vegetation *or* duff—the percent on which mineral soil is exposed. In many cases, a thin layer of disturbed needles or wood chips is scattered about with mineral soil showing through. Consider these areas to be exposed soil.

Make the same estimate on the comparative area. In practice, it may be easiest to estimate both vegetation cover and mineral soil exposure on the campsite, and then select the comparative area and make the same estimates there.

Tree Damage. Count the total number of damaged trees on the campsite, the area visible from the campsite, and any stock holding areas. Never count the same tree on more than one site. Damaged

trees include stumps that show cut marks, scarred trees, and trees with nails in them. Trees with lower branches broken off for firewood are *not* included. After recording this number, estimate very roughly what percentage of all trees in the area examined were damaged.

Some managers rate tree damage by different methods. Please adopt for your district use.

FIELD PROCEDURE

Before going in the field, check with your supervisor which compartments or designated campsites you should inventory.

Wilderness rangers

1. Course participants will make every attempt to arrive at the assigned wilderness compartment (identified by a 5 digit number on the map) and perform the evaluation on the scheduled date. *Please use ink when completing all paperwork.* This Field Guide contains a listing of unassigned assigned area. The following are reasons for not performing an evaluation in the assigned compartment.
   a) the assigned compartment is occupied by so many groups that the evaluation of an impacted site somewhere in the compartment is not possible
   b) the compartment is occupied by an outfitter and the performance of a rating would be inadvisable
   c) a presence in the compartment for rating purposes would be disruptive of other users' solitude or experience

DO NOT PERFORM AN EVALUATION OR REHABILITATION WORK ON COMPARTMENTS THAT ARE ASSIGNED TO OTHER PEOPLE. DO NOT PERFORM OR CONTINUE TO PERFORM AN EVALUATION IF THERE IS A POSSIBILITY OF CONFRONTATION WITH OTHER USERS, OR IF APPROACHED BY SOMEONE WITH HOSTILE INTENTIONS. NOTE ANY IDENTIFYING CHARACTERISTICS OF SUCH PEOPLE AND LEAVE THE AREA.

If, in the course of your travels, you discover an impacted area that is not shown on the compartment map please note it as accurately as possible on the map. A description of the impacted area, noting trails, structures, etc., will be helpful in assigning this area for evaluation.

2. Upon arrival at a wilderness compartment, inventory person/s will do a walk-through survey of the compartment together. The purpose of this survey is to:

   a) Generally identify the types, numbers, and groupings of campsites within the entire inventory boundary.

   b) Divide the wilderness compartment into compartment subareas based on this survey and make individual assignments, to allow for equal coverage among teams. Each person will mark the subarea boundaries on the enlargement map and give a letter identifier to their subgroup (for example, 19905A for a subarea in 19905, Upper Phillips Lake). Compartment subarea lines should be agreed to and drawn on area enlargement maps as a group before breaking into seperate directons. One person may be assigned to a specific "designated campsite". If a designated campsite is to be done, it will be shown on the inventory area map.

For consistency in photo quality, one photographer should be assigned for the entire project.

3. Each rating team will complete the following steps within its *subarea.*

   a) Locate and identify, by marking an "X" on the area enlargement map, the locations of all campsites (see "campsite" definition). In the event that a number of campsites are present in the subarea, a determination will be made as *to the most severely impacted campsite.* Mark this site with a *star* on the area enlargement map, and evaluate this campsite using the Campsite Condition Field Data Form.

   b) Complete page 1 of the field form, the General Site Orientation, using the handbook definitions as needed to clarify or interpret.

   c) Draw a map on page 2 of the field form of *the campsite selected for evaluation.* Indicate each photo point with a

numbered circle, arrow, and compass azimuth (see key on page 2 of data form). Also identify good photo reference points (large distinctive rocks, etc.). The compass azimuth and reference points will be used in the future to re-locate your site.

d) Complete pages 3 and 4 of the field form, using the handbook definitions as needed to clarify or interpret. As this step proceeds, "before" photos will be taken and *the photo record on page 5 (Field Notes) of the data form completed by the project photographer(s).*

PHOTOGRAPHY INSTRUCTIONS:

1) The Haminex 35hs camera is a 35 mm, fixed focus rangefinder camera. The exposure control is located near the lens at the front of the camera. Three settings are available depending upon weather conditions: 1) Sun/bright clouds, 2) Cloudy, 3) Dark clouds/rain. If in doubt, use the middle setting. A good rule of thumb for good photographs is to keep the sun behind your back.

   The Kalimar Spirit 35 is a 35 mm, fixed focus camera with an ASA setting and automatic flash. Be sure the ASA setting is set on 200. If the light is low, use the flash.

2) Photos are intended to document conditions on the campsite specifically. Frame the first photo so that an overall view of the campsite is obtained. Take additional photos of fire rings, corrals, lean-tos, etc. When a photo is taken, include a distinctive and permanent local feature in the frame so that the same photo point can be located in the future. Also, it is a good idea to include a person in the photo whenever possible to indicate scale. Take photos of each campsite both before and after rehabilitation *using the same photo point.*

3) Each photo taken will contain a plainly visible and legible placard noting the inventory area number, subarea letter, and photo point number (eg. 09803A #1). "Before" and "after" photos will be taken at each photo point. "After" photos will be indicated by putting a star on the placard. Because the placards are highly reflective, be sure to tilt the placard slightly toward the ground.

4) All photo points will have a corresponding description on the Photo Record (page 5 of the Field Data Form). The photo record shall contain sufficient information, including compass azimuth and distance to reference point, to allow for photo interpretation and to associate a given location with the photo subject matter. Each view will be represented by a "before" and an "after" picture. The photographer should stand in the same place and orient the camera in the same direction so that the view is duplicated.

e) If other types of impacts are evident in the subarea, such as grazing cattle, old mine holes, cabins structures, etc. please note this on the Field Notes form. This space is available for you to provide additional information that will assist in the analysis and interpretation of data.

f) Following completion of the campsite condition evaluation, each person will clean its subarea up, reduce the volume of the trash items as much as possible (crush cans, etc) and place trash in garbage bags. Cache this trash at a designated site, or pack it out. If the trash is to be cached, consolidate it from all the subareas and mark the cache location on the wilderness compartment enlargement map. Designate only one cache site in the compartment. If the trash will be packed out, be sure to indicate on the Field Form the name of the person packing it out and the date it was packed out.

g) Reasonable rehabilitation activities will be undertaken throughout the subarea, such as obliterating fire rings, scattering coals or firewood in a suitable way, dispersing horse manure, breaking up seats, shelves, tables, etc. Small burnt logs and rocks may be scattered into local underbrush. Large logs can be rolled aside. Blackened rocks may also be thrown into streams or lakes under conditions where they would not be visible to most observers.

The emphasis for removal of developments is: USE GOOD JUDGEMENT AND COMMON SENSE IN FREEING THE SITE OF THE EVIDENCE OF MAN'S USE.

Other guidelines: In areas which appear to have consistent use, single firerings may be left if the firering location is acceptable,

legal, and safe. Where developments occur in illegal campsite areas (see the applicable wilderness order), they should be removed.

h) Explain all rehabilitation activities in the Field Notes (page 5). Developments not dealt with, or items left on site (stoves, grates, large burnt rocks or logs), shall also be noted. "After" pictures will then be taken at the same photo points as the "before" series, and appropriate notes made in the photo record.

CAMPSITE CONDITION FIELD DATA FORM

Page 1 of 5

Subarea No._____Compartment Name_____

Date__/__/__(mo/day/yr) Time Started_____ Time Finished_____

Coded by _____ _____ _____

Inventoried by:_____

Phone no._____

Address_____

Site location and number_____

T_____ R_____ S_____ ¼ Sec_____

General site orientation:

Please read all instructions carefully for each of the following items, then circle the appropriate number. Use black ink! See the Field Guide for definitions.

Barren core of campsite. Usually, but not exclusively, area immediately surrounding fire ring. Estimate, do not measure, size of core.

Circle one:
(1) 0-50 square feet
(2) 51-500 square feet
(3) more than 500 square feet

Distance from main trail to barren core. Circle one:

(1) <100 feet
(2) 100 To 200 Feet
(3) >200 feet

Distance from lakeshore or perennial stream to barren core.

(1) <100 feet
(2) 100 to 200 feet
(3) >200 feet

Access, or "Social" trails. Trails radiating from campsite to main trail, water source, stream bank (fisherman trail), or other.

(1) No trails
(2) One discernible trail
(3) More than one discernible, or one well established trail
(4) More than one well established trail

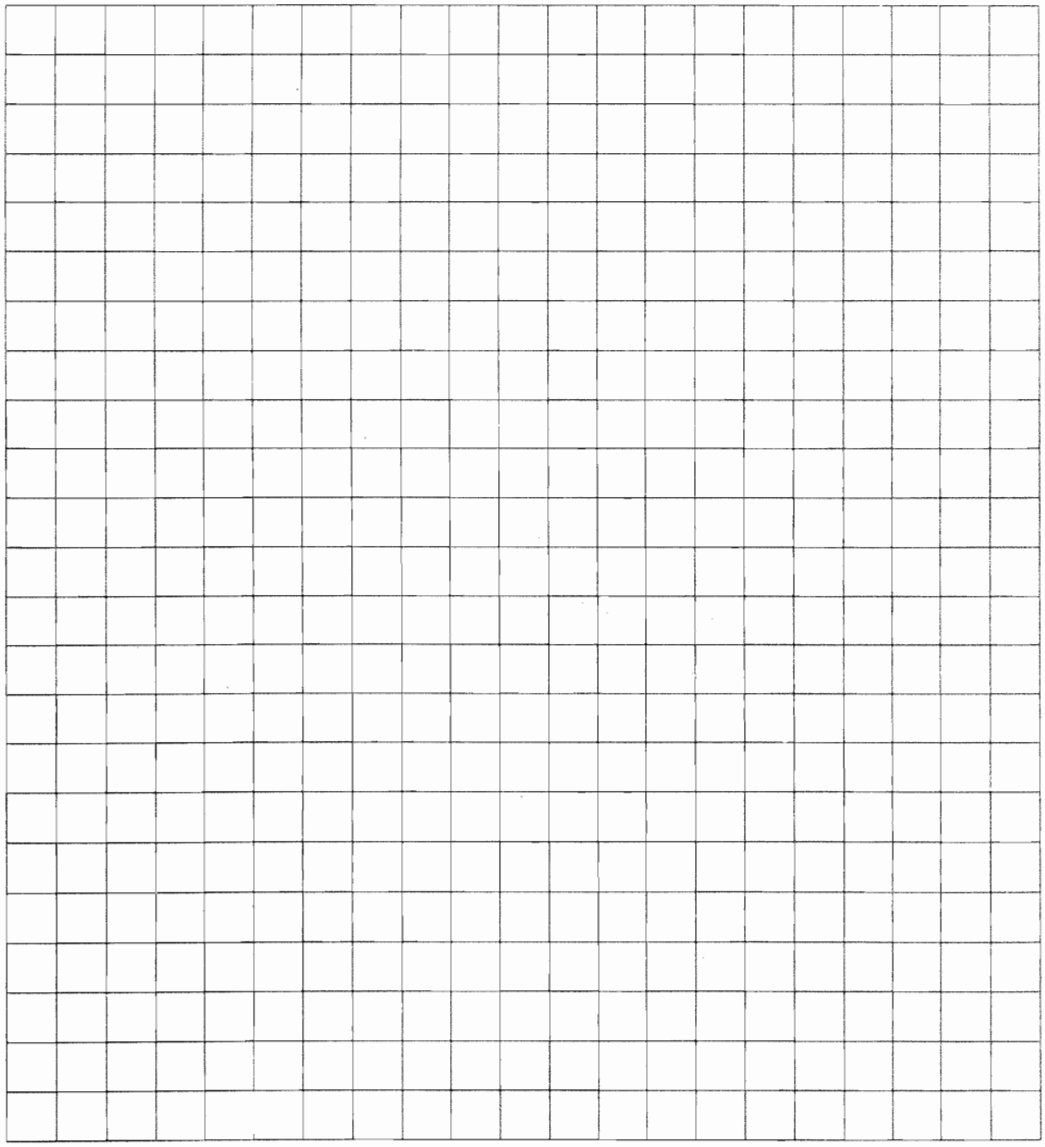
Identify area and draw map.

Identify this campsite on the compartment enlargement map with a star, and draw a representation of the campsite on page 2 following instructions found on that page.

CAMPSITE CONDITION FIELD DATA FORM

CAMPSITE MAP:

Draw a map here showing the campsite being evaluated by this team. Locate the campsite relative to major map features, such as lake, main trail, or stream, and indicate compass direction. Indicate and label locations of impacts (fire rings, excessive or widespread tree damage, structures), photo points, photo reference features and any other necessary details.



KEY

Estimated Scale 1"= _____

1 Photo Point No., arrow direction, and 9° compass azimuth

CAMPSITE CONDITION FIELD DATA FORM

Note: Please read all instructions carefully for each of the following elements, then circle the appropriate rating item. See the field guide for definitions or more complete discussion of each element.

ELEMENT 1: Vegetation cover

Estimate the percentage of LIVE vegetation ground cover *on* the campsite, then assign a value from one of the following coverage classes.

(1) 0-5%
(2) 6-25%
(3) 26-50%
(4) 51-75%
(5) 76-100%

Select an unaffected site nearby, similar to the campsite area in terms of slope, cover type, and exposure. Make a second estimate of live ground cover.

(1) 0-5%
(2) 6-25%
(3) 26-50%
(4) 51-75%
(5) 76-100%

ELEMENT 2: VEGETATION LOSS

Compare the two coverage class ratings above to arrive at a vegetation loss rating for the site.

(1) Off-site and on-site are essentially equal; no vegetation loss.
(2) A difference of one class between the sites.
(3) A difference of two or more classes between the sites.

ELEMENT 3: MINERAL SOIL EXPOSURE

Show the percentage of *exposed* soil (no cover). Duff, twigs, forest litter and other naturally occurring materials are soil cover. This rating is not the inverse of vegetation cover, element 1. Exposed soil percentage:

(1) 0-5%
(2) 6-25%
(3) 26-50%
(4) 51-75%
(5) 76-100%

Make a second estimate of exposed soul percentage on the adjacent unaffected area selected for the Vegetation Cover element.

(1) 0-5%
(2) 6-25%
(3) 26-50%
(4) 51-75%
(5) 76-100%

ELEMENT 4: BARE SOIL INCREASE

Compare the two mineral soil exposure rating in ELEMENT 3 and estimate the increase in bare soil at the campsite.

(1) Off-site and on-site essentially equal, no bare soil increase.
(2) One class difference between the sites.
(3) A difference of two or more classes between the sites.

CAMPSITE CONDITION FIELD DATA FORM

ELEMENT 5: THREE DAMAGE

View the area surrounding the campsite (see "TREE DAMAGE" definition). Observe damage such as cut stumps, scarred boles (un-natural bark wear), hatchet cuts, nails in trees. Trees with lower branches broken off for firewood *are not* included. Count damaged trees, both dead and live. After recording the number of damaged trees, estimate the percentage of all trees damaged in the area.

No. damaged trees_____; % tree damage_____

(N) No trees in the area
(0) No damage evident
(1) One to eight damaged trees, or 1-3 badly scarred or felled.
(2) More than eight damaged trees, or more than 3 badly scarred or felled.

ELEMENT 6: ROOT EXPOSURE

Observing the same area as in rating ELEMENT 5, estimate the number of standing trees with exposed roots, and the percentage of trees in the area with exposed roots.

No. of trees_____; % of trees_____

(N) No trees in the area
(0) No root damage evident
(1) One to six trees with exposed roots
(2) More than six trees with exposed roots.

Campsite area root exposure appears to be similar to root exposure in adjacent unaffected areas.

(1) NO (2) YES

ELEMENT 7: DEVELOPMENT

(0) No developments (could include a fire area without a ring).
(1) One fire ring.
(2) Fire ring and seats.
(3) More than one fire ring, or other extensive developments such as tables, shelves, windbreaks, corrals, hitching posts and rails, constructed tent frames, ditching, toilets, etc.

ELEMENT 8: CLEANLINESS

(0) Site free of any litter, charcoal, or other inappropriate material.
(1) Scattered charcoal.
(2) Charcoal, other fire remnants, some litter.
(3) Area distinguished by large quantities of fire remnants, blackened logs, and/or widespread litter, and/or manure piles, human waste, toilet paper, dog droppings or other objectionable materials.

FIELD NOTES

CAMPSITE CONDITION

Page 5 of 5

DESCRIBE ALL OTHER HUMAN IMPACTS IN THE SUBAREA (e.g. domestic livestock, grazing, mining activity, structures, etc.). May us e this space for any other comments relative to this subarea.

SITE REHABILITATION NECESSARY: note specifics of activities to be carried out to rehabilitate impacts in the subarea: eg. removing developments (see ELEMENT 7), improving cleanliness (see ELEMENT 8).

ADDITIONAL RECOMMENDATIONS:

PHOTO RECORD: Briefly describe photos taken at this campsite area (describe readily identifiable landmark or reference feature of photo). SHOW PHOTO POINT NUMBER AND DIRECTION OF SIGHT ON COMPARTMENT MAP. Roll number_____

Photo Pt.1:_____

Photo Pt.2:_____

Photo Pt.3:_____

Photo Pt.4:_____

Photo Pt.5:_____

Photo Pt.6:_____

Photo Pt.7:_____

Photo Pt.8:_____

Photo Pt.9:_____

Photo Pt.10:_____

Photo Pt.11:_____

Photo Pt.12:_____

WILDERNESS CAMPSITE RESTORATION WORKSHEET

1. Name _____
2. Date _____
3. Phone _____
4. Address _____

   _____
5. Location/site identification (Township, Range, Section, ¼ Section) or I.D. #_____
6. Brief history of site and management implications_____

   _____
7. Summary of presenting problems_____

   _____
8. General resource information
   a. Soil type_____
   b. Soil pH_____
   c. Soil depth_____
   d. Site gradient_____
   e. Site aspect_____
9. Recommended restoration activities_____

   _____
10. History of restoration problems_____

    _____
11. Recommended management strategies_____

    _____
12. Vegetation composite_____

    _____
13. Any additional information_____

    _____

Joseph Flood - Wilderness Ranger R1

INSTRUCTIONS FOR USE OF CLIMBING SITE INVENTORY FORM

Greg Hansen

CLIMBING SITE DEFINITION

The first step is to decide what constitutes the "climbing site". This car, be a rather difficult but important decision to make before you can begin the inventory. By categorizing the climbing area into sites, the inventorying of the many climbing routes will become manageable. This also permits us to include in our inventory the "staging area" at the base of each climbing face.

A climbing site is an area that shows evidence of use by technical rock climbers. The site is broken up into two categories, the rock face and the staging area. Both categories are described below.

ROCK FACE

The vertical rock face is a geologic feature that lends itself to being categorized as a separate and individual section. For example this could be a specific side of a boulder, pinnacle or section-of vertical rock defined by physical borders such as cracks, corners or the mountain slope. Indicators that would show use of a rock face by climbers are placement of fixed anchors, abandoned equipment like webbing or carabiners, and climbing chalk residue on the rock.

STAGING AREA

The staging area is located at the base of the vertical rock face. It is the location where most of the pre- and post-climbing activities take place. This area is where the belay person, any other waiting climbers and possibly spectators would be situated. Indicators of use in a staging area would be access trails to the climbing site, trampling of vegetation or soil and anything (equipment, trash, etc...) left in the area by people.

1a. Area Name

Use the most common name or a prominent nearby topographic feature to identify the climbing area. For the most part this should already be done as the climbers that established routes in an area have most likely named the geographic location, (check climbing guide books before starting inventory). Group the climbing sites in the area under this name and number accordingly.

1b. Site Number

Sites should be numbered in a logical sequence within an area of clustered sites. "Weavers Needle-02" for example would be the second site to be inventoried in the Weavers Needle area. All these sites will be documented on the area map.

2. Site Location

Name of the Management Area (from the Forest LRMP), Wilderness, or recreation area and the legal description.

3. Opportunity Class

Include this information if available. Identify the opportunity class by locating the site on ROS or WOS maps. This is especially important to compare the measured impact ratings with LAC ratings.

4. Nearby Climbing sites

The sites nearby can be located from the area map. General estimation of distances can be done by pacing or from the area map.

5. General Site Description

Choose from the following descriptors:

Topography	Vegetation	Elevation	Special Features
canyon bottom	desert scrub	approximate ft.	shaded
flat area	riparian	above sea level	spring
mid-slope	grassland		wash bottom/ creek
ridge top	mtn. chaparral		nearby structures
mountain top	pinyon/juniper		rocky
mountain slope	ponderosa pine		pinnacles
	mixed conifer		rock face
	density of veg.		cave/ overhang

6. Photopoints

One or more photopoints should be located at each climbing site. Establish and document the location so as to reveal the best views of the site, and facilitate relocation of the site in future inventories. Taking a picture of the actual photopoint can help in relocation.

Try to take the photo near a prominent permanent object such as a tree or large rock. Describe the photopoint on the Site Map, photo, and photo point entry. Information should include the date,

time of day, weather conditions, the compass direction in which the photo was taken, and the permanent object. Also, note the camera make and model, lens focal length, height of the camera above ground, and film type. All of these should be replicated as close as possible when the inventory is repeated. Carry copies of the original photos to help find the photopoint and duplicate the inventory.

Photographs of the staging area, the rock face and specific site impacts are important. The number of photopoints will be directly correlated to the size of the site and the number of severe impacts.

7a. Site Map

Accurate and detailed site maps are very important in relocating climbing sites. The following legend will be used for all site maps:

North arrow	Fixed anchors
Site boundary	Ledge
Photo point and direction	Roof or overhang
Tree	Crack
Shrubs	Chimney
Large rocks or boulders	Right facing dihedral
Spring	Left facing dihedral
Water course	Around corner
Fire ring	Climbing route
	Access trail

Special features and/or impacts may be noted in writing: stashed equipment, damaged trees, constructions, graffiti, etc.

7b. Area Map

Attach an 8 x 11 print map of the area. Make map copies from enlargements of

USGS 1:24,000 topographic maps (make note of the enlargement size). The area map is used to show an overview of site complexes. Identify sites on the map and number in a logical sequence as noted in Items 1b.

CLIMBING SITE ROCK FACE

8. Number of Climbing Routes in Site

As stated in the climbing site definition sites may contain multiple routes. This 'includes not only routes that have fixed anchors but also any natural features that can be protected with removable anchors such as a crack. Record the total number of routes on the inventory form and draw in their location on the site map.

9. Number of Fixed Anchors

This category is broken down into both climbing anchors used for actual protection on the climb and rappel anchors used in descending off or while top roping a climbing route. The total number of fixed anchors are to be recorded in the appropriate category and drawn in on the site map.

10. Newly Exposed Rock Area

The rock face being inventoried will be compared to another rock face not used by climbers and is affected only by natural forces. The two faces must be similar in rock type, aspect, elevation, angle of the rock face and number of ledges and/or overhangs if any. The idea is to estimate the difference in the newly exposed rock between the face being inventoried and the comparison site. Estimate the total area of newly exposed rock, express as a percentage and then use the following rating system to find the class rating: 0-5%=1; 6-25%=2; 26-50%=3; 51-75%=4; 76-95%=5; 96-100%=6. The difference between classes is the rating to be entered on the impact analysis form.

11. Vegetation Cover Differences

As in item 10 this item compares the rock face being inventoried to a similar rock face not used by climbers. The focus in this comparison is the mosses, lichens and any other type of vegetation growing on the face, ledges or at the apex of the site. The same rating system is used as when comparing newly exposed rock area in item 10. The difference between classes is the rating to be entered on the impact analysis form.

CLIMBING SITE STAGING AREA

12. Vegetation Cover Difference

This is a comparison of the site being inventoried and an area offsite, but similar in canopy cover, slope, rockiness, and potential species composition. The idea is to estimate what the cover of the site was before it was used as a campsite. Vegetation cover is estimated in the following classes: 0-5%=1; 6-25%=2; 26-50%=3; 51-75%=4; 75-95%=5; 96-100%=6. The difference between classes is the rating to be noted on the Impact Analysis Form.

13. Mineral Soil Cover Difference:

The same rating system is used for this parameter as in item 12. Bare mineral soil is difficult to estimate due to continuous gradation

of duff layers. Where duff layers are thin and have obviously been displaced by user impacts, estimates of bare soil should be high. The difference between classes is the rating to be noted on the Impact Analysis Form.

TONTO NATIONAL FOREST CLIMBING SITE INVENTORY

Compiled by:_____ Date:_____
1a. Area Name:_____ 1b. Site No._____
2. Site Location_____ Sec._____, T_____, R_____
3. Opportunity Class: ROS:_____ (or) WOS_____
4. Number of climbing sites within the following distances:
0-100 feet:_____ 100-300 feet:_____ 300-500 feet:_____
5. General Site Description:_____
_____
6. Photopoints:_____
_____
7a. Site map
7b. Area map (attached)

CLIMBING SITE ROCK FACE

8. Number of climbing routes in site:_____
9. Number of fixed anchors:
Climbing anchors_____
Rappel anchors_____
10. New exposed rock area:
Onsite_____% Class_____
Offsite_____% Class_____
Difference between classes_____

CLIMBING SITE STAGING AREA

12. Vegetation cover difference:
Onsite_____% Class_____
Offsite_____% Class_____
Difference between classes:_____
13. Mineral soil cover difference:
Onsite_____% Class_____
Offsite_____% Class_____
Difference between classes_____

SKETCH CLIMBING SITE HERE
INDICATE PHOTO POINTS

CLIMBING ROUTE IMPACT ANALYSIS FORM

Level of Severity

IMPACT PARAMETER	0	1	3	5	Measured Rating	LAC Rating	Trend (+/-)
	Less Severe			More Severe			

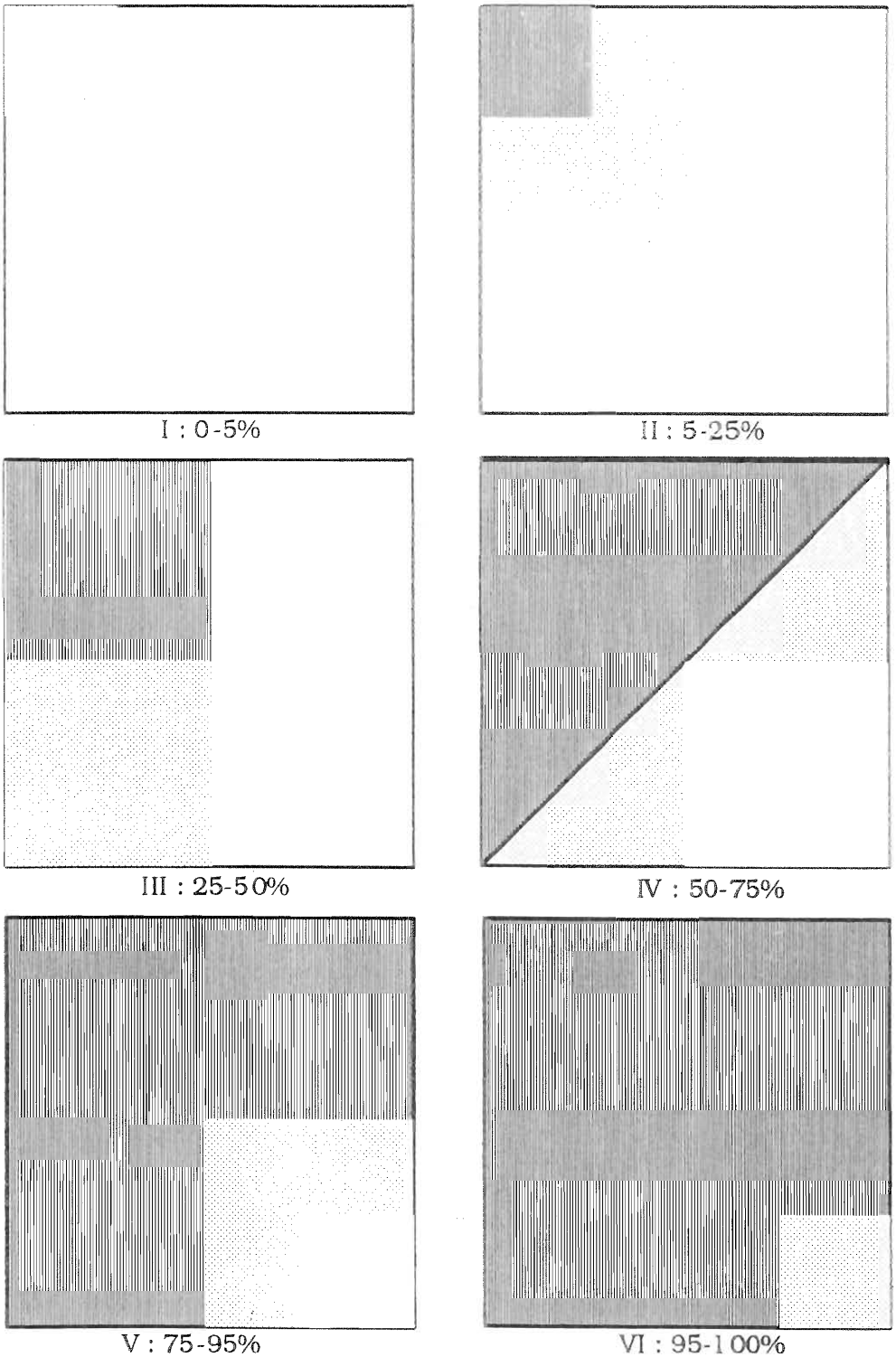
Continued on next page

ANALYSIS OF ROCK FACE

1. Abandoned equipment	None	1 piece of equipment	3 pieces of equipment	5 or more pieces of equipment			
2. New exposed rock (see Item 10 on Inventory form)	No difference in coverage class	Difference of one coverage class	Difference of three coverage	Difference of five coverage classes			
3. Vegetation Loss (see Item 11 on Inventory form)	No difference in coverage class	Difference of one coverage class	Difference of three coverage classes	Difference of five coverage classes			
4. Climbing chalk residue	None	Not evident to casual observer	Moderate amount of residue on rock face	Widespread residue on rock face			
5. Tree and shrub damage	None	A few small tree branches or bushes bent, flattened or trampled	2 to 4 substantial tree branches or bushes cut broken or damaged	6 or more substantial tree branches or bushes broken, cut, damaged or death of tree/shrub			

ANALYSIS OF STAGING AREA							
6. Litter	None	A few small pieces of litter (less than 1 min. clean-up time)	Moderate amount of litter (Less than 5 min. clean-up time)	Widespread litter; graffitti (Less than 15 min clean-up time)			
7. Access trails to staging area of climbing site	None	No more than 1 discernable trail	3 discernable trails or no more than 2 well worn trails	More than 4 discernable trails or more than 3 well worn trails			
8. Vegetation loss (see Item 12 on Inventory form)	No difference in coverage class	Difference of one coverage class	Difference of three coverage classes	Difference of five coverage classes			
9. Mineral soil loss (see Item 13 on Inventory form)	No difference in coverage class	Difference of one coverage class	Difference of three coverage classes	Difference of five coverage classes			
10. Human/Dog Feces	None	Not evident to casual observer	1 exposed waste pile and paper	More than 3 exposed waste piles			
11. Nearby Climbing Sites	None within site and sound	1 site within 100 yards	3 sites within 100 yards	5 or more sites within 100 yards			
12. Tree and shrub damage	None	A few small tree branches or bushes bent, flattened or trampled	2 to 4 substantial tree branches or bushes cut broken or damaged	5 or more substantial tree branches or bushes broken, cut, damaged or death of tree/shrub			

Coverage Classes



Coverage class estimation guide.

POLICY/INTERIOR DIRECTION

(Write In)

1992 RIVER INVENTORY FORM - DILLON RA

—ADMINISTRATIVE INFORMATION—

1. BLM Resource Area_____ **2.** Project Name_____

3. Observer(s)_____

4. Date_____ **5.** Polygon Number_____

6. Location

T_____ R_____ Sec_____

¼ Sec_____ ¼ ¼Sec_____

7. Elevation (ft)_____ 8. River Miles (length)_____

9. Size (acres)_____ 10. Aspect_____

—VEGETATION INFORMATION—

Cover Class Codes:

T = 0.1<1%	**3 = 25<35%**	**7 = 65<75%**
P = 1<5%	**4 = 35<45%**	**8 = 75<85%**
1 =5<15%	**5 = 45<55%**	**9 = 85<95%**
2 = 15<25%	**6 = 55<65%**	**F = 95-100%**

11. PLANT GROUP CAN. COV. CLASS BY LAYER

Layer	**Trees**	**Shrubs**	**Graminoids**	**Forbs**
3 (>6.1 ft)				
2 (1.6 - 6.0 ft)				
1 (0 - 1.5 ft)				

12a. TOTAL CAN COV BY PLANT GROUP_____

12b. TOTAL CANOPY COVER WOODIES_____

12c. ALL PLANT GROUPS_____

13. Structural Diversity_____

14. TREE SPECIES BY CANOPY COVER

CLASS AND PERCENT AGE GROUPS								**15. TREE**
SPECIES	**COV**	**SDLG**	**SAPLING**	**POLE**	**MAT**	**DEC**	**DEAD**	**UTILIZATION**
								___/___/___
								___/___/___
								___/___/___

16. Totals_____

(Joe Ashnor - B.L.M.)

17. SHRUBS SPECIES CAN. COV., AGE SIZE GROUPS, AND UTILIZATION

19. SHRUB GROWTH FORM

SPECIES	COV	1-10mm	11-15mm	≥15mm	DEC	DEAD		
_____	(__)	(__)	(__)	(__)	N	C	U
_____	(__)	(__)	(__)	(__)	N	C	U
_____	(__)	(__)	(__)	(__)	N	C	U
_____	(__)	(__)	(__)	(__)	N	C	U
_____	(__)	(__)	(__)	(__)	N	C	U
_____	(__)	(__)	(__)	(__)	N	C	U
_____	(__)	(__)	(__)	(__)	N	C	U
_____	(__)	(__)	(__)	(__)	N	C	U
_____	(__)	(__)	(__)	(__)	N	C	U
18. Totals _____	(__)	(__)	(__)	(__)	N	C	U

TREE INFORMATION

SPECIES	20. REGEN.	21. AGE DIST.
_____		
_____		
_____		
_____		
_____		
_____		
_____		
_____		
_____		

22. GRAMINOIDS

SPECIES	COV
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

23. FORBS

SPECIES	COV
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

24a. Habitat Type(s), Community Type(s) or Dominance Type(s)	% of Polygon: (Use Class Codes)	Successional Stage or Comments	Disturbance induced	
_____	_____	_____	Y	N
_____	_____	_____	Y	N
_____	_____	_____	Y	N
_____	_____	_____	Y	N
_____	_____	_____	Y	N
_____	_____	_____	Y	N
_____	_____	_____	Y	N
_____	_____	_____	Y	N

24b. Total percent of polygon occupied by disturbance-induced types._____%

25a. Weeds observed (circle appropriate species and record the cover class code of the area inhabited). None_____

Spotted Knapweed_____ Diffuse Knapweed____
Dalmation Toadflax_____ Canada Thistle_____
Common Hound's-tongue_____ Purple Loosestrife_____
Russian Knapweed_____ Leafy Spurge_____
Common Tansy_____ Tamerisk_____
Sulphur Cinquefoil_____ Others (and their areas)_____

25b. Record the cover class code of the area inhabited by all of the weeds recorded in 25a._____

26. Record the combined canopy cover of "weedy" herbaceous species observed_____

27a. Listing candidates of threatened and/or endangered species observed: None **27b.** Species_____

27c. Location within the polygon_____

_____

28a. Do subsurface water supplies, which are not established by flowing surface water in the area, appear to be influencing the vegetation of the area? (A good example of this occurs in hardwood draws which support riparian vegetation but rarely have flowing surface water.) Yes No ***If Yes:*** **28b.** Describe the situation:_____

_____

_____

_____

_____

29. List the plant species which are indicators of at least near-surface water, but which were not recorded in the regular inventory because they did not have 5% or more canopy cover. (Record only those that indicate wetter conditions than indicated by the plants which do have 5% or greater canopy cover in the polygon.)

_____

_____

30. Vegetative Use By Animals: 1 2 3 4

31. Herb/Browse Production Class: 1 2 3 4 5

32. Adjacent Uplands (circle appropriate response):

Agriculture Grassland Shrubland Forest Other_____

33a. Pictures roll#_____ observer whose camera is used_____

picture number(s)_____

33b. Location within the polygon_____

_____

33c. Description of view(s)_____

_____

34. Vegetation Comments:_____

_____

_____

_____

_____

_____

_____

Checked by_____ Time_____ Date_____

—PHYSICAL SITE, HYDROLOGIC, & MANAGEMENT INFORMATION—

Project_____ Polygon_____

Date_____ Observer_____

35a. Sketch the typical riparian-wetland cross section of the polygon, showing relevant dimensions. **35b.** Sketch the typical stream cross section, showing relevant dimensions.

35a. **35b.**

36. Average Non-vegetated Stream Channel Width (ft)_____

37. Average Riparian-Wetland Zone Width (ft)_____

38. Riparian-Wetland Zone Width Range (ft)_____ to_____

39a. Rosgen Stream Geomorphology Classification_____

39b. Stream Channel Sinuosity (river miles/valley bottom miles). Enter NA if not applicable._____

39c. Stream Gradient (%)_____

39d. Entrenchment (bankfull width/bankfull depth)_____

39e. Confinement (width of floodplain/bankfull width: Circle) Well confined (<1.4) Moderate (1.4-2.2) Unconfined (>2.2)

39f. Channel Bottom Materials. Give the percent of each size; must total to 100%

_____>20 inches (Medium Boulders +)
_____10-20 inches (Small Boulders)
_____5-10 inches (Large Cobbles)
_____2.5-5 inches (Small Cobbles)
_____0.6-2.5 inches (Coarse Gravel)
_____0.08 inches-0.6 inches (Fine Gravel)
_____0.062 mm-2 mm (Sand)
_____<0.062 mm (Silt and Clay)

40. Stream bank Materials. Give the percent of each size; must total to 100%.

_____>20 inches (Medium Boulders +)
_____10-20 inches (Small Boulders)
_____5-10 inches (Large Cobbles)
_____2.5-5 inches (Small Cobbles)
_____0.6-2.5 inches (Coarse Gravel)
_____0.08 inches-0.6 inches (Fine Gravel)
_____0.062 mm-2 mm (Sand)
_____<0.062 mm (Silt and Clay)

41. Stream-Wetland Type: 1 2 3 4 5 6 7 8 9 10 11 12

42a. Percent of streambank which has been altered by human-induced disturbances _____%.

42b. Of this, how much resulted from (must equal 100%):

___Grazing ___Construction ___Logging ___Other

Explain "other"_____

42c. Percent of streambank accessible to livestock_____%

43a Percent of total streambank length which is unstable_____%

43b. Give the percent of unstable streambanks (caused by either natural or human-induced disturbances) observed which match the following descriptors: (must equal 100%)

_____Vertically eroded _____Undercut _____Slumping _____Other

(Describe other):_____

44. Percent of the streambanks, with deep, binding root mass (circle)
< 35% 35-64% 65-84% >85%

45a. Active lateral cutting of the stream? Yes No NA

If Yes: **45b.** Percent of stream within the polygon that is undergoing active lateral cutting? _____%

46a. Active downcutting of the stream? Yes No NA

If Yes: **46b.** Percent of stream within the polygon that is undergoing active downcutting of the stream? _____%

47a. Headcut(s) Present: Yes No ***If Yes:*** **47b.** Number Of Headcuts_____ **47c.** Average Height (ft)_____

47d. Location In Polygon Of Headcut(s)_____

48a. Indicate the best description of the incisement of the stream.

A B C D

48b. Percent of the stream reach which is braided (has more than one active channel)_____

49a. Ground surface cover: unvegetated rocks (>2.5 inches) _____%;

49b. litter & duff _____%; **49c.** moss _____%; **49d.** wood, or other ground cover _____%.(***Note:*** Bare ground & vascular plant canopy cover are recorded elsewhere.)

50. Indicate the best description of the soil layer within the polygon (circle) A B C D

51 a. Percent of polygon which is bare ground (Do not include the area within the non-vegetated stream channel, rocks, litter & duff, or wood) _____%. **51b.** Of this, how much resulted from (must equal 100%): Natural processes_____%; Human-induced disturbances _____%. **51c.** Under ***each*** of these two general categories, how much resulted from each of the various sources (must equal 100%

in both the natural processes and human-induced disturbance categories):

NATURAL PROCESSES	HUMAN-INDUCED DISTURBANCES
_____Erosional	_____Grazing
_____Depositional (bank building; bars)	_____Logging
_____Within vegetated channel bottoms	_____Construction
_____Type dependent Saline/alkaline	_____Other
_____Other	

Explain "other"_____

51 d. Distribution of bare ground within ***the polygon*** (must equal 100%): Streambanks and stream channel _____%; Outside of the streambank _____%

52a. Hummocks present: Yes No ***If yes:*** **52b.** Percent of polygon affected _____% **52c.** Distribution of hummocks within the polygon (must equal 1 00%): Streambank Proper_____%; Non-streambank (rest of the polygon)_____%

53a. Does the polygon contain a fishery? Yes No Unknown

If Yes: **53b.** Check Appropriate Response: _____Sport Fishery _____Non-sport Fishery _____Unknown **53c.** Fish categories present, if known (use common names or descriptions):_____

_____

53d. Number Of Fish Observed? (circle appropriate response)

0 1-10 11-50 >50

53e. If the polygon does not contain a fishery, is there the potential for one? Yes No Unknown (Explain):_____

_____

_____

54a. Human-induced channel modifications (circle the appropriate response[s]): None Road construction Railroad construction Dikes Dams Water diversion structures Channelization Rip-rap Vegetation removal Other(s)_____ **54b.** Location(s) Within The Polygon:_____

_____

54c. If human-induced channel modifications are present, how stable are they? Stable Unstable

54d. What is the effect of the modifications on the immediate and downstream channel?_____

_____

For non-perennial streams (intermittent, ephemeral, subterranean, and pooled channels [ignore for perennial streams, lakes, reservoirs, ponds, etc.]):

55a. Is there any surface water at the time of the inventory? Yes No ***If Yes:*** **55b.** Source (circle the appropriate response): Pools Springs Seeps Other_____ **55c.** Percent of the channel length with water at the surface?_____%. **55d.** Do you expect a portion of this water to remain at the surface throughout the remainder of the growing season? Yes No

55e. Where in the polygon is the surface water.?_____

_____

56. Comments And Conclusions: (Summarize any characteristics of the system, which are not evident from the data collected. Consider at least the stream morphology and hydrologic characteristics)

_____

_____

_____

_____

_____

_____

_____

Checked by_____Time_____ Date_____

MISSING PERSON REPORT Page_____of_____

Field Investigator_____ Day: S M T W T F S

Date:_____

Weather:_____ Time_____am/pm

Reporting Party _____of_____

Name_____ Age_____ DOB_____

Home Address_____Phone_____

Local Address_____Phone_____

Contact Location_____Phone_____

Relationship to Victim_____

Other Information_____

Missing person_____of_____

Name_____

Age_____ DOB_____ Sex_____ Race_____

Hair_____ Length/Style_____ Eyes_____

Height_____ Weight_____ Other Identifying Marks or

Characteristics_____

Photograph Available Yes_____ No_____

Location of Photograph_____

Searching Data

Name to Call_____

Footwear Type_____ Size_____ Sole Pattern_____

Footprint Found and Protected Yes_____ No_____

Location_____

Listing of clothing believed worn, beginning with exterior layers including headwear and gloves, material type, style, and color.

Listing of equipment believed carried including brand name, colors, types.

Listing of sundry items believed carried including quantity and types of food, drink, snacks, cigarettes, matches, glasses, wristwatch, etc.

Planning Data

Activity of victim_____

Activity familiarity_____

Recent conversations about activity and with whom_____

_____

Activity habits_____

Last known location or point last seen_____

Date/Time last seen_____

Area Familiarity_____

Destination_____ Purpose_____

Date/Time due back_____

Location due back_____

Physical condition_____

Previous or current physical problems_____

Medications_____

Attitude/Temperament_____

Contents of last meal_____

Other information_____

_____

_____

Investigating Data

Victim's address_____Phone_____

Local address_____Phone_____

Work/School_____

Due back_____Phone(s)_____

Other commitments_____

Due back_____Phone_____

Location_____

Veh. color, yr., type, license_____

_____

Names from vehicle_____

Name friend/relative_____

Relationship_____ Phone(s)_____

Other person(s) subject may have discussed, or planned activity with_____

_____

Overdue history_____

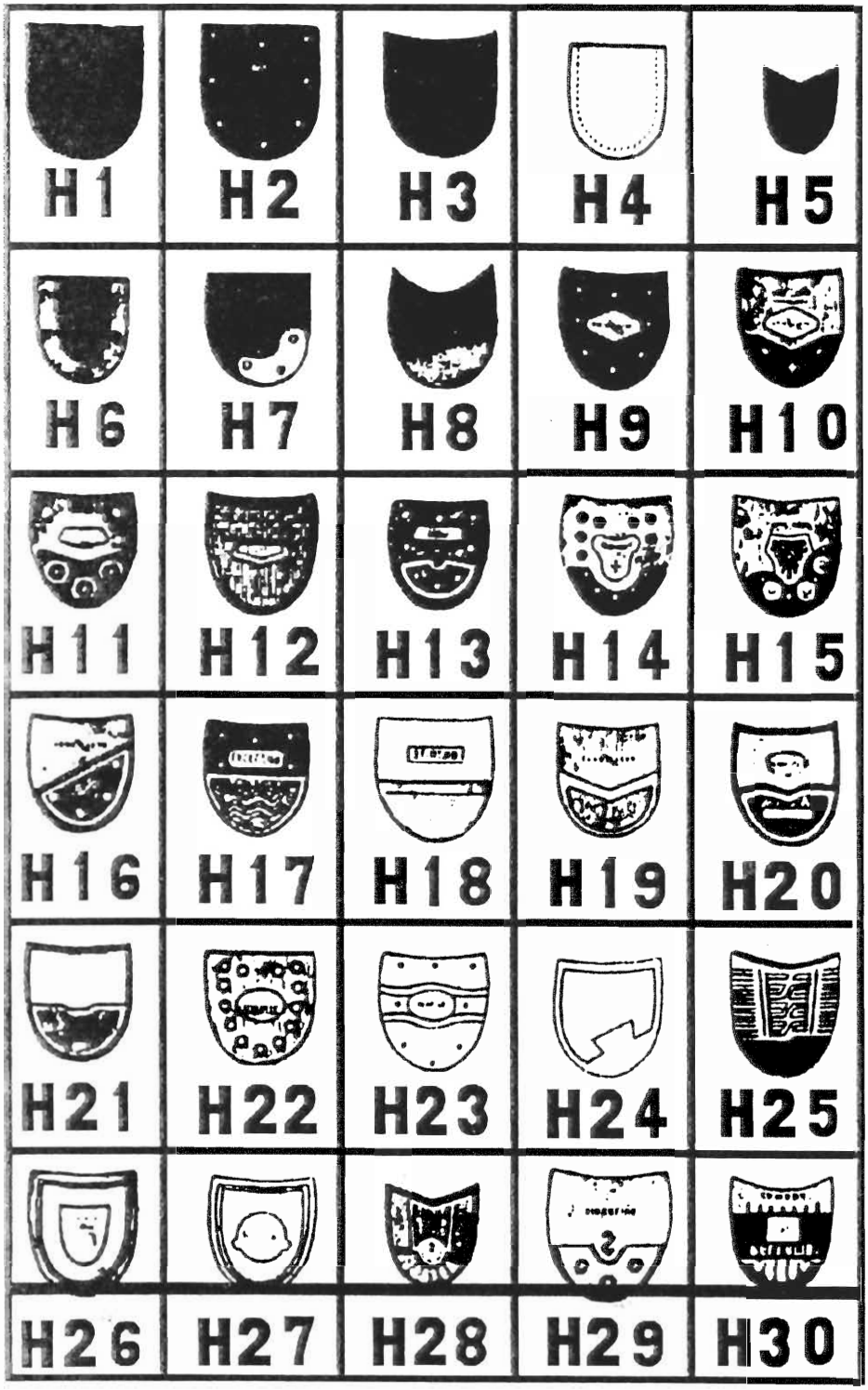
Substance habits_____

Family or personal situations_____

Other information_____

_____

_____


H1
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F21
F22

RESCUE REPORT

1. Name_____
2. Date_____
3. Time_____am/pm
4. Phone no._____
5. Address_____

_____

6. Number of injured or missing persons_____
7. Date and time of accident/incident_____
8. Type of injuries_____

_____

9. Name of person reporting accident_____

_____

10. Phone no._____
11. Address_____

_____

12. Can person reporting accident accompany rescuers?_____
13. Time it took to come out and report accident_____

_____

14. Do injured have adequate food, clothing and shelter?_____

_____

15. Weather at site_____
16. Experience of party_____
17. Location of accident:
    a) Landmarks_____
    b) Topo map label/name_____
    c) Township, range, sect, ¼ sec_____
    d) Topographical feature_____
    e) Aspect_____
    f) Elevation_____
18. Type of rescue equipment needed_____
19. Best route or approach_____
20. Other agencies involved_____
21. What has been done or is now being done?_____

_____

22. Availability of rescue workers and equipment_____
23. Additional comments_____
24. Sheriff notified: Time_____ Date_____
25. Supervisor notified: Time_____ Date_____

LIST IMPORTANT CONTACT TIMES, RADIO DISPATCHES, LOCATION, DESCRIPTIVE ACTIVITY OR ANY ADDITIONAL INFORMATION

USDA
Forest Service

STATEMENT
(Reference FSH 5309.11)

1. CASE NUMBER

2. NATURE OF INVESTIGATION

3. PERSON MAKING STATEMENT (Last, First, Middle)

4. SOCIAL SEC. NO. | 5. DOB | 6. SEX

7. HOME ADDRESS (St., City, State, ZIP Code)

8. DRIVER'S LIC. NO. | 9. PHONE (H) (Area Code)

10. EMPLOYMENT (Occupation and Location)

11. PHONE (W) (Area Code)

12. LOCATION STATEMENT TAKEN

13. NAME OF OFFICER TAKING STATEMENT | 14. DATE/TIME STARTED

15. STATEMENT

I have read the foregoing statement consisting of___ pages. I fully understand this statement and declare that the foregoing is true, accurate, and complete to the best of my knowledge. I have signed or initialed each and every page and have been given an opportunity to make any corrections or additions.

I made this statement freely and voluntarily, without threats or rewards, or promises of reward having been made to me in return for it.

SIGNATURE OF PERSON GIVING STATEMENT | 16. DATE/TIME ENDED

17. OFFICER'S SIGNATURE | 18. WITNESS' SIGNATURE (If Applicable)

FS-5300-16 (4/85)

USDA
Forest Service

STATEMENT
(Reference FSH 5309.11)

1. CASE NUMBER

2. NATURE OF INVESTIGATION

3. PERSON MAKING STATEMENT (Last, First, Middle)

4. SOCIAL SEC. NO. 5. DOB 6. SEX

7. HOME ADDRESS (St., City, State, ZIP Code)

8. DRIVER'S LIC. NO. 9. PHONE (H) (Area Code)

10. EMPLOYMENT (Occupation and Location)

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SIGNATURE OF PERSON GIVING STATEMENT 16. DATE/TIME ENDED

17. OFFICER'S SIGNATURE 18. WITNESS' SIGNATURE (If Applicable)

FS-5300-16 (4/85)

FIRST AID REPORT FORM (Keep with victim)

Start here_____Findings_____	First Aid given
Airway, Breathing, Circulation Scan for urgent injuries (Chest Wounds, Severe Bleeding)	
Ask what happened: Ask where it hurts:	
Take pulse & respirations Pulse= Respirations=	
Head: Scalp—Wounds Ears, Nose—Fluid Eyes—Pupils Jaw—Stability Mouth—Wounds	
Neck: Wounds, Deformity	
Chest: Movement, Symmetry	
Abdomen: Wounds, Rigidity	
Pelvis: Stability	
Extremities: Wounds, Deformity Sensation & Movement Pulses Below Injury	
Back: Wounds, Deformity	
Skin: Color Temperature Moistness	
State of consciousness/orientation (knows name, etc.)	
Pain (location)	
Look for medical ID tag	
Allergies	
Victim's Name	Age
Completed by	Date & Time

VITAL SIGN RECORD

Record Time	Breaths Rate	Breaths Character	Breaths Rate	Breaths Character	Pulses Below Injury
		Deep, Shallow, Noisy, Lavored		Strong, Weak, Absent	Strong, Weak, Regular, Irregular

Pupils	Skin	State of Consciousness	Other
Equal Size, React to light, round	Color Temperature Moistnes	Alert, Confused, Unresponsive	Pain, Anxiety, Thirst, etc.

RESCUE REQUEST (Send with request for First Aid)

Fill Out Form Per Victim

Time of accident_____am/pm Date_____

Nature of incident—Fall on:

_____Rock	_____Snow
_____Falling Rock	_____Crevasse
_____Avalanche	_____Illness Excessive
_____Heat	_____Heat
_____Cold	

Brief Description of Incident_____

_____

Injuries (List Most Severe First)_____

_____

_____

Skin Temp/Color_____

State of Consciousness_____

Pain (Location)_____

First Aid Given_____

_____

_____

Record	Initial	When Leave Scene
Time		
Pulse		

Victim's Name_____ **Age**_____

Address_____

Notify (Name)_____

Relationship_____ **Phone**_____

SIDE 2 RESCUE REQUEST

Exact Location (Include Marked Map If Possible)

Quadrangle: Section:
Area Description:

Terrain:

_____Glacier _____Snow
_____Rock _____Brush
_____Timber _____Trail
_____Flat _____Moderate
_____Steep

On Site Plans:

_____Will Stay Put
_____Will Evacuate to_____

Can Stay Overnight Safely Yes No

On Site Equipment:

_____Tent _____Stove _____Food
_____Ground Insulation _____Flare
_____CB Radio

Local Weather_____

Evacuation:

_____Carry-Out _____Helicopter
_____Lowering _____Raising

Equipment

_____Rigid Litter _____Food
_____Water _____Other

Party Members Remaining:

_____Beginners _____Intermediate _____Experienced

Name_____

Notify (Name)_____ Phone_____

Notify:

In Park or Wilderness Ranger_____

Sheriff/County Police_____

RCMP (Canada)_____

AIRCRAFT SIGHTING

1. Name_____ 2. Date _____

3. Phone number_____

4. Address_____

_____

Date	Time	Location	Type	I.D.- colors, #'s	Direction Elev.

Note exact location on your trip map.

Return this form to your supervisor.

TRIP LOG

Name_____

Date_____

Phone_____

Address_____

_____

Starting point_____

Ending point_____

License plate numbers at trailhead:_____

_____

Your daily log can be used to record observations of plants and animals, activities, accomplishments, trip conditions, unusual encounters and general observations.

Date	Location	Record

Date	Location	Record

Photographic Log

Name_____

Date_____

Phone_____

Address_____

Roll #_____

Photo no.	Date	Time	Location	Description (if necessary list witnesses)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Photo no.	Date	Time	Location	Description (if necessary list witnesses)
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				

Type of camera_____

Type of film_____

Developer (name of co.) _____

Date sent to developer_____

Additional remarks:

If witness(es) used:

name

phone

address

inches
1
2
3
4
5
6
7
8
centimeters
1
2
3
4
5
6
7
8
9
10
11
12
13

Comments

Format If you believe the format of this publication could be improved, please list your specific recommendations below.

_____

_____

_____

_____

_____

Corrections If you find inaccuracies or incomplete information we would appreciate it if you would identify those for us. Please photocopy the inaccurate or incomplete reference, make corrections by hand on the photocopied page and mail that to us.

Additions If you would like to submit additional material, form, or graphics to include with this field guide, please send electronically or hard copy to:

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