

## CONCEPTS

# Wilderness Search Strategy and Tactics

Ken Phillips, BS; Maura J. Longden; Bil Vandergraff; William R. Smith, MD; David C. Weber, BS; Scott E. McIntosh, MD, MPH; Albert R. Wheeler III, MD

*From the Search and Rescue National Park Service–Washington Office, Washington, DC (Mr Phillips); National Park Service Climbing and Search and Rescue Ranger (Ms Longden); Grand Canyon National Park Backcountry Ranger (Mr Vandergraff); St. John's Medical Center, Jackson, WY (Dr Smith); University of Utah, Salt Lake City, UT (Mr Weber); University of Utah, Salt Lake City, UT (Dr McIntosh); St. John's Medical Center, Jackson, WY (Dr Wheeler).*

Reports of overdue persons are common for search and rescue personnel. Search incidents for missing persons are conducted following established industry standard practices, which are continuously refined through experience and the analysis of previous search operations. Throughout this process, elements of uncertainty exist, and the knowledge and experience of the searchers and search managers may influence the outcome significantly. A sound knowledge of current search tactics will help search and rescue medical providers function more effectively during search operations. Initial actions during a search incident include 3 primary tasks that must be accomplished on any search: investigation, containment, and then hasty search efforts. Concurrent with these initial actions are the establishment of the search area and a formal US National Incident Management System incident command system. That is essential for an efficient operation and will lay the groundwork for expanding the operation past the initial operational period. The goal of applying these standard search management practices is to allow searchers to maximize their efforts, reduce some of the inherent uncertainty, and most importantly, place searchers in a position to detect the missing person.

*Key words:* search, rescue, land, strategy, tactics, wilderness

## Introduction

*In early October, Ryan Powell, an accomplished ultra-runner, fails to call home as planned after a daylong trail run in Yosemite National Park. Becoming anxious as nightfall sets in and with a storm developing over the Sierra Nevada, his wife Linda contacts the National Park Service. Yosemite Search and Rescue (YOSAR) initiates an organized search effort. (This search scenario at Yosemite National Park was constructed to provide a practical understanding of how search management practices are applied in the field. The case is entirely fictional and is used only to demonstrate search management practices.)*

Reports of overdue persons are common for search and rescue (SAR) personnel. Eighty percent of all search subjects are male. Hikers and hunters combined represent the largest portion of search subjects (39%).<sup>1(p16–29)</sup> Between 2010 and 2012, the National Park Service

managed an average of approximately 3000 search incidents annually.<sup>2</sup> Search incidents for missing persons are conducted following established industry standard practices, which are continuously refined through experience and the analysis of previous search operations.

## Land Search Background

According to author Dennis Kelly, “The theory of search was born with operations research in World War II. The theory was used by the Office of Naval Research to cope with the menace of Nazi submarines.”<sup>3</sup> Kelly compiled statistics regarding lost person behavior and published *Mountain Search for the Lost Victim* (1973), which was the first ground search management textbook.<sup>3</sup>

Current land search management training in the United States has a foundation with the Managing the Search Function Course, originally developed in 1972 by the National Park Service at the Albright Training Center, Grand Canyon National Park.<sup>4</sup> Although advances in technology have greatly improved the efficiency of search operations, the methods taught in that original course are still the foundation for the land search management techniques used today.

Disclaimer: The views expressed in this paper are those of the authors and do not necessarily reflect the views of the National Park Service.

Corresponding author: Albert R. Wheeler III, MD, St John's Medical Center, Emergency Medicine, PO Box 7890, Jackson, WY 83002 (e-mail: wheelerdoc@mac.com).

After a subject is reported missing, the initial actions taken during the first operational period of 8 to 12 hours will normally locate the subject, and the situation is resolved. A 10-year review of US National Park Service search incidents (2003–2012) found that 96% of all search incidents were resolved in less than 1 day through initial actions.<sup>2</sup> These initial actions include 3 primary tasks that must be accomplished on any search: investigation, containment, and hasty search efforts. Concurrent with these initial actions are the establishment of the search area and a formal US National Incident Management System (NIMS) incident command system (ICS). That is essential for an efficient operation and will lay the groundwork for expanding the operation past the initial operational period.

When the subject is not located during the first operational period, the search then expands into an extended search operation. These extended search operations may last for days to weeks, spanning several operational periods and requiring a more detailed and systematic use of search management techniques. This paper provides a summary of initial search management actions and discusses when and how to expand the operation during extended incidents.

### Investigation

*Yosemite Ranger Dave Hope, the initial incident commander (IC) for the search, interviews Linda Powell by phone. The IC obtains detailed information about the missing subject, who had planned to run the Lyell Canyon-Vogelsang-Rafferty Creek Loop, which is a 20-mile (32 km) route encompassing the Tuolumne Pass area (elevation 10,000 feet [3048 m]) in the eastern portion of the park. Using a lost person questionnaire, the IC obtains detailed personal information about the subject, including physical description, outdoor experience, health concerns, personal equipment he was carrying, and his personality traits. The IC learns that the subject has not been on this route previously and developed his trip plan from information he read on a trail running blog. The IC also learns that the subject intended to leave his cell phone in his vehicle parked at the trailhead. With an early winter storm setting in, the IC evaluates the urgency of the incident based on a search urgency rating chart. Several factors, including traveling solo, known hazardous terrain, and the hazardous weather that is changing from freezing rain to snow in the area, are all given a very high urgency rating. These are considered “red flags” in the evaluation process, indicating that searching for the subject is an urgent priority and that a wait-and-see approach is not appropriate. Initial investigation efforts locate the*

*subject’s vehicle at the trailhead parking lot, indicating he is most likely still in the area (Figure 1).*

A structured command and control organization must be applied to the search incident. Early establishment of the NIMS ICS is important. The first responder to an emergency becomes the initial IC and begins the investigation. As the incident expands in complexity, the initial IC is commonly relieved by a more experienced person. Comprehensive investigative efforts are immediately initiated from the onset of the search and will continue throughout the incident. Background information should be collected about the search subject through sources such as interviews with family and friends, social media, financial transactions, cell phone records, criminal history check, Internet searches, and so forth. This information, which becomes the subject profile, helps determine the search location. The time spent performing these tasks can save hours of searching if the appropriate information is collected.

Three distinct terms are used in search management to describe useful points of reference that should be determined during the investigation: point last seen (PLS), last known point (LKP), and initial planning point (IPP). The initial step is typically determining the location of the PLS, established by an eyewitness, for example. Clues located through the course of the search provide additional updated information on the subject’s direction of travel and areas traveled. Although the subject may not be physically observed, a verifiable clue, such as a signature in a summit register, provides a LKP. Additional information discovered during a search may alter the PLS or LKP. The IPP is a reference point that does not change during an operation. It may be established as either a PLS or a LKP depending on which is closest to the missing subject based on their travel history. Initial search planning efforts and travel distance calculations are all based on the IPP. Establishment of these geographic locations will help determine the initial search area.

### Containment

*The IC delegates the role of incident investigator to another ranger so that he can remain focused as the IC. He activates a callout for additional trained SAR personnel. With the investigation efforts ongoing, the IC’s next concern is to contain the subject and prevent the search area from expanding. He assigns a containment team to establish a camp at the Lyell Canyon (John Muir Trail) and Rafferty Creek Trail junction at Tuolumne Meadows. The IC makes radio contact with 2 trail crew employees camped to the south at Merced Lake Ranger Station (6 miles [10 km] from Vogelsang High*

Download English Version:

<https://daneshyari.com/en/article/2614108>

Download Persian Version:

<https://daneshyari.com/article/2614108>

[Daneshyari.com](https://daneshyari.com)