

Tech Rescue Is On Fire!
Integrating Technical Rescue into the Wildland Fire Environment
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Abstract

Rapid Extraction Module Support teams (REMS) are specialized teams deployed to wildland fires for the purpose of performing technical rescue. Their responsibilities include, but are not limited to, high-angle, embankment, swiftwater and helicopter rescue. These rescue missions are further complicated by the constraints of operating within an active wildland fire incident.

Given the recent developments and popularity of REMS, it is important to understand the conditions and methods that best integrate technical rescue into the unique setting of wildland fire. Guidelines for REMS are new and evolving; REMS are not yet defined by the National Wildfire Coordinating Group (NWCG).

REMS teams will reflect the technical rescue culture and practices in which they were trained. It is suggested that teams look across disciplines in mountain rescue and heavy fire rescue to determine the optimal solution. An understanding of the historical evolution of technical rescue on fires will allow the modern REMS teams to make informed choices about their equipment, standard operational guidelines, and best practices.

There is no one-size-fits-all approach to the techniques and methods that should be used when performing technical rescues on wildland fires. However, there are guiding principles that become apparent when one understands the environment in which one is operating. The physical environment of wildland fire is harsh, but just as challenging to the success of a rescue team is the cultural environment. Teams with an understanding of historical context and the ability to integrate with the existing infrastructure will improve their chances of success.

1. Retrospective

Mainstream media is excited to report about REMS teams, proclaiming them as “first to use new rescue method,” the first teams of their kind, and “the RIT [Rapid Intervention Team] of Wildland Fire,” but who was performing rescues of injured wildland firefighters before the acronym “REMS” was coined in 2012, and more importantly, what can we learn from the predecessors of REMS?

Consider the following three incidents, all whose rescuers are predecessors to the contemporary REMS team:

- Eight US Forest Service Smoke Jumpers are called from their base to jump into a forest and extricate an injured person who has fallen on horseback. They make patient access by parachute. From the time of the accident to the time of paramedic level care, 45 minutes lapse. Ground access would have taken at least eight hours. (2000, Pasayten Wilderness)
- National Park Service Climbing Rangers are called to a wildland fire to search for a missing firefighter who may be in high-angle terrain. They are requested to bring high-angle rescue equipment and a team skilled in search management. (2013, Schoolhouse Fire)
- A Type I Handcrew, a Fireline Medic and a Line Safety Officer carry out an injured crew member on a Traverse Rescue Stretcher (TRS) through dense timber on a sustained 35 degree slope. They transfer the patient to an ambulance staged on the road below. (2017, Brianhead Fire)

These incidents and hundreds more like them contain lessons learned for the modern REMS team. Historical accounts of rescues, with both good and bad outcomes, are especially important because documentation of the successful use of REMS teams for the purpose of technical rescue is rare. By and large, REMS teams are still unproven in technical rescue.

One particular incident is cited frequently as having a monumental change on the cultural landscape of wildland fire. The Dutch Creek Serious Accident Report details a tragic death caused by a series of unfortunate events and an inadequate rescue. Wildland fire agencies are still working to improve emergency medical services and implement the guidelines created in the aftermath of the Dutch Creek Incident. It is hoped that REMS teams will be the next level of improvement.

On July 25, 2008, Andy Palmer, an 18 year old firefighter for the National Park Service bled to death during a tree falling accident on the Eagle Fire, which was burning on the Shasta-Trinity National Forest in California. His death was preventable. He had a fractured femur with trauma to the femoral artery secondary to being struck by a large tree. His extraction was long and disorganized, taking over three hours.

The NWCG initiated changes to the way medical units organized themselves and shared information about resources with firefighters in the field. Following the recommendations of the Dutch Creek Serious Accident Task Team, aspects of emergency medical evacuation procedures and communications were standardized. Soon after the incident, guidelines for how many EMTs to order dependent on the number of firefighters on a incident were published in the Red Book, a.k.a. Interagency Standards for Fire and Fire Aviation Operations, produced by

National Interagency Fire Center (NIFC). Numerous publications were distributed to help propel an awareness campaign, including the “Six Minutes For Safety,” and education on the new “Dutch Creek Protocols.”

While emergency medical response to the Incident-Within-an-Incident continues to improve, there are still dysfunctional practices that need to be better addressed by wildland fire agencies and the Incident Management Teams (IMT) acting under their jurisdictional authority. There are currently IMTs and Medical Units that are unaware of, or misunderstanding of the state laws that regulate EMTs ability to practice medicine. Firefighters are often crossing state lines and working across the country. Each state has its own requirements. Without medical direction or the appropriate state credentials, well-meaning EMTs are putting themselves at risk of legal action. The NWCG “Limited Request for Recognition” for out-of-state EMTs is an excellent step in the right direction, but several state EMS offices do not recognize or accept the request. DEA rules make it difficult for ALS providers to travel to fires with the appropriate pain control medications. Medical Unit Leaders (MEDL) and providers incorrectly cite the Recognition of EMS Personnel Licensure Interstate CompAct (REPLICA) and the National Registry of Emergency Medical Technicians (NREMT) as having already provided a complete solution, while some state laws are ignored. After many years of frustration among medical providers, federal jurisdictional authority still occasionally conflicts with state law when regarding wildland fire emergency medicine.

2. Present Conditions

To integrate within the larger wildland fire culture and command structure, an understanding of existing tools and programs is necessary. The following terms will be discussed during the course of the presentation.

- California Firescope
- 2017 Firescope REMS Team Update
- U.S. Dept. Of the Interior Incident Position Qualification Guide (IPQG)
- USFS Helitack Short Haul Program
- UTV (regulations, cost, terrain and weight limitations, patient transport capability)
- GAR Model / ORMA Score
- Medical Incident Report (MIR) in the Incident Response Pocket Guide (IRPG)

3. Recommendations for the Modern REMS Team

A. Team gear should be selected with a bias towards lighter and minimalist rigging whenever possible. While UTVs, 4x4 trucks or helicopters may be able to hasten patient access, often patients must be accessed on foot. Terrain may lack roads, include dense, down timber or brush, and steep terrain at a considerable distance from potential helispots. Prusiks are much lighter to carry than other progress capture devices or belay devices. A 540 Rescue Belay is great on a truck, but who wants to carry it up a mountain? Elegant system design in this setting means having the skills to build what you need with as little gear as necessary and the lightest gear possible. (If you can build a high directional for a difficult edge transition with a tree, a piece of webbing, a light carabiner and pulley, then please consider it, but you may want to leave the Vortex in the truck.)

B. Do not unnecessarily overbuild systems. Understand breaking strengths and areas of stress. This deters the hauling around of unnecessary equipment and the waste of valuable time setting it up. Not every anchor needs a wrap-three-pull-two.

C. Clarify the type of system required by the terrain, based on risk and consequence rather than merely slope angle. Often rescues requiring patient movement in steep terrain are carried out by experienced fire crews (not REMS teams) who move quickly through thick timber on steep slopes daily. These crews are often more surefooted than the REMS teams or fireline medics who come to assist the rescue. At times, rope systems have slowed the progress of patient extraction which would have been adequately performed without ropes or with a moving tail-rope. Different perceptions of risk should be acknowledged and addressed between the different types of resources and personnel on the scene. REMS teams can facilitate those conversations.

D. To date, there have been no documented rescues on wildland fires requiring ropes in vertical/high-angle terrain. (I have searched intensively. If you know of any, please contact me. I would like to hear about it. -M.D.) The need for vertical/high-angle rescue may arise, thus the REMS team should be well prepared for it. Nevertheless, the more frequent need for patient extraction is in difficult, low-angle or moderately steep timber. Movement in such terrain while carrying heavy line gear, equipment, and a patient is more arduous than most high-angle/vertical rescues because movement in high-angle/vertical terrain is reliant upon ropes. The level of fitness required is best exemplified by the typical Hotshot Crew. Hotshots maintain their fitness for duty with daily physical training regimens. They are known colloquially as the *billy goats* of wildland. If REMS teams are going to assist a Hotshot Crew, they should be able to physically keep up with the Hotshots.

E. Statistics suggest that Hotshots are the type of firefighter most likely to incur orthopedic trauma, presumably due to the difficulty of their assignments. They work in steep terrain. Hotshot crews train for and perform carry-out rescues of their fellow crew members with a high level of skill, efficiency, and team cohesion. They are disciplined, self-contained and work independently in groups of approximately 20 personnel. If a REMS team is to assist a group of

firefighters performing a rescue, they will better integrate with the crew they are assisting if they understand the chain of command that exists before their arrival. The crew is already a cohesive unit that knows and trusts their members' capabilities. Hotshot crew leaders work shoulder to shoulder with their lower ranking charges, earning respect and maintaining situational awareness. If an unfamiliar and unproven rescuer, fireline medic or REMS team attempts to save a member of a deeply bonded crew of twenty, they will have much better success if they have established rapport, earned trust and respect, and acknowledge the capabilities of the crew they encounter.

F. Many crews have EMTs embedded within their ranks. These EMTs are often unknown to the Medical Unit Leader (MEDL), nor are they recorded in the daily Incident Action Plan (IAP). Often, these EMTs do not have medical direction or approved protocols; sometimes they are working out of their home states without the required state licensure or certification. It is common that these EMTs have paid for their own training and receive little support from their employing agency. They have received training in order to better care for their fellow crew members. If a REMS team arrives on the scene of an injury, it is important to recognize when patient care has already been established. If a change in roles is to be made, for example a change in Lead Medical Provider, ICS requires communication between the ingoing and outgoing Lead Medical Provider. This crew member EMT will often be caring for the patient long before a fireline medic or REMS team arrives. It is unwise to assume care of a patient without acknowledging previous care rendered and clarifying changes to the Incident Command Structure. Too often, enthusiastic EMTs and Paramedics walk onto a scene and assume command or lead patient care without recognizing the established chain of command.

NOTE: An unabridged version of "Tech Rescue Is On Fire!" including References will be available on the ITRS website.

Presenter Bios

Margaret Dungan (EMPF, MEDLt) has been working professionally in extreme terrain since 2004. As a paramedic for Grand Teton National Park, she spent over 100 days a summer on wildland fires across the country. She is the former training officer for San Juan County Search and Rescue, where she continues to develop the high-angle training program. Her rescue work with ropes and pulleys began as a whitewater kayaking guide and as a River Ranger with the Bureau of Land Management. Mechanical advantage is her favorite kind of muscle. She is currently Training Officer / Paramedic for the Silverton Ambulance and owner of Remote Response Medics LLC, an EMS training and staffing company.

Tim Lum retired last year from the USFS after completing 26 seasons as a Smokejumper / Paramedic and Task Force Leader. Since the 1980s, Tim has been acquiring lessons learned and good stories. He has served in the DOD as a Special Operation Forces Engineer (Green Beret) and as a Pararescueman (PJ). He has had multiple stateside and overseas assignments conducting training and operational missions in all facets of combat search and rescue (CSAR)

including confined space, underwater, high angle, low angle, crevasse, high elevation, helicopter hoist, parachute employment, backcountry, and NASA astronaut rescue contingencies. Tim is currently a Flight Paramedic / Loadmaster for Berry Aviation, Inc. providing austere casualty evacuation for DOD personnel in NW Africa.