

# Rescue Without the Big Red Truck

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## ***Principles***

As Fire and Rescue personnel, we depend on tools to do our job. Everything from the apparatus to a set of irons to our personal protective equipment falls into the “tools” category: they either protect us from or help us address a specific problem.

However, some tools are more “specific” than others, i.e. limited to a narrow range of uses. If we use that tool, then we likely have similar ones to handle other hazards of the same type, but different enough to require a different tool.

This is all fine and good as long as we can keep those tools within easy reach. However, a hurricane, tornado, rain event, or terrorist act can make it impossible to go into the field with all of your tools: at that point, your success or failure will depend on how well you can adapt the tools you do have or improvise new tools to allow you to complete the task at hand. You may have to lighten your load so that you can reach your objective, and the ability to accurately determine what you will need at journey’s end becomes critical.



Louisiana after Hurricane Katrina  
Courtesy James Vreeland – SC-TF1

Welcome to Lightweight Rescue. The goal here is not to get you to go out and buy thousands of dollars of new equipment – although there are plenty of lightweight solutions, all the money in the world will not solve this problem. The objective is to make you think about how to use the tools you have in new ways, how to extend the usability of the equipment, and how to create solutions using the environment and your skills.

## ***Preplanning***

What exposures do you have?

- Hurricanes
- Tornadoes
- Nor’easters (if you have no idea what this is, don’t worry about it)
- Ice Storms
- Train tracks

- Mountainous areas
- Swamps / low areas
- Interstate highways
- Forest fires
- Earthquakes
- Blizzards
- Industrial facilities
- Terrorist acts
  - Commercial Centers
  - Government Facilities
  - Military installations
  - High-profile targets

Look for problems that might occur if one of the above happens:

- Low areas flooded
- Trees (maybe hundreds!) down
- Loss of power, water, sewer, communication
- Buildings collapsed
- People stranded without supplies
- Ice and/or snow
- Chemical and/or hazardous material spills
- Fires with limited or no hydrant system
- EMS with limited or no medical system

Take any of the above exposures producing any of the above problems, and you will find that the major obstacle to overcome is access. A kitchen fire in a multi-million dollar home is a problem – throw in a quarter-mile-long drive completely blocked by fallen trees from the ice storm yesterday and you now have a massive problem. Your ability to foresee the issues that you may face after some natural or man-made disaster will have a direct impact on your ability to address the emergencies that you will have if the worst happens.

### ***Thinking Light***

The first step in moving toward a Lightweight Rescue capability is to divorce yourself from the truck and all of the goodies that it contains. You need to think about essential items: the bare minimum that you need to address the task at hand. Every pound of gear that you throw into a pack is going to degrade your team's range and abilities. Every piece of equipment that you carry into the field and don't use removes a tool that someone else may desperately need.

Thinking light also requires a thoughtful look at equipment, especially if you're in the market for some. Include versatility, weight, and size in your selection criteria, and

instead of focusing on the “gee-whiz” potential, imagine how this gear will be used, by whom, and what level of familiarity they will need to use it properly and safely.

What about people? How many personnel have the knowledge, fitness, and instincts to successfully operate in this arena? Are they properly equipped? Do they work together regularly in order to increase their effectiveness? Look at identifying people with the skill and motivation to make these difficult rescues work, and positioning those people so that they will be readily available when it’s time to go.

## ***Gear Alternatives***

Obviously, this is a subjective list, and just as obviously some people will take exception to it (that’s fine, email me why and I may agree with you). Here is a list of some “traditional” gear items that could possibly be replaced with something lighter/smaller or eliminated:

- **Ascenders => Prusiks:** Lighter, useful in more situations
- **Steel Carabiners => Aluminum:** NFPA-approved ones are available. Big weight savings.
- **Pulley => Petzel ID:** The ID is a lowering device that can also function as the base pulley in a Z-drag mechanical advantage system. If you think you will need both, this device can save weight and space.
- **Anchor Sling => Nothing:** Anchoring a rappel line? Tie a tensionless hitch around a tree. Use a figure-8 follow though for the tail and eliminate a carabiner as well. For multiple point anchors, use directional figure-8 knots to spread the load and eliminate hardware.
- **Stokes Litter => SKED:** Not as solid as a litter, but much lighter and easier to pack in. Put an Oregon Spine Splint or KED in the middle and you’ve got a versatile immobilization system for vertical or horizontal transport.
- **Re-use your ropes:** You don’t need a rappel, hoist, and backup line. Re-use the rappel line for the backup.
- **Hydraulic Tool => Hi-Lift jack:** Won’t pick up as much as a hydraulic tool, but easier in and out, and doesn’t require gas.
- **Tripod => Rope and small chain saw:** Learn how to build a tripod from timber. Use the chain saw for a multitude of tasks.
- **Compact Trauma gear:** Things like the new multi-trauma dressings being used by the military. You can even carry a traction splint if you get one like the one shown here.



Spinal immobilization and litter in a bag



- **Long length of Prusik cord:** With a little practice, you'll be amazed at the things you can do besides make prusik loops. Hoist heavy stuff up embankments, handlines, directionals, you name it.

## ***Essential Gear***

At this point, you might be thinking that the sole objective of this thought process is to shed gear and make do with less. Although that's true to some extent, the change in operating environment will put you and your people in a world of hurt if you don't add some things to your load-out that you normally are not concerned with.

Keep in mind that there are no brief incidents in this environment, and logistical support will be non-existent or next to it. You need to have on your person the essentials for hydration, nutrition, personal hygiene, and survival. Nobody is going to bring you water or food, and the unknown obstacles you may encounter on calls may keep you out in the field much longer than you anticipate. Incidents in this environment take much longer than normal, and you won't get any relief – everyone else is in the same boat you are.

There are many “essentials” lists on the Internet. US&R, NASAR (National Association of Search and Rescue), every wilderness group has documentation. Items usually fall into one of four groups - hydration, nutrition, survival, or comfort. Don't make the mistake of automatically eliminating comfort: the efficiency of your team will degrade quickly if they're wet, cold, or hurting.

## **Hydration**

- Water – Most guidelines recommend a gallon of water per person per day. You may need more, especially if the weather is hot or you're working hard. At eight-plus pounds a gallon, your pack weights will go up fast. Start with distilled water and change it out every six months or so to keep it fresh
- Purification tablets – Will remove the most dangerous bacteria and pathogens from drinking water. You should not consider tablets as your only solution, since they will not eliminate petroleum or other chemicals typically found in flood environments. In addition, they add an aftertaste to the water that may result in your people drinking less water than they should
- Filtration systems – Some of the new systems remove objects as small as 0.2 microns. That's enough to eliminate most any bacteria in the water, but you still may have issues with some of the stuff that ends up in runoff.

There are a number of solutions. Hydration packs such as the one shown here allow easy transport of water, and several manufacturers make backpacks with the systems incorporated into the pack. Whatever you do, make sure that it's comfortable to carry or it will be left behind.



## **Nutrition**

Energy bars are about the best solution here. They're compact and have a reasonable shelf life as long as the packages are not opened. Military MREs (Meal Ready to Eat) are also an option, although they are bulkier and require more time to consume. Base your solution for nutrition on your expected time in the field: you'll need more horsepower than energy bars if you expect to deploy for more than 8 hours. One solution might be to pack some broken-down MRE packages into a fanny pack that could be added to the gear if it's needed.

## **Survival**

Any deployment that you perform in your new-found "wilderness" environment needs to take into account the reality that a team could be faced with a much more difficult (and time consuming) rescue, that they might have problems getting back, or that some post-disaster event might strand them altogether.

If any of the above happens, your team will be put in a position where they could easily become victims themselves. If they are not prepared to fend for themselves or "weather in place", then you now have a rescue mission that will likely take precedence over the original mission.

In order to avoid this complication, team members should carry the items they will need to survive without support for a twenty-four hour period (minimum – the environment and conditions may require preparation for a much longer exposure). Again, there are many lists available for reference, but a starting point would be:

- Appropriate clothing for the anticipated temperatures. This doesn't mean you need a down jacket for the bayou in September. It does mean that if the predicted low is 25 degrees, then you don't venture out with nothing but a light jacket. Footwear suitable for terrain and heavier clothing for more rugged terrain is a must.
- Backup water options. Even if you're carrying water, carry some purification tablets or a portable filter. If you get stranded, dehydration is one of your worst enemies.
- Medicine. If team members are on prescription drugs, then they need to carry at least one day's supply into the field with them. Lack of insulin for a diabetic on your team could turn an inconvenience into an emergency.
- First aid items, trauma supplies, and someone who knows how to use them are a critical part of any team. If one of your members is injured, there may be a long delay before official care will arrive. We have to take care of our own, and the less confidence your team has in its ability to react to an unexpected crisis, the less effective it will be.
- Batteries. Don't roll your eyes. If unexpected events keep you out too long (or strand you), things you depend on like radios, flashlights, and portable electric tools will start dying, reducing the options you have to perform as planned. Carry extra batteries for everything. Think about standardizing on a single battery size to the extent possible: for instance, you can get flashlights, GPS units, and radios

that will all run on AA batteries. Then add a brick of 24 AA batteries to someone's load-out to cover all the devices of that type for the team.

## Comfort

Comfort items get a lot of ridicule. I mean, we're all tough outdoor types that can handle a bit of inconvenience, right? The reality is that the harder a team has to work to get the job done, the less effective they will be. Items that we use every day and take for granted can be the difference between success and failure in the field. Tailor your lists to your requirements, but start with:

- Painkillers: Name your poison, but bring your own. Keep them up to date and dry, and you can go further with less problems
- Moleskin: Or Second Skin, or any of the other blister/hot spot protectors. Your feet are your most versatile equipment on this type of call – take care of them.
- Hand Sanitizer: If you get sick, it's likely because you got something on your hands that made it to your mouth. Before you break out the energy bars or the MREs, wash up.
- Toilet paper. Think about the moistened baby wipes. They come in flexible packs and can be used for everything from toilet to general clean-up.
- Extra socks and underwear.. Clean up quick with the sanitizer and baby wipes, change underwear and socks, and you're suddenly a new man or woman, not to mention getting rid of the bacteria that can wreak havoc in the foot and crotch area.
- Sleeping bags / cots: You probably won't carry these on hikes, but they sure would be nice if your crew winds up stationed in the boonies because of access problems. Compression sacks and portable designs ease space problems



Save space – use compression bags and portable cots

## People and Training

If you had to choose, which of the following would you rather have?

- The latest, neatest, most expensive gadget specifically engineered for the task at hand.
- The guy that you know will cover your rear at all times and can be depended on no matter how hard it gets.

This should be a no-brainer. The people you have with you are more important than anything else. Your success will hinge on teamwork, talent, and fitness, just like in the calls you run now.

If you get punked out by the time you've gone through one SCBA bottle, this is not for you. You may be clearing trees, moving debris, or hiking – for hours. You need to be physically up to the task, and you need to know how to cheat – the little tricks and energy conservation techniques that allow you to extend your time in the field.

Training together will build your confidence, teamwork, and skills. It will also teach you how to pack lighter, provided you take a critical look at your packs after each evolution. What are you consistently using? What are you consistently NOT using? Take it out and see if you can live without it on your next evolution.

By the way, when you train, put a lawn chair next to the equipment truck. Every time someone goes to get a piece of hardware, tell them to take a seat for 10 minutes or so. Keep in mind that after a disaster, you won't have that truck parked next to the scene. It will be a hike to get anything you need, so the ability to make accurate projections on what you need will be critical. As long as you have piles of equipment nearby, you'll be tempted to grab what you think you need and roll. Take the few extra seconds to think through your loads, and expect to get it wrong. Make your mistakes in training so that when it's for real you've got it right.

### ***Hitting the Trail***

Instead of having everyone shoulder a rigging pack, visualize what will have to be done and the minimum equipment needed to do it.

- Can one piece of gear be reused to eliminate a duplicate?
- Are there lighter alternatives to the equipment you are carrying?
- Is one of your team members adequately trained and equipped to provide medical care for the patient and/or the team?
- Do you have adequate supplies to handle "what if" scenarios?

For instance, you're hiking in a couple of miles to rescue a victim that has fallen. You believe that your team will have to rappel in, stabilize the victim, and then lift him or her out. You will need:

- Two anchors
- Rappel Line
- Victim stabilization
- Hoist line
- Backup Line
- Mechanical Advantage system
- Hardware

Save weight and effort by:

- Pack a SKED unit, with an Oregon Spine Splint or Kendrick Extrication device inside. Leave the Stokes and backboard at home
- Replace your steel carabiners with aluminum
- Add multiple use items like the Petzl ID, and get rid of the equipment that they replace

## **Conclusion**

There is no magic to working in a wilderness environment: there's experience or learning from experience, and that's about it. If you want to be good at it, look to the teams that do it all of the time, study their processes and how they train. If they seem to be overly paranoid about seemingly inconsequential things, you can bet your booty that they hit a brick wall at some point in the past and came away determined to have a ladder next time.

Any of us can be thrust into an unfamiliar and dangerous environment at any time. It could be a terrorist event like in New York, a flood like in Louisiana or Mississippi, or a blizzard like in Denver. Your success or failure will hinge on your ability to adapt to the new reality rather than try to ignore it. Good Luck, and if you wind up in the hot seat please let us know how it turned out.

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**Rescue** *Ex*trication *D*elivery *S*pecialists (**REDS**) is a Technical Rescue Team located in Garner, NC. REDS provides Technical Rescue, Swiftwater, Dive, and Search skills to the state of North Carolina. The team consists of Firefighters, Rescue Technicians and K-9 specialists from the area who pool their expertise and skills to provide a high level of expertise in search and rescue.