

Revised Draft Attachment A

**United States Forest Service, Mt. Shasta, CA.
The Wilderness
Search and Rescue Plan
April 28, 2003**

USFS Search and Rescue Plan

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Introduction

Purpose

This plan establishes responsibilities and guidelines for U.S. Forest Service employees for the proper execution of search and rescue (SAR) missions in the Mt. Shasta and Castle Crags Wilderness.

Physical Description

Castle Crags Wilderness area is a 10,400 acre wilderness with elevations rising from 2,700' to 6,544'. Since Mt. Shasta has such an incredible elevation gain from 3,000' to 14,162', we will focus mainly on the Mt. Shasta Wilderness area. Mt. Shasta is a massive compound strato volcano composed of four overlapping cones; geologists estimate its age to be 350,000 years old. Mt. Shasta is the largest volcano in the Cascade Range, with a total volume of 100 cubic miles. It also has one of the greatest base to summit rises of any mountain in the lower 48 states of over 11,000 feet. Due to its great size, Mt. Shasta intensifies existing weather conditions and major storms can occur at any time of the year. Even on clear days, 60 plus mile per hour winds are not uncommon during summer months, with greater wind speeds occurring in winter. Temperatures can be extreme, with high day-to-night fluctuations.

Mt. Shasta rises to a height of 14,162 feet from a base of approximately 3,000 feet. Most hikers, skiers and climbers begin their ascent from trailheads at approximately 7,000 feet. Since most visitors live at or near sea level elevations, Acute Mountain Sickness (AMS) is common at mid-elevations (9- 10,000 feet). High Altitude Cerebral Edema (HACE) and High Altitude Pulmonary Edema (HAPE) have occurred and required medical evacuations in recent years.

There are 7 named glaciers on Mt. Shasta, containing numerous crevasses, icefalls, seracs, bergschrunds and other obstacles. In addition to glaciers, there are steep snow and ice fields offering challenging climbing. These hazards demand technical climbing skills and experience, especially of rescuers.

Snow avalanches occur frequently on Mt. Shasta, with small sluffs to huge destructive slides during the fall, winter and spring. In summer, snow avalanches are less common, but rockfall and mudslides becomes a major hazard, continuing into autumn.

Recreational Use

The popularity of hiking, climbing, skiing and boarding on Mt. Shasta has increased dramatically over the past decade and continues to grow, due in part to the media (i.e.- magazines, newspapers, books, television and the internet). Mt. Shasta has been called "one of the 10 best ski mountains in the world" by several writers. Currently, approximately 12,000 people attempt the peak annually, with about 50% reaching the summit. Three to four times that number visits the wilderness in a typical year.

Not coincidentally, the numbers of Searches and Rescues and retrievals have also increased in recent years. In 2000, Siskiyou County SAR and USFS Climbing Rangers were involved in 44 incidents of Search, Rescue or Assist. These incidents were broken down into: 9 searches, 13 assists and 22 rescues. Injuries included fractures, sprains, dislocations, frostbite, cerebral edema, punctures, lacerations, hematomas, etc. There were also 3 fatalities; the first time in almost 10 years that there were three in one year.

Forest Service Responsibility

Pursuant to 16 USC 575, The Secretary of Agriculture is authorized to incur such expenses as may be necessary in searching for persons lost within the National Forests or to provide transportation to persons seriously ill, injured, or who die within the National Forests, to the nearest place where the sick or injured person(s) may be transferred to interested parties or local authorities. The primary responsibility, however, is that of the County Sheriff and although the Forest Service may be the first on the scene, the search and rescue responsibility will be under the umbrella of County authority.

The Mt. Shasta Wilderness (MSW) is managed by the Shasta McCloud Management Unit (SMMU) inside the Shasta-Trinity National Forest. SMMU currently employs three year round Lead Climbing Rangers and three seasonal Climbing Rangers to provide climbing route information, safe climbing information, avalanche forecasting and education, information on clothing and equipment, and low impact climbing and camping information. Additionally, rangers patrol the mountain's popular climbing routes to remove garbage waste, maintain wilderness standards, provide the above information and provide assistance to climbers when needed.

In many emergency incidents within the Mt. Shasta Wilderness in recent years, Forest Service Climbing Rangers have been the first emergency care providers on scene. The present Memorandum Of Understanding (MOU) recognizes that "USFS personnel are often the nearest public agency available to the Wilderness Area, which can take prompt initial action in the event of emergency incidents." The present MOU also states: "Upon becoming aware of an emergency incident within the wilderness area which threatens life or property, the Forest Service should take such immediate action (first aid) as deemed necessary under the circumstances, advise the Sheriffs Dept. of action taken and if the Forest Service can carry the emergency action to completion".

Climbing Rangers are trained as Emergency Medical Technicians (EMT). They are proficient with crampons and ice axe, glacier travel, knowledge of crevasse rescue systems, snow and ice anchors, working knowledge in belays and rappels, low and high angle rescue techniques and avalanche search and rescue. All Climbing Rangers are S- 271 qualified in basic helicopter operations, one is rappel qualified and one Lead Climbing Ranger is qualified as a Helicopter Manager. Climbing Rangers climb Mt. Shasta regularly, and can competently climb and safely descend Mt. Shasta's most difficult routes. Climbing Rangers are fit and acclimatized to the mountain's thin air.

Forest Service Incident Management

SAR operations will be managed using the Incident Command System (ICS). At the earliest opportunity the command of an incident will be the responsibility of the Siskiyou County Sheriff's office. Until that transition occurs, a designated Forest Service Officer will act as Incident Commander (IC) and will utilize Forest Service personnel and resources, as needed, to complete the mission. When it is determined that more resources are needed to complete the mission, the Sheriff's Office will be notified of this need so they in turn can facilitate the order. In the event of immediate need resource orders, concurrence from the Sheriff's Department is adequate.

When a Climbing Ranger(s) is first on the scene, they will act as IC until relieved by the designated Forest Service Officer or the Sheriff's office. Once relieved as IC, the Climbing Ranger will become Scene Coordinator until relieved by personnel of equal or greater skill, training, experience and knowledge of the area. If necessary, the Forest Service IC will advise the Sheriff's Office of action taken, facts ascertained, and if the Forest Service can carry action to completion. The Forest Service

Officer will remain at the base of operations to assist in communications, to furnish guide service to the scene, and provide recommendations based on knowledge of the area.

Responsibilities of the Incident Commander (IC)

- Ensure the safety of any bystanders and rescuers in all phases of the operation and ensure that the operation is conducted in a safe manner
- Ascertain the facts: nature of incident, search or rescue, or retrieval
- Determine the extent of injuries (are they life threatening?)
- Determine the location of injured or last seen area (LSA)
- Notification of Sheriff's Office, Duty Officer, or if Duty Officer is first notified, Duty Officer will notify Lead Climbing Ranger, ECC, LEO and other Climbing Rangers
- Appoint Accident Scene Coordinator if rescuers are not already on scene
- Determine best method of evacuation: walk, sled, snow machine, helicopter, etc.
- Determine how to transport rescuers: (same as above), if necessary, order helicopter through ECC, following guidelines in Helicopter Rescue Plan
- Assign Helicopter Manager- usually Lead Climbing Ranger
- Maintain radio contact with Accident Scene Coordinator and other rescuers
- Advise Sheriff's Office of action taken, action to be taken and if the Forest Service can carry action to completion
- Arrange for support supplies and any additional personnel that may be required
- Manage overall operation
- Determine tactical frequency for operation

Responsibilities of the Scene Coordinator

- His/her own safety. Has the authority to halt any activity that he/she deems unsafe.
- The safety of other rescuers.
- Securing the scene.
- Assessing the scene: location, elevation, and environmental concerns.
- Patient evaluation: ABC's, first & secondary surveys.
- Notify the Duty Officer who in turn will notify the Sheriff's Office, other Climbing Rangers, and the ECC.
- Inform IC of: patient(s) condition (chief complaint, height, weight, medical history and other necessary information), location, rescue personnel and bystanders on the scene, recommendation for evacuation (walk, sled, snow machine, helevac).
- Lowering the victim (see procedures for high/low angle lowering).
- Make resource recommendations (transport, personnel, equipment).
- Helicopter evacuations. (See "Helicopter SAR operations for Mt. Shasta")
- Determine if a potential helispot exists
- Determine if the patient can be safely moved to a potential helispot or determine if extrication by other means will be necessary.

Helicopter Search and Rescue Operations for The Mt. Shasta Wilderness

Helicopter search and rescue operations on Mt. Shasta present unique and special challenges to safe flight operations. Risk assessment techniques indicate a higher level of aviation safety risk involving flights on Mt. Shasta because of the critical flight envelopes that are found in no other location on the forest. Pilot experience and qualifications are also critical. In addition, geographic and terrain considerations combine to make the operation extremely critical in terms of safety. As per the Interagency Helicopter Operations Guide (IHOG), "High Risk" rated missions must be approved by the agency line officer. (Chapter 3-7, IHOG). All of the following factors combine to create critical flight operations.

- 14,000' elevations with density altitudes well over 15,000'.
- Erratic and unpredictable wind conditions that can readily result in uncontrollable aircraft performance.
- Pilots of search and rescue cooperator aircraft may have little experience in alpine flight operations.
- Cooperator aircraft selected for the search and rescue operation may have severe power depreciation at these higher elevations, especially turbine engine aircraft.
- Landing zones at the higher elevations may be snowfields.
- Cooperator aircraft often do not have the required snow pads, but rather have wheeled landing gear that makes them especially susceptible to settling in the snow.
- Landing zones change with time, snowfields melt in the afternoon sun causing aircraft settling, increasing the risk of rotor strike or other loss of control. Mission planning becomes critical to ensuring safe operations.
- The operations often involve serious injuries with potential for loss of life, which creates a sense of urgency. This is an aviation situation that shouts, "Watch out! "

While Search and Rescue Operations typically result from injury or missing person reports, and a sense of emergency seems prevalent, they do not, by themselves, constitute an emergency as outlined in IHOG. Planning and executing SAR flights are routine in that they occur frequently throughout the season, much like fire suppression missions.

For the above reasons the following Operational Procedures will apply to all Mt. Shasta Search and Rescue Operations involving Forest Service personnel.

1. All IHOG requirements will be met unless specifically spelled out below and agreed to by the Forest Aviation Officer. Even though IHOG requirements are clearly spelled out in that document, critical provisions will be repeated here for future reference.

2. All personnel involved in the flight operations will be trained to the S-271 Basic Helicopter Operations level with annual refreshers. If not trained to S-271 level, passenger personnel will receive a full safety briefing prior to operation.
3. A helicopter manager will be assigned to each incident involving FS personnel and aircraft.
4. All personnel will wear PPE that consists of an SPH-4 or 5 flight helmet, with functional avionics, one Carter pigtail adapter to be with each flight helmet, aviation flight gloves (leather work gloves are acceptable), nomex flight suit or other suitable nomex flight garment.
5. Prior to any flight, a flight plan R5-5100-225 (9/91) will be filed with the Redding ECC. This information will consist of aircraft make, model and tail number, pilot name, aircraft pilot and carding verification, names and weights of passengers and home base of aircraft.
6. Whenever two or more rotary aircraft are assigned to an operation for more than one day, the subunit will order a Helibase Manager to oversee the operation as it relates to Forest Service Employees (IHOG 15- 1). The benefiting function pays for the resource.
7. Helicopter flight communication following will be accomplished through assigned ground personnel and coordinated with the Shasta-Trinity Forest dispatch.
8. Manifests and load calculations will be prepared per provisions of IHOG.
9. Safecoms will be prepared by the Chief of Party for any incidents that occurs during the operation.
10. The SMMU Duty Officer shall be informed immediately when aircraft operations are planned and he/she may serve as the liaison to the Redding ECC or the Forest Aviation Officer.
11. Landing Zones and helispots on the mountain must be approved for operational use by a helibase manager, helicopter manager, or a pilot. Per IHOG, Chapter 15 B. "All helispots must be approved regarding hazards and capability (HIGE or HOGE) by a trained and authorized individual. A helispot map shall be submitted annually showing potential helispots and may describe suitability for type of aircraft.
12. The Scene Coordinator will determine whether a potential helispot exists nearby and if the patient can be moved to that spot. If no nearby helispot exists, the Scene Coordinator will make recommendations to the IC depending on aircraft, pilot and crew qualifications: short-haul, hoist, step-out, one-skid and toe-in landings. Only authorized or trained personnel will be allowed to perform hoist and short haul operations.
13. Prior to the beginning of each season and prior to any Forest Service involvement in wilderness SAR flights, Climbing Rangers, Unit Recreation Officer, Dispatcher, Duty Officer, Law Enforcement and Forest Aviation Officer shall meet to discuss operations for the year. All equipment shall be inspected at this meeting to ensure that it is available and in the proper working order.

Approval Guidelines for Use of Mechanical Equipment for Search and Rescue Within The Mt. Shasta and Castle Crags Wilderness

The Shasta-Trinity National Forest Emergency Command Center Floor Supervisor has been delegated the authority by the Forest Supervisor to authorize mechanical equipment use in the wilderness for situations in which an immediate threat to life exists. This includes aircraft and other motorized equipment. The Forest Supervisor retains the authority for approving any other use of motorized equipment to enter the wilderness.

The Sheriff's Department shall either make the request directly to ECC or through a Forest Service Representative. Request for use of aircraft or specific motorized equipment will be made by the following categories:

Category 1 *

Immediate threat to life. When the use of aircraft or mechanized equipment is the only viable method of saving life. These requests will be granted by dispatch immediately.

Category 2 *

Retrieval of remains. When the use of aircraft or mechanized equipment is the only viable method for body retrieval. Request will be made to dispatch and the Forest Supervisor is the authorizing official. A response will normally take no longer than 30 minutes.

Category 3 *

Use of aircraft or mechanized equipment will minimize exposure to rescue personnel. Requests will be made to dispatch and the Forest Supervisor is the authorizing official. A response will normally take no longer than 30 minutes.

- ❖ Each of the above situations will include information to support the recommendation. Lack of a clear or complete description of the situation may delay the approval process.