

## Search and Rescue and Disaster Gear

### Keith Conover, M.D., FACEP

C:\text\SAR-Disaster Gear\SAR-Gear.doc  
Version 10.3 5/24/17

Winter-only items in **cold blue**, summer-only items in **hot orange**

**I. SAR pack (everything in **green** goes into disaster pack or duffel for disasters) *check for some items in bike panniers, hanging on inside of coat closet door, or daypack hanging on wall above downstairs landing or in back of truck***

- Belt pouches/hipbelt stuff (often on or in daypack in back of truck, or in a net bag next to the pack):<sup>2</sup>
  - Left hipbelt pocket (LowePro D-Res 10AW camera pouch)
    - Waterproof notebook and pen
    - Petzl Nao headlight<sup>3</sup>

<sup>1</sup> My theory used to be to keep pretty much everything packed in the SAR pack and then take stuff out of it when heading out – this way I was less likely to forget something important. However, most of the time, I throw things in my medium-sized daypack. And getting stuff out of the pack was a big hassle. I still might need the bigger pack for winter or long tasks, so it's there, but unpacked. The gear is in a large top-zip duffel bag on top of the pack, much easier to get at.

My regular daypack, which also served as my SAR pack for the majority of missions for well over a decade, was an ultralight Alpenlite pack that had nice little pockets on both sides and on the back; the back pocket had multiple sub-pockets to keep all my little stuff organized. When it wore out, I got an early version of the Vaude Rock Comfort Ultralight 25 pack. It was an ultralight top-loading drawstring pack, with small mesh pockets on either side and a top pocket, but no other pockets. When I did a number of long backpacking trips, I got organized by having things always in the same pockets, and I thought that for a daypack, I also wanted lots of pockets. But with the Vaude pack, I gradually adapted to organizing in modules, all roughly the same size. Fleece and GoreTex tops and bottoms are rolled up, and I use 3.4" black webbing straps with a Fastex snap buckle to keep them neatly rolled. (I use a SilNylon rain liner if the weather's potentially bad, so I don't worry about them getting wet.) Other things are grouped into bags roughly the size of a thin fleece sweater. I throw an appropriate selection of these modules into the pack for any trip or SAR task. When the Vaude pack started wearing out, I tried other packs. I tried an Outdoor Research pack that zips instead of using a top flap and a drawstring. I finally realized why I like packs that are top-loading with a drawstring and top flap: they carry well with just a little bit of gear, and they carry well when you have them seriously overloaded, which is simply not the case with a zip-only pack. So then I got a Marmot Kompressor Summit 28 L pack. It's a little heavier than the Vaude, but it looks as though it will carry small loads well. And for a SAR pack, having the flexibility to carry small or large loads well is important. And carrying well is important, so your pack doesn't slop around and pull you off of a handhold. Of course I got last year's model for half-price at sierratradingpost.com. After some real use, I'll post how I like it.

I won't put liquids in my gear unless they are (1) in a Nalgene container, or (2) inside an Aloksak heavy-duty zipper plastic bag. I also color-code everything. I used to think that this was an affectation by some SAR people I know, but from 45 years of SAR experience, I now tend to color code more than I used to. However, I still don't beat Gene Harrison – Bru Randall once went to a costume party wearing a large cardboard box, painted white, with big, wide green-red-green stripes running down it. Everyone immediately knew he was dressed as Gene's refrigerator.

<sup>2</sup> I used to carry a Garmin GPS 60Cxs. But when I realized I hadn't used it on a single hike, climb or SAR operation, I ditched it. My Android Verizon HTC One (M8) cellphone with BackCountry Navigator works much better. With a waterproof case for it, and a Motorola P-4000 cellphone charger, a backup AA cell charger, and a backup-backup solar charger in my Tumi pack, it weighs the same, and is much easier to use and read. And, I'm going to take a cellphone anyway, so the additional weight and bulk is negligible. The only real problem is trying to use the phone in the rain, even in a waterproof case; the phone interprets raindrops as finger-touches.

<sup>3</sup> This replaced a Petzl Tikka XP, which replaced Princeton Tek EOS headlamp, which replaced a Petzl Zipka Plus Headlamp, which replaced a Petzl Zipka

- 2 spare Nao batteries
- Right hipbelt pocket (LowePro D-Res 10AW camera pouch)
  - 2 granola bars
  - tiny binoculars
  - compass/whistle
  - wrist and head sweatbands
  - contacts saline
  - small roll duct tape
  - counting beads:
    - 5 light 1 dark, 5 light 1 dark
    - 10 light on longer string
- TheMightyPouch neoprene cellphone/camera case:
  - Canon PowerShot A1400 camera (takes disposable AA lithium cells, so works in cold weather)
  - 2 spare lithium cells for above
- Folding toilet trowel/toilet paper
- Altimeter
- Top Compartment Stuff:
  - 2-person and 4-person European-style group Bivouac Sacs (SilBothy 2 and 4 by Integral Designs)
  - 1-Liter Nalgene Water Bottle with duct tape wrapped around it (dayglow orange so may also be used for marking)
  - Pack Rain Liner<sup>4</sup>
  - Small Aloksak plastic bag for wallet, etc.

headlight. I liked the Zipka because it was so light, and bright enough for quick-and-dirty use, but it wasn't water-resistant at all, the switches tended to corrode over time and required taking the unit apart and cleaning with contact-cleaner and a steel brush. And, the foam pad that kept it from denting your forehead got all sticky and gooey after about a year of use. The Petzl Zipka Plus was a step up: brighter (one more LED, better LEDs), water-resistant, non-corroding switch, non-gooey head pad. But then the Princeton TEC EOS offered a 1-watt Luxeon side-emitting LED, which was much brighter and threw a beam farther. But *then* Petzl came out with the Tikka XP, which had a 1-watt Luxeon Star, AND was tiltable to various angles, and includes a diffuser that is an integral part of the light and can be drawn across the front to provide a diffuse area light. It also offers a "boost" option which will, for a few seconds, give you a quite bright beam. And, note: all of these lights AAA cells (I use disposable lithium cells from REI), are very small, very light, and all fit in one of these belt pouches with room for over for other things. The Petzl Nao features two LEDs, one with a diffuser, and a built-in light meter that adjusts the light appropriately, a USB-charged Li-ion battery that lasts for a long time, and can also take two disposable AAA lithium cells when the rechargeable battery gives out. Very, very nice, and is now my main headlight for everything. Petzl now offers a variety of headlights with light meters and rechargeable batteries, but only the Nao lasts long enough for caving or prolonged night SAR tasks. I store with the battery disconnected to prevent battery drain (which, when connected, is a significant issue). I used to carry a backup flashlight with headstrap, but the Petzl Nao is so reliable that I only carry the tiny Petzl eLights as backups.

<sup>4</sup>A pack liner seems much more manageable than a raincover; I have a sil-nylon liner for both this big SAR pack and for my daypack (Vaude Rock Ultralight 25 pack: 1525 cubic inches), which is a top-load pack; instead I use an Integral Designs sil-nylon pack liner, size large; my daughter has a Vaude Rock Mini Rock Comfort 16 pack, 975 cu. in., which takes a small silcoat pack liner. The pack liners are much less klunky than the raincover and work even better to keep your gear dry.

- Large Aloksak plastic bag for use as waterproof map case
- Cascade Designs eCase waterproof cellphone case
- 8 fast-food-type salt packets, sealed in plastic in pairs, for salting food/drinks in hot weather
- Aloksak plastic bag with
  - Nalgene bottle (60 mL) with sunscreen
  - Nalgene bottle (30 mL) with insect repellent
- 2: ASRC Commo Crib Sheets, on waterproof paper
- 2: ASRC Grid Overlays
- 1 spare small Rite-in-the-Rain pocket SAR notebook
- 6 ponytail-style rubber bands, for using a locally-acquired stick as a tracking stick.

#### Basic Survival/Junk Bag<sup>5</sup>

- Outdoor Research Mesh Cube #4 (outer case)
- two heavy-duty Aloksak plastic bags sized for wallet
- Sears ignition pliers
- half roll of flagging tape
- 1 packet of Gatorade mix, to make 1 liter
- water purification tablets (sealed, backup only)
- plumber's candle melted into 2-oz cylindrical fliptop plastic container
- 2.5 gallon military-style canteen-liner water bag, in pint freezer Ziploc bag for protection
- waterproof/windproof matches + striker card in waterproof matchcase
- tiny stuff, in film can: small bits of thread, 5 assorted-size safety pins, 2 paper clips, 4 small pieces of Radio Shack easy-melt solder, one 8-32x1" bolt with nut and two lockwashers, 2 1/2-1/4x1 self-drilling screws
- Lexan spoon
- 1 packet of Gatorade mix, to make 1 liter
- 8 fast-food-type salt packets, sealed in plastic in pairs, for salting food/drinks in hot weather
- Aloksak zip-lock plastic bag with
  - Blanket pin
  - package of four single-use tubes of cyanoacrylate glue
  - 1 50' length of Kelty reflective tentcord
  - 1 5-yard roll duct tape (from rei.com)
  - cable ties:
    - 3" – 2
    - releasable 7" – 2
    - mounting-hole type 10" - 2
    - releasable 11" - 2
  - eyeglass repair kit with screwdriver and spare screws
  - 3" strip of kneadable epoxy putty
  - 5 misc. sized needles, in old case for spare mechanical-pencil erasers
- Aloksak zip-lock plastic bag with
  - 3 leaf bags
- Aloksak zip-lock plastic bag with
  - Fiskars pocket knife sharpener
  - 4 small packets toilet paper, in tiny thin zip plastic bags

<sup>5</sup> Always have in pocket: Swisschamp Swiss Army knife with crosscut saw, file, etc.; windproof Windmill lighter; two Photonlights; small lockback knife.

- red cotton bandanna (with leaf bags in protective Ziploc bag)
- Tiny survival compass
- magnesium firestarter
- Aloksak zip-lock plastic bag with
  - waterproof notebook
  - 2 pens
  - 2 pencils
  - tiny pencil sharpener
  - Petzl e+LITE Headlamp
  - 4 spare CR2032 lithium cells for e+LITE headlamp (takes 2 at a time)
- Aloksak zip-lock plastic bag with
  - tiny bottle contacts solution
  - 30 mL bottle sunscreen
  - 30 mL bottle insect repellent

#### Extended Survival/Junk Bag

- Outdoor Research Mesh Cube #1 (outer case)
- Evernew Titanium 500 mL pot with Stand DX for alcohol stove (5 oz = 150 g), but with 6 Esbit solid fuel cubes instead of alcohol stove (3 oz = 90g); will also burn leaves, twigs etc.
- pack of tiny playing cards
- Petzl e+LITE Headlamp with 4 spare CR2032 lithium cells
- water purification neutralizing tablets
- 1 50' length of Kelty reflective tentcord
- 1 5-yard roll duct tape (from rei.com)
- Set of Aloksak tough/light zipper plastic bags
- Gear Aid Quik Attach Slik Clip Assortment, "one snap lock buckle, one ladder lock buckle and two tri-glide style buckles, all of which can be attached to presewn loops without re-sewing." ([www.rei.com](http://www.rei.com))
- McNett Field Repair Kit: "ultralight seam grip repair kit" (seam grip, brush, patches) ([www.rei.com](http://www.rei.com), [www.mcnett.com](http://www.mcnett.com))
- Salomon Kevlar Lace Repair kit<sup>6</sup>
- 1 roll Gear Aid Tenacious Tape<sup>7</sup>
- 3 ft of 1" flat black pack webbing
- 1 small cordlock
- 1 packet of Gatorade mix, to make 1 liter

#### SAR Stuff bag I:

- Goggles etc.:
  - Lightweight goggles (for air operations; clear/tinted interchangeable lenses) and Swim Goggles
  - Lightweight hearing protection (earplugs on lanyard)
- 1 roll flagging tape
- Waterproof handheld radio case
- 3 Surgical masks and small bottle eugenol (oil of cloves) for masking smell of decomposed bodies
- Plastic signal mirror
- 6 disposable AA lithium cells for radios, and 6 AA alkaline cells for GPS in plastic case

<sup>6</sup> From REI or rei.com. The Salomon laces are hard to repair with shroud line (parachute cord) or regular laces. Shoes using them are increasingly more popular. I have a pair.

<sup>7</sup> Very light, gets great reviews for permanent field repairs of tents, sleeping bags and the like; will have to see if it works better than the McNett repair kit, above.

- Bag of flagging tape
- SAR Stuff bag 2:
  - 2 Orion pocket flares (exp 1/15)
  - 2 Orion 60-second smoke signals (exp 11/14)
  - 1.5" flat black "tent" webbing strap, with dual-adjustable buckle; load strap for litter carries and for piggyback carries.<sup>8</sup>
  - 24" Chainmate survival saw<sup>9</sup>
- Water:**
  - Daytrip Water Purification Bag:<sup>10</sup>
    - MSR Hyperflow water filter
    - Spare filter element for above
    - MSR Dromedary water bag, attaches to above
    - MSR MiOx unit with spare salt and spare set of batteries (transfer to main Water Purification Bag if taking that)
  - Water Purification Bag:<sup>11</sup>
    - MSR SweetWater Microfilter
    - MSR SweetWater Siltstopper prefilter
    - Platypus Filter Link to attach Microfilter to Platypus collapsible water bottle
    - Platypus 2 liter collapsible water bottle (this and all above available from [www.rei.com](http://www.rei.com))
  - Water Purification Accessory Bag (smaller):
    - spare salt (for MSR MiOx water purification device)
    - 4 spare D123 batteries (for MSR MiOx water purification device)
    - spare filter for MSR Sweetwater Siltstopper prefilter
  - (1-Liter Nalgene bottle in top section)
  - (2-Liter Camelbak on outside)
- No-cook food**
  - ERbar 3600 Calorie survival bar, in resealable foil package.<sup>12</sup>
  - Lexan fork
- Shelter:**
  - Mont-Bell Blizzard Pack compressed disposable sleeping bag
  - Adventure Medical Kits' Thermo-Lite® 2 bivouac sack<sup>13</sup>

<sup>8</sup> This is less than half the weight of such a strap in 2" seatbelt webbing and is adequate for the tasks. A double-adjustable buckle means you can keep the buckle in the center of your chest when tying a patient to your back for a piggyback carry.

<sup>9</sup> For cutting down saplings for poles for improvised stretchers and tripods.

<sup>10</sup> For short tasks or day trips

<sup>11</sup> For larger teams or backpacking trips

<sup>12</sup> I used to put great time and effort into packing up some tasty, fairly long-lasting food. A single ERbar block, which is pretty tasty and will sustain you for three days in a pinch, is a much easier and longer-lasting alternative. When I leave home for a mission, I tend to grab whatever tasty snacks are in the kitchen, and this way I have something durable in my pack all the time and usually some tasty, fresh snacks as well.

<sup>13</sup> From [www.adventuremedicalkits.com](http://www.adventuremedicalkits.com). I used to carry a Space™ Sportsman's Blanket (heavier than the emergency blanket, and has grommets on the corners), folded in half with sticky Velcro stapled along two edges. This could be un-Velcroed and used as a tarp, or used as is as a quick bivouac shelter. However, this weighs almost a pound, and the Thermo-Lite sack weighs about half as much. There are no grommets on the corners but it wouldn't be hard to tie some shroud line onto the corners, tying around a pebble if needed for strength. The Space Sportsman's Blanket will fold out flat, and the Thermo-Lite sack is sewed on the bottom and partly up one of the sides – but a pair of Swiss Army Knife

- GoreTex Pants, Heavy**
- Vertical gear bag**
  - Petzl seat harness
  - Titanium BMS micro-rack
  - Petzl Frog ascending system with extra quick-attach ascender
- Minimum rescue gear sling<sup>14</sup>**
  - Gear Sling (single-length sewed runner) (new 2012)
  - Leather Gloves
  - Half-length sewn runners: 2 (new 2012)
  - Single-length sewn runner: 1 (new 2012)
  - Double-length sewn runners: 2 (new 2012)
  - Prusik loops: 4 (new 2012)
  - Large locking D rings: 3 (large enough to go over litter rails)
  - Pear-shaped locking carabiners: 3 (for Münter hitch)
  - Non-locking carabiners: 4
  - Tiny (slide onto carabiner) rescue pulleys: 3
  - Small rescue pulleys: 2
  - 20' 1" webbing (for improvised seat harness) (new 2012)
  - Emergency one-hand-opening knife with keeper cord
  - Purcell Prusik with locking D-ring and Petzl Basic ascender (new 2007)
  - Titanium Scarab lowering/rappel device
- On outside of pack:<sup>15</sup>**
  - GoreTex uniform parka (with balaclava and gloves in pockets)
  - Fluorescent mesh Mountain Rescue safety vest
  - Backpacking Emergency Rope: Edelweiss Discover 8mm x 15m Super Dry Twin Rope, in rescue coil, new 2014<sup>16</sup>
  - 2-Liter Camelbak
- Medical:** *AMRG Personal Wilderness Medical Kit (3 red "First Aid" bags; see official AMRG kit listing); packed in separate basic REI daypack for "grab and go" availability; also this pack zips to back of big medical kit/REI travel pack.*

scissors could make quick work of this. When I put Velcro on my Space Sportsmen's Blanket, I put it all the way around on the bottom and side, and left the top open. The Thermo-Lite sack is sewn on the bottom and part-way up the side, and has Velcro up the rest of the side and, unlike my prior home-brew, across the top. But the Velcro is intermittent, with ~6" Velcro strips alternating with open areas. I'm not convinced my homebrew was superior, so I'm going to try the Thermo-Lite as is. One criticism of the Thermo-Lite Bivouac sack (at [www.backpackergear.com](http://www.backpackergear.com) – great place for gear reviews) is that the small mesh vent at the bottom keeps closing when you make random movement, as there is both hook and pile Velcro on either side of it. I put a small piece of non-sticky pile Velcro in the stuffsack with the bivouac sack which should take care of this. Addendum: there is now a Sol Escape Bivvy that is quite superior to this; I'm keeping this older one here to give away if needed. The Sol Escape is now packed with my sleeping bag.

<sup>14</sup> I used to keep this in a bag, now it's all on the gear loops of a comfortable Camp harness, with the empty bag in the duffel bag.

<sup>15</sup> I used to have a short Thermarest pad on the outside of the pack for bivouacs, but the new ThermoRest NeoAir XTherm mattress that is my main sleeping pad is a quarter the size, slightly less weight, and both warmer and more comfortable, so no need for a separate "bivvy" pad. My bivvy pad has been obsoleted.

<sup>16</sup> Suitable for non-lead-climbing belays per the company, can be used as a tagline for a litter (tying to both ends gives you nearly 7m of tagline on both ends), or in a dire emergency, as a static rope.

## II. SAR Gear Bag (everything in green goes into disaster pack or rolling duffel for disasters)

- Top Section**
  - Color code tape
  - Short gaiters (may be in everyday daypack)
  - Long gaiters (may be in everyday daypack)
  - for marking convoy vehicle back windows:<sup>17</sup>
    - In Aloksak bag:
      - Window Marker
    - Reflective tape <sup>18</sup>
- Small Side Pocket:**
  - Radio Chest Harness<sup>19</sup> with spare long-duckie dual-band antenna for handheld radio
  - aluminum clipboard with storage full of SAR forms, pens
  - Bifocal safety glasses in crush-resistant case (2 pr)
- Large Side Pocket 1:**
  - JetBoil stove
  - Sea to Summit 2.5 gallon (10 L) “Pocket Shower” water bag
  - Kahtoola MICROspikes<sup>20</sup>
  - Ski Goggles
  - Grivel crampons
  - Complete leather facemask
- Side Pocket 2:**
  - MSR 10L water bag
  - Acme signaling horn
- Main Section:**
  - Boots:**
    - Limmer backpacking boots<sup>21</sup>
    - winter: La Sportiva Trango mountaineering boots<sup>22</sup>
  - 2 Rolls flagging tape

<sup>17</sup> I used to use liquid white shoe polish to mark back windows. But the last time I got some, it's not polish, it's now “shoe whitener” and it leaves barely-visible markings on the window. I switched to soap, that that wasn't as good. Window markers are available at local craft supply stores and on amazon.com. It washes off with the slightest water, but you can write first on the outside and then trace it on the inside. For the brand I got, blue is the most visible. The reflective tape is for really bad situations, likely convoying through a hurricane (I've done that twice, it's no fun).

<sup>18</sup> Trailer DOT reflective-tape Conspicuity Kit from eBay provided cheap source of such strips. In cardboard sleeve to protect them from folding/breaking.

<sup>19</sup> Currently I favor one from [mightypouch.com](http://mightypouch.com); I also use one of their cases for my cellphone when in the outdoors, and I've used their cases for several generations of handheld radios .

<sup>20</sup> Have tried Yaktrax (good for flat, but slide up over the boot toes going uphill or running), Stabilicers (too klunky) and these seem the best all-around “creepers” for nontechnical ice and snow; get great reviews at [rei.com](http://rei.com). Stay in the bag year-round for those late-spring or early-fall ice storms.

<sup>21</sup> For summer, I have in this bag my heavy backpacking Limmer boots, which provide excellent support and protection. Peter Limmer and Sons of Intervale, NH ([limmercustomboot.com](http://limmercustomboot.com)) has been making custom-fitted backpacking boots for almost a hundred years. They are heavy, traditional leather boots, but exquisitely comfortable. I was even able to get Peter to install a set of instep tricounis on my boots. Tricounis are the old metal cleats used on leather soles before Vibram rubber soles were available. When crossing a stream on a log, these bite in better than simple rubber lugs in the instep. But modern boots are so much lighter that I have switched for most summer tasks to Salomon XA 3D Pro boots, which I keep in my house and hop into before going out to a search and rescue operation or hike. For a backup, I have an old pair, soles almost but not quite worn out, in the back seat floor of the vehicle.

<sup>22</sup> These are for serious snow and ice work SAR only (or going off mountaineering for fun). For most winter SAR work, I have a pair of winter boots in the back seat floor of the vehicle for easy access.

- Austere Toilet Kit**
  - in separate large net bag for drying: 1 large and 1 small PackTowl
  - in separate large net bag for drying: washcloth made from piece of Packtowl
  - Contacts solution, contacts case, razor, Q-tips, Sea to Summit Travel Soap<sup>23</sup>
  - Pocket tissues
  - Tampax<sup>24</sup>
  - 2 Travel Bath towels, sealed in bags
  - Toothbrush and paste, floss, flossers, Stimulents
  - Comb
  - track shorts
  - CoolMax tank top
  - 2 REI 1-ounce clotheslines ([www.rei.com](http://www.rei.com))
- Food for Heating/Cooking, in 1.9L Lock and Lock box:<sup>25</sup>**
  - 3 Mountain House Pro-Pak (compressed) entrées manufactured 6/14
  - 1 Lexan soup spoon
- Clothing**
  - Polartec Fleece Top and Bottoms (Crestone Alpine Designs)
  - 2 pair dry/clean boot socks/liners
  - Pants Bag:
    - 2 pr CoolMax underpants (briefs)
    - 1 pr polypro long underwear
    - 1 pr artificial-fabric “jogging pants” (LL Bean climbing pants)
    - 1 pr Ex-Officio fleece-lined nylon pants
    - 1 pr Patagonia shelled Capilene overpants
  - Shirt Bag:
    - 1 cotton long-sleeved ASRC uniform shirt
    - 1 cotton ASRC uniform T-shirt
    - 1 Sequel net CoolMax desert shirt
    - 1 zipper-turtleneck mid-weight wicking top
    - 2 Lightweight CoolMax fishnet T-shirts
  - Bug suit (mosquito netting)

<sup>23</sup> 50 quick-dissolving leaves of soap suitable for shampoo, soap, laundry soap, dishwashing soap; Replaces 30mL Nalgene bottle of shampoo; saves an ounce of weight. Package inside a 3”x5” heavy-duty ziplock plastic bag to protect against water. From REI.

<sup>24</sup> No, no, not for me—to sell to desperate women. Sometimes worth their weight in gold—well, they don't weight very much, do they?

<sup>25</sup> Lock and Lock boxes are reasonably sturdy (though I've had a few broken by airline baggage handlers even inside baggage), reasonably lightweight, mouse-proof, waterproof, airtight. This size available as part of a set from [amazon.com](http://amazon.com)

### III. Technical Rescue Bags

- Rope:** 100' PMI static rope in rope bag
- Technical Gear:** about 50 lbs of misc. climbing and technical rescue gear including 50 meter dynamic climbing rope (new 2012), multiple racks, load-releasing hitches (new 2012), carabiners, pulleys, Prusiks (new 2012), webbing (new 2012), misc. short ropes for rigging (new 2012), rope pads, and three deadmen (can use in mud, e.g., in caves, as well as snow)
- Winter:** three snow pickets

### IV. Caving Gear

- Misc: Caving Gear**
  - Helmet/lights *separate in back of vehicle as also used for above-ground rescue, too*
  - Main pocket; in addition to cave pack:
    - Coveralls (custom Cordura with padded knees, seat and ankles) with pockets filled with
      - Gloves
      - Waterproof paper, pen, pencil
      - Small contacts saline (2)
      - Small Nalgene bottle with antacid tablets
      - Caving necklace (quick-release) with
        - Tip cleaner brush
        - Small folding knife
        - Whistle
        - Small compass
        - Nitelze Inova pocket light
      - Fleece helmet liner
      - Leaf bag
    - Malden Powerstretch 100 union suit, underpants and CoolMax fishnet
    - Load-bearing belt
    - In top flap:
      - leather gloves for intense ropework;
      - 3 sets of 2 AA lithium cells sealed in plastic (backups for Nao headlight)
      - Petzl USB AC/car chargers, and USB cable
    - Thin side pocket:
      - Nylon dirty-cave-gear bag with mud brush
      - Plastic leaf bags
    - Thick side pocket #1; spare gear:
      - Fleece vest/in dry bag
      - 12"x24"x1/4" Ensolite closed cell foam pad (insulation for under lying patient; will fit in bottom of cave pack)
      - ThermoRest inflatable seat (insulation for under sitting or lying patient, or for me; will fit in bottom of cave pack)
      - Spare inner clothing: wicking polyester tops and bottoms, underpants, fishnet Tshirt, socks
      - Spare gloves (3-4 pair)
      - Tiny (4") screw jack, might be useful for a rescue some century.
      - Net bag with 4 USB extension cords and two AC USB chargers for Petzl Nao headlight batteries
    - Thick side pocket #2:
      - Boots and socks (old light hiking boots)
      - Strapon knee pads
  - Cave Pack Contents**
    - 500 cc water bottle with duct tape on outside
    - Extra food: food bars/in bottle
    - Extra clothing: thin fleece sweater, balaclava, neoprene facemask/in dry bag
    - Spare batteries/in ziplock bag:
      - 3 spare Nao headlight batteries
      - 4 lithium AA cells, individually sealed in plastic
      - 6 lithium AAA cells, sealed in pairs in plastic
    - Hypothermia kit/in sealed plastic bag:
      - 3 leaf bags

- candle/melted into Nalgene plastic jar
- matches/in waterproof case
- Magnesium metal firestarter
- Spare light source: Zebralight H51FW 164-Lumen AA Floody Headlamp with headstrap with battery reversed
- Misc. junk in Nalgene plastic jar:
  - toilet paper
  - cable ties
  - paper clips
  - safety pins
  - large contacts saline
  - Vaseline-packed Photon Light II (to give away if needed)
- Bare-minimum vertical kit
  - sewn double-length nylon webbing runner to use as diaper seat (can be attached to the load-bearing belt for additional security)
  - locking aluminum pear-shaped carabiner
  - basic 2-knot ascending rig
    - sewn seat Prusik
    - sewn foot Prusik
    - sling to attach the foot Prusik to the seat
- Edelweiss Discover 8mm x 15m Super Dry Twin Rope, in rescue coil, new 2014<sup>26</sup>
- First aid kit: *seal Everyday Emergency Kit in dry bags (except City Bag) and use as first aid kit.*
- Swiss Army Knife and mini Leatherman/on lanyard
- 30' parachute cord (shroud line)
- "Bubblegum" minimalist sound-powered field phones: 2.
- Field phone wire repair kit, minimalist type
- Roll of flagging tape<sup>27</sup>
- Two Sharpies, in heavy duty zipper plastic bag, for marking on flagging tape.

<sup>26</sup> Suitable for non-lead-climbing belays per the company, can be used as a tagline for a litter (tying to both ends gives you nearly 7m of tagline on both ends), or in a dire emergency, as a static rope. Can in a pinch, belay the litter a bit using a MÜNTER hitch on the locking carabiner attached to the load-bearing belt instead of a hip belay, which is hard with such thin rope. Certainly not a technique for belaying a lead-climber but quite useful for short belays in horizontal cave rescue. Comes in 30m length, I cut in half. In a rescue coil, it's supple enough to make into a rug-shape to use as an insulating sit-pad.

<sup>27</sup> All of my rolls of flagging tape are drilled through the roll, with a cable keychain through the hole. This prevents massive unrolling, and allows you to attach the roll to a carabiner. I put the roll in a vise, then drill a 1/4" hole about 1/4" from the edge of the roll, using a brad-point drill on slow speed, from the circumference into the center of the roll. Before drilling, I put a dowel or other small scrap wood through the center of the roll, to prevent the drill bit from simply pushing in the cardboard in the center of the roll. The keychain is a Lucky Line Flex-o-loc (which also makes a great keychain). ~\$3 each, reusable.

## V. Disaster Gear items in red must be added to gear on deployment; note that some "add from SAR pack" items may be in daypack or bike panniers; items in italics stay in disaster duffel

- Rolling Duffel (from basement across from freezer)<sup>28</sup>
  - Large Outer Pocket:
    - Cooking: MSR multi-fuel stove, new unused fuel bottles, gas siphon<sup>29</sup>*
    - Nalgene bottle with one load's worth dry laundry detergent (and room for more if can scrounge)*
    - 10 lightweight clothespins* (N.B.: tiny clothesline/pins also found in Austere Toilet Kit)
    - Building escape kit: 70' of 7 mm nylon rope, in rescue coil, pear-shaped locking carabiner for MÜNTER hitch rappel, and 10' 1" webbing for diaper seat, and center-punch for shattering windows*
    - Eating: Large Alocsac plastic bag with*
      - Lexan knife/fork/spoon/soupspoon*
      - Orikaso folding cup, plate, bowl<sup>30</sup>*
      - small mesh bag with small bottle of dishwashing soap and scrubber*
    - Outdoor Research Clear Pocket #3 zipper bag:*
      - medical headlight<sup>31</sup> (from black bag)**
      - otoscope/ophthalmoscope and otoscope extras (specula, currettes) (from black bag)**
      - Broselow pediatric resuscitation measuring tape, laminated pocket cards (from black bag)**
      - tools (bandage scissors, Kelly clamps, needlepoint ViseGrips, McGill forceps, FB remover, lightweight stethoscope) (from black bag)**
      - Olympic safety glasses with magnifiers (instead of loupes; add from SAR Gear Bag)**
    - Lightweight nylon dirty-clothes bag (from overnight bag in master bedroom closet)**
    - MSR DromLite 10L water bag (add from SAR Gear Bag)**
    - strap for strapping pack to rolling duffel*
    - pack lock and multi-luggage cable lock*
    - Ziploc bag with multiple small bottles of waterless hand-cleaner*
    - ID case for hanging around neck and one for arm*
    - Rental-car laptop mount (custom built)*
    - Outdoor Research Portable Pocket #2 with tiny compressed Lightload towel and tiny bottle of Windex to clean windshield: add cellphone windshield mount and 12V power supply with 12V 1:2 adapter (from small vehicle)**

<sup>28</sup> I used to use a High Sierra (highsierrasport.com) AT202 36" Drop-Bottom Wheeled Duffel with Backpack Straps, purchased from Cabela's, [www.cabelas.com](http://www.cabelas.com). However, it has broken in so many different ways that I ended up keeping my disaster gear in a Tumi high-end rolling duffel. Very expensive, but I have had Tumi rolling bags that have lasted 30 years of ihard use several times a year. Tumi stuff is bombproof.

<sup>29</sup> It is permissible to carry a stove on commercial aircraft provided the fuel bottle is unused; can siphon gas from a vehicle, and then dispose of the fuel bottle prior to the flight back.

<sup>30</sup> This clever "origami" style folding cup and dish/bowl fold flat for storage and are very light and easy to clean. About \$5 each.

<sup>31</sup> VersaBrite II from Pelican with a Strapit headband; can position light between eyes for seeing into noses, ears, etc.

- Laptop sunshield (from green overnight bag in master bedroom closet)
- In Aloksak bag: (add from SAR pack)
  - 60 mL Nalgene bottle of sunblock
  - 60 mL Nalgene bottle of insect repellent
- for marking convoy vehicle back windows (add from SAR Gear Bag)
  - In Aloksak bag:
    - Blue window marker<sup>32</sup>
    - Reflective tape
- Smaller Outer Pocket:**
  - Lightweight luggage scale*<sup>33</sup>
  - leather work gloves (Bucket Boss type) with minibiner*
  - 4 spare waterproof mini SAR notebooks*
  - laminated index of DMAT Pharmacy Cache*
  - 2: spare Velcro "CONOVER" name tapes*
  - 1: box of PUUR water purifier packets (each flocculates and chlorinates 10 liters)*<sup>34</sup>
  - Cellphone charger base and cord, and separate spare-battery charger, with 3:1 AC adapter and AC cheater (2-prong > 3-prong) (from green overnight bag in master bedroom closet)
  - Laptop sunshield (from green overnight bag in master bedroom closet)
- Main Compartments**
  - Disaster Pack (Gdite Jam Pack<sup>35</sup>), with emptied internal CamelBak Lobo Hydration Pack - 100 fl. oz=3L: both go flat into large rolling duffel; can use to separate gear into two items for weight limitations if needed.*
  - Plastic clipboard with paper storage with paper, pens and pencils.*
  - Yellow Packing Cube: uniform tops (2)/trousers (4)*
  - Blue Packing Cube: Uniform Shorts (2) (summer only)/DMAT PA-I uniform T-shirts (4) including black/navy CoolMax fishnets (4) to wear under uniform t-shirts*
  - backup GoreTex jacket (winter only)*
  - black zip-up military boots (from vehicle)
  - Clothing:** appropriate outer clothes for season and area, khaki Tilley hat (from vehicle)
  - Electronics:** clear plastic "For Disaster Response" Computer Misc. Box Lock and Lock case (from vehicle)
  - Electronics:** 2 GoalZero Nomad7 7V solar charging systems with GUIDeioPLUS battery charging case and 4 rechargeable NiMH AA cells and 4

<sup>32</sup> I have tried all sorts of things for marking back windows of cars in a convoy. White dab-on shoe polish (worked, but now you can only get dab-on shoe "whitener" which I found out was useless); soap; 3M vinyl tape; and most recently markers specifically made for marking glass for decorations, available at craft stores or amazon.com. There are many brands; of the brand I got, the blue was the most visible. If you can write backwards, you can write on the inside of the back window to protect it from rain. The reflective tape is much harder to remove, but may be useful for driving during a hurricane (which I have done several times; search amazon.com for "conspicuity tape").

<sup>33</sup> For weighing packs prior to rotor-wing transport.

<sup>34</sup> Backup for the MiOX unit/filter, but more for passing out to others. Weighs basically nothing (5 grams/packet).

<sup>35</sup> 50 liter = 3050 cubic inches, 1 lb 15 ounces, \$150; foam pad in pack can be removed and used as additional insulation under ThermaRest pad for in winter.

- rechargeable NiMH AAA cells, cigarette-lighter socket.
- From green overnight bag in bedroom closet:**
  - Side pocket:**
    - Laptop sunscreen
    - Folding drinking cup
    - 1>3 AC Power outlet strip
    - Powerstripsaver 1>2 adapter with short extension cord, with grounded>nongrounded AC adapter
    - 6' AC extension cord
    - Seidio Powervault AC charger for cellphones with cellphone charger cord (standard micro-USB+iPhone adapter); has internal battery that will recharge cellphone even without AC power, kept charged
    - Osmon charging base for cellphone
  - Toilet kit
  - Shoe dryers (AC+12VDC)
  - Enough old clothing for 2-3 days, including flipflops and spare shoes, always kept packed (only underwear and polo shirts go into disaster duffel)
- Everyday shoes** (Summer: Teva Sandals, Fall and Spring lowtop trail-running shoes, Winter: hightop walking shoes) (from bedroom/bedroom closet)
- Sorel winter boots<sup>36</sup>(winter only)
- Nalgene 1-liter water bottle (add from SAR Pack)
- Aloksak plastic bag with (add from SAR Pack)
  - Nalgene bottle (60 mL) with sunscreen
  - Nalgene bottle (30 mL) with insect repellent
- Two hipbelt detachable pockets (add from SAR Pack)
- Austere Toilet Kit** (add from SAR Gear Bag)
- Sea to Summit 2.5 gallon (10 L) "Pocket Shower" water bag (add from SAR Gear Bag)
- Water:** two water purification mesh bags with filter pump and MiOX unit
- WEMSI Personal Medical Kits** (three red bags in black REI daypack from back of vehicle)
- Shelter:** Small tent Big Agnes Copper Spur ULI for winter or Hennessy hammock for summer (from back of vehicle)
- Shelter:** Bothy 12 emergency tent from back of vehicle
- Sleeping:** ThermaRest NeoAir XTherm sleeping pad (from back of vehicle)
- Sleeping:** Sleeping Bag stuffsack with liners, and stuffable pillow (in winter, also include auxiliary stuffsack with down booties and overboots) (from back of vehicle)
- Basic Survival/Junk Bag** (from SAR Pack)

<sup>36</sup> I recently replaced my old Sorel boots that used wool felt liners with boots lined with Thinsulate, specifically the Sorel Conquest boots; they have a builtin gaiter but best practice is to wear long gaiters over them for deep snow, so along with them I have a pair of size large (I usually use medium size gaiters) Outdoor Research Crocodile gaiters; also the boots are fitted with thicker socks and have two pair of them in the boots.

- Extended Survival/Junk Bag (from SAR Pack)
- SAR Stuff bag 1 (from SAR Pack)
- SAR Stuff bag 2 (smoke, flares) (from SAR Pack; add only if traveling by ground)
- Food (add two additional Lock and Lock boxes of food from SAR Gear Bag and SAR pack to make 3 days' worth)
  - Food for Heating/Cooking (from SAR Gear Bag)
  - No-cook food, in 1.9L Lock and Lock box (from SAR Pack)
  - Freeze-Dried Food*: 2.6L Lock and Lock box<sup>37</sup> with 3 freeze-dried compressed ProPak Mountain House or dinners ("Serves 2" – yeah, if you're not hungry)
  - Extended Food*: 2.6L Lock and Lock box (*take out unless known extended austere deployment*)
    - 6 1-liter packets of Gatorade mix
    - 2 4-oz. packets of almonds, sealed (with commercial food bags sealed with a commercial heat-sealer, with oxygen-excluder packets in each)
    - 6 oz. Stoned Wheat Thins sealed in bag
    - 1 lb (6 blocks) of Mainstay compressed emergency food rations<sup>38</sup>
- Travel waist pack:
  - Passport, medical license, DEA license, EM Board certificate<sup>39</sup>
  - Small (500 mL) Platypus collapsable water bottle: (fill from water fountain once through security at airport)
  - ThermaRest "neck" pillow with eyeshades and earplugs
  - bandannas (2), minibiners (2), elastic straps for head to keep head from flopping around when sleeping sitting up in the back of a C-130
  - food: several food bars and some nuts
  - small book
  - toilet paper in Ziploc bags
  - 2 Travel Bath towels, sealed in bags
  - Toothpaste and toothbrush
  - Waterproof notebook and pen
- 24-hour "ready" pack: (fluids to remove for air travel if not TSA Precheck highlighted); use Tumi pack (AlphaTumi T-Pass™ Business Class Briefpack style: 26578), add to it/leave in it:
  - Back Top Compartment:
    - Logitech Anywhere wireless laptop mouse
    - 2 spare lithium AA cells for mouse
    - Sunglasses
    - Spare cellphone case
    - Cascade Designs eCase waterproof cellphone case
  - Back Bottom (small) Compartment:

- Spare multipurpose contacts solution: 2 3 mL dropper bottles, 1 8 mL dropper bottle
- 2 spare pens
- 2 spare combs
- hipbelt and sternum strap for pack
- bookmarks
- Back Bottom (big) Compartment:
  - Inverter for auto use of laptop, from Shingo
  - Lenovo Yoga 3 Power supply, AC cheater and short extension cord
  - Powerstripsaver
  - Glasses case (Oakley Vault small) with
    - Glasses
    - contacts case
    - Contacts Solution 8 mL dropper bottle
    - Glasses keeper cord
    - Spare pair of contact lenses
  - Spare car key on lanyard attached inside compartment
  - In small pockets inside compartment:
    - Pocket 1:
      - Checkbook
      - spare supply of business cards
      - pen refills
    - Pocket 2:
      - Nail file
      - Highlighter
      - Spare pen
      - Sharpies (1 each small, regular, large)
      - Mechanical pencil
- Inside-pack "laptop" pouch
  - thin clear 9x11.5" document file envelopes (3)
  - Grey pouch with
    - Personal meds: Pulmicort, Atrovent and albuterol inhalers, antihistamine nasal spray, steroid nasal spray, cardboard inhaler spacer
    - small roll of color code tape
    - bit of toilet paper in small plastic bag.
    - Sweatband
    - Collapsible backscratcher
    - ¾" flat black nylon webbing straps with Fastex buckles (for attaching things to lash patches sewed to front of Tumi pack) (2 sets, long and short)
    - Aloksak 11x13.75" waterproof plastic bag for laptop ([loksak.com](http://loksak.com))
  - Heavy-duty Aloksac plastic ziplock plastic bag sized to fit wallet
  - Sil-nylon pack raincover (XS, [www.granitegear.com](http://www.granitegear.com))
  - Ultralight waterproof/breathable parka (Outdoor Research Helium II jacket)
  - Ultralight waterproof/breathable pants (Outdoor Research Helium pants)
  - Small Mesh bag travel emergency overnight kit: Tiny MSR Packtowl Personal, Sea to Summit Pocket Body Wash<sup>40</sup>, CoolMax underpants, light

<sup>37</sup> Available at Target stores; cheap, sturdy enough to be crush resistant (though not so much as an Otter or Pelican box, only a fraction of the weight and bulk), waterproof and airtight.

<sup>38</sup> Take a block, crumble into a cup. Add about a cup and a half of hot water. Stir. Wait for a few minutes. Makes an OK breakfast cereal, especially if you add raisins. Not as good as the old Mainstay rations, which made really good cream of wheat.

<sup>39</sup> Printed on Rite-in-the-Rain paper; lighter than laminating.

<sup>40</sup> 50 quick-dissolving leaves of soap suitable for shampoo, soap, laundry soap, dishwashing soap; Replaces 30mL Nalgene bottle of shampoo; saves an ounce of

CoolMax fishnet T-shirt, pr. wool socks. (Already have toothbrush, toothpaste, contacts solution and combs in other pockets of pack.)

**Disaster Toolkit:**

- Screwdrivers and sockets:<sup>41</sup>
  - Husky 8-in-1 Precision Screwdriver Set<sup>42</sup>
  - Screwdriver/socket bit set and driver<sup>43</sup>
  - Lutz 2-in-1 Phillips #1 and 5-6 (3/16") slotted screwdriver<sup>44</sup>
- Eyeglass Repair Kit (tiny screwdriver and screws)
- Small Channel-lock pliers
- Leatherman Squirt E4 electronics tool (with wire stripper, with knife broken off to pass TSA security for flying)
- Radio Shack contact cleaner pen
- Radio Shack pocket digital multimeter
- Lightweight magnifiers: Model CO5: 2.5x 8" focal distance, from Donegan Optical Company<sup>45</sup>
- cable ties:
  - 4 - 2"
  - 2 - 4"
  - 2 - 8" (with mounting hole at end)
  - 2 - 10"
  - 2 - 15.5" releasable
- Self-drilling screws:<sup>46</sup>
  - 4 - 12-14x1"
  - 4 - 10-16x1.5"
- 4 tiny strips Radio Shack easy-melt solder
- Miniature sewing kit (1 ounce)
- 2 - tampons, in Aloksak plastic bag
- 2 safety pins

**Outside the "laptop pouch" but inside the laptop compartment:**

- laptop (currently Lenovo Yoga 3 Pro)
- Right side compartment:** pouch with
  - Various Hospital IDs and clip for FEMA/DMAT IDs (IDs in wallet)
  - GUM Folding Travel Toothbrush and **small toothpaste**

- Grey "computer" pouch with
  - Samsung micro-USB to USB A adapter (for using USB key with phone)
  - Yurbuds wired earphones and spare earbud covers
  - HDMI-VGA adapter for giving presentations<sup>47</sup>
  - Rayovac Battery Operated Charger (will recharge cellphone from 4 AA cells)
  - 4 AA disposable lithium cells
  - Griffin PowerJolt Mobile Charger<sup>48</sup>
  - AC-USB power adapter (Samsung Qualcomm QuickCharge 2.0)
  - 1 - 4' micro-USB charging cable
  - 2 - dCables Bendy & Durable Short Micro USB Charging Cables
  - 1 - USB-C charging cable
  - ZipLinq RJ-45 cable
  - micro-USB 1 -> 2 adapter
  - 16 GB thumb drive for laptop backup (also keep 16 GB USB keys on keychain)
  - micro-mini-standard SD card adapter set
  - 1/4 of a microfiber lens cleaning towel; for cleaning glasses, camera, laptop)
  - small Windex bottle for cleaning laptop screen**
  - 1 3mL bottle of dried habanero pepper (for culinary emergencies, especially in England or Wales)
- Left side compartment:** with radio/cellphone equipment:
  - Field-programmable commercial/amateur handheld VHF/UHF radio (Wouxun KG-UV6D) with attached AA cell battery pack
  - extra antennas
  - cells (6 lithiums, 6 alkalines)
  - extra empty 12-cell AA case (can usually buy and fill with AA cells locally)
  - Bag with:
    - auto power adapter
    - car side-window clip-on external auto antenna SMA mount

**Main Compartment**

- Everyday Emergency Kit:** see separate list at [conovers.org/ftp/Everyday-Emergency-Kit.pdf](http://conovers.org/ftp/Everyday-Emergency-Kit.pdf) **(move EEK buttback to outside to make more room for stuff inside if needed)**
  - Toothpaste and Mouthwash**
- Spare small sil-nylon stuffsack (for gloves and hat and sweater so they don't get lost, or for strapping them, in the bag, to the outside of the pack when needed)
- BlkBox 5W solar charger (very light, no fancy features, just folding solar panels with a USB socket)
- luggage tag
- Laptop sunscreen (add from car or elsewhere)**
- travel documents**

weight. Package inside a 3"x5" heavy-duty ziplock plastic bag to protect against water.

<sup>41</sup> At under a pound, this tool set has small and large screwdrivers including Torx and Allen, and 1/4"-3/4" and 7-19mm sockets with a ratchet driver.

<sup>42</sup> Overall lighter and smaller than similar offerings from Sears and Kronus; approx. 1.5 ounce. with following bits, some from a separate 8-in-1 Torx version of the same screwdriver set): Slotted 1/16", 5/64", 3/32", 1/8" (1-2); Phillips #000, #00, #0, #1; Torx T4, T5, T6, T7, T8, T9, T10, T15.

<sup>43</sup> Sears Craftsman 947483 Magnetic 32-piece Screwdriver Set, selected bits only: slotted 3-4 (5/32"), 8-10 (1/4"), 12-14 (3/8"), 14-16 (29/64"); Phillips #2, #3; Torx T20, T25; Hex (Allen) 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 3/16"; 1/4" hex to 1/4" square adapter. Craftsman handle at > 7" is too long for airplane carry-on luggage per the TSA, so replaced with a (short) Task Force 7-Piece Multi Bit Screwdriver Item #:307991, Model: 53905 from Lowe's for \$2; all the bits fit in the handle if you unscrew and take out the little bit clip in there; also a 2" magnetic bit driver that extends this stubby screwdriver to full length. Also added Neiko pocket 1/4" ratchet driver, 3/8" to hex adapter, and Gator Grip ETC-200MO Universal Socket 1/4"-3/4" and 7-19mm. Total weight ~11 oz.

<sup>44</sup> Long thin shaft for recessed screws; wt. 1 ounce.

<sup>45</sup> Will work by themselves or can be clipped to glasses; 4 ounces including separate protective cases for glasses-frame part and magnifier part.

<sup>46</sup> Gator Grip socket

<sup>47</sup> Laptop has HDMI but not VGA port; most LCD projectors require VGA.

<sup>48</sup> Extremely small and light. Fits entirely inside cigarette lighter receptacle, but still has a full 10W/2.1A charger.

## VI. Miscellaneous Gear Bag<sup>49</sup>

- Light:**
  - Eveready fluorescent D-cell lantern with lithium cells
- Water:**
  - 3 1-liter bottles (full)
  - MSR water bag if not on pack
  - Backpacking PUR water filter (superseded by small filter/MiOx unit)
  - Extra canisters for backpacking water filter
  - Empty 2.5 gal water bag and bladder
  - Seattle Sports folding bucket and basin
- Shelter:**
  - Disposable compressed sleeping bag
  - Roll of leaf bags
  - Wad of smaller trash bags
- Clothing:**
  - Small size Pack Towel
  - Old Goretex parka/pants
  - Spare nylon pants
  - Bag with spare gear:
    - 2 wool balaclavas
    - 1 pair wool mittens
    - 2 pair brown fleece gloves
    - pair wool socks and liner socks
    - leather gloves
    - cheap compass and 2 whistles
    - spare goggles
- Food (in mouse-resistant boxes):**
  - MREs: 3 (with heaters) manufactured 10/14
  - ERbar 3600-calorie survival bar packs: 2<sup>50</sup>
  - Dried fruit bars, heat-sealed in additional plastic bags: 4
  - Electrolyte replacement mix, one-liter bags: 6
- Stove accessories:**
  - Windscreen
  - Base
  - Extra fuel canisters (1 small, 1 large)
  - Large Pots, potscrubber and detergent
  - Cups and plates and utensils (2 each)
- Tools etc:**
  - Spare set of Aloksak zipper plastic bags
  - Folding saw
  - Handheld chainsaw
  - Survival knife
  - Magnifiers
  - Solar Still
  - Daypack

- Frisbee
- Cards
- Organic vapor respirator
- 10' 1" flat black pack webbing
- 1" black nylon pack webbing hardware: 2 ladderlocks, 2 triglides, 1 adjustable buckle, 2 D rings
- 2" adjustable buckle and 2 2" triglides
- 1 cordlock
- 1 Zipper Repair Kit ([www.rei.com](http://www.rei.com))

<sup>49</sup> Miscellaneous Bag, SAR Gear Bag, Caving Gear Bag, and Technical Rescue Bag are Patagonia boot/duffel bags, circa 1990, which I don't see in the catalog any more. Uniform size and shape makes packing the back of the truck easier. Each is labeled with a 3x5" laminated tag with the name of the bag on the front, and my name/color code/contact information and a brief contents on the back, attached via a 2" Versalink type ketychain put through a brass grommet on the tag and then around a zipper pull; similar tags on the SAR pack, tool kit, etc.

<sup>50</sup> There are good survival bars, and really, really bad survival bars. This pack of nine survival food cubes in a vacuum-sealed resealable foil pack actually tastes pretty good, has a five-year life per the company, and is probably edible for another five years after that. When I offer people a bite of one of these, the uniform reply is "not bad!" A bit crumbly, very like shortbread, but with a hint of vanilla and strawberry. Recommended.

## VII. Overnight Travel Bag (kept in bedroom closet)

- Side pocket:**
  - Laptop sunscreen
  - Folding drinking cup
  - 1>3 AC Power outlet strip
  - Powerstripsaver 1>2 adapter with short extension cord, with grounded>nongrounded AC adapter
  - 6' AC extension cord
  - Seidio Powervault AC charger for cellphones with cellphone charger cord (standard micro-USB+iPhone adapter); has internal battery that will recharge cellphone even without AC power, kept charged
  - Osmon charging base for cellphone
- Toilet kit
- Shoe dryers (AC+12VDC)
- Enough old clothing for 2-3 days, including flipflops and spare shoes, always kept packed (only underwear and polo shirts go into disaster duffel)

## VIII. Main Response Vehicle Gear (Shingo Shigeo: 2011 Toyota Land Cruiser.<sup>51</sup> Items in truck, or on garage shelves.

Everything in green goes into disaster pack/duffel for disasters; add items in red)

- Sunglasses compartment** (up high)
  - Bottle of Tums Smoothies
  - Dropper bottle of contacts solution
- On driver's visor:**
  - Music and Teaching Company CDs (for those long drives – best way to stay awake: [www.thegreatcourses.com](http://www.thegreatcourses.com))
  - Waterproof pocket notebook
  - Ballpoint pens
- On passenger visor:**
  - Spare sunglasses
  - Headlight mounted for use as lap spotlight (dismountable for use as medical headlight: can place light between eyes for seeing into noses, ears, other cavities)
- Windshield cellphone mount** (sunglasses usually hanging here)
- VHF/UHF/ham mobile radio** (new radio pending; handheld radios in back have accessories to use as mobile when needed; considering an Anytone AT-5888UV, which is a Part 90 Type-Accepted Chinese clone of the Yaesu FT-7800 or perhaps 8800)
- Glove compartment**
  - Vehicle manuals, registration, insurance etc.
  - Paper towels
  - Microfiber cloth for cleaning inside windshield
  - Kleenex
  - Driving gloves
- In door pockets:**
  - Misc maps (including spare highway maps to give away)
  - Copper ice scrapers (2)
  - Boot brushes, each stuck into a heavy-duty 3"x5" zip lock plastic bag<sup>52</sup>
- Homemade dashboard laptop mount** (N.B.: used to use external USB GPS but new laptop has integrated GPS) (transferred between cars as needed, both cars have mounting clips for it)
- Beside/Outside Seats:**
  - Large umbrella
  - Regular umbrella

<sup>51</sup> Vehicle used to be a 1988 Range Rover known as Nigel Braithwaite Conover, but he passed on in 2011 and I got a new vehicle, named Shingo Shigeo (lastname, firstname in the Japanese fashion) after a Japanese engineer who was primarily responsible for bringing Toyota methods to the US. Adding an ARB bar and 9000-lb Warn winch on the front, extra offroad lights on the ARB bar, two batteries with an isolator, a Thule Helium bike rack on the back and stock roof rack with Thule Surf Pads for carrying a Stokes Litter.

<sup>52</sup> I have tried about ten different brushes for cleaning boots and their lug soles. One clearly stands out as superior. It's the O Cedar 150092/357 Tile & Grout Brush. They are more expensive than the alternatives but worth every penny. The brush head is narrow, allowing one to clean between lugs on the sole. The bristles are quite thick and stiff, good for getting stuff off the outside of the boot. The handle is comfortable in the hand. They are quite light. Highly recommended.

- Laptop sunscreen** (usually to the left of the front passenger seat)
- Console compartment** (NB: still reorganizing for new vehicle)
  - Top section (Land Cruiser has a 2-section compartment, the bottom of which doubles as a powered refrigerator):
    - Inverter to power laptop (200W Whistler)
    - spare waterproof notebook
    - carwash card
    - 6' measuring tape
  - Velcroed to inside of top lid
    - Tire gauge
    - Rack keys
    - Utility scissors (Fiskars serrated kitchen scissors)
  - Left Front
    - Hand sanitizer
    - 3 GoJo hand cleaner towels, individual packets
  - Left Middle
    - Chewable Pepcid tablets
    - Hair rubber bands
  - Left Back
    - Headlamp
    - Monocular
    - Box with 12 spare AAA cells
    - Box with 12 spare AA cells
    - roll of quarters (for tolls)
    - Petzl Nao Headlamp USB Battery Charger (both cigarette-lighter plug and AC plug) with USB extension cord
    - battery tester for AA cells etc.
  - Right Front
    - Reflective Mountain Rescue safety vest
  - Right Middle
    - Glass signal mirror
    - 4 pair nitrile exam gloves
    - CPR shield
    - Antenna cap
    - Small hearing protectors (earplugs)
  - Right Back
    - Smith knife sharpener
    - Swisstool "Leatherman" tool
    - Swisschamp swiss army knife
    - Supertape
    - Small roll duct tape
    - small reversible screwdriver
    - Sharpie marking pen
    - Type 13 Anti-Seize (for antenna mounts, etc.)
    - Chainmate 48" survival saw<sup>53</sup>
- Behind seats** hanging from headrest
  - Inflatable Travel Pillows (2; for naps along the road)
  - Trash bags
  - Toys for kids to entertain themselves with so they don't destroy the car

<sup>53</sup> For removing blowdowns from a road during a disaster or SAR operation. A poor substitute for a real chainsaw, but consider it weighs and bulks less than a tenth of a chainsaw, requires no gas, and will eventually get the job done.

- Box with 12 spare AAA cells (for wireless headsets for kids in back)
- Windex
- Hanging Clothes**/etc. (hanging on L back door "Oh Jesus" handle or nearby):
  - Daypack (Vaude Ultralight Rock Comfort 25)<sup>54</sup>
  - Tilley hat (add to Tumi Pack for disasters)**
  - Best GoreTex Parka (Marmot Glenmore) with hat, facemask and gloves
  - Powerstretch fleece pullover (LL Bean)
  - Thick fleece jacket (Lowe)
  - Fleece stretch tights (Lowe)
  - Softshell jacket (Cloudveil Serendipity) with hat, facemask and winter gloves
  - Primaloft vest (Cloudveil Enclosure)**
  - Expedition down parka and pants and mittens (for standing around for long periods in cold weather)**
  - ASRC Uniform Shirts:
    - Short-sleeve cotton shirt**
    - Long-Sleeve lightweight polyester fleece shirt**
  - Loop of accessory cord with loops on end clipped with minibiner with
    - 1 roll 3M duct tape
    - 2 rolls plastic surveyor's tape
  - DMAT/SAR base lumbar pack**<sup>55</sup> with:
    - 30 SMART triage tags for mass casualty incidents, with sharpie for marking on them
    - Lumbar pack rain-cover
    - Yaktrax ice creepers
    - laptop computer sun visor
    - ThePouch handheld radio harness with long-duckie SMA antenna
    - Alokak 11x13.75" waterproof plastic bag for laptop ([loksak.com](https://www.loksak.com); for laptop computer when it's raining)
    - big goggles
    - large folding hearing protectors
    - leather work gloves (Bucket Boss type) with minibiner with roll of flagging tape clipped to biner
    - small bottle of waterless handcleaner
    - neck lanyard/ID holder
    - PolarWrap sport rebreathe flap
    - Terra Nova Bothy 2 and Bothy 4 emergency shelters
    - room for 2 water bottles full of water in side pockets, and one bottle full of water in separate belt pouch (water bottles in all 4 doors of vehicle)

<sup>54</sup> I found I use my buttpack (Everyday Emergency Kit) and my daypack for enough short SAR tasks that they always get thrown in the back of the car. My wife, daughter and I all have used the Vaude packs for dayhiking for decades and love them.

<sup>55</sup> The Mountainsmith Cairn model is big enough to fit both the Everyday Emergency Kit small buttpack (which is almost always with me) and a laptop computer along with a few other things. Handy for carrying at a base somewhere – especially when you don't want to leave your laptop laying about. Yes, you could use a daypack, but a lumbar pack is a lot easier to manage when you're taking it off and putting it on over and over. Also, the lumbar pack with the Everyday Emergency Kit and a couple of other items from the SAR pack makes a dandy pack for a short SAR task in warm weather.

- Large stuffsack to throw pack contents into when using for SAR tasks
- Net bag of small old/spare headlights (9 as of last count) with box of 12 AA alkalines and box of 12 AAA alkalines and a small, self-powered Sinometer battery tester.
- Boots (sort of under driver's seat)
  - Salomon XA Pro 3D GTX mid light hiking boots.<sup>56</sup>
  - Sorel Conquest winter boots<sup>57</sup>
- Back of truck:**
  - Army blanket** to cover everything
  - Behind/beside **left 3<sup>rd</sup>-row seat:**
    - Tire Chains** (cable type) with added ~4x5' Tyvek tarp (for lying in the snow or mud changing tire chains)
    - Sharps** disposal box
    - Bag of reflective Mountain Rescue **safety vests**
    - Orange safety cone with blinking light (padded to not rattle against side window with zip lock bags of leaf bags)
  - Behind/beside **right 3<sup>rd</sup> row seat:**
    - Bag of straps for roof rack
    - Long (100') and short (30') extension cords
    - Power outlet strip
    - Life-Link snow shovel
    - Glock entrenching tool<sup>58</sup>
    - MSR Hubba one-person tent**
    - Hand extrication tools**, etc./in red flare bag:
      - leaf spring tool (handmade, for cutting)
      - hand sledge hammer (for roadside use, too heavy to pack)
      - Stiletto Ti-Bone titanium hammer (light, for packing up the side of a mountain for aircraft extrication)
      - hatchet
      - 2 titanium pry bars
      - bolt cutters
      - mini-KT-bar (extrication/wrecking tool)
      - 1970s-era Air Force aluminum survival tool with hatchet, shovel, saw
    - Fire extinguisher**
    - AC 6-radio Wouxun radio charger**

- Top Layer** (more or less L to R and front to back; graphic of packing available at <http://conovers.org/ftp/truck-back.pdf>)
  - Windshield sunscreen**
  - Cool Puppy Aluminet Shade cloth panel, 7x12'<sup>59</sup>**
  - Tracking stick** (old bamboo XC ski pole without basket but with rubber bands)
  - Squeegee**/window scrubber
  - 2 MPOWERD Luci Lux Inflatable Solar Lanterns** (on side of rope bag, face towards window to keep charged)
  - Canvas **grocery bags**/cotton produce bags
  - Snow brush/scrapper**
  - Ski poles or walking poles**
  - Ice axe**
  - MSR snowshoes**
  - Old down parka (stuffed)**
  - Large truck-style cross **lug wrench**<sup>60</sup>
  - Aztek Elite Edge Kit** in buttpack
    - <http://www.ahsrescue.com/p-2756-aztek-elite-kit-rtr.aspx>
    - 1 Rock Exotica Omni AZTEK Elite blue pulley
    - 1 Rock Exotica Omni AZTEK Elite orange pulley
    - 1 Sterling 8mm AZTEK cord with sewn eye
    - 1 Sterling AZTEK ratchets (one blue, one orange)
    - 1 Sterling AZTEK travel restrict
    - 1 Maillon Rapide screw link 7mm
    - 1 AZTEK Pro Bag
    - 1 Kong Tango
  - Flotation vest** and polypro throw rope in bag
  - Spare high-gain 2m/VHF **antenna** (used mostly when vehicle stationary)
  - Hi-Lift 48" **jack** with attachments and instructions
  - Large **base** for Hi-Lift Jack
  - Hopkins Subzero 12501 **Traction Mat**, 2 pack
  - SAR Pack** (see listing, above)
  - Personal Wilderness Medical Kit** (see <http://www.conovers.org/ftp/wemsi-medkit20.pdf>)
  - Life vest** and polypropylene **throw line** in bag
  - Terra Nova Bothy 12 emergency shelter**<sup>61</sup>
  - 100' 1/2" static PMI rope**, in rope bag, with edge protector
  - Combat Lifesaver Bag** Trauma Kit (Google *Combat Lifesaver Bag* for contents)
    - Attached: (two) SAM Pelvic Sling II** (compression binder for pelvic fractures)
  - HPMK** (military Hypothermia Prevention and Management Kit: hot packs and Space Sportsman's

<sup>56</sup> These are my everyday dayhiking, light backpacking and easy SAR task boots.

<sup>57</sup> I used their predecessor for years, but the Conquest dispenses with the wool felt liners and replaces them with a thick layer of Thinsulate. Good move. Some suggest that you replace the top three speed lace grommets with hooks... didn't sound like a good idea to me, as hooks are more likely to catch on things, bend, or break. The stock lacing needs to be fixed. They have the laces going through the D ring that's for a gaiter hook; I moved the laces out of this. Also, it's always a good idea to put a double twist in the laces just before the laces head up the ankle; for this boot, it's at the transition between the D rings and the speed lace grommets. Also, I found that the top of the boot pressed uncomfortably against my shin, so I simply don't use the top speed-lace grommets and then the boots are much more comfortable. The stock insoles are not very good, so, as in all my boots, I replaced them with Superfeet Copper insoles... expensive but worth every penny. And, although I wear Rohner trekking socks with all my other boots, with these and my mountaineering boots, I wear them with Patagonia heavyweight mountaineering socks turned inside out. (Why inside out? Read [www.conovers.org/ftp/Clothing-Materials.pdf](http://www.conovers.org/ftp/Clothing-Materials.pdf).) Patagonia doesn't make them any more, but the REI heavyweight mountaineering sock is an adequate replacement.

<sup>58</sup> By far the best compact shovel I've seen; includes a root saw.

<sup>59</sup> People with SAR dogs throw these over their vehicles, with the back open. They allow breezes to come through but reflect sunlight. Not bad to throw over a tent to keep it cooler in the summer, or even simply to put up as a tarp (has grommets on the edges) to provide a cooler shady area.

<sup>60</sup> Many SUVs and light trucks have large tires and require a truck-sized lug wrench.

<sup>61</sup> Big enough for a patient, even in a litter, and a number of rescuers. A great heat tent for cold weather.

Blanket type patient “sleeping bag” with hood and Velcro on either side.)

- Frisbee and beanbag (for those boring standbys)**
- Maps:**
  - Two Delorme Street Atlas bags with
    - Common atlases of the area
    - 4 Plastic folders with water-resistant maps of common local caves and above-ground search areas.
    - Set of Potomac Appalachian Trail Club hiking maps in ziplock plastic bag<sup>62</sup>
- 3 Spare VHF/UHF ham commercial/handheld radios (Wouxun KG-UV6D)<sup>63</sup>**
  - Front Pouch:**
    - Instruction manual
    - Small laminated crib sheet
    - Spare rechargeable battery
    - AA cell case
    - 2 sets of 5 alkaline AA cells
    - Long whip antenna
    - Extendable whip antenna
    - (4 parts: SMA-BNC connector, base, main extendable whip, alternate duckie for base)
  - Inside Net Pouch:**
    - Cloning cable
    - Programming cable
    - Headset
    - Wrist strap
    - Reverse-SMA to SO-239 adapter (connects the handheld to a base antenna with a big plug)
  - Main Pouch:**
    - Wouxun KG-UV6D radio
    - Rechargeable battery
    - Flexible Antenna
    - Extendable Whip Antenna
    - Drop-in charger base
    - AC adapter for charger
    - DC adapter for charger
    - DC battery eliminator
    - Speaker-mike
    - Windshield mount
    - Window antenna mount
- One box each of S, M & L disposable medical gloves (FreeForm SE blue nitrile)<sup>64</sup>
- Outdoor Research Advanced Bivy Sack<sup>65</sup>**
- Big Agnes Copper Spur ULI one-person tent**

- Hennessy Hyperlight Zip Hammock with extra screw-eyes to mount on buildings, Kelty Triptease Lightline ([www.kelty.com](http://www.kelty.com)) as high-visibility replacement for rainfly pullouts, and added Lazr Hi-Vis titanium tent stakes from Bozeman Mountain Works ([www.backpackinglight.com](http://www.backpackinglight.com))<sup>66</sup>**
- Terra Nova Bothy 12 bag<sup>67</sup>**
- Nalgene bottle with 1 L of cat litter (for traction)
- Helmet** with 2 lights<sup>68</sup>
- 2 Field phones**, TP-6N, with batteries and spares, ¼ mile of disposable field phone wire, and 1 km of heavier wire in canvas dispenser, for cave rescue.
- Map Case** (18” of 4” PVC pipe with end caps) with maps of nearby caves printed on water-resistant paper.
- Bottom Layer:**
  - 12-V **tire pump**
  - Charcoal Vest** HeatPac hypothermia rewarming device with 18 hours of fuel in Pelican box
  - Green zip bag** with extra fuel and batteries for charcoal vest, and 60 iron-filing hot packs (HotHands Body & Hand Super Warmer Value Pack, each ~4.5”x6”), each sealed in a bag of 10, additionally sealed by me in a heat-seal bag to prolong shelf-life. Expire 4/18.
  - 2 folding tire chocks**
  - Caving Gear Bag** (see above)
  - Misc Gear Bag** (see above)
  - Gas can** and siphon
  - Mini-Opskit** (in a file box; see <http://www.conovers.org/ftp/Mini-OpsKit.pdf>)

<sup>62</sup> These are much more up-to-date than other hiking maps and topos, and are in areas with lots of outdoor recreation, and thus likely search and rescue areas. Also, if I happen to find myself in one of these areas with a few hours to kill, I've got the maps for a hike right there. Cover the Appalachian Trail from mid-PA to central VA, also popular hiking areas in north-west VA and nearby WV.

<sup>63</sup> Each in bag with accessories, also one bag of accessories to match the one handheld I keep in the Tumi pack (that one also has a Jetstream FTFR I monitor that will receive and display the frequency and PL tone for a radio transmitting close by, for in-the-field programming of radios to match other radios with frequencies known to users only as “Channel 2” and the like)

<sup>64</sup> I prefer this brand over all the others I've tried. Fit better, sturdier.

<sup>65</sup> For throwing on the ground when you're exhausted and need sleep now, and you don't want to take the time to find a place for a tent or hammock.

<sup>66</sup> If you browse any of the Internet information on backpacking hammocks, you'll see that these hammocks, though expensive, are the darling of ultralight backpackers. Once you figure it out, you can set it up in under 3 minutes, as long as you have two somethings (trees, telephone poles, road signs, etc.) on which to tie the ends of the cords. Having a couple of tie-outs to either side is also helpful. You can put it in places where there is neither room nor any flat place without rocks to pitch even a 1-person tent. They offer an open cell pad to insulate underneath can replace your ThermoRest pad – but, due to concerns about the open-cell foam getting wet, and about not being able to use it if you pitch the hammock as a tent, I've given up on this and just use a ThermoRest instead. (I tried their aluminized bubble pad but I like the ThermoRest better.) I normally use a size medium ThermoRest, but for use in the hammock, I got a size large that only weighs a few ounces extra; the extra 5” width at the shoulders keeps the sides of the hammock from compressing the sleeping bag there and creating cold spots. Although the hammock can be pitched as a tent, the open cell pad won't work as insulation this way, and you need a couple of stakes and something to use as a pole. A quick and handy shelter wherein to sleep for a few hours for when you're in a hurry—I also lived in it for about two weeks when deployed with a Disaster Medical Assistance Team team—much nicer than being in the big tent. (I used a couple of columns on the side entrance of an abandoned hospital instead of trees.)

<sup>67</sup> Can throw over the top of 12 people, or a supine patient and maybe 6 people, to provide shelter from wind, rain and snow. Weighs a couple of pounds, stuffs into a sack about 7” in diameter and 14” long, weighs a bit less than 3 lbs. Taken on rescues, but too big to take on searches unless in deep winter or concerns about having to bivouac. For searches, I take the SilBothy 4 (enough for 4 to shelter from wind, rain and snow). By Terra Nova Equipment. Add to disaster duffel only for deep winter disaster deployments.

<sup>68</sup> Petzl Elios. Used to have a leaf bag and fleece helmet liner inside my old helmet, but the Elios, which is superior in many ways to my old Ecrin Roc, has no room, so they now live in the pockets of my coveralls. Have a Petzl Nao headlight (see footnote under SAR Pack belt pouch) and backup of Fenix E1 I single AA cell 105 lumen LED light fixed to helmet with cable ties through the holes;

- Tech Rescue Bag** (see above)
- SAR Gear Bag** (see above)
- Large Vehicle Tool Kit**
  - Electronics Tools
    - Soldering Irons: 12V, 110V, butane (with lighter-style butane refill tank)
    - Small solder (including low-melting-point solder strips, work with lighter)
    - Misc RF adapters (BNC, PL-259, TNC, SMA)
    - BNC coax patch cables with BNC M/M
    - Pocket multimeter with spare batteries
    - Wire crimper/stripper
  - Electrical Equipment
    - Continuity tester
    - Pocket AC circuit tester
    - Roll of electrical tape
    - car fuses (many kinds and ratings) and fuse puller
    - Light socket to AC adapter
    - Radio Shack Leatherman Squirt EL mini tool (with wire stripper, etc.)
    - Nippers
  - Hand Tools
    - Large and small Vise-grips
    - Sears Craftsman ignition pliers (small)
    - Alltrade needlenose/standard pliers combination
    - Heavy-duty scissors
  - Wrenches (all Sears Craftsman except as noted)
    - Large and small crescent wrenches
    - Adjustable box-end wrench
    - Metric and SAE-Imperial hex key sets, folding
    - Metric wrenches in rolled case:
      - combination wrench set: 8mm-16mm
      - box-end wrench set: 6mm-18mm
      - ignition wrench set: 4mm-11mm
    - SAE-Imperial wrenches in rolled case:
      - combination wrench set: 3/8"-11/16"
      - ignition wrench set: 13/64"-3/8"
    - Socket/hex tools (sockets on Craftsman racks):
      - AmPro stubby 1/4"-3/8" ratchet handle
      - Skewdriver® offset hex handle
      - generic hex screwdriver-style ratchet driver with set of bits in handle
      - 6" long hex Phillips screwdriver tip (for deeply-inset screws)
      - 1/4" ratchet handle
      - 1/4" screwdriver-style handle driver
      - 1/4" 3" extension
      - 1/4" 3" flexible extension
      - 1/4"/hex finger-wheel driver
      - 1/4" metric sockets, 5-6-7-8-9mm
- 1/4" SAE-Imperial deep socket set, 1/4"-1/2"
- 3/8" 2.5" and 6" extensions
- 3/8" metric deep socket set, 10-19mm
- 3/8" metric/SAE-Imperial combination socket set: 3/8"-10mm to 7/8"-22mm, also 12, 18 & 24mm
- 1/2" drive ratchet handle with extra sockets in handle
- 1/4" drive ratchet handle with extra sockets in handle
- 1/2" drive 24 mm socket
- 1/2" drive spark plug socket
- 1/2" to 3/8" and 3/8" to 1/4" adapters, each both ways
- Small reversible Philips/standard screwdriver
- Craftsman small long screwdrivers, standard and Philips
- Offset standard and Phillips screwdrivers
- Set of 4 small Phillips screwdrivers
- Jeweler's screwdriver and nutdriver sets
- Stubby Philips and standard screwdrivers
- Mini-hacksaw and extra blades
- Type 13 Anti-Seize lubricant in tube
- Mini-pry bars (2)
- Spare batteries: 9V (2: lithium), AA (8: lithium), AAA (6), C (4) D (2)
- Spare mag-mount 2m/VHF antenna
- Large and small cleaning brushes, and battery-terminal brush
- spare roll of color code tape
- duct tape
- Card stock and sheet protectors and Sharpie marker for posting signs
- Aluminum coathanger
- Thin steel wire
- Plastic kitchen trash bag
- Nuts, bolts, screws, nails, cable ties, spare wire, rubber bands, electrical terminals, small Bungee cords, thumbtacks, packets of epoxy glue,
- Red shop towels
- Gojo hand cleaner towels, individual packets, and paper towels
- Heavy work gloves (True Grip, used to be known as Bucket Boss)
- Triflow lubricant
- Large Medical Pack** (REI travel pack; not currently indexed, but lots of medical stuff)
- Terra Nova Bothy 12<sup>69</sup>**
- REI Trail Stools, 3**

<sup>69</sup> Specifically for cold-weather rescues, or when there are a bunch of people in immediate danger of hypothermia. This is a poleless single layer tent (though you can put hiking sticks or ski poles in it) designed for temporary shelter for up to 12 sitting people. You all sit down then pull it over you, sitting on the edges. It can also be thrown over a patient and rescuers to provide instant protection from wind and rain or snow. It's pretty bulky: 8" diameter stuffsack 13" long, weighing 3 lbs. But it can be lifesaving.

- Sleeping bag stuffsack<sup>70</sup>**
  - Sleeping bag (3-season or winter: Western Mountaineering down bag)
  - Polypro liner
  - Silk liner
  - SOL Escape Bivvy<sup>71</sup>
  - ThermaRest Stuffable pillow
  - Extra stuffsack with:
    - Down booties
    - Overboots for staggering around in deep snow in down booties
- ThermaRest NeoAir XTherm<sup>72</sup> inflatable pad** in stuffsack with repair kit in bottom of stuffsack
- Computer Misc. Box** (note: two USB keys on personal keychain; also see Computer Bag in Ready Pack)
  - USB printer cable
  - adjustable-angle female>male USB adapter
  - lightweight 1 > 4 USB hub
  - Micro-SD>SD card adapter
  - 1 short Monster 1->3 extension cord
  - Powerstripsaver
  - 1->3 outlet AC adapter
  - AC "cheater" 3-plug > 2-plug adapter
  - 3 Velcro cable wraps
- FRS Radios:** 4 cheap FRS radios with spare AA alkalines
  - Winch Tool Kit** (standard Warn issue)
  - Jump cable bag** (Duluth Trading Co. Deluxe Jumper Cable Bag)
    - Heavy-duty jump cables
    - Work gloves (True Grip, used to be known as Bucket Boss)
    - Gunk pressurized can of tire sealer/inflator
    - Disposable coveralls
    - folding cross lug wrenches, Imperial and Metric (for other regular size cars)
- Full Spare tire:** on bottom of back
- In Tailgate Compartment:**
  - Bundle of **road flares**
- Optional** (only added when actually going out for trail maintenance, or if known downed trees from a storm):
  - Set of trail construction/maintenance tools on heavy leather tool belt/tool pouches
    - Woodsman's Pal machete/brush hook
    - Folding loppers
    - Buck lightweight pruning shears (www.sarcamp.com)
    - Folding SvenSaw

- Single-bitted Council Tool Velvicut axe in aluminum sheath (sheath from Madsen Logging Supply)
- Glock entrenching tool<sup>73</sup>
- Stihl Chainsaw
- Ryobi Weedwhacker
- Gas and oil for above
- 10-lb sledge
- Grass whips (2)
- Non-folding loppers
- Large shovel with cutting edge
- Mattock

<sup>70</sup> Granite Gear compression stuffsack; will compress very tightly and small for packing.

<sup>71</sup> This is an 8.5 ounce \$50 waterproof-breathable sleeping bag cover. See <http://conovers.org/ftp/Clothing-Materials.pdf> for details.

<sup>72</sup> Very expensive, ~\$200, but light, warm enough for winter us and very, very comfortable. Repackaged in larger stuffsack; companies always give you stuffsacks that are too small so they look tiny on the showroom floor but you can never get them back in when they're cold.

<sup>73</sup> Lighter and stronger and better built than all others I've tried.

## IX. Vehicle Equipment: Taiichi Ohno (2006 Scion xA)<sup>74</sup>

- Dash/Central console**
  - Sunglasses/croakie hanging on rearview mirror (Native Eyewear Nano<sup>2</sup>)
  - Dashboard top cellphone mount
  - coin dispenser for parking meters
  - 2 mini-USB charger for cellphones
  - Dental flossers in ashtray
  - Center dashboard compartment:
    - Victorinox Rescue Tool
    - Petzl Tikka XP headlamp+ spare batteries
    - spare pen
  - Center console open compartments**
    - Bottle of Tums smoothies
    - water bottle (Camelbak Podium)
    - driving gloves
    - parking display card
    - carwash card
    - waterproof pocket notebook and pen
    - laptop visor (between center console and passenger seat)
    - bottle of Windex (hanging on back of passenger seat)
- Glove Compartment:**
  - small microfiber towel
  - spare dental flossers (to restock ashtray)
  - paper towels
  - Kleenex tissues
  - individual Gojo wipes
  - individual wet wipes
  - exam gloves, size M, 2 pr
  - USB light for laptop keyboard
  - 1:2 12V cigarette lighter adapter
  - mini-USB cellphone charger 1:2 adapter
  - laptop-car-stereo cable
  - bikerack key
  - Gerber Diesel multitool
  - Fiskars garden shears
  - small roll of duct tape
  - batteries: 6 AAA alkalines, 4 AA alkalines
  - battery tester for AA cells etc.
  - orange safety vest with "Mountain Rescue" label
  - spare quarters
- Back (above carpeted lift-up hatch)**
  - Snow brush/ice scraper
  - Cable Chains<sup>75</sup>
  - 1L bottle of cat litter (traction on snow and ice)
  - Windshield sunscreen
  - Insulated grocery bag
  - Squeegee/windshield cleaner
  - Army blanket covering things
  - Securitraction folding steel traction devices for snow or mud
  - Canvas grocery bags and produce bags

- Large duffel stuffed with spare outer clothing for me and my family.
  - Dog-chewed Frisbee
  - 2 L bottles of water (preserved with a drop of Clorox each)
  - For long trips: add sleeping bag, foam pad, Hennessey Hammock or tent
  - StiffNeck adjustable cervical collar
  - Combat Lifesaver Bag** Trauma Kit (Google *Combat Lifesaver Bag* for contents)
    - Attached: SAM Pelvic Sling II** (compression binder for pelvic fractures)
  - HPMK** (military Hypothermia Prevention and Management Kit: hot packs and Space Sportsman's Blanket type patient "sleeping bag" with hood and Velcro on either side.)
  - 10 SMART triage tags for mass casualty incidents, with sharpie for marking on them
  - Tool kit:**
    - Sears Craftsman #33192 192-piece tool kit (<http://www.conovers.org/ftp/Taiichi-Toolkit-Inventory.pdf>) with a few additions:
    - Sears Craftsman Tools:
      - Channel Lock Pliers #45385
      - Medium Pliers #45378
      - Needle-nose Pliers #45102
      - P1 Screwdriver #41294
      - P2 Screwdriver #41298
      - 3/18" Screwdriver #41581
      - 1/4" Screwdriver #41583
      - Pocket Multimeter #82351
      - 3-pc Adjustable ("Crescent") Wrench Set (6/8/10") #10064
    - Small Vise-Grip Pliers
    - Large Vise-Grip Pliers
    - Small roll duct tape
    - Small wire brush
    - Assorted cable ties
    - 10 assorted self-drill screws
    - Deoxit spray contact cleaner
  - combat-type boots** (summer Danner Striker GoreTex boots or winter Matterhorn ATD insulated boots, depending) with two pair Rohner brown trekking wool socks (add to Disaster Duffel)
- Back (below carpeted lift-up hatch)**
  - Work gloves: 3 pair
  - Jump cables
  - Spare softshell jacket
  - MREs: 2
  - Fire extinguishers, small: 2
  - Orange safety cone with blinking light
  - Flares: 2 packages
  - Fix-A-Flat (sealer and compressed air in can)
  - Leaf bags: 16
  - Bivouac sacs, American style, disposable: 1 2-person bag, 1 1-person bag
  - WD-40
  - Pocket oiler with machine oil
  - OEM factory jack

<sup>74</sup> I don't plan to use this for any kind of rescue response, but figured it should have some basic emergency gear. It gets better than twice the mileage of my Land Cruiser.

<sup>75</sup> Useful in mud as well as snow.