4. Priority One: Stuff You Can Carry

Whether you have been working on preparedness for years or are just getting into it, the first things you should make sure you have and know how to use are the basic essentials of survival that you can carry with you.

Keep this gear in your home. When you travel, carry as much of it with you as you can. If you need to leave your home, this is your kit. If you get stuck in the middle of winter on Donner Pass, this is your kit.

Good quality gear is worth the price and time to acquire, generally being far more durable and effective at what it does. Many survival books discuss building a survival kit on the cheap, and that may be fine for certain things or if it is all you can really afford. Good quality portable gear is worth investing in as it may save your life on the move, or help you provide for basic needs even at home.

A good quality knife will last 10 times as long as a cheap one, and hold a sharp edge better too. Don't think of it just in terms of durability versus price, also consider that carrying 1 good knife is a lot easier than carrying 10 cheap ones. Most high quality gear is also smaller and weighs less making it easier to carry, especially over long distances.

Quality clothing made of good materials will outperform and outlast items that are cheaper or made of inferior material. A good quality ceramic filter will save you the time of boiling water or treating it with chemicals as is required for cheaper backpacking filters. If your cheap army-surplus gas mask fails on you, or impairs your ability to see clearly, it may cost you your life instead of saving it.

In this list I'll talk about the purpose and priority of various items, and some recommended brands and models to consider based on specific items I have tried myself.

Priority 0.9: Long-term Food Storage

While portability is a good guideline for a first priority of equipment and supplies to have on hand, there is one exception: long-term food storage. All major disaster scenarios have one thing in common: food production and transportation issues.

If you live in a city area that imports food any disruption of transportation or economy will likely interrupt your food supply. Even if you live in an agricultural area there are various scenarios involving problems with food production. Even if food production is expected and there are no issues with machines or weather, in the fall you may have to wait at least until late spring for more food to be ready to harvest, which could be six months or more depending on where you live.

Most other things you need to survive, including warm clothing, shelter, and water can be improvised. Food is consumed quickly and is much more difficult to produce or gather. Finding food in the wild, especially with many people around, may be impossible or may require burning more calories than you gather to eat.

For major disaster scenarios over a large area a good minimum for food storage is one year for each person. For basic grains and beans this is around 500 pounds of food for an adult, and around 300 pounds for a child.

For certain scenarios listed above food production may be interrupted even longer. For example, a major EMP plus nuclear war resulting in nuclear winter would interrupt utility infrastructure and transportation, and if timed right would also interrupt the growing season, meaning perhaps a year with minimal food production. In such a circumstance you might be able to supplement and stretch a one year supply, but a two year supply to start with would be much better.

This long-term food storage should be simple food with a long shelf-life. Grains and beans are great because they store well for 5-10 years, or even 20 or more years for certain grains.

They should be kept dry, and for longest storage in minimal oxygen (though this will kill the seed sooner so it won't sprout). Common containers include plastic buckets (5 or 6 gallon) and metal cans. Commercial packing is often done with a bit of dry ice to fill the container with CO2 instead of oxygen, and you can do the same when packaging at home (put the lid on AFTER the dry ice has sublimated). Certain herbs, such as Bay leaves, will also keep various bugs away. There are many other options, and various books and commercial suppliers to help with them.

Grains and beans last longest when stored whole. Even whole, the easiest way to prepare them is to simply soak them in water overnight to soften them. Once soaked they will spoil quickly if not regularly rinsed, even within 24 hours in warm weather. If you do rinse them a few times a day you can wait a day or two for sprouts to appear (if your grain or beans are still alive), and eating them once sprouted is an excellent way to get nutrients into your diet that you would normally get from fresh vegetables and greens and such.

Keep in mind that beans will harden over time and may become too hard to soften in water, even by boiling, but you can still grind them before adding water to make an edible paste.

To supplement grains and beans make sure to get a good supply of dried spices. These will store well for many years and will make otherwise bland food much more pleasant. Spices are also a great item to have around for trade and barter (small, lightweight, long shelf-life, high market demand, etc).

Other items to supplement grains and beans are oils (olive oil, hard lard, etc) and sweeteners (honey, sugar, etc). Some items like olive and other oils have a relatively short shelf-life and will need to be rotated more often, but are also easier to use in regular cooking. Other things last longer. Hard lard can last a number of years when packed well. Raw pure honey and sugar can last indefinitely as long as they are kept very dry.

For shorter-term food storage, like 1-3 months, it is good to have food on hand that is similar to your current diet. This can

include foods with a lower shelf-life, including most things in grocery stores (besides fresh produce), that generally last 6-12 months, and canned and other food that may last a few years. Canned food is good for this as it can last for many years with some nutritional value, though after the first few it will not taste as good nor be as nutritious.

There are various good books about food storage and preservation and they are worth reading and using now to make sure you have food stored away for an unexpected event. One author I know personally has produced a couple of great books on the topic: Emergency Food Storage & Survival Handbook

and Food Storage 101 Where do I begin? by Peggy Layton.

For some general guidelines on what and how much to store, the LDS Church maintains a helpful web site. There is information there about short-term (3 months), and long-term (1-2 years) food supplies:

https://lds.org/family/family-well-being/home-storage

Another thing to consider is food charity. In any major disaster it won't take more than a week or two for most local and home food supplies to be gone and food will be in high demand. This will be a great opportunity to help people out with some charity, especially family and friends. If you have plenty of extra for yourself and your immediate family for multiple years, in a less extreme scenario you will also have plenty to offer as charity.

One thing to consider with such charity is to not distribute it directly to anyone you don't know and trust. Anyone who knows you have enough food to give some away may return when they get hungry again (or their family does), and may spread the word about your generosity.

Local religious and charitable organizations are a great solution to this problem. It is understood that they have limited supply and their purpose is to give out all they have, so there is no consideration of unfairness or greed by recipients. Periodically give of your extra food to a church or charity that you trust to

not reveal where it came from, and then as people ask you for help refer them there.

Clothing

Base Layer

The best place to start with functional clothing is the layer next to your skin. In cold temperatures long underwear, especially made from real wool and other animal fibers, can complement your clothing and even though thin, light, and flexible can make otherwise inadequate clothing comfortable in cool temperatures. Modern long underwear is thin and packs well, making it easy to add multiple sets to your gear.

There are also various good synthetic materials and blends that do well in cold temperatures. Examples of these are polypropylene and thinsulate. However, wool and certain other animal fibers also manage odors better and are more suited to wearing for long time periods without washing (when necessary) because they do not harbor bacteria like synthetics or plant fibers (especially cotton).

For wool, make sure to get garments that are 100% wool, or nearly 100% if a spandex blend or something similar. For the best warmth and odor control, avoid cloth that says it contains wool, but only has around 10-20% and the rest is synthetic fibers.

Insulation Layer(s)

When you are in a cold environment (outdoors or in a cold shelter) you need bulky insulation to keep you warm. Animal furs and fibers including wool, yak hair, and others are a good option. Down is great for deep cold when it is dry, but loses much of its insulation when it gets wet, even if the water is from sweating. Because the body is constantly sweating, and much more so when moving, moisture is always a concern.

The best insulation to consider, but that you won't generally find in stores, is open-cell foam. I learned about this from Jim

Phillips (http://www.jimsway.com/) who has done extensive testing with it in cold weather, even in cold water (i.e. scenarios like falling into a stream or through ice over a pond or lake). Jim has more information about these on his web site at:

http://www.jimsway.com/atjs1.html

I personally prefer the 1/2" foam clothing over the 1" because it is easier to move in and generally less bulky (easier to store, maintain, etc). For extreme cold weather or long periods in the cold you might consider foam a full inch thick as in the PALS design.

The foam itself needs to have various properties, and foam with these properties has a higher cost than many foams on the market. It needs to transfer moisture vapor effectively, and it needs to retain and quickly return to its shape after compression. Many foams, especially visco-elastic "memory" foams are not good for this because they retain shape after compression. When moving or standing from a sitting position you want the foam to expand as quickly as possible to restore its insulating properties. In other words, don't just buy any foam.

The foam should be worn close to the skin, with nothing between the foam and your skin that might absorb moisture or limit moisture vapor transfer. A thin wool layer isn't too bad in this regard, but for extended periods of time wearing foam and moving even this should be removed.

Outside the foam you'll want a shell to protect from wind and abrasion, but one that does a good job of allowing moisture to pass through. If the outer shell does not transfer moisture fast enough eventually the foam will become saturated and will not be as effective, even if it is more effective than fleece and other comparable synthetic or animal fibers.

While it is nice to keep from getting wet, when wearing foam clothing in cold temperatures the most important thing is moisture vapor transfer. As long as moisture can transfer out, you can even start with foam totally saturated with water and

be fine. If it is warm enough outside for rain, the moisture will not cause enough reduction in insulation to cause a problem.

A few different groups have made and sold these over time, and many people make their own to save money. One good option for these from some people with a lot of strategic survival experience is Poor Man's Gear from RedHotLogo. They offer shirts and pants for adults and children, and foam sleeping bags too. At the time of this writing they are rebranding so also take a look at their new brand, WorkWarm:

http://www.workwarm.com/

Another company that makes foam jackets, pants, hats, gloves, and boots, along with outer shells and accessories, is Northern Outfitters. Their foam insulation is called "Vaetrex". The "-30°" models are 1/2" foam, similar to the Phillips TJs.

http://www.northernoutfitters.com/

At home or when traveling during winter months I always keep a set of foam clothing with me (1/2" top and bottom). I also regularly wear wool long underwear in the winter, and always have a few pair of them around. In an emergency having such clothing could mean the difference between life or death, or the difference between being stuck in a place and being able to move freely outdoors.

Outer Shell

Outer shells are meant for use in cold, windy, and wet conditions to break the wind and keep you dry inside them while letting out water vapor from sweat. For an outer shell you want clothing that is durable, wind and water resistant, and breathable.

As a counterexample: plastic bags may do in a pinch, but because they are not breathable they can be uncomfortable and dangerous in the cold as moisture coming off your body is accumulated inside the plastic and will cool you and/or freeze.

Over short periods of time or when you are not moving moisture is not much of a problem. Over longer periods of time

moving in the cold, especially over 3-4 hours, moisture buildup even in an otherwise good insulator can reduce its effectiveness and cause hypothermia. The common layering approach with thinsulate, synthetic fleece, and a Gore-Tex shell will even fail to keep you warm in these conditions. This is what you'll find in most quality recreational gear, and in the military ECWCS Generation 3 design.

Unfortunately even quality microporous membrane materials like Gore-Tex are not ideal because they do not allow moisture to pass through as fast as your body releases it when you are moving, even with low-intensity activities such as walking. The result is that moisture collects inside the shell. One symptom of this is frost inside the shell after moving in cold temperatures for more than an hour or so.

Foam insulation under Gore-Tex and similar microporous membranes will last longer than thinsulate and fleece because it will keep moisture away from the skin longer, but will also eventually become saturated and its effectiveness will be reduced. If the shell isn't removed to allow moisture release this will result in hypothermia. Fortunately, with good foam when the shell is removed moisture will transfer away from the skin quickly, whereas most other materials will retain the moisture and increase the recovery time.

In other words, you can use a Gore-Tex or similar shell over foam but you'll have to monitor the moisture build-up and vent as needed. This is a common problem with hard-shell jackets so most of them have zippered vents. However, when it is cold and windy these vents have problems because the wind will cool you while you are venting moisture. With a better shell material you can avoid this problem altogether.

When doing more heavy manual labor the old traditional duck cotton or cotton canvas is a good option, as is Cordura and similar heavy nylon fabrics. These are durable, breathable and somewhat water resistant, but not good insulators and are very bulky compared to other fabrics for qualities other than durability. Traditional oilskin is a variation on this that is much more waterproof while remaining very durable, but has issues

with moisture vapor transfer and so is not suitable for very cold temperatures. Still, if it isn't too cold a long oilskin duster is not only functional and impressive looking, but also great for concealing weapons.

For a combination of light weight, effective moisture vapor transfer, wind protection, external water shedding, and reasonable durability, nothing beats modern tightly woven synthetic fiber fabrics. The best example of this is probably Burlington VersaTech, which was included in a patent in 1986 along with foam for a "protective clothing system for cold weather" and is used by various foam clothing makers (including WorkWarm and Northern Outfitters). VersaTech is a lightweight fabric and is best combined with some other durable fabric outside it such as Cordura.

There are various other fabrics that have good breathability and wind resistance, with adequate water resistance. Some examples of fabric brands that qualify include Schoeller Dryskin, Dry-Q Elite, Vaporshell, and Polartec Power Shield. eVent generally transfers vapor better than Gore-Tex and may be adequate, but various others are much better.

There are a large number of brands that make such gear, so your decision should be based mostly on technical features and price of the coat, pants, hat, gloves, and boots. This sort of gear can be very expensive at full retail price, so for a better price try looking for used gear (sometimes very lightly used as people buy things for dreams of outdoors and never use them), or buy in the spring or during sales (especially from deep discount sources like REI Outlet or the Cabela's Bargain Cave).

To complement their foam liners Northern Outfitters makes a few different shell options that feature VersaTech fabric. The EXP Waterproof Parka and Bib and Arctic Parka and Bib are meant for use as a general shell in wind and moisture. For high winds their Wind Anorak and Pant (also made with VersaTech) will supplement the EXP or Arctic shells to avoid windchill. The Wind Anorak and Pant are also white colored for better concealment in the snow.

Another outer shell option to consider, that I discovered somewhat by accident, is motorcycle clothing meant for cold weather. This clothing is wind and water resistant, much more durable than typical cold weather clothing, and even has plastic “armor” in various places meant to protect a rider in a motorcycle crash, but is useful when moving on your knees or elbows, or even rolling around on the ground.

One example of such clothing is the BMW Tourance 2 line, which I got in a generously large size so that I could wear 1/2” foam clothing under both the pants and the jacket. These have a wind- and water-proof microporous membrane, so would have the same issues as a Gore-Tex jacket when active in cold weather. They are available at BMW Motorcycle stores and various online retailers. I use this for riding in cold weather and it works well, even in freezing temperatures while moving down the road at 60-70 MPH. Make sure to have good gloves, and a good thin balaclava under the helmet (and/or even a scarf around your neck) to handle the wind that gets to your neck and lower helmet, even with a good helmet with full face shield.

Hats, Eyewear, and Gloves

Your kit should include at least two types of hat: a comfortable hat for sleeping and casual day use, and a full head and neck hat (a balaclava) with an opening for your eyes and thinner cloth or some sort of vent over your mouth for breathing. Along with these I would recommend that you carry a thin cloth balaclava for wearing under a helmet or as a liner for other hats.

There are various face masks on the market to cover your face below the eyes and generally down to your neck. Most are simple and made of fleece or a thin windproof cloth. Some have a mouth and/or nose hole for breathing and with others you just breathe through the cloth. For more extreme cold the Talus ColdAvenger Mask has a special breathing device to help mix warm air breathed out with cool air coming in so that the air you breathe isn’t so cold. Talus also makes a matching ColdAvenger Balaclava to go with it.

In really cold weather you will also want goggles made for skiing or snowmobiling. These should be vented and padded near your face and will keep cold air away from your eyes, allowing you to see even in cold and windy conditions.

For warmer weather consider ballistic eyewear made for shooting practice. If you wear prescription glasses get some with good polycarbonate lenses as they are more durable and will do in a pinch for eye protection when shooting a firearm.

For emergency purposes you should carry a few types of gloves. For first-aid, and to avoid leaving fingerprints, a few pair of nitrile gloves are small, easy to carry, and useful. You may also want a pair of leather (or leather-palm cloth-backed for warmer weather) work gloves.

If there is any chance of being outside for long periods in cooler weather you should have some good uninsulated Gore-Tex gloves with leather palms. These are like a shell coat and pants that can be used in wet or cool weather.

Instead of built-in insulation get one or two pair of liner gloves to wear under your “shell” gloves. These should be made of fleece, thinsulate, wool, or polypropylene (for polypro be careful not to get them too hot: the material melts at surprisingly low temperatures, even in hot dryers). This approach is much more versatile and durable for the same size and weight than having bulky gloves with built-in insulation.

For more extreme cold weather foam mittens are very helpful and will keep your hands warm for extended periods outside. Northern Outfitters offers the Arctic Mittens, and there are patterns around to make your own. Another helpful item is foam hats. While you can make your own, the Severe Hood from Northern Outfitters is a good commercial option.

Footwear

For survival purposes the most important thing about shoes is durability. You may end up walking long distances without being able to replace your shoes and without carrying more than one extra pair plus maybe some sandals.

Heavy backpacking boots are typically the most durable, especially those with a “rock” in the step, i.e. that have a curved shank and sole so that the front of the boot does not have to flex much as you step. Make sure the boots have good rubber soles that will not wear down quickly, such as Vibram brand or similar soles. A good example of such a boot is the Mammut Mt. Crest.

This sort of backpacking boot takes some time to break in, though with a good curved sole the stress on the boot and on your foot is significantly reduced. For emergency purposes you should do some walking in the boot to make sure it is reasonably comfortable, but don’t break it in all the way since the boot won’t last as long when you need it. You’ll want to carry some backup shoes that are more forgiving and during a long trek you can switch between your heavy boots and your backup shoes as you break in the boots.

Backup shoes should be low-top and can be soft cloth walking or running shoes, but consider slightly heavier leather hiking shoes for this. A good pair of low-top hiking shoes can last quite a long time and will be comfortable for walking almost from the start.

For hot weather you may want sandals to walk in. Also consider some simple sandals or flip-flops for walking around camp in the evenings, when bathing, and when fording slow and shallow rivers. Always wear good shoes or boots when fording faster or deeper rivers because losing your footing as you cross is MUCH worse than getting your shoes wet. This is another reason to carry two good pair: when you’re to the other side just switch your shoes. It’s also good to avoid walking very much in wet boots or shoes as they tend to wear out faster when worn wet.

Many large outdoor stores, like REI and Cabela’s, sell hiking shoes and boots at a discount made by well known high quality footwear makers like Vasque, Mammut, and Meindl. Even so, expect to spend around $100-300 on new good quality hiking shoes, and $150-400 on good backpacking boots. Because these can get expensive try looking for lightly used or returned

boots, either through want-ads or returned merchandise at places like Cabela's bargain cave.

For the ultimate in extreme cold weather the Mountain Pack Boots from Northern Outfitters are a good option. They are insulated with 1" foam (Vaetrex) and fairly unique in the world of boots.

Along with good shoes and boots, don't forget to get some good **socks**. The material is generally a wool blend with lots of wool for warmth, or thinner and more synthetic for cooler temperatures. Socks should be changed or washed daily when walking a lot. Also consider carrying mole skin or good bandaging tape to help with blisters, and put it on your feet as soon as you know where blisters will form (look for sore or red skin after hiking for an hour or two).

Another bit of gear that will make walking more comfortable is **hiking poles**. These are typically telescoping so that they are fairly small for storage and expand to different lengths for use while walking on flat ground, going uphill, or going downhill. Poles are helpful for fording rivers, walking on steep terrain, building arm strength on pre-crash walks, supporting a tarp or other shelter, and even for defense against animals in surprise encounters. I prefer to have a pole in each hand, but even a single pole is useful and effective for most of these purposes.

Leki and Black Diamond are good brands for hiking poles. My favorite is the Leki Wanderfreund pole. This pole has an L-shaped handle to support a variety of holding positions which is helpful for changing terrain, and to alternate between positions for comfort on longer walks. My older version of these poles has a thumbhole that was eliminated in newer models. While I like the thumbhole, the newer handle design looks more comfortable for a vertical grip.

Hot Weather Clothing

In hot weather you want very different clothing. Insulation is not needed, but sun protection is important (especially if you are fair skinned) and so is good air ventilation so that your body's natural cooling mechanism (sweat) will work effectively. Having

some clothing will help natural evaporative cooling, especially in hot wind where your sweat may evaporate too fast to be effective without something to temporarily soak it up.

Cotton is an excellent material for this. Especially thin cotton cloth lets a lot of air through, and wicks some moisture to help with cooling.

In hot weather another critical item to wear is a hat. It should be lightweight and breathable, but made of cloth weaved tightly enough or even coated to help with sun protection. My favorite sun hat buttons up on the sides for when it is more windy or less sunny, and has a wider brim in the back to shade the neck.

Improvised Clothing

If you find yourself without adequate clothing, especially in the cold, consider some improvised clothing or improvised supplements to your clothing. If you have a blanket but no coat, cut a hole in the middle big enough for your head to fit through, and wear it as a poncho. Plastic is horrible for long-term use, but for short periods of moving in the rain a plastic bag or sheet with a hole for your head (and possibly arms) will keep out a lot more rain than it keeps in sweat.

While materials like wool, foam, down, and synthetic fibers made for the purpose are great to have, they are not the only things in the world that can insulate. The old hobo trick of crumpled newspaper inside your clothing is a good example of this. If there are no newspapers around, almost any plant matter will do temporarily, preferably more soft than prickly. If you have thick inner clothing you can get away with less pleasant material, but if you're freezing you might consider a little discomfort to keep yourself alive.

Cloth is probably the most difficult material to improvise from nature, but there are many sources of it around the house. Clothing that is too big can be useful, and sheets, blankets, drapes, tablecloths and so on can be repurposed for clothing, limited only by your cutting and sewing skills. For emergency purposes it doesn't take much to produce something functional and at least somewhat similar to what you're used to.

Concealment

When choosing colors for clothing and other gear, avoid bright colors and colors not found in nature. Sometimes you don't want to be noticed, and bright colors will make that difficult in every environment, perhaps other than a Miami night club.

Military pattern and camouflage clothing may help conceal you in the wilderness, but around other people you will stand out as a potential threat and possibly a target. If you carry camouflage clothing consider non-military patterns meant for hunting, and have other clothes with you for wearing in towns and when you plan to be around other people.

For use only in the wilderness, and when trying to hide, you might consider carrying a ghillie suit. These are usually some sort of mesh cloth with naturally colored string, or tattered strips of cloth, attached to cover the entire suit. The effect of the suit breaks up hard lines and other patterns that are easier to spot when scanning for anything that stands out, especially in wilderness areas. For a similar effect over tents and gear camouflage netting does the trick. Ghillie suits and netting are not too difficult to make, but doing so is time consuming. Many military surplus stores and web sites sell this sort of equipment.

The best colors in general are natural greens and browns, and black is okay, but only really good at night. Even if some things are black avoid wearing all black as this is also intimidating and you may be perceived as a threat and target. These color guidelines apply to outer clothing, hats, boots, tents, backpacks, and other frequently visible gear.

Water

Carrying Water

You may have guessed by now from previous sections that the thing to keep in mind for water containers is durability. For hard-walled bottles a stainless steel canteen will do far better over time than any plastic. These days there are many different

brands making various shapes and sizes of stainless steel bottles. Consider one with a wide mouth that is easier to clean and can be used for other purposes, even cooking food in a pinch.

For water bags get something durable such as the cloth-lined plastic bags rather than plain plastic. Examples of this include the MSR Dromedary bags, and if you want a drinking hose the MSR Hydromedary.

The great thing about water bags is that they fold down fairly small for easier carrying when not in use, which means you can easily keep a couple of spares on hand in case of damage to your main bag or in situations where you need to go longer distances without an expected water refill. However, because stainless steel bottles have so many potential uses and can handle high heat for boiling or whatever, carry at least a couple of metal water bottles along with the water bags you have with you.

Many smaller backpacks these days have a pouch that you can put a water bag with a drinking hose in (like the CamelBak brand). This is very convenient for long hikes and when riding a motorcycle/ATV/horse/etc. For larger backpacks it is better to have a supplemental pouch on the side or back for the water.

Finding and Treating Water

You may not always have reliable sources of clean water. During major emergencies water supplies may become contaminated or pressure may be lost altogether. Water from nature isn't always reliably clean, especially if your only sources are puddles, ponds, and streams.

The best water treatment method around is a good quality ceramic filter. These have sufficiently small pores to make water suitable for drinking without boiling or other sterilizing treatment. The only thing to be careful of with these ceramic filters is to protect them from cracking, by freezing or by impact against something hard.

The Katadyn Pocket Filter has been the filter of choice for years, and while I still have a couple and recommend them, there is finally a competitor that is better in a few ways: the LifeSaver Bottle 4000 or 6000 filters.

These are fairly large bottles with a pressure pump for pushing water through the filter and have separate ceramic, activated charcoal, and foam pre-filters. That is extremely helpful because these different filters have different life cycles and in this way can be replaced separately. LifeSaver also makes JerryCan filters for vehicle travel or camps with larger groups.

For camps or fixed locations (such as your various retreats) there are other good options including the gravity filters from AquaRain or Big Berkey. These use the same sort of ceramic filter but require no pumping. That is helpful to save labor (and the filters are more simple and reliable because they operate at low pressure), but it does take some time for the water to pass through the filter so they are only useful when your camp is in the same place for extended periods of time. I use an AquaRain at home and it is a great way to have cheap, clean water all the time.

If your water source is very dirty it is a good idea to pre-filter the water using finely woven cloth or foam. Some filters, such as the LifeSaver Bottles, come with a foam pre-filter that can be cleaned and replaced independently of the super-fine ceramic filter. Other filters like the Katadyn Pocket filter have a fine screen on the water inlet tube, but rely on more frequent cleaning of the ceramic filter itself for larger particles. For that style of filter a pre-filter of cloth or foam will increase the life of your filter.

Before learning about this many years ago I was on a trip in the desert during the summer and the only source of water was basically mud puddles along a dry river bed at the bottom of a canyon. I used a Katadyn Pocket filter and it worked really well, but it required frequent cleaning to get the sand out. The sand around the ceramic filter itself wasn't too bad and cleaned easily with water and a light scrub, but from the inside it got into the threads and around the rubber seals of the removable end

caps. This made it more difficult disassemble the filter for cleaning, and I imagine over time it would have damaged the rubber seals and the fine threads around the cap. It took some thorough cleaning after I returned home to get it operating smoothly again.

If you are in a fixed location with some infrastructure one effective approach for initial cleaning is to use a water tank to allow the water to settle before running the water through a filter. After water sits for a few hours in a tank the heavier particles will sink and the lighter ones will float. If the outlet of the tank is an inch or so above the bottom (which is the case for most large water tanks), then you'll get water from the cleaner middle and in normal operation a pre-filter won't be needed.

Another good option is an improvised pre-filter made with sand and fine dirt such as silt or clay. This isn't enough to purify the water and make it safe to drink, but it will remove larger particles from the water. To take this one step further add some active carbon to remove various chemicals. See more details on home-made filters below.

As a backup and to share with others you should keep some chlorine around for water purification and other cleaning. The best way to buy and store this is in powder form since liquid chlorine (bleach) breaks down over time and after a few years you'll just have a bottle of nearly inert salt water.

Look for pure Calcium Hypochlorite powder without any harmful additives. This is often sold as a swimming pool shock treatment chemical and is not expensive, especially considering its potency. It only takes 1/4 teaspoon to treat 50 gallons of water. Because it is so potent, for small containers be sure to mix it with water to dilute it, and then put a small amount of that solution in the container to purify. One product to consider (now available in many stores, including WalMart) is HTH Shock 'n Swim (or Super Shock 'n Swim). This contains around 50% calcium hypochlorite, ~30% magnesium sulfate (epsom salts), ~10% sodium chloride (table salt), and small

percentages of safe and mostly inert calcium compounds such as carbonate, hydroxide, chloride, and chlorate.

Iodine is also a good chemical to sterilize water. Many brands of water purification tablets contain iodine. This affects water taste, but consider the flip side that after a nuclear attack the iodine will be helpful to saturate your thyroid to avoid absorbing radioactive iodine (I-131).

Another chemical that will sterilize water is hydrogen peroxide. Food grade peroxide normally comes in a 3% solution and at that concentration about 2 teaspoons per gallon of water are required to disinfect. Water purified in this was has much better taste and health effects than chlorine or iodine. Hydrogen peroxide is also great for cleaning sores, especially in the mouth. Unfortunately it has a relatively short shelf life, shorter even than liquid chlorine, usually around 1 year. One alternative that has benefits similar to peroxide but has solved the shelf life problem is stabilized oxygen drops (such as ION Stabilized Oxygen).

As a backup all you really need to sterilize water is UV light. There are commercial products (like SteriPen) that emit UV light for sterilizing water, but sunlight works well too. You need a clear glass or plastic bottle for this. Just fill it with water, leave it in direct, bright sunlight for a few hours... and you're good to go.

Beyond this method, the old standby is boiling water over a stove or open flame. While this does not sterilize water, boiling for 20 minutes will kill most dangerous pathogens for drinking water. Water boils (evaporates) at 212F, and for full sterilization you need a pressure cooker to get the water up to 250F for nearly 20 minutes, and at closer to 275F the time drops to around 3 minutes. For this reason merely boiling water is helpful for cleaning surgical instruments, but it is not adequate and often chemical sterilization must be used along with it (alcohol, betadyne, etc).

While water sterilization will kill microorganisms, it will not remove radioactive particles or harmful chemicals. Outdoor water sources in a fallout area should not be used for a few

weeks, depending on the radiation level (around the same time you should avoid being outside a fallout shelter). Water does not become radioactive by simply being near radioactive material (as many metals do), but if radioactive material is dissolved or suspended in water, then drinking the water will bring that material into your body. For this reason it is important to have water in sealed containers in a fallout shelter to use while there.

Some radioactive particles are larger and can be filtered easily with cloth filters or fine dirt, but radioactive salts that dissolve in water can pass through more easily. For these and for harmful chemicals activated carbon filtration can remove a lot, but doesn't remove all chemicals. Even for chemicals like chlorine that a carbon filter will reduce, some will get through. If the water is known to be contaminated with such things, don't drink it even after filtering. Find another source of water. In the case of radioactive material at least wait a few weeks until the most harmful varieties have decayed and then filter it the best you can.

If you don't have a commercial water filter with activated carbon in it, you can improvise. Activated carbon is basically just charcoal ground finely to increase surface area. If all you have is charred wood, just grind it and pass it through a fine screen to separate out the larger bits for further grinding or disposal. Pack this into some sort of container that water will pass through, preferably with layers of clay, clean dirt, and sand above it to filter out larger particles. Various preparedness and survival books, and online resources too, have diagrams and more detailed instructions for doing this.

Food

Food to Carry

When choosing food to carry the most important qualities are light weight (high calorie density), long shelf-life, no cooking or minimal preparation required, and edible on-the-go. This food will be used for a short time (you can't carry enough food to

sustain you for a very long time) to keep you alive and fuel your body while you're on the move.

Whatever the food is, it should be high in fat because fat has more than twice that calories by weight of both protein and carbohydrates (9 kcal/gram versus 4).

If you are concerned about healthy food the best choice is seeds or nuts (even raw for the really health conscious), or pure nut butters (i.e. finely ground nuts). The main downside of these is the short shelf-life (especially for nut butters), but if they are part of your regular diet you can rotate your supply and it'll be fine. Still, consider that this food is meant for use over a short time and even less than ideally healthy food won't cause much harm to your body.

One of the best options for this is standard survival rations such as those from Mainstay. These come in 2400 or 3600 calorie packs of bars and have minimal packaging (foil and plastic) and a shelf-life of at least 5 years. Many brands are Kosher- and Halal-friendly, and taste somewhat like a cookie.

MREs are a good option but are much heavier for the same calories, and while edible cold are much better with some warming. Some MREs come with chemical heating that requires no fire. Those are convenient, but keep the weight in mind. A week of MREs gets quite heavy and bulky. MREs are basically just canned food in bags instead of cans. For retreats or moving by car you might consider just using canned food as it is much cheaper.

Freeze-dried food is much better than any of these other options for calories per weight, but it requires more preparation, including hot water to rehydrate effectively. Many brands will hydrate enough with cold water to be edible, but it takes longer and both taste and texture suffer.

Another interesting option is the protein powder that is commonly used by body builders. It is very dry (and so light weight), mixes easily with water (even cold water), and has a shelf life of 2-3 years (much better than the 1 year of most food bars). Dry whey protein has about 115 calories per ounce so

just over 1800 calories per pound, which in a survival situation is a good daily ration. While on the move you may want to double that. There are also vegan protein powders, even some made from sprouted grains and legumes such as Sun Warrior protein, that are nutrient-rich and adequate for any variety of health-conscious diet.

Hunting and Gathering

Because you can only carry so much food and you may need to travel long distances, or avoid civilization for a variety or reasons, it is worthwhile to learn about edible wild plants and even carry a reference with you. There are a few good books on this topic by Linda Runyon, John Kallas, and even one published by the US Army. For a list see Appendix A.

Along with other firearms consider carrying a small lightweight .22LR rifle. The best option is a great design with a removable receiver and barrel that all fit into the stock. This is meant for survival, small, lightweight, easy to carry, weather resistant, and has two 8-round clips. The military version of it is known as the AR-7, and it is sold commercially as the Henry US Survival Rifle. When you buy this look for the newer and more reliable model that has the orange plastic inside the stock as opposed to the older one that is all black inside.

Another similar .22LR rifle with a removable barrel and designed for portability is the Marlin Papoose (70PSS). It is built more ruggedly than the Henry Survival Rifle and is more ergonomic since the stock is not so wide. The receiver doesn't detach and the barrel doesn't go inside the stock, so it is bigger on the go than the Henry (AR-7).

The Ruger 10/22 is another good option for a .22 rifle. It is reliable, extremely common, and has all sorts of accessories available for it. A folding stock is a good way to get the 10/22 down to almost the size of the AR-7, and with a good case can be as protected as the AR-7 disassembled and inside the stock. It isn't quite as small or light, but in general is a good alternative.

Skinning small animals (and snakes) is much easier than larger ones. You just remove the head and feet, make a light cut down the front (if needed), and peel off the skin. As with all skinning, be careful not to puncture the guts and remove them quickly to avoid contaminating the meat. Many small animals and birds can even be cooked whole with the skin and guts removed after cooking. For many really small critters you can thoroughly cook them and eat the whole... skin, guts, bones, and all.

Knives

Of anything you could carry, perhaps besides clothing if it is really cold, a knife is the most useful and versatile. You can use a knife to gather, hunt, and prepare food, make shelter, and make simple clothing and other tools.

A knife is effective for protection against, or for hunting, most wild animals, especially if used to create other weapons such as simple spears and pikes, and bow and arrows. To make an even more effective spear if you have some cord (or can find natural fibers) just tie the knife to the end of a strong, straight stick. If you do manage to hunt an animal a knife is also useful for processing and skinning the animal to get it ready for cooking and eating.

Most edible plants can be harvested with nothing but your hands, but having a knife to help dig out roots or cut stems and branches can save a lot of time and effort.

A knife can also be used to start a fire, which is very difficult without one. If you have a flint or fire steel it is a lot easier, but even without you can use the knife to cut and shred tinder, cut and sharpen branches and other wood parts needed for bow, plow, or other approaches to primitive fire starting.

One warning about fire: both night and day it can give away your location from long distances (by day with smoke and by night with the firelight itself, and to some extent with smoke against a backdrop of stars). This is a problem during any period of social unrest, famine, occupying or roving gangs, or

restrictive government activity. If you must have one for cooking food, locate the fire at least a few hundred yards from your camp and eat the cooked food before heading back to camp. For more details on tactical camp arrangement see the section below in the Surviving on the Move chapter.

Basically, if you could only have one tool, choose a good knife. One could even argue than in the most primitive of circumstances besides the human brain, the ability to use a knife separates man from beasts and is the most useful supplement to natural human abilities.

Knives are so useful, you should probably carry more than one. Your primary knife for daily use should be a good sturdy knife made from decent quality carbon steel, with a full tang (a single piece of metal from the tip of the blade to the end of the handle). For most survival needs a single-edged blade is better, but for hunting and personal defense there are many advantages to a double edged blade.

One good example of a primary survival blade is the Schrade SCHF9 'Extreme Survival' knife. This is a heavy, inexpensive knife with a large grip and would be suitable for even tougher chores like cutting branches for fire or shelter.

A much better knife to consider, with similar features but much better steel and craftsmanship, is the Knives Of Alaska 'Bush Camp' knife with the rubber "Suregrip". I have a Bush Camp Combo that comes with a double-knife sheath that holds both the Bush Camp and a smaller "Cub Bear" knife. The smaller knife is great as a spear tip, for more delicate skinning tasks, and other small knife needs. KOA uses good D2 steel that is durable and holds an edge quite well. They have knives in all sorts of shapes and sizes for different outdoor needs.

Even with such a knife it is a good idea to carry a knife for backup, preferably one that is better suited to hunting and fighting/defense. Perhaps the ideal knife for this is the Gerber Silver Trident. This knife has a double-edged blade with partial serration on both edges. It has an excellent handle and a steel butt cap that can be used as a hammer. It is a great survival

knife and somewhat heavy, but almost too nice for chores like hacking at branches.

If you anticipate heavier brush or jungle to pass through, or plan to do more hacking of branches or small trees for fire or shelter, a larger blade such as a machete or kukri is helpful. Cold Steel is a good brand for many larger blades (including full-size swords and such), and Gerber makes good machetes and camping saws too. For heavier work like building shelters a good quality hand axe and smaller hand saw can really come in handy. All of these larger tools are heavy, but can be particularly useful for building more sturdy and permanent shelters, especially if you cannot go to any of your retreats for longer periods of time.

Along with a knife you should definitely carry a couple of small accessories: a sharpening stone and a fire-starter (Swedish fire steel or something similar). Good brands to consider for a sharpening stone are Smith's and Diamond Machining Technology. They both make a number of small and portable variations.

Along with a good full-tang knife and accessories, consider carrying a pocket multi-tool like a Leatherman Wave. The scissors, pliers, hand saw, screw drivers, and so on can solve all sorts of common maintenance and repair problems.

Hygiene and Sanitation

Next to maintaining body temperature and keeping hydrated, sanitation is the most important priority for survival. Food is in the same range, but you can survive without food a lot longer than you can survive infected with pathogens common in human feces.

To help demonstrate this point, here is a list of some of the pathogens and diseases you may have heard of that can be spread by contact with feces: salmonella (typhoid fever), cholera, e. coli, gastroenteritis, legionellosis, leptospirosis, poliomyelities, aseptic meningitis, encephalities, hepatitis A and E, meningoencephalitis, cryptosporidosis, amoebic dysentery,

and giardia (giardiasis). You've probably heard of cholera, dysentery, and giardia in the context of bad water, but as you can see there are a lot more to be concerned with.

Many of these diseases can be lethal, aggravate other health issues and cause death, or cause significant debilitating illness for extended periods of time. During natural disasters such illnesses and lack of food often account for more death than the original incident.

You can avoid this by drinking only clean, safe water, and by carefully handling human waste. Urine is much less dangerous than feces and even comes out sterile. However, urine quickly harbors various pathogens after it emerges. Feces on the other hand are dangerous from the get-go, and remain dangerous for a fair amount of time.

The basic rule is: don't poop where you eat (or drink). It is hard to be sure that water supplies are not contaminated, so using an adequate filter (such as a high quality ceramic one) or purifying water by chemical, UV light, or heat is necessary to prevent illness from drinking water, which is how most of the pathogens listed above are transmitted.

When on the move, just be polite and poop away from trails and water sources. It is best to also dig a hole and/or cover feces after you've finished your business.

In less formal camps, or anywhere that better infrastructure is not available, a good-sized hole in the ground (away from water sources) is all you really need... as long as you have the space for it. If space is tight or there are too many people for a simple hole in the ground to contain all the detritus, then facilities to speed composting or burning the material may be necessary.

I've heard that a common approach in military camps is to have an outhouse built over metal barrels which are periodically slid out, doused with diesel, and burned.

When on the move and in emergency situations toilet paper is a great thing to have, but even with it you still need to wash or

sanitize your hands after wiping. Other wiping material, such as grass or leaves, is commonly available though not as comfortable. In any case, the most critical part of sanitation after wiping is washing your hands, and for that you need soap.

The best soap to carry is hard soap in a plastic bag. Get soap that has no moisturizers or lotions in it so that it washes away clean. The same applies if you use liquid soap. Dr. Bronners makes both liquid and solid soaps that wash away clean like this so you can be more sure that your hands are clean. Another good brand for natural, clean-rinsing soap is Cal Ben Pure Soap.

First Aid and Medical Care

First aid and medical care are tricky topics in emergency and survival situations. There are many things that can happen that will be life threatening even though we are used to seeing people survive them with modern medical care and fast transportation to advanced medical facilities.

There will also be many people who are already dependent on modern medical facilities and treatments. This could include people in hospitals, people that require drugs to remain alive, people who use drugs on a regular basis to improve their health or mitigate the effects of an illness, and even people with a developed dependence on drugs. Without preparation and planning some of these people will die. Others will weaken physically and mentally, and that may aggravate or create other life-threatening circumstances.

My training is limited to Certified First Responder (now often known as Emergency Medical Responder) training, though I have consulted with and learned from paramedics, ER doctors, and wilderness medicine professionals. I'm lucky to have grown up and done a lot of camping with friends and family experienced in medicine. Having people with such knowledge and expertise around in case of an emergency can literally mean the difference between life and death, or between quick recovery and long-term debilitating illness or injury. Of all the things you can carry with you, some basic understanding of

first aid and health is by far the most important. Even without medical supplies there are many things you can improvise to help save someone's life.

While many good books are available on the topic, including Where There Is No Doctor by David Werner and others, Field Guide to Wilderness Medicine or Medicine For The Outdoors by Paul S. Auerbach, and the US Army Combat Medic Field Reference, there is no replacement for getting some training. There is great value in trying CPR on a dummy with sensors designed for training, practicing immobilization for neck or spine injuries and broken limbs, and so many other immediate responses to common serious injuries. This is especially beneficial when done in the presence of an experienced instructor who can give you feedback and guidance.

The Red Cross offers an "Emergency Medical Response" course that goes beyond First Aid and CPR training to include coverage of a wider variety of potential injuries, sudden-onset illness, emergency and disaster scenarios, and even triage for larger scale incidents. This training is meant for police officers and firefighters who are not trained as EMTs or Paramedics, and is required for various jobs related to public safety. It is available to anyone, and well worth a few evenings or weekends of your time.

There are some variations to understand when it comes to major emergency and disaster situations, because much of this training is focused on helping people while waiting for more experienced and better equipped people to arrive. If there is little or no chance of such people arriving, different responses are in order. To understand this better I recommend the books I mentioned above, especially Where There Is No Doctor, and Medicine For The Outdoors.

In a portable first aid kit you can only carry so much. Many things such as splints and stretchers can be (and will likely have to be) improvised using cloth, rope, and sticks, branches, or poles. Some other things are difficult to improvise and/or valuable to have on hand.

Wilderness first aid kits are a great starting point, but fall short in a few areas. They usually have some antiseptic wipes, but adding more is worthwhile. It may also be worthwhile to have small bottles of chemical sterilizer such as betadyne or alcohol (and definitely valuable to have larger bottles at your retreats).

Bandaging tape is also great to have, especially the porous plastic or cloth tape that is useful for wounds as well as for preventing blisters and making small splints (fingers, etc). Make sure to have at least 2-3 rolls per person of this. In a pinch you can use it instead of other bandaging, and it is great for covering and protecting sutured or glued wounds.

Most first aid kits do not come with anything for more severe cuts or bleeding. While pressure is great for stopping a bleed, some QuikClot or Celox helps significantly. Considering that bleeding can be life threatening (especially when advanced medical care is not available), this is a high priority.

If you are experienced with suturing using the little curved needles, a suture kit is small and valuable. For the rest of us, it is a good idea to add some skin staplers (with at least 15 staples in each), and/or some skin glue (Dermabond type of stuff, though even plain superglue will do in an emergency if you have *nothing* else). The New Skin liquid bandage is somewhat similar to this and fine for really small cuts, blisters, and scrapes, but is not meant to be used for wound closure.

With any wound make sure to first stop bleeding... use pressure and/or QuikClot/Celox always and immediately for that. Next make sure to clean it well and remove debris before suturing or gluing, and bandaging. When antibiotics and advanced medical care are not available even an infected cut can be life-threatening. Make sure to re-dress and clean wounds a couple to a few times each day (depending on how bad it is). Also make sure to study first aid enough to understand when to NOT close a would with suture or glue, such as for deep cuts that need to drain to heal properly.

For critical injuries from major knife or gun wounds, such as severed or punctured large blood vessels, advanced medical care is required, and more significant surgery to access and

reconnect or repair tissue may be necessary. These are difficult situations, and the first priority after initial first aid should be finding someone qualified to perform the operation and the medical supplies necessary for it.

Be sure to learn all that you can and try to get help, but do your best. Some situations will be beyond anything you can do, and in many cases it's best to take care of what you can and not try things where you may do more harm than good, such as surgical operations for major wounds. If you can stop bleeding, treat for shock, keep the person alive, and find experienced help you have already taken the most important and effective steps to help the person survive.

On the other hand, many things people suffer from will be things you can do something about. Remember the things humans are most sensitive to are heat and cold, dehydration, and so on. If you have proper clothing and clean water, and proper clothing and clean water to share, you can handle or avoid many health problems.

For major illnesses the book Where There Is No Doctor has excellent information. In some cases you may be able to get the needed medicine mentioned in the book, but in major disasters modern medicine may not be available. For some things herbal remedies might do the trick, and some knowledge of them is helpful. A good book on the topic is Herbs to the Rescue by Kurt King. For more general information on herbs and natural healing I've always liked the classic work School of Natural Healing by Dr. John R. Christopher.

One herb to consider for your kit is cayenne. As a dried powder it stays good for years. It is useful to disinfect and stop bleeding both on the skin, and in the mouth/throat/stomach/intestines. It stimulates circulation, helps with low blood pressure, and can help stop a heart attack. It is also a tasty spice for food and can turn bland beans into a memorable treat. Cayenne is one of the most useful herbs for emergency and survival situations.

If you or someone you love is dependent on prescription medicine, now is the time to research alternatives and ways to treat their disease should prescriptions become unavailable.

This might include herbs or other treatments more easily produced without modern infrastructure and commerce. Some doctors are very aware of the potential need for such things. Start with the doctor you are already working with to discuss alternatives and if that is not adequate consider finding another doctor. Many doctors will work with you to begin and rotate an emergency supply of medicines, with the exception of some restricted substances that they cannot legally prescribe very much of in advance.

There are many alternative medical remedies that are used now, have been used historically, and that rely on less technology and infrastructure so would still be available after a major emergency. In addition to herbs this would include things like colloidal silver as an antimicrobial, Miracle Mineral Solution (see books, etc by Jim Humble), and stabilized oxygen. You can buy colloidal silver in water right now, and that is a good thing to store for water purification and as a remedy. You might also consider buying or building a colloidal silver generator so you can turn your silver coins into something with more practical value when needed.

Shelter

While your first level of portable shelter is your clothing, some supplemental shelter is helpful when you're not moving, and for less pleasant weather such as heavy rain and wind. You'll also need a bit more protection from the environment when resting or sleeping and your body temperature is naturally lower.

People have different preferences for shelter, and different shelters make better sense in different places and different weather. A sturdy tarp or two plus some paracord might be all you need for basic shelter. For ultimate portability you might consider a good Gore-Tex bivy sack to go around your sleeping bag, plus a suitable cover for your backpack and other gear.

There are various companies that make lightweight tarps meant for use as a backpacking shelter. The Kifaru ParaHootch and SuperHootch are high quality tarps in good colors, and with optional pole and stake kits. Another good option is the

GoLite Shangri-La Shelter. Other companies such as MSR and Black Diamond make similar products. Many of these tarps can use hiking poles instead of dedicated tent poles, allowing you to using the poles to stability and comfort while walking, as well as supporting your shelter.

For better protection from rain and wind, and a more comfortable place to rest and read or do light work, it's hard to beat a tent. There are a number of good backpacking tents to choose from that are lightweight, easy to set up, and sturdy. Consider a tent in a less conspicuous color such as dark or natural green or brown. A bright red, yellow, or blue tent may be visible from miles away when you're trying to avoid attention.

If you're concerned about the weight of a tent in a kit that is getting heavy, and when you may not even get a chance to use it, consider a lightweight tent such as the Black Diamond FirstLight tent. This is a 2-person tent (48Wx82Lx42H) that weighs just a bit over 3 pounds. I bought one of these years ago and it ended my internal debates before every outdoor trip about whether to carry along a tent or just suffer through rain with a tarp or bivy sack. The MSR Twin Sisters tent is another lightweight tent to consider, and while it has a snow skirt it is floorless. Another similar tent, with a floor but smaller, is the GoLite Shangri-La 1 Shelter. The Shangri-La tents are available in an "Evergreen" color that is great for discrete camping.

Another sleeping arrangement to consider is a hammock. Lightweight hammocks made from thin nylon cord or cloth are easy to find, and more elaborate models with something like a tent built into them are available as well. These certainly take some getting used to, and sometimes the tent over top is not great (a separate rain tarp hung above the hammock is better, with an attached bug net that hangs below the hammock when needed).

There is sometimes value in getting off the ground, perhaps even fairly high off the ground where you can more easily hide. I've always found the idea fascinating, but my few attempts to sleep in a hammock even close to the ground have been

awkward. It may take some practice (and/or a dynamic line and harness for safety) to be able to safely sleep in a hammock higher off the ground. One brand to consider that makes a complete set of hammock camping gear is Eagles Nest Outfitters.

Along with a tent to protect from wind and rain, some supplemental insulation is helpful for sleeping when your body's thermostat is naturally lower. If you have the weight and space consider a good 4-season synthetic sleeping bag with a minimum temperature sufficient for your area, or areas in which you might travel during winter. This might be a 0F rating, or as low as -40F.

To save on space and weight consider that you'll have other warm clothing with you, especially foam clothing that is also good for sleeping. Just remove your shell layer and leave your insulation layer on, and climb into a lighter bag rated for as high as 40F. A good small and lightweight bag for this is the Marmot Pounder 40, but since that is not available any more look for a slightly heavier bag such as the Marmot Mavericks 40 or the Mountain Hardware Lamina 45.

Kifaru makes a great lightweight and yet durable sleeping bag, the Regulator Slick Bag. This is available in various sizes and weights for different temperatures, including a 40F lightweight option. These are designed to be more roomy and so have more space for larger people with foam clothing on. They are also durable enough for sleeping on the ground, and (according to the manufacturer) even sleeping with your boots on.

Another good maker of sleeping bags and other gear is Wiggy's. They have a multi-bag sleeping system, and the Overbag for it is a great lightweight sleeping bag for cooler temperatures or for use over foam clothing.

Unless the sleeping bag you choose has extra insulation on the bottom (which most don't), consider getting a good quality inflatable and insulated pad to sleep on. Along with supplementing warmth lost by compressing the insulation in your sleeping bag when you are on it, a sleeping pad also

makes things a bit more comfortable, and mitigates the annoyance of small rocks and sticks. The Therm-a-Rest Prolite is so common it's practically the standard choice for an insulated camping and backpacking pad. Their new NeoAir pads are about half the weight, but uninsulated. They do have a heat reflector and still offer an air insulation barrier from the ground.

Depending on what sort of shelter you decide to carry you may or may not need rope. Even if you don't need rope for your shelter consider carrying some good paracord. 100' lengths of mil-spec 550 paracord are light and small, and have all sorts of uses for improvised shelter, getting things off the ground, repairing gear, or even as a string for a homemade bow if you decide to get really creative. If it is real mil-spec paracord it will have 7 thinner internal strands that can also be used for fishing line and small traps/snares.

If you have climbing and rope handling skills, and may go to or through a place where rope and other simple climbing and rappelling gear might be useful, consider bringing some along. This can add quite a bit of size and weight to your pack, so only bring it if you need it. One distinct advantage of traversing more difficult terrain is that chances are there won't be much of a crowd around, there is less chance of being followed, and you can get to better places to camp and hide. Just keep in mind that really difficult and risky climbs should not be attempted because if you fall or are otherwise injured in any way, even what would now be considered minor and nonfatal injuries, it could kill you since there may be no rescue helicopters or advanced medical facilities available to help you out.

Backpacks and Bags

Now that you have a bunch of stuff, you need something to put it all in for cases where you have to carry it while on foot (or ATV/motorcycle/etc).

Your main bag should be a large, sturdy backpack. By large I mean an "expedition" sized pack, or at least 5000 cubic inches for men, and at least 4000 for women. If you have less stuff to

carry any good pack will have compression straps you can use to effectively shrink the backpack. Considering that you may need to carry bulky items such as winter clothing and food for 1-2 weeks or even more, the extra space of such packs is critical.

As for sturdy, the entire pack should be made from thick nylon cloth such as Cordura. Many cheaper packs are made of thin nylon or other materials that just don't hold up under weight or over time. It is common to see such packs tearing at the seams or fraying from abrasions.

A great example of this sort of sturdy backpack (and the one that I use, but that is unfortunately no longer produced) is the ArcFlex Astralplane Overkill from Dana Design. This is a 7000 cu.in. pack made entirely from thick, sturdy cloth (1000D Cordura). It has an adjustable internal frame with bars that you bend to the shape of your back. It is made for comfortably carrying up to 70-80 pounds, and can be used to carry well over 100 pounds. Realistically even a large adult male will probably stick to 40-50 pounds, but the extra weight capacity may be useful. You can still find these packs on eBay or other secondhand sources, and even a 20 year old pack will often be in great shape (mine is about 15 years old and is still nearly perfect).

Since that pack is no longer in production, look for similar packs. There are a few high-end expedition backpacks that are of similar quality, and for a new pack expect to pay around $300-$600. One company to look at that has various packs based on old Dana Design models is Mystery Ranch. Their Kodiak pack is nearly a clone of the Astralplane Overkill pack I mentioned above. Their G-series expedition packs come close, and are excellent packs, but are made from slightly thinner material. Those may be the best option for smaller people as they are also lighter.

Another good brand for durable high-quality backpacks is Eberlestock. Many of their tactical models are available in 1000D Cordura for excellent durability, including the J107M "Dragonfly". The J107M is a 5400 cu.in. pack with a built-in rifle

scabbard. The J2SD Spike Camp Duffel can be attached to this and other packs to add 2500 cu.in. of additional space. Unfortunately that duffel attaches to the back of the pack placing the weight further from your body, making it less comfortable to carry. Other good packs to consider from Eberlestock, but that are only available in 420D nylon and not the thicker 1000D, are the V90 Battleship and the smaller V69 Destroyer. These packs are taller and keep the weight closer to your body.

To round out the top backpack options there is Kifaru. In addition to good options for shelters, sleeping bags, and various accessories, Kifaru has a number of large sturdy backpacks in good colors that are similar to the Eberlestock and Mystery Ranch packs. The Timberline pack is similar to the Kodiak from Mystery Ranch, but made with 500D Cordura instead of the 1000D. For greater durability, and corresponding greater weight, the Kifaru EMR is a good option. It is a 7500 cu.in. backpack with looped webbing all around the main bag for attaching MOLLE compatible accessories. The main ruck bag is also removable to turn the pack into a cargo hauler. Kifaru also makes some great stuff sacks to help organize gear inside your pack.

As with all of your emergency gear, avoid bright colors when choosing a backpack. The Mystery Ranch, Eberlestock, and Kifaru packs come in a variety of good colors including greens, tans, and blacks.

Depending on your pack consider also getting a pack fly to put over your pack in heavy rain. Any good pack is somewhat waterproof but most are not completely.

Another accessory I personally like is a small bag that hangs in front from the pack shoulder straps and sits over your stomach. Such a bag is great for snacks, a radio, a GPS unit, etc. Some such bags have a little pouch for a water bottle. Along with that, or instead of it, consider getting a water bag (i.e. CamelBak) holder that attaches to the outside of the pack. For larger backpacks having an external one is far better and less risky than an internal water bladder.

To organize the inside of a large backpack it is helpful to have some smaller bags. Small- to medium-sized dry bags are great for this, especially the ones that are cloth on the outside and not rubber (which do not slide in and out of the pack so easily and are generally more annoying). Another good small bag to organize with is a mesh laundry bag. In addition to being small and lightweight for the volume of stuff they can carry, the wide mesh material is good for catching fish and small animals.

For storage you may also want a large duffel bag, dry bag, or good airtight plastic bins. You can store your gear in your backpack, all ready to go, but there are good reasons to store gear, including your backpack, in other containers. One reason is to better protect your gear. Some sleeping bags also last longer and better maintain loft if stored uncompressed.

Perhaps the biggest reason is that you'll have a lot of gear at your home or in your car, and it may not all fit into your backpack. Depending on the particular disaster scenario, the time of year and expected weather, and priorities such as being mobile, being able to defend yourself, or camping long term without moving so much, you may choose to carry different subsets of your gear.

Keep your gear well organized and packed in smaller bags, then grab the bags needed to quickly load your backpack when you need to.

Firearms

Rationale and History

There are many reasons to have firearms around for emergencies including personal and familial defense, hunting for food, and perhaps even participation in the protection of your community.

Some people fear firearms or wish they did not exist. When it comes to defense against aggression we should be thankful for this tool.

Before firearms existed, violence from small scale robbery to large scale battles between nations was a brutal affair and there was an enormous difference in effectiveness between those who were experienced with weapons and those who were not. The result was that most ordinary people had no chance of victory against well trained soldiers. This may seem like a small thing, but it is likely the reason that monarchs and despots were able to maintain their political power over such a long period.

Firearms changed everything. With such a weapon and weeks of training an ordinary person could effectively combat a soldier with years of experience. Firearms are known as “the great equalizer” in combat. There are good historical arguments that we can thank firearms for the tenability of modern governments that have an interest in protecting the rights and preserving the liberties of the people in their geographical areas.

The United States is an early example of one such government, and the US Revolutionary War is an early example of the use of firearms by mostly ordinary people to throw off the oppression of a despot. Conditions were ideal for this to happen in North America, and so while it happened here first because of the existence of firearms, and political thought that had been waiting for its opportunity, similar political movements and revolutions flared up around the world.

The same argument could possibly be applied to nuclear weapons. Is the world a better place because nuclear weapons exist? Can we thank nuclear weapons for the current period of relative peace and prosperity that started after their first use in 1945? This argument I have a harder time with personally. It is true that the large nations have not gone to active war with one another in that time. In fact, the United States Congress has not declared war since before that time.

However, given the potential for nuclear weapons to destroy not just armies, but also civilians and even civilization as we know it, perhaps it would be better if such weapons simply did not exist. They are good for posturing if the result is peace, but the thought of their use is beyond horrible. To illustrate this

point, I like the quote from Albert Einstein, who was involved in the research leading to nuclear weapons: “I know not with what weapons World War III will be fought, but World War IV will be fought with sticks and stones.”

On a more personal scale, if you had to engage in a knife or sword fight to protect yourself against violent theft it would require a great deal of training to counter a thief who has probably trained and planned for the encounter. With firearms you can learn effective self-defense in a few days, and even without such training you have a much better chance of defending yourself or persuading your would-be assailant to find an easier target (the posturing effect).

Firearm Skills and Training

I highly recommend that you seek out some training in your firearms of choice, and practice with your firearms and become comfortable with their operation, cleaning, effective use, and limitations. The first training you should seek is safety training since the goal is to hit things you want to, but what is more important is to NOT hit things you don’t want to hit.

Training from experienced people and continued training and practice with others over time can make a huge difference. Knowing effective ways to hold different types of firearms alone can improve your accuracy and effectiveness an amazing amount. Knowing how to effectively stand, kneel, and lay flat can also make a huge difference.

For example, even a small person can effectively fire a large handgun (like a .44 magnum or .50 AE) without the pistol hitting them in the forehead if they just know how to hold the weapon and properly apply isometric tension between their two arms. Conversely, even a large, strong man can experience a forehead bump when firing such weapons if he doesn’t know how to hold them.

After some training regularly spend some time on dry-fire practice. When doing this make sure the gun is not loaded (check carefully EVERY time), and speak out loud to remind yourself that you are beginning dry fire practice to get your

brain used to mentally segregating dry practice and live fire drills.

Dry practice is helpful for getting used to things like drawing and releasing the safety, aiming with both eyes open for laser and holographic sites, otherwise focusing on the front site (so you can see it and the rear site and your target at the same time), acquiring a target quickly with long range weapons using iron sights and scopes, changing clips (practice with empty clips of course), and so on.

Some of the better schools are the Front Sight Firearms Training Institute (http://www.frontsight.com/), Gunsite Academy (http://www.gunsite.com/), and Suarez International (http://www.suarezinternationalstore.com/). Their courses are fairly expensive (often $200-500 per day), but they all offer a wide variety of courses on firearms, unarmed combat, edged weapons, medical care, and so on. Front Sight offers some good dry practice manuals for handguns, shotguns, battle rifles, and empty handed and knife defense. Gunsite collaborated with Ruger on the design of the Ruger Gunsite Scout Rifle mentioned below as an excellent choice for an all-purpose strategic survival rifle.

There are many other options for training, and some less expensive ones. Most training you will find locally is on safety and legal topics because of mandatory training in many states for carry permits. This training is useful, but is not intended to train you in effective defense or general gun use. Various organizations such as the NRA and AWARE offer training and referrals to other training organizations. Local gun stores and ranges sometimes offer training or will refer you to local trainers.

This is a good topic to get started on by studying and reading, and then use what you learn to evaluate prospective instructors. When doing so note that there are many effective techniques for doing different things with firearms, and these tend to vary between different military groups and law enforcement agencies. Don’t be surprised or upset by

differences, just try to learn, practice a lot, and see which approach(es) work best for you.

If you don't have any guns, it is a good idea to get training before you even choose a firearm. Most places that offer training also rent firearms to use for the training, and you may be able to try a few different ones during the course. You can also go to a range that rents guns to try a few out and see what you like. This is best done after you receive some training so that you'll know whether or not a firearm is comfortable when holding it effectively, and you'll know if the sights and other aspects of it work well for you and for what you have learned.

Whatever firearms you choose be sure to get some training and practice a lot with them. It takes many hours of dry practice and dozens to hundreds of rounds through a firearm to get reasonably comfortable and experienced with it. It's best to do that now since you may need that experience early on in an emergency, and your ammo will be much more precious after a major catastrophe. If you are low on ammo, or in a place where regular live-fire practice is difficult, do more dry practice training and less with live ammunition.

Survival Rifles

For the purposes of survival during major emergencies or catastrophes, the priorities for a firearm are durability, versatility, and reliability. Some firearms are designed almost purely for tactical effectiveness and suffer significantly on these higher priorities.

If you could carry just one firearm, it should be a 30 caliber rifle with a relatively short barrel (18" or less). To take advantage of common ammunition and for general performance and versatility the best cartridge to use is the .308 Winchester, which is the civilian equivalent to the 7.62mm NATO round. This is a good design for both defense and hunting, and is a standard round for civilian, law enforcement, and military use. These rounds have a large bullet (150-180 grain) that travel at a high speed (~2600-2800 ft/s). The muzzle energy, which is a good way to estimate the recoil or "kick", is about 2600 foot-

pounds. One hundred rounds of .308 ammo weighs about 5.5 pounds.

The .223 Remington round (5.56mm NATO) is also a standard round used by military and law enforcement, and for hunting smaller animals. These rounds have a small bullet (~60 grain) that travels at a very high speed (~3100 ft/s). The muzzle energy is around 1300 foot-pounds, so roughly half the energy of the .308. One hundred rounds of .223 ammo weighs about 2.5 pounds. That means you can carry just over twice the number of rounds in .223 as in .308 for the same weight.

Between .223 and .308 the larger round has more stopping power, a longer effective range, and does a better job of penetrating cover and light armor. In defensive situations most of us won't be able to effectively use the additional range capability of the .308, but the stopping power (especially for imperfectly placed shots) can end a fight more quickly and increase your chances of survival. On this matter I completely agree with Boston T. Party, and for more discussion of this topic I recommend his book Boston's Gun Bible. The .308 round is also much more effective for hunting deer and other larger animals.

In the section on Hunting and Gathering above I mentioned a few small .22LR rifles that are great for survival (Henry Survival Rifle, Marlin Papoose, and Ruger 10/22). The .22LR round is useful for hunting small game, which is the most common and easy to find type of game. It can also be used for defense in a pinch. The little .22LR round may not seem very dangerous, and for hits in non-critical areas it really isn't. However, it is about as effective as small handgun rounds such as the .380 and is lethal with good shot placement because it penetrates so well. It may only make a small hole, but it can make a deep hole and hit vital organs as well as any other bullet.

No matter which round you use for self-defense, even after a good hit don't assume an attacker is stopped. Humans can live for a while even with severe lethal injuries. Watch downed attackers closely and keep your weapon aimed at them while approaching in case they are still alive and try to attack again.

For reliability it is hard to beat the simple bolt-action rifle. Some semiautomatic designs are known for durability and reliability, especially the G3/HK-91 design, and the M1 Garand and M1A comes close. Still, for reliability, maintenance, repair, extra parts, and even accuracy, it is hard to beat a simple bolt action.

Given all of those factors, a recent gun on the market is surprisingly excellent for this purpose: the Ruger Gunsite Scout Rifle. It uses the .308 round, has a 16.5" barrel and is 38" overall, weighs just 7 pounds, and has a 10-round removable clip. It is an effective combination of practical and tactical, as their marketing material makes abundantly clear. There are various other bolt-action rifles on the market in this caliber, including the Remington 700 series which has a reputation of excellent accuracy for an affordable price.

My choice of rifle otherwise would be a good HK-91. This rifle is based on the post-WWII West German G3 and the civilian version of it is made by Heckler and Koch. These are excellent battle rifles and are great for hunting (though currently illegal to hunt with in many states because of higher-capacity magazines). They don't have the best ergonomics, and for that the M1A is far superior, but they are extremely durable and reliable. Both the HK-91 and M1A have a reputation of being very accurate, and some of the best sniper rifles are based on these platforms.

Springfield Armory used to make a great version of the HK-91 called the SAR-8. If you are considering an SAR-8, make sure it has the steel receiver, and NOT the aluminum one which is known to have durability issues. The main model currently in production is the PTR-91, and that is a well-made rifle. One HK-91 variant to watch out for is the CETME rifle which is cheaply manufacture and notoriously imprecise.

Whether you get a HK-91 style rifle, an M1A, or something else, expect to pay around $1000 to $2000 for a good quality battle rifle. If you are paying less, there is probably a reason for it.

A good scaled-down rifle in .223 is the Ruger Mini-14. It is basically a miniature M1A that uses the smaller .223 round

instead of the .308 round. While the .223 round isn't as capable as the .308, it can be effective with good shot placement and is much easier to control while still being adequate for defense for older children and smaller adults. The 5.56mm NATO rifle round is similar enough to the .223 Remington round that most rifles made for either can fire both. Check to make sure before buying a particular rifle. The Ruger Mini-14 is one that handles both without risk of malfunction.

The AR-15 uses this same cartridge and is more popular and common than the Mini-14. It is a semi-automatic civilian version of a military rifle, and looks the part. While the AR-15 (especially better brands and models) is a very popular rifle with excellent ergonomics, the Mini-14 has a few advantages over it. The design of the Mini-14 (based on the M14, so similar to the M1 Garand and M1A) makes it more reliable than the AR-15, it is far less expensive (around $600 for a new one, versus $1000-$2000 or more for an AR-15), and it looks much less menacing as it is more of a sport rifle than a military looking rifle.

Perhaps the best thing about .223 rifles versus .308 rifles is that they are smaller and lighter. The Mini-14 shines in this regard. To go a step further and make it smaller Muzzelite makes a bullpup stock for the Mini-14 which turns it into a great little rifle that is as small as a 9mm sub-machine gun with a stock, but much more effective.

The bullpup design puts the guts of the gun inside the stock, making the rifle shorter without reducing the length of the barrel. Unfortunately the Muzzelite bullpup stock is plastic so the trigger action isn't great, and the scope mount on the one I tried was too far off for the scope's adjustments to make up for it, and it kept coming loose during use which made it less accurate.

There are bullpup rifles that use the .308 round such as the Kel-Tec RFB Carbine. This is not a very common gun, but is unique in that the design it uses ejects the shell forward so that both left- and right-handed shooters can use it. There is a high quality bullpup stock for the M1A (or M14 military) rifle called

the Bulldog 762. This is a great way to shorten the overall rifle creating perhaps the ultimate weapon for its size, but it does eject the shell to the right so is not good for left-handed shooters. The M1A in this stock is reliable and durable, comfortable to use, and shares parts with a commonly available and used rifle.

Another rifle to consider is the Russian AK-47. These are commonly available around the world and still used by various militaries. The bullet is a 0.3" diameter like the .308 round, but is not as heavy and moves slower, resulting in about 2/3 of the muzzle energy. The actual cartridge for the AK is 7.62x39mm whereas the .308 cartridge is 7.62x51mm. This cartridge is adequate for hunting animals up to the size of a small deer, somewhat like the .223. Compared to the .308 it is not as good for shooting through cover or at a long range, but is a great alternative otherwise, and with less recoil.

The AK rifle design is known to be very reliable (even when dirty) and does not require very precise manufacture to operate properly, so many of these rifles are inexpensive. Watch out for really inexpensive ones as imprecise manufacture results in less accuracy, reliability, and durability. An AK-47 with a fold-under stock is an impressively small and lightweight rifle.

Between rifles and pistols there are some interesting weapons that are either considered pistols because they have no stock, or short-barreled rifles if they do (but are then restricted by federal law). This type of large pistol is more portable than a bigger rifle, and excels in the versatility category. They are good for close-quarters defense, decent at medium range and for hunting, and are great for shooting through cover (which can be a tactical lifesaver).

Vector Arms used to make a "pistol" (more of a short-barreled rifle, but with an optional stock) called the V-51 that is a small HK-91, and is even parts-compatible other than the receiver and a guide rod that must be collapsible to handle the shorter receiver. This "pistol" has an 8" barrel, shoots .308 rounds like the bigger HK-91, and because of its combination of portability, durability, reliability, and versatility, it is tough to beat as an only

weapon to carry. If you find one, or something similar to it, count yourself lucky and go for it.

Scopes and Sights

Along with a good rifle, good optics that you are familiar with using will help you shoot more accurately and quickly. For short range on a pistol or tactical rifle consider a good quality holographic (or reflex or red-dot) sight such as those from EOTech (XPS, 500 series, etc), Trijicon (RMR, Reflex, etc), or certain models from Leupold, Burris, etc. This type of sight helps you aim faster because you don't have to line up the front and rear iron sights. As long as you can see the target in the pattern of the sight, you have a sight picture and are ready to fire.

Holographic sights perform as well as or better than laser sights when you are sighting through them and nearly on target, and have the advantage of not leaving a visible dot on your target. When choosing any electronic sight consider sharing batteries with your flashlight, i.e. CR123, AA, or AAA. Some smaller sights use lithium watch batteries and sharing with your flashlight won't work so well. Trijicon and others make these sights with a tritium light source that lasts for years and needs no battery.

For close range practice try holographic sights with both eyes open and scanning over wide arcs. As soon as the holographic sight picture is on target you are ready to fire. For iron sights use one eye open and practice transitioning between widely separated targets. Throughout the process focus on the front sight. Line it up with your target, then line up the rear sight with the front sight to get a well-aligned sight picture. Once the front and read sights are aligned, you are ready to fire.

This last step with iron sights is what slows them down compared to a holographic sight. It is also much easier to use a holographic sight with both eyes open which reduces tunnel-vision and makes it easier to monitor a wide arc. In a tense situation you will tend to over-focus on specific things, and sighting with only one eye open makes this worse.

Also practice the transition from weapon lowered and near-ready to raised and ready. When lowered and near-ready for longer periods of time keep your gun close to your body and pointed down and to the side to make it more difficult for someone to grab it away from you or push it to the side.

For scopes make sure the scope is durable and designed for your desired range. If you are only comfortable shooting out to a couple hundred yards, or the effective range of your rifle is not much more than that, a smaller scope with less magnification (3-6 times is good) will be easier to carry and maneuver, and less prone to damage from impact. You can get an adequate scope for medium range shooting for around $200-$300 (TRUGLO, Barska, and some Nikon/Bushnell/etc), and there are so many scopes available you can pick any price you want, even up to $1500-$2000 for an excellent scope like the Trijicon ACOG. For more money you generally get greater durability, better adjustments, and better optics to give you a more clear picture at longer distances and under a wider variety of light conditions.

Only consider larger scopes with high magnification if you have a rifle capable of long ranges and you are comfortable shooting at those ranges, considering windage/drop/etc. Chances are you just won't need something that can reach out so far, though it could be useful for spotting at longer ranges even if you can't hit a target so far away.

Make sure the drop compensation lines in the scope reticle are compatible with the round you are using (i.e. made for .308, etc). Also, make sure the reticle is illuminated for use at dusk or dawn or in adequate moonlight (or even starlight if your eyes are good enough). Some scopes, such as various ones from Trijicon, even have tritium-based illumination and do not need batteries.

For shooting at night you might consider a good night vision (light amplification) scope, and that is an invaluable tool for when you are forced to fight at night. It also opens the option to choose to fight at night instead of daytime and with such equipment have a tactical advantage over your opponent.

However, such equipment is very expensive (even prohibitively so) for a scope of quality adequate for tactical use. Look for a generation 3 or 4 scope made for use on a rifle, or perhaps one of the more recent enhanced generation 2 scopes. Lower/older generation technology has lower resolution and can be so "noisy" or "fuzzy" in low light conditions that they are next to useless for picking out a target. Even with a night vision scope you may want to carry a backup scope in case the electronics fail or you run out of batteries.

Survival Handguns

In the world of pistols the equivalent of a reliable bolt-action rifle is the revolver. While a well-made auto-pistol can match a revolver in durability and reliability, they cannot match the versatility of a revolver. The reason for that is that with a single revolver you can fire both light and heavy rounds and address a wider variety of circumstances with a single weapon.

For example, a small .357 magnum pistol like the Ruger SP101 can fire .38 special rounds for close-range personal defense, or you can fire a .357 magnum round when you need to go through cover, or in a pinch even hunt larger animals such as deer.

Scale that up a bit to the .44 magnum and .44 special, and while the pistol itself is much larger it also packs a much greater punch for both defense and hunting. My favorite .44 magnum pistols are the Ruger Redhawk 7.5" (which can even fire .44 +P+ rounds that pack almost as much punch as a .50 S&W without moving to a less common round), or for lightweight regular carry the Smith & Wesson 329 PD. The 329 PD cannot handle the +P .44 magnum rounds, and it kicks impressively with regular .44 magnum rounds, but is great for .44 special in close range defense situations, and when needed you can step up to the magnum. A good .44 magnum is a great pistol to leave at your retreat to address a wide variety of possible needs.

With that said about revolvers, I should mention good quality auto-pistols as well, especially larger calibers like the 45 ACP.

A good quality 1911 or similar handgun can be nearly as reliable and durable as a revolver, though to match a revolver in those regards it will be more expensive and still less versatile. Still, because they are semiautomatic without a long double-action trigger pull that can kill your aim, these pistols are far better in anything but the most basic personal defense situations.

My favorites for a primary sidearm are a high quality 1911 (like the Springfield 1911 TRP), with a small .357 (like the Ruger SP101) as a backup. For a tactical pistol make sure it has glow in the dark (usually tritium) sights.

Other great options for semi-automatic pistols are the Glock brand and Springfield XD line. These both use double-stack magazines so in .45 ACP have 13 rounds compared to the 7-8 in a single-stack 1911 magazine. This makes the hand grip wider, but remember that you mostly want to hold the front and back of the grip anyway, and you don't need to wrap your fingers all the way around it. In 45 ACP the models to look for are the Glock G21 or Springfield XD45. Both companies make models with shorter barrels and smaller frames for easier carry, but for survival use the standard sizes are a better choice.

One nice thing about the Glock and XD pistols is the safeties don't require an extra action like they do with the 1911 design. When you hold the pistol and squeeze the trigger you will deactivate both safeties. If you hold a 1911 properly (with your thumb always over the safety) this isn't a problem, but it's still nice when there is no extra safety to forget. The Glock and XD pistols are both a lot easier to disassemble and clean than a 1911.

While my personal preference is a good quality 1911, if you are buying your first handgun, consider a G21 or XD45. These are functional guns without any modification, are affordable, have well proven reliable designs, and are manufactured with high quality standards.

I recommend the .45 ACP round over other rounds because of its performance and standardized use by civilians, law enforcement, and military. It is true that LE and military have in

many cases moved to standardizing on 9mm NATO/ Parabellum round, and while I don't have real-world combat experience with either, based on my research I'd much rather have a 45 at my side. One hundred rounds of .45 ACP ammo weighs about 4.5 pounds, whereas the same number of 9mm rounds weighs around 2.5 pounds.

One advantage of 9mm and .40 S&W pistols is that with a double-stack clip you have more rounds available to you without reloading, and that is great when you want to cover an escape for yourself or others. The same argument applies for the .223/5.56mm round. However, because that is not my only, or even main, reason for carrying a firearm, I'd rather have a heavier round that will do more damage even if I don't place my shots perfectly.

Some more expensive 9mm and .40 expanding rounds do as much damage as a round-nose .45 round, but then don't have the solid round nose that feeds well and better penetrates thick clothing and light armor. Of course, you can also get more expensive expanding rounds in .45 ACP for even more effectiveness against unarmored targets, and when going for limbs and other less-optimal body parts for stopping an assailant. A .45 ACP hot load in a pistol that can handle it has nearly the muzzle energy of .357 SIG and it is much more common round.

It is important to note that while these are my recommendations and my choices, there are many other fine firearms and options available. As you do more research if you find yourself attracted to a different option while rationally considering the priorities of durability, reliability, and versatility... then certainly make that choice.

You might even consider going to a shooting range that rents guns to try out a number of different pistols. Before even firing see how comfortable and stable each feels in your hand, and how easy it is to operate safeties and the magazine release. When test-firing consider recoil, time to re-aim, clarity of sights, and of course how well you naturally do with each.

The Shotgun

Before closing the topic of firearms, I must mention one of the most reliable and versatile weapons ever invented: the pump-action shotgun. A shotgun is an effective tool for hunting birds and small animals with bird shot, and larger animals with buck shot or slugs. You can even hunt at a decent range with sabot slugs, which are aerodynamic and spin even when shot from a smooth bored barrel.

In close range personal defense situations it is hard to beat. When you are under pressure and moving quickly you are more likely to hit your target with an ounce of shot than with a single bullet, and the stopping power is unbeatable even if you miss center-of-mass or head.

Another interesting thing about a shotgun is the variety of ammunition available (or that you can make) beyond bird shot, buck shot, and slugs. With a smoothbore barrel you can launch all sorts of things, including less lethal rounds like light bird shot, rock salt (again, preferably with a light powder charge), or even bean bags.

At retreat locations you may consider a good semiautomatic shotgun as well. For intense close-range defensive situations it is hard to beat the stopping power and intimidation of such a weapon. There are even auto-shotguns with removable clips such as the Saiga 12 which has 10 and 20 round clips available. No matter the type of weapon, in tactical situations reloading by replacing a clip is much faster and less error-prone than reloading one round at a time.

Less-Lethal Weapons

Less-lethal (sometimes inaccurately referred to as non-lethal) weapons can be of value in many situations. This would include taser guns, handheld tasers, pepper spray, mace, clubs and bats, sticks and stones, and so on.

When on the move you might find use for these to de-escalate a situation or give you time to escape without permanently injuring or killing another person. However, these are not

adequate substitutes for carrying a firearm so bringing them along means extra weight, space, and cost to acquire.

In a retreat, a vehicle, and for use before a major emergency these are great items to have. The legal liability of carrying and using firearms make them unattractive for many current circumstances and less-lethal weapons sometimes have to be used as alternatives.

If you are holed-up in a retreat during a major emergency there is a lot of value in deterring attacks without injuring or killing people. In such circumstances people become desperate and do things they might not do otherwise. You may be attacked by people you know, people you care about, people who live nearby, and/or people who are cared about by your neighbors and friends. Along with being morally preferable, deterring such people while giving them a chance to live on and change can do a lot for good will in your community and among family and friends.

The Psychology of Fighting

One final note on firearms: for anyone who even considers taking up arms against another human for personal defense, I highly recommend the book On Killing: The Psychological Cost of Learning to Kill in War and Society by Lt. Col. Dave Grossman. While I believe that all laws restricting firearms are unconstitutional and generally bad for society, if anything should be required reading before picking up a firearm, it should be this book.

One of the most important lessons in it is that of posturing and demonstrating force to avoid a fight. The most valuable thing a firearm can do for you is prevent a conflict, or at least resolve one before it devolves into violence. If your primary goal is defense (which it should always be), this will be your most common use for any weapon.

On the other hand, if you are up against a ruthless enemy that is known to have mercilessly killed or tortured (like some occupying or roving gangs may do), then to save your life and the lives of those you love your only option is to shoot to kill,

and hope your enemy starts out shooting to posture. In that case understanding the human tendency to posture and the psychological aspects of killing will help you do what you must to defend and survive.

Lights and Gadgets

Power Sources and Batteries

The first priority for both lights and gadgets is electrical power. Without it they are useless. Having a store of single-use batteries is a good thing at your retreats or in a vehicle because they are sometimes more reliable, hold a charge better over time, and last longer in use. When you are on the go a large set of single-use batteries is too heavy and bulky to be a tenable solution.

A hand-crank dynamo is an interesting option, and many emergency flashlights and radios have such a thing built-in. One problem with the hand-crank devices is that they require a lot of cranking. Some flashlights and radios only operate for 2-3 minutes for 1 minute of cranking, while others may operate for 30 minutes or more. In the darkness of a fallout shelter, this is a good backup option to have around (to supplement a big pile of single-use batteries).

A solar battery charger is probably going to be a much better way to go. Portable, ruggedized solar panels are available in sizes small enough for charging AA/AAA/C/D batteries, or large enough to power and charge a laptop, tablet, or cell phone. A 5-10 watt solar panel is small enough to easily fit in with your gear and to attach to the top of your backpack while walking, and provides enough power to charge tablets, cell phones, and batteries.

The Brunton Solarroll and Solaris lines are good options for this, and are designed for rugged outdoor use. I like the Goal Zero (or Goal0) Nomad panels even more, partly because they include a USB outlet to easily charge compatible devices (and most devices these days can be charged by USB). These are

ruggedized as well for outdoor and camping use, and seem to have a metal backing to the panels themselves so they are semi-flexible but sturdy.

Once you have a panel, it is also a good idea to have a larger battery to even out the power going from the panels to your device(s). For smaller solar panels it is not so critical to have a solar charge controller like you need for large panels and larger multi-panel systems, but a battery to absorb extra charge when attached devices are not using all that the panel puts out, and to provide extra power when the panel power isn't sufficient, will make your solar panels both more efficient and more versatile/flexible. In short, this battery acts like a "buffer" between the solar panel and your devices.

There are various small, portable lithium rechargeable batteries meant just for this purpose. Many of these batteries also have additional power output options beyond what the panels themselves offer (i.e. USB, 12V, 6V, etc). Examples of such batteries include the Brunton Impel, Sustain, and Inspire models, and the Goal Zero Sherpa models. There are many other brands and variations on these batteries, but when considering a cheaper brand make sure it is ruggedized and meant for outdoor and camping use.

Along with a larger battery like that, be sure to have at least enough rechargeable batteries to have an extra set for each device (i.e. AA, AAA, C, D, CR123, or custom device-specific batteries), and a charger for those batteries that can run from the solar panel or the larger buffer battery.

Flashlights

Your most valuable flashlight will be a low-power LED light that will last a long time on a single set of batteries. As with other things, a good sturdy light is a good idea. Such a light doesn't have to be expensive, even a simple AA MagLight LED is a good option. The main purpose of this light will be doing things around camp or walking in the dark (especially when there is too little moonlight, or you are in a tent or under thick trees).

A simple light with a headband is a useful variation on this. These usually run on AAA or CR123 batteries. Some lights have multiple modes and even different LEDs for low and high power modes (using correspondingly less or more battery power), and while that is helpful the main priority is the low-power LEDs. One variation to consider is one that has a low-power red light which you can use for quick tasks without making your eyes adjust to brighter light, or for travel in more dangerous areas when it is valuable to have your eyes adjusted to the dark in order to see things far away or look rapidly in different directions, and of course when you want to turn your light off to more effectively hide.

Another type of flashlight to carry is one of the modern super-bright LED lights. These lights usually run on CR123 batteries. CR123 lithium batteries are useful because they pack more power into a small package and handle higher current devices much better, while still being effective for long, slow power draws.

A super-bright LED light should be hand held for more flexibility, and only about the length of your hand (with 1 or 2 CR123 batteries). Most of these are made to be “tactical” lights, and that is what you are looking for. The button is often on the base of the light and meant to be held in a reverse grip with your arm up so your thumb is over the button. These lights are useful to see a fair distance away, but for tactical purposes the bright light will help you see clearly and quickly, and can be shined into the eyes of opponents to make it difficult for them to see.

These lights can be a little more expensive, even up to $400 or so for the best SureFire lights. More reasonably priced lights are a good option, and even high quality brands usually have offerings priced under $100. SureFire, Pelican and Fenix are good brands, with others such as Nu-Flare offering quality affordable lights (as low as $35) that are still good quality. Look for a brightness of around 200 lumens for tactical purposes. Some lights go over 600 lumens but that is probably more than your will need, and the front of such lights is often quite wide making them difficult to hold along with a pistol.

One interesting option to consider is the TigerLight T100. This light has a bright high-power LED, red and white low-power LEDs, and pepper spray (with easily replaceable canisters) in a single package. This is a handy light for hiking, camping, and for personal defense (always in your hand) when walking or jogging or even just heading out to your car. Because it is a flashlight it doesn't look like a weapon of any sort, and it is designed to easily transition from shining the bright light into an assailant's eyes to lowering the light and aiming the pepper spray, causing them to open their eyes wider as they try to see just as the spray hits them.

When used this way the TigerLight is extremely effective, as attackers don't see what's coming and usually have both eyes and mouth open when sprayed. Many times assailants will also breathe in as the light goes down to prepare for an assault, and if they do the pepper spray will often take away their breath and not only stop them but put them on the ground for a few minutes. I keep a T100 in my briefcase, and my wife carries one too.

Optics

If you have a good scope on your rifle that will be useful in many situations for long-distance observation and reconnaissance. Whether you do or not, a small to medium sized pair of binoculars or spotting scope are critical to have for both defense at your retreats and for gathering information while on the move without having to get so close that you put yourself at risk.

These can get very expensive, but don't have to cost a lot to be effective. Watch out for really cheap generics though, the optics and durability are often less than desirable and even less than adequate. An 8-12x zoom is a good range to go for, anything much more than that is difficult to hold still enough to get a good image with.

For retreats you might consider a larger spotting scope with a tripod. When you aren't touching the thing you can get a good

stable image with 20-60x or more magnification and see details from miles away.

Brunton makes a small high quality spotting scope called the Echo Pocket Scope that is small and light enough to keep with you at all times, and to act as a backup for a larger spotting scope or pair of binoculars. It has a 7x zoom and is reasonably priced at around $20-$30. Other brands make similar models too.

While high quality options can cost $2000-$3000 easily, that is probably more than you need (and likely more than you can afford). A decent quality medium or small pair of binoculars will cost $100-$200, and that is a good range to target on a budget. Some small pairs of binoculars of reasonable quality are less than $100, but as you get much lower than that they are likely to let you down in terms of image quality and/or durability.

There is enough competition in this market that you will likely be able to get a good discount on the retail price (from Amazon.com, for example). In this price range you won't get into brands like Carl Zeiss or Swarovski Optik, but well-known good quality brands like Brunton, Bushnell, Leupold, and Nikon have plenty of options in this price range.

Communications

Types of Radios

While a cellular phone is an incredibly useful device (more about this below), for emergency communications you need something that does not rely on infrastructure like cellular towers. There are many types of radios that communicate directly including CB, FRS, GMRS, eXRS, MURS, Commercial/Government, and Amateur/HAM. There are technically quite a few different radio "services" defined by the FCC in the USA:

http://wireless.fcc.gov/services/index.htm

Some of these radio types, especially the Commercial/Government and Amateur, can operate through repeaters or directly, which is helpful as some infrastructure might be

available but when not you can fall back on direct communication with other radio transceivers.

In the USA the FCC restricts the use of many radios, and a license is required for GMRS, Amateur, and Marine, while base stations and frequencies must be licensed for commercial radio. There are also a wide variety of other licensing requirements thanks to the FCC. Technically under FRS rules you can only transmit at 1/2 watt on 14 channels set aside for this, though many FRS radios also support GMRS for a total of 30 channels (7 FRS only, 7 FRS or GMRS, 15 GMRS only) and can transmit at up to 5 watts (though many GMRS radios cannot transmit with that much power).

Of all the varieties of radio for mobile use the best option is a handheld Amateur/HAM radio. Another interesting option is marine band radio which allows for higher power transmissions but is only legal to transmit with on water or when communicating from land to water. For emergency purposes on land not very many people will be using these, which might be useful within a group or community but will not help so much for communicating with others.

As a secondary radio for more private communications, you might consider an eXRS radio which uses a 10 digit number to encode the digital radio signal, meaning it effectively has 10 billion different channels. These can also communicate with text between the radios. One disadvantage to these is that there is one main company that sells them (TriSquare, model TSX300) and the quality of the radios is not impressive, with some radios even arriving totally nonfunctional. If you buy these, as I have, test all of them right away and return the ones that don't work.

If you go with FRS/GMRS radios you might consider one with a built-in GPS to reduce the number of devices you carry. The Garmin Rino is an excellent option for this, and there are models that include a built-in topo map of the entire USA (or other places as needed). Since my preferred radio is an amateur/HAM radio, I use a separate mapping GPS unit.

Another good group or community radio to consider, that will also be useful for communicating with others, is a CB (citizen's band) radio with SSB (single-side-band) capability. If you transmit on SSB (either upper- or lower-side) most other CB radios won't be able to receive the transmission so there is a bit better communications security. You can always switch to full band to communicate with other CB radios. SSB-capable CB radios also generally transmit at higher powers (12W versus 4W) for a longer effective range. One big downside is SSB-capable CB radios are generally mobile for a vehicle and not handheld.

Amateur (Ham) Radio

Unlike GMRS radio, licenses for amateur radio do seem to be frequently enforced. With Amateur radio you are required to transmit your call sign when using it, and other Amateur radio operators (aka hams) may report you to the FCC if you do not, or if you are caught using someone else's call sign. However, in emergency circumstances you may use either type of radio without a license. If (or when) you do so, please be polite, avoid transmitting over other's signals, and don't transmit when it is not needed or when it is not an actual emergency.

Especially for amateur radio, you should consider getting a license. While the bureaucratic aspects of it may not hold much value (the amateur bands are FAR from busy, for example) or appeal, there is much value in learning about radio, including the natural science of it and related technology. I got my license almost 20 years ago and it has been well worth it, both learning at the time and since then. The licensing examinations will help you focus on various important concepts, and you'll only have to deal with a few legal topics (like how often to broadcast your call sign, limits on who can transmit on what frequencies and up to what power, etc).

To learn more about getting a license in the USA, and even to start studying up on it, visit the American Radio Relay League, and in Canada visit the Radio Amateurs of Canada:

http://www.arrl.org/

http://www.rac.ca/

While a good ham radio generally has a wide-range receiver, they have their limits and an analog or analog/digital scanner (receive-only radio) is a good idea to have. A good scanner can receive signals from any other type of radio, including trunked analog and digital radios used by government and businesses. There are many handheld options that are highly portable, but this may be a good radio to leave in your retreat or to carry with you only if you have some extra space. To facilitate carrying less, a ham radio with a wide-range receiver is the way to go (though it will not be able to receive trunked analog or digital Commercial/Government signals).

Most handheld amateur radios are durable and reliable, but higher end models usually have metal cases, are waterproof, and have a wide range of more advanced (and sometimes very useful) features.

The 2m (2 meters, 144-148Mhz) amateur band is the most important to have a radio for. It is a common band for handheld and mobile radios and is frequently used for emergency situations.

You can buy a 2m radio capable of 5 watt transmission for under $100 (like the Alinco DJ-175T). If you step to the under $200 range you have the option of a radio (Yaesu VX-3R) with a lower-power transmitter for 2m/144Mhz and 70cm/440Mhz, and a wide receive range (500khz to 999Mhz) that you can use to receive just about any type of signal, including AM/FM broadcast radio, shortwave, amateur bands, etc. If you step up to the $300 range you can get a radio (Icom IC-91A or Yaesu VX-6R) with both wide band receiving and the higher power transmitter, and DTMF keypads (for numbers, like dial tones), waterproofing, etc.

Each of these radios has dozens of features, and there are things like digital communication (D-STAR), built-in or add-on GPS, bandscope (see a range of active frequencies visually), memories for various things, and much more to consider. There are handheld radios that cost over $600, but the greatest feature set benefits are really in the $300-$400 range.

Some interesting radios to consider for versatility, and to play in the 6m (6 meters, 50Mhz) band that is often only used by rigs in vehicles and fixed locations, are the Yaesu VX-7R and VX-8DR radios. The VX-8DR or VX-8GR (with GPS) is a quad-band radio (6m/2m/1.25m/70cm) and runs around $450.

In a vehicle or at a fixed location you can transmit at much higher power (around 50 watts instead of 5 for handhelds) and at lower frequencies using what is known as a “mobile” radio that is meant to go in a car and runs on a 12V power source. These are also good for retreat locations with solar power and such. For these rigs 10m (10 meters, 28Mhz) is the most common long-range band, and it is common to use the higher frequency bands that handhelds use, including 2m/144 and 70cm/440. One good option for this is the quad-band (10m/6m/2m/70cm), 50 watt capable Yaesu FT-8900R which runs around $500.

Receivers and Scanners

Being able to transmit is important to coordinate within your group, and to find and communicate with people in other groups or acquaintances that are far away. However, you may end up using your radio for listening far more than for talking. This would include listening to others who are transmitting from 2-way radios, and to broadcast radio both near and far (shortwave transmissions can carry very long distances).

When all you want to do is listen, a simple wide-band receiver is all you need. There are various receivers made for emergencies such as those from Eton (FR200, FR300, etc), and they often support alternate power such as hand crank and solar. However, they usually only support receiving broadcast radio (AM/FM, weather, shortwave, etc) and not 2-way transmissions such as those from the amateur and other radios discussed above. They also do not support scanning channels rapidly.

The most versatile device for receiving radio signals is a good scanner. The Bearcat line by Uniden is the most popular and widely available. A basic handheld scanner like the BC72XLT is

available for around $80 and can receive most of what will be interesting.

At around $200 the BC346XT scanner adds features such as faster channel scanning, more preprogrammed frequencies and configurable channels, analog trunking (necessary to listen to commercial/government/etc trunked radio systems), a visual bandscope, and programming or control by a PC. The Close Call feature does a super-fast search for strong signals and is great when moving around. The Service Search feature has pre-configured data for broadcast news and FM, public safety, ham, marine, railroad, air, CB, FRS/GMRS, other low-power walkie-talkie, racing, and military air.

The main thing the BC346XT doesn't support is listening to digital trunked radio systems. That requires a step up to the BCD396XT which will cost you nearly $450. Both of these radios come with the old style 9-pin serial cable, and a USB cable is available for around $30.

For a bit more the Uniden Home Patrol (HP-1) scanner is a more modern unit with a touch-screen and a micro-SD card with preprogrammed frequencies. This scanner requires the least programming to use and can scan based on location (zip code, GPS coordinates, or automatic frequency finding), and supports both analog and digital trunked radio systems. It also has a USB cable instead of an older 9-pin serial cable for computer connection. This model is available for around $530.

Other good options for scanners include the PSR-700 (similar to the BC346XT) and PSR-800 (similar to the BCD396XT) models from GRE. These GRE scanners come with a generally complete preprogrammed database of frequencies on an SD card that you can update with a computer. They also come with a USB cable that can be used to power and charge the device.

While a digital radio scanner may be of value, and will pick up more signals and traffic than other radios, the cost is significantly higher and over time more systems are using encryption for their digital radios so that scanners cannot listen in. Unless you live in an area where local government agencies or infrastructure companies use unencrypted trunked digital

radios and you think it is important to be able to listen to them, this is probably not worth the extra money.

Unless one of these reasons applies to you I'd recommend the BC346XT or PSR-700 as a good receiver/scanner for emergency use. Investment in this tool is well worth it, even if you have an amateur radio with wide-range receiving, because you can scan a large number of frequencies and types of radios quickly. Chances are most of your information and intelligence will come from this source in the event of a major emergency.

Communications Security

In emergency situations where you want your location to remain a secret, remember to never transmit from there. There are simple devices that can easily and quickly find your direction when you transmit, and more advanced devices that can determine your actual location quickly and fairly accurately. Even when transmitting from an insecure location that you don't mind being known, in dangerous situations be sure to keep your messages short and move quickly after you have finished transmitting.

You should also be careful what you say over any radio, as it goes over open airwaves that anyone can listen to. There are various techniques to encode and decode your message, though technically under current FCC amateur radio regulation doing so is illegal. Still, in an emergency where lives are at risk should your message be intercepted, this precaution is valid and worth the effort.

The easiest approach that is also very difficult to break is to have multiple copies of the same edition of an obscure published book, or even better, books with random words generated by computers just for this purpose (sometimes called a "one-time pad"). The message that goes over the radio will simply be a set of numbers for each letter. You can use variations on this to achieve greater obfuscation (and there are practically limitless approaches). For example, the number set could be (page, line, and letter on the line) or it could be (page, word on page, and letter in word), or send the page once, and

then use sets of two numbers (line, letter position) for each letter. However you do it make sure to cross out the letters or words in your book as you use them to make sure the same ones are never used again.

There are more complicated approaches to using one-time pads that are more flexible so that you don't have to hunt down the letter you need. The approach is to transmit a starting location in the one-time pad (made of really random letters, not real words) and then each letter that is transmitted is the real letter "added" to or "subtracted" from the letter in the pad. The receiver of the message does the opposite to decode it (i.e. subtract if was added, or add if subtracted). When adding or subtracting if you go past Z or before A, loop around to the other end of the alphabet. To do this numerically determine the number for each letter (starting with A=0, B=1, to Z=25) and add or subtract as needed, and if it is above 26 subtract 26, or it is below 0 then add 26.

If both sides have actual computers available, you can use much more elaborate schemes. The book lookup approach is great when you don't and just about as effective as even more complex computer driven approaches.

Cell Phones, Tablets, GPS, and Maps

The ultimate portable device is the modern smart-phone with communication radios, GPS capability, and detailed road and/or topographic maps with full data stored on the device. Make sure your device comes with a built-in GPS chip, and that map applications with included, download-able, or cacheable map data are supported.

On Apple iOS devices there is a good set of applications with topographic maps for the entire USA called "Scenic Map West/Central/East". On Android the Google Maps app that comes with it does caching and is fairly good (and has decent topo maps), and there is a good navigation app with downloadable maps called "CoPilot Live Premium", and a mapping app made for hiking that caches maps called "Backpacker GPS Trails Pro". Note that because the Backpacker app does not have a

feature to download map sets, you must set the cache size high (1000MB is good), and then browse around the maps at different zoom settings for the areas you want to have available to you offline.

For privacy reasons you may think you do not want a GPS chip built-in to your cellular phone. These days the reality is that even without a GPS chip in your device the cellular tower triangulation is a fast and accurate way to determine where you are, so not having a GPS chip will not protect your privacy, it will only prevent your device from being able to locate your position when out of range of cellular towers.

If you are concerned about privacy, I recommend using a small tablet computer instead of a device with a built-in cellular phone. With such a device you can connect to the internet wirelessly over WiFi (802.11), but you can also turn that off to maintain your privacy at any time. Examples of these devices include the Apple iPod Touch, or a 4-7" Android tablet such as those from Samsung, Archos, and many other companies.

The only problem with the iPod Touch is that it does not have a GPS built-in, though it can operate with an external GPS (such as a GPS cradle or those in personal hotspot devices like the Mi-Fi). For this reason alone I carry a Samsung 7" Plus WiFi-only Android tablet which is useful for work, play, and as a backup device with mapping software and a built-in GPS.

Another great thing you can do with smart-phones and small tablets is store books on them. Most books these days are available in electronic formats, and ebook stores like the Amazon Kindle store have apps available for several different mobile operating systems, including Android and Apple iOS. I keep a wide variety of books on my various mobile devices, some of which I store in metal boxes to shield from a potential EMP.

If you like the idea of having books on an electronic device I highly recommend that you get one such as the Amazon Kindle or Kindle Touch that has a black & white e-ink screen. These screens are easier on the eyes with reflective light, and they also use VERY little battery power. You can read for days or

even weeks without having to recharge these devices, and they charge well from small solar panels with USB connectors like the Nomad 7 (small 7-watt rugged panel). One downside to such devices is that they are not good for maps. They have the potential to be good for maps, but I have not found any good maps available for them.

There are various good dedicated GPS devices made for hiking and backpacking from companies like Garmin, Lowrance, DeLorme and Magellan. For emergency purposes (and general recreational use) it is extremely helpful to have detailed topo maps built-in to the device, and many modern units have just that.

Garmin makes the best devices, especially the GPSMAP, Montana, Oregon, and older Colorado series. All have good screens, great GPS performance, pre-loaded map options, are rugged and waterproof, and have many other features. The Dakota models are also good at almost half the price, and eTrex are okay, but are less capable and becoming dated by these newer models. Whatever you get, make sure it has pre-loaded topo maps (for Garmin there would be a “t” in the model number) or that you add on the topo maps you need (i.e. in addition to the base map if that is all the model comes with).

For the same price a small tablet computer will be more versatile, but less rugged. You can add cases to tablets and/or keep them in good plastic wet bags, but it is hard for them to match a good rugged GPS meant for outdoor use, bumping around, getting wet, and so on.

As a last, but very important, note about GPS and maps: for areas you know you will travel, especially areas between and around your retreats, make sure to get good paper topo maps. You can buy topo map software for your computer and print maps, or just buy printed maps such as the USGS topo maps. If available for the area desired, higher quality hiking maps produced by companies such as National Geographic or Latitude 40 are the best. Many USGS topo maps are available for free download from the USGS site at:

http://store.usgs.gov

A useful set of maps to supplement more detailed topo maps are large format recreation topo map books by companies like Benchmark Maps. They print a book for each state, and it is not too expensive to get a collection for your state and all states nearby or that you might travel to.

Perimeter Monitoring

Whether you are in your home, a temporary camp, or a retreat, it's always nice to know if other people are approaching. Gadgets are not a replacement for people on sentry duty, but they can help you watch in more directions and with sensors farther away have more advance warning of a visitor.

Even if you are with a larger group and have multiple sentries posted, gadgets that warn you of approaching people and other animals can help the sentries be more effective, and can reduce the number of sentries required to effectively watch all approaches. Fewer sentries means more people freed up to do other things.

While the old string and a can technique is useful in a pinch, it has various limitations. Even with multiple cans or cans and rocks the sound is only so loud and cannot be heard from far away. What's worse is that whoever is approaching will know they have tripped a warning device.

A much better gadget for perimeter monitoring is an infrared sensor that notifies you by a radio signal. The main manufacturers of this equipment are Chamberlain and Dakota Alert. The Chamberlain CWA2000 is the least expensive option at around $50 for a receiver and one sensor. You can add up to three additional sensors (total of 4) for around $30 each.

Dakota Alert makes a similar product, the WMA-3000 series, that is somewhat higher quality and more expensive. This also supports up to 4 sensors. If you want more sensors, the Dakota Alert MURS transmitting sensors are the way to go. These can be set to any MURS frequency and picked up on a MURS radio, or any radio that can receive MURS signals (including radio scanners, and many ham radios with wide-band receivers). Each sensor can transmit one of 4 messages so

you can monitor 4 sensors on one frequency. With two radios or a radio that can monitor multiple frequencies you can monitor multiples of 4. In other words, not only do you have to carry one less gadget, you can potentially have many more active sensors and do so over a longer range than with other options.

Another option to consider for perimeter monitoring is video cameras. For unoccupied places there are cameras from various companies (including Dakota Alert) that have a motion sensor and camera to record short video clips or take a picture each time motion is sensed. These are useful for seeing what happens while you are gone. The most common of these are game watching cameras typically mounted on trees to watch game trails and such. These are available in most outdoor sports stores that cater to hunters, as well as many online stores.

Active video cameras require more gear and power than the simple motion sensors described above, and are not as portable, but are still sometimes useful. In a fallout shelter it is actually really helpful to have a few external cameras set up so that you don't have to go outside to keep an eye on what is happening and to see who is approaching. Constantly active video cameras require steady power for operation, so you'll need to run a power cable to each camera.

Because of this I prefer the kind that use a single cable for power and the video signal instead of using a power and a wireless video signal. If you do have power already run to a location distant from the monitor for the system, then consider cameras with a wireless signal. Otherwise, just run the single power and signal line and you'll get a more reliable signal too. I've also found that many wireless cameras are much more of a pain to configure. As much as I like the flexibility of WiFi (802.11) based cameras, these are some of the most annoying to configure.

EMP-Safe Storage

For natural EMP (solar flares) or low-yield nuclear EMP (like one kiloton, and I've heard numbers as high as 50 kilotons and as low as 20 kilotons) your small electronics should be fine, as long as they are not connected to a long wire such as a power cord, or even a long data cable. Long wires act like an antenna to pick up the "signal" of the electromagnetic pulse and channel the energy into the device. Most vehicles should also be fine for an event like this.

For a high-yield nuclear EMP, or a pulse from a nuclear device designed to produce EMP, you'll need EM shielding for your devices as the pulse is strong enough to create a sufficient voltage to destroy small electronics on their own, with no external wires connected to them. To protect electronic devices, especially those with voltage-sensitive silicon chips, you need a Faraday cage or some sort of metal container that has a similar effect.

The cage or container should be connected all the way around with no gaps large enough for the pulse to get in. Some gaps are okay, and even a Faraday cage made of a wire mesh will be effective as long as the mesh is not so wide that it won't stop expected EMP frequencies. There are various resources that describe how to create a Faraday cage meant for EMP shielding, so I won't get into that here. Building such a cage is a bit of work, especially if you want it to be portable and durable, but fortunately there are many simple containers that are easy to acquire and that will do just as well (or in some cases better).

One thing to avoid is plain aluminum or tin foil, even if the edges are rolled for a good connection all the way around. While it may conduct electricity just fine, it is not thick enough to shield against any significant electromagnetic pulse, like the kind that electronics would be sensitive to.

There are various army surplus ammo cans and other metal boxes (such as night vision gear containers that are a bit larger and thicker) that are good for this purpose. These usually have

a rubber gasket to seal out air and water, and unfortunately that can break the electrical connection between the top and bottom metal pieces. Fortunately, these always have a bit of metal overlap and if you sand off the paint on the overlapping metal parts it should be an adequate connection. If you are really worried about it, you can use conductive paste (non-adhesive) around the edges, but make sure to sand off the paint too as that has an insulating effect that would cause problems even with conductive paste.

Another thing to consider is galvanized metal trash cans with a tight-fitting lid. You can fit quite a bit in these, especially in retreats or vehicles where you want to carry more. Another benefit to trash cans is you can add a trash bag or some loose clean trash to the top (or put your gear in good plastic bags and put some less desirable trash above it) to hide your gear.

I've heard that food tins, such as the big popcorn tins still found in stores around the holidays, can be effective for EMP shielding. They are fairly thin but significantly thicker than tin foil, and so may be effective.

If you're looking for something more portable and "normal" to carry to the office or other places on a daily basis, consider an aluminum briefcase. Make sure it is either unpainted, or like with military surplus containers sand off the paint along the overlapping metal. A good briefcase to consider is a Zero Halliburton Aluminum Attaché (like the E4-SI). It is unpainted aluminum and has a rubber gasket, but the aluminum around the edges touches well when the latches are closed so it makes a good continuous shell to protect the electronics inside. These are expensive, but can be found used or on clearance at a good discount. There are also other companies that make aluminum cases, just make sure they are sturdy and that the two halves fit together well to make a continuous connection.

Body Armor

Sometimes the best defense is a good offense, along with situational awareness and good intelligence. Unfortunately in

the real world mistakes and surprises are constant, so a few defensive measures are well worth the cost and weight.

For body armor on-the-go you should have a concealable complete-coverage vest rated to level IIIA. The vest should go to your upper chest and lower abdomen, stopping just above the waist, and extend around your sides under your arms. When you buy the vest make sure it is sized appropriately for chest and stomach size and your height.

Level IIIA (between level II and III) vests protect against nearly all handguns, including the .44 magnum. They also protect against rifle rounds (especially .223) fired from a distance, as bullets slow considerably at longer ranges. For better rifle protection, including standard .308 rounds at close range (traveling at around 2800 fps) you need level III protection, though for a full vest that is considerably heavier and not commonly available. For bullet-piercing rifle rounds you would need level IV protection, which is available with hard (usually ceramic) trauma plates added to the front and back of a vest, but not much else.

Most vests come with front and back pockets for trauma plates for extra protection. While you can get hard plates that protect to a level IV, for a mobile vest soft trauma plates that protect to a level III should be adequate for most situations and are far easier to move around with. Examples of this sort of vest are the PACA Standard Level IIIA and the A8 Level IIIA Complete Coverage Concealable vest. Expect to pay $400-$500 for a new vest like these (with soft trauma plates).

In a retreat or vehicle you might consider carrying heavier complete coverage body armor with hard trauma plates. Heavier vests generally provide extra coverage with a collar for the neck, a front pad for the groin, and even side pads that go over your shoulders and upper arms. This sort of vest is made to wear outside your clothing and is considerably more bulky than a concealable vest. Many such vests have MOLLE webbing for attaching gear to them, both front and back. For a heavier vest like this it will still generally be rated to level IIIA, and you'll usually want hard ceramic trauma plates rated to

level IV for the front and back trauma plate pockets. This sort of vest will cost anywhere from $850 to over $2,000.

Along with a vest you should consider a bullet resistant helmet. Kevlar helmets rated to level IIIA protection are lightweight and reasonably comfortable. In a combat situation such helmets are practically necessary as it is common for your head to be more exposed while looking or shooting around cover. A decent helmet such as the NATO Combat-Elite should cost around $250, while similar models from Point Blank or PACA run around $300-$400.

Some helmets come with face shields made for either basic impact or rated as bullet resistant level II. The level II face shield is about 3/4" of multilayer polycarbonate and is very heavy, making the helmet cumbersome. I wouldn't recommend this for the helmet you wear on the move, but you might consider this to keep along with your heavier complete coverage body armor at a retreat. For entry or incursion, and to some extent for fighting from a fixed post, it is helpful to have as much protection as possible.

If you do opt for any of this gear, be sure to practice running, rolling on the ground, and firing and reloading your weapon from various positions (standing, on one knee, prone, etc). It is surprising how much more difficult certain things are with such gear, and when breathing heavy how easy it is to fog-up a face shield.

Gas Masks and Protective Suits

For biological and chemical attacks, and even haz-mat accidents or pepper-spray or mace exposure, it is very helpful to have a good-quality, full-face gas mask to keep the materials away from your eyes, nose, mouth, throat, and lungs.

For nuclear fallout it is much easier to filter the dust, and a good breathing mask may be adequate. However, even for fallout it is helpful to have a full-face mask to keep it out of your eyes and off your face skin, and combine that with a hood and Tyvek or similar suit to keep the fallout from contacting your

head and body, and to make it easy to spray off any fallout dust that does accumulate on the gear.

When buying a gas mask make sure it fits well and seals against your face. For those of us who have facial hair, we can look forward to shaving it off for better protection (at least the area where the mask edges contact your face). You can help the mask seal against your face with a little water wiped around the mask edges, and over time your sweat will keep it wet and help the seal.

A good way to test your mask seal is to use simple household odorous chemicals like spray paint or PVC pipe cement. If your mask is fitting well and is sealed against your skin with a filter in place you should not be able to smell the chemical. BTW, when you do this test use a single filter for multiple masks to keep other filters fresh and unused, as good filters are somewhat expensive. If you have an expired filter around, or can acquire one cheaply, then use that for this test.

Make sure that both your mask and filters are within their expiration dates. This may seem obvious for filters (which generally need to be replaced after 5 years), but it also applies to masks. A good quality mask should last at least 10-15 years, but after that the rubber will start to harden and crack. Dangerous gases or particles can then get in through cracks in the rubber or even around the edges where it does not seal against your face as well. Because of this many older military surplus gas masks are NOT a good option, even if they are appealingly inexpensive.

You may also want to look for a mask that has a full width single window in the front for better visibility. Many military gas masks suffer from small eye windows that make it difficult to see, especially to the sides, but also right in front of you with both eyes (reducing depth perception).

One last thing to make sure of is that the mask supports standard NATO filter canisters with a 40mm threaded connector. On that note, make sure to get at least a few extra filters for each mask. A good filter with plenty of time before its expiration date will generally cost $30-$40.

Some specific masks to consider include the Tecno-Pro SGE 150, the USA NORTH 54400 Series, and the MSA Advantage. Such masks usually run around $150-$250. While the MSA masks are more expensive, they have features to make them more comfortable for long-term wear, and filter connectors on both sides to get them out of the way when firing a rifle. For gas masks with a center filter, you may have to turn your head slightly to use a rifle.

Along with your gas mask consider getting a protective suit. A good reusable suit made from Tyvek and with a chemical-resistant film, such as the Tychem SL chemical suit, will cost around $80. Most suits will come with a hood to go over your head and around your gas mask, and elastic at the wrists and ankles to form a reasonable fit over gloves and boots. This sort of suit is light weight, folds or rolls up very small, will better protect you from various biological and chemical agents and from nuclear fallout, and is easy to spray down before removing to help avoid exposure when removing the suit.

Another good protective suit option is the military surplus MOPP NBC suit. These are two-piece suits plus gloves and a hood to go over your gas mask. They run around $60 new, still sealed in their pouches, and come in sizes small enough for children and large enough for adults, though extra-large sizes can be difficult to find. One disadvantage of these is they are meant for single use (likely because of the charcoal power to absorb chemicals), though seem durable enough to use numerous times.

Keep in mind that this sort of gas mask and suit will NOT completely protect you from all dangerous agents and materials. There will be leaks between your hood and gas mask, and around your wrists and ankles. Gas masks don't have their own air supply and can't filter all chemical weapon agents (like VX). They are also not positive pressurized, so small leaks or cuts will increase the chance of exposure as air and fluids can flow into the suit.

To better understand serious chemical and biohazard suits, and for some interesting stories about lethal biological agents, I

recommend the book The Hot Zone by Richard Preston. It is a fascinating and educational book about some of the most dangerous microbes known to man.

Documents

While there may be some circumstances where it is better to have “lost” certain documents, in many cases it is better to have them, and you only have a choice if you actually do have them.

Some documents to consider include:

- government ID (drivers license, passport, social security card)
- permits and licenses (including professional licenses, concealed carry permits, restricted weapon licenses)
- certifications and degrees
- vehicle titles and registration
- real estate titles, deeds, and recent tax notices
- financial account details
- credit cards (or at least the information from them including phone numbers on the back to cancel or report fraud)
- insurance documents and proof of insurance cards (home, auto, health, life, etc)
- medical records, immunizations, and prescriptions
- certificates of birth, death, marriage (and divorce docs)
- will
- others...

For some of these documents carrying originals may be bulky and/or unwise because losing originals can cause problems. Even for documents such as drivers license, passport, and insurance cards that you carry regularly you may want 1-2 sheets of paper with all of them copied to keep with you as a backup.

For other important documents you may want to keep the originals in a safe (probably at your Level 2 Retreat), and perhaps make a single sheet with account/license/etc numbers

and other important details compiled from these documents to carry with you or hide as a backup.

For emergencies and for travel I keep such copies in belt pouches as a backup, along with keeping my passport and other things with me in concealed pouches. See the “Travel by Air and Foreign Travel” section below for more details.

Compiling and copying documents like this is something that is cheap and easy to do, and will be helpful for emergencies large or small, including burglary and mugging, house fires, floods, hurricanes, tornados, and earthquakes, as well as the major disaster scenarios discussed earlier in this book.

Money, Metals, and Trade

Even in major catastrophes, early on some people will be willing to sell, or trade for, things of use. For this it is worthwhile to have some paper currency to buy things and/or precious metals to trade with.

When things are really bad or as a catastrophe progresses both currency and metals may be worthless for a while, with metals likely gaining value again before old currency does or new currencies are introduced.

For mobility the good thing about currency and metals is that they are easily portable stores of value that can hopefully be exchanged for things you need as you travel that you simply cannot carry enough of. Food is a good example of this. If vehicles are operational and you are traveling long-distance fuel is another example. However, if you can’t find anyone willing to sell or trade for what you need, currency and metals are worthless.

When trading anything, especially something that may be valuable, be very careful about who sees what is being traded. Even to the person you are trading with, be careful about communicating what and how much you have. For this reason jewelry can be a good trade item. If you say it is a wedding ring or an heirloom the implication is you don’t have much other

than that item, and chances are better that you won't be robbed of other valuables.

For currency, metals, or any other trade good be sure to have a variety of denominations or sizes/varieties. There are two reasons for this: people you trade with may not have (or admit having) change or additional goods to make up the difference for higher-value items, and you may not want the person you are trading with to even know that you have such an item.

When currency and metals are not valued in the market, consider other useful items you might have extra of, or that you could intentionally carry extra of for trade:

- Bullets: carry extra rounds for your weapons for possible use, and to trade for food or other needs
- Powdered calcium hypochlorite: lightweight and incredibly potent for water treatment (1/4 teaspoon treats around 50 gallons), and that is likely to be a common need in many places
- Water filter: You may not want to carry extra water filters or trade such a valuable item, but you could offer to filter a gallon of water for each gallon you filter for yourself
- Batteries: while you might be willing to part with single-use batteries, if you have a solar charger you can also trade charged rechargeable batteries for discharged ones plus a little something extra
- Herbs and spices: dried spices (cayenne, black pepper, basil, turmeric, and so many others) are small and lightweight for their value, useful in small quantities, and in a world of bland food may be more sought after than just about anything; medicinal herbs and many spices are also useful for healing or preventing various ailments
- Protein powder: people may be low on protein-rich foods and concerned about that, and may trade for larger amounts of other foods
- Knives: aside from redundancy for breakage or other loss, another reason to carry extra knives is for trade; because a good knife is such a useful tool and is somewhat difficult to produce with reduced technology it will have significant value; knife accessories such as fire steel or a sharpener

may have even greater value; for a sharpener consider that you might trade for sharpening other knives and you get to keep the tool
- Other: anything that is small and lightweight but of value is good to have extra of for trade
- Work: if you have nothing you want to part with or to even-out other trades you might try offering work of some sort including: manual labor, defense and protection using the weapons you carry, training on survival topics such water treatment and sanitation, and anything else you might be good at that may be of use in such circumstances

For high-value trades, or when approaching an unknown or untrusted group of people, consider caching most of your gear and supplies in advance and just bring along what you intend to trade and sufficient weapons, armor, and ammunition to defend yourself. Also be sure to bring with you as many people as possible, preferably a number roughly equal to whoever you are trading with. Posturing is the most important phase of a potential conflict and if both sides have roughly equal strength chances are much better that things will remain peaceful.

Gear For Children and In Groups

Each adult and child should have most of the items listed above. While you may get by with only one of certain items for an entire group (such as water filters, rifles, and radios), the redundancy and extra capacity is worthwhile. Each adult, male and female, should have a full set of gear and learn to use it.

Children in a group don't need quite as much, and there are certain things they shouldn't have access to at younger ages. Predetermined age limits for these things are not helpful for safety, or to help your children survive on their own should the need arise. As young as possible teach them how to use knives and guns, and let them carry and use them only with adult supervision. Once they have demonstrated that they can use them effectively and safely, have them carry and practice with them regularly.

Children have slightly different needs and should have variations on all items that fit their size, from clothing to firearms. Youth rifles (in .22LR) are a great weapon for kids to start with, and one they can effectively use for hunting small animals. While such a weapon can be useful for defense against humans, it is generally better to teach children to run, hide, and take cover instead of trying to use it for fighting. If necessary, a child who can place shots well can use a .22LR to protect themselves.

Another item children should not have access to until they have demonstrated understanding and effective use is a radio capable of transmitting. Even simply transmitting can reveal their location, and they may say things that reveal other important information that could put the child and others in the group in danger. Once a child does learn and can be trusted with a radio, they should have a good 2-way radio with them at all times. The radio could be an amateur radio, or some other radio that everyone in the group carries (i.e. eXRS, FRS/GMRS, CB, etc).

Carry Priorities

Every Day

The first priority for everyday carry is adequate clothing and shoes for the weather outside. Consider that you may have to stay outside for extended periods of time and walk to nearby shelter, help, or even to your home or retreat.

A good knife is your next priority. If nothing else carry a small good quality folding knife, perhaps one with a built-in fire starter (like Swedish fire steel) and flashlight. The one I carry is a Tool Logic SLP2. If you have a bit more space, carry a good quality fixed-blade full-shank knife, which is much better suited for bigger chores like building shelters. When deciding on what to carry you should also check local laws. Restrictions on blades above a certain length, double-sided, or that open automatically are common.

You may also consider carrying a firearm (usually a small pistol), especially if you are in a potentially dangerous area, you know you to use the gun, and it is legal wherever you are. As an alternative consider a good can of pepper spray or a taser gun, also depending on legality where you are.

Other good things to carry nearly always are some cash, a water bottle, and a snack.

Chances are you will also usually have a cellular phone or small tablet computer with you, and that is a good idea for communications. You should also consider getting a phone or tablet with GPS and built-in maps (i.e. full map data on the device so it does not require an internet connection for mapping capability). See more details about such devices above in the Lights and Gadgets section.

Beyond this there are many things you might consider carrying. Nearly every book on tactical survival has recommendations. Some common ones you might consider are para-cord, poncho, emergency blanket, fishing hooks, matches, first-aid supplies, and so on.

Beyond the main things listed above I don't worry about these so much. I carry adequate clothing for the weather because it beats a poncho or emergency blanket (or trash bag) by a lot. Those still might be worthwhile because they are useful for a variety of needs, are much smaller than real clothing, and are far better than nothing.

Travel By Car

If you are traveling by car for any great distance you should consider carrying with you an entire set of portable gear for each person you are traveling with (or whatever portable gear each person has). Your entire set of gear is meant to be portable and so should fit in a good-sized backpack, even though you probably want to store it in a plastic bin or two when you are not carrying it to better protect the gear. Because of the compact size it should not be difficult to fit in your car to take with you on longer trips.

On short trips when you are near home, such as commuting to work or shopping, it probably won't matter that you have your entire kit with you. In a worst-case scenario if you have good clothing and shoes, and some food and water, you should be able to make your way home on foot and have access to the rest of your gear.

You may also want to keep some extra food with you. These days you can get 2-4 man-weeks of freeze-dried food in a lightweight plastic bucket that can easily stay in your car all the time. The same goes for water. A 5-gallon jug won't last forever, but for many reasons it could save your life and it isn't difficult or expensive to leave in the car all the time. A bit of water like this, along with a good water filter, can help you survive in a wide variety of circumstances.

Travel By Air and Foreign Travel

When traveling by air your options are far more limited. Your space is limited, and carrying anything bulky is probably not worth the extra luggage fees or trying to carry it all with you as you move on foot in airports, hotels, train stations, etc.

While there are significant restrictions on what you can have in your carryon luggage (especially in the USA under current and constantly changing TSA policy), you can have quite a bit more in your checked luggage that you do not have access to during the flight. Because of this you can take knives and firearms with you as you travel.

However, air travel with firearms and even some knives can lead to significant delays and even possibly trouble with law enforcement that is not aware of, or does not follow, the law. When traveling with firearms you must be aware of relevant law in the place you are leaving, the place you are traveling to, any place along the way where you will be leaving the airport with your luggage, air travel regulation in each country, and airline policy too. These days there is no way you will be able to hide a firearm for air travel, and both you and all of your luggage will be searched various times. I know people do it for hunting in distant places and such, but it is something that requires a

good deal of patience with bureaucracy to do, if it is even possible.

For practical purposes, the main constraints you have are space and weight. Because there is no way you can carry enough gear to sustain your life in adverse circumstances, you should carry a few basic things that you will always need, and enough currency or exchange media to acquire the rest.

It is always worth it to bring along adequate clothing and footwear for expected (and perhaps unexpected) weather. To save on weight and size consider wool long underwear to complement your other clothing. Make sure it is 100% wool or for certain garments a spandex blend like 93% wool and 7% spandex, but not the cheaper 10-20% wool stuff. Some brands that make this clothing are Stoic and SmartWool. Also, get some good leather shoes or boots that are passable as work shoes (unless you must have dress shoes for work, then a second pair may be necessary).

To acquire other things, should the need arise, a bit of cash is a good idea but for extreme circumstances it is wise to consider that cash may not hold its value. If a disaster happens in the place you are visiting, your foreign currency may retain its value and you may be able to easily afford what you need to survive there or travel home, or at least to somewhere else.

If a disaster happens at home it may involve a currency devaluation, and you could be stuck where you are with worthless money. You may also have a hard time traveling home because of restricted travel by air or even land and sea should a disaster be sufficiently severe. It may be necessary to survive where you are for a time, and only travel home over a long period of time and possibly at great expense.

Because of currency issues in other parts of the world sailors in the era of the British Empire used to carry gold Sovereigns with them, and even sew them into their clothing to better hide them. They did so just for this purpose. If they were ever stranded or there was an emergency the gold, and those particular gold coins, were recognized as something of value around the world. Today, they still are.

For such purposes a 1 troy ounce gold coin is too much for most needs, and is somewhat difficult to hide. One ounce silver coins are a good amount of money for daily use, but just too bulky for air travel in any quantity that would be useful to acquire what you need to survive, or pay for travel back home. Quarter and tenth ounce gold coins are just about ideal for this purpose, such as American Gold Eagle coins in those sizes (the $5 and $10 face value coins), or British Sovereign and Swiss Franc coins (at .235 ounces each).

In relatively safe parts of the world you can carry these along with your passport, cash and other important documents in a small waist pack such as the Eagle Creek "Undercover Money Belt". This goes around your waist under your pants in the front and is fairly difficult to detect but easy to access. These are also fairly comfortable and I've worn them daily on multi-week and multi-month foreign trips. I like this type much better than the kind that has a thinner string that goes around your neck allowing you to carry the small pouch inside your shirt over your chest or stomach, or even under your arm. That kind is much less comfortable (for me anyway), and is also a lot easier to detect unless you wear it under your arm, you have your shirt buttoned all the way up, and you are wearing a jacket.

In more dangerous places you may want something hidden better since such underclothes bags big enough to hold a passport are common and thieves around the world know it. A good option for this is a leather belt with a zippered pouch in the inside. Eagle Creek makes a cloth belt like this, the "All Terrain Money Belt", but a good leather belt may be less conspicuous, more sturdy, and blend in better in business meetings and such. Various companies sell these, from L.L. Bean to Cabela's. I've also seen these in leather goods shops near tourist areas in Mexico and Guatemala, and I'm sure they are available in many other parts of the world.

Another reason to carry 1/4 or 1/10 troy ounce gold coins is that they fit in these money belts, where full ounce coins don't do so well (if they fit at all, depends on your belt). Also, since you cannot put your actual passport in such a belt you will want to make a color copy of it on good thin paper to fold up and put

in the belt pouch with your gold coins, and perhaps a bit of cash.

Another good way to carry metals is in the form of jewelry. One of the best things about jewelry is that selling it is inconspicuous. If you walk into a coin or any other shop in any part of the world with a hand full of gold coins you will raise eye-brows much more than if you walk in with your “wedding ring” or with your grandmother’s gold necklace. A plausible story may help you seem less likely to be carrying more valuables and thus a good opportunity for a would-be thief to move up in the world.

Big Ticket Item Planning

There are various items that will help you significantly, or even save your life, but their cost is also significant. For such items you should establish priorities, research alternatives, and plan financially and logistically for buying.

The list below is only intended to include the bigger-ticket items, not every piece of equipment and supplies you should acquire and have with you.

Item	Example	Budget
Food Storage	3 person-months of long shelf-life but normal foods; 1-2 person-years of grains, beans, oils, sweetener, etc	$500-1000

Item	Example	Budget
Insulation (foam) shirt and pant	Poor Man's Gear from RedHotLogo Northern Outfitters Vaetrex Jacket and Bib Liners	$100-180 each (x2)
Wool base layer	Stoic Merino 200 Shirt and Pants	$40-70 each (x2)
Shell coat and pants	Northern Outfitters EXP Parka and Bib or Wind Anorak and Pant	$200-600
Hats, gloves	Various	$50-100 total
Hiking boots	Mammut Mt. Crest	$150-300
Hiking shoes	Meindl/Cabela's "Perfekt" Walking Shoe	$100-300
Water filter	LifeSaver 6000 Bottle, spare pre and carbon filters or Katadin Pocket Filter	$150-300
Water bottles, bladders	MSR Dromedary, Klean Kanteen	$50-100
Knives	Schrade SCHF9, Gerber Silver Trident	$30-50, $50-150
First aid kit plus extras	Various	$100-300

Item	Example	Budget
Small tent/tarps/ etc	Black Diamond FirstLight, Kifaru ParaHootch	$100-300
Supplemental or stand-alone sleeping bag	Mountain Hardware Lamina 45, Lamina -30, or in between	$80-300
Sleeping Pad	Therm-a-Rest Prolite	$50-150
Backpack	Mystery Ranch Kodiak	$300-600
Battle Rifle	HK/PTR-91 or M1A	$1200-2000
Hunting/Do-it-all Rifle	Ruger Gunsite Scout Rifle	$500-1000
Small .22LR Rifle	Henry US Survival (US Army AR-7) Ruger 10/22	$200
Revolver/Pistol	Ruger SP101 or Springfield XD45 or Glock 21	$400-600
Shotgun	Remington 870	$300-400
Firearms holsters, cases, cleaning, ammo	Various	$500-2000

Item	Example	Budget
Solar panel, battery (small)	Goal Zero Nomad 7 or 10, Sherpa 50	$80-400, $100-300
Flashlights: long-lasting, tactical	Tigerlight T100, Nebo Redline, etc	$30-100
Binoculars or Spotting Scope	Brunton Echo or Eterna Compact	$100-200
Amateur Handheld Radio	Yaesu VX-3R or VX-8DR	$100-500
Group/local Radio	TriSquare TSX300	$50 each
Radio Receiver/ Scanner	Eton FR300, Uniden BC346XT	$50-200
Mapping GPS and/or Tablet	Garmin Montana 650t, Samsung Galaxy 7.0 Plus	$200-600
Body Armor: Level IIIA “concealable” vest	A8 Level IIIA Complete Coverage Concealable	$400-500
Ballistic Helmet	Point Blank TC IIIA	$250-450
Gas Mask	Tecno-Pro SGE	$150-250
NATO 40mm Filter	Various	$20-40 each
Chemical Suit	Tychem SL or MOPP NBC	$50-100

Buying Online

Online stores are a great place to find the majority of the gear mentioned in this section, whether you want new or used gear. If you are looking for used gear try an online ad site like http://www.craigslist.org/ or http://www.backpage.com/. Many places have free ad sites run by local newspapers or television stations, such as the very popular classifieds on http://www.ksl.com in Utah and nearby states.

For firearms there are many advantages to buying from private individuals, including avoiding a record of your purchase or even interest in buying a weapon. Currently both firearms dealers and state and federal agencies are not supposed to keep records of firearms purchases or background checks for them, but that often means different things to them than it might to you and I, and certain agencies have a history of stretching the limits of the law, especially since there is almost never any personal or institutional legal liability for doing so.

Here is a list of a few online stores where I have shopped and that you may find useful:

http://www.amazon.com/

http://www.backcountry.com/

http://www.rei.com/outlet

http://www.cabelas.com/

http://www.readymaderesources.com/

http://www.interamer.com/

http://www.cheaperthandirt.com/

http://www.sportsmansguide.com/

There are of course many, many other good online and physical retail stores. Because price is often an issue searching

around at different sites and stores is a good idea, especially for higher ticket items.

One of the most convenient online stores is Amazon because they have such a wide variety of goods available through them and with their Prime membership program you can get 2-day shipping for free on many items (plus certain other benefits). I've purchased all sorts of gear and food through Amazon, including my better knives.

Practicing With Your Gear

Now that you have some cool new gadgets and gizmos to help you survive all sorts of disasters and life-threatening circumstances, you should try them out to gain some comfort with them before you have to use them to save your life or the lives of loved ones.

To do this you don't really have to find a life-threatening situation, but it would be good to go a bit beyond your back yard. There is a good simulation of many aspects of worst-case scenario survival and population evasion that is relatively safe, and people do it all the time. It's called backpacking. A good 5-7 day trip involving around 10 miles of walking per day will subject you to many of the discomforts you would experience should society ever fail to meet your needs, or should you need to get out of society for a time.

If it's your first time backpacking you might try starting with a single night trip and a hike of only a couple of miles. On such a trip it's hard to get into too much trouble, but things can happen so bring along a good radio, preferably a ham radio that transmits a long distance or a FRS/GMRS radio that is commonly used by hikers and campers. Also bring a good GPS so you know where you are, and can communicate those coordinates in an emergency. On longer trips bring paper maps just in case your GPS fails.

You can backpack in mountains, forests, or deserts. To start with on a longer trip a forest, or lower mountains with gentle terrain, is much better than desert because water is generally

plentiful. Early spring is a nice time for forest and mountain camping as fewer insects will be out, though it can be cooler at night.

Desert backpacking requires more planning and preparation because of the danger of dehydration and hyperthermia. Winter trips are also more risky because of hypothermia, but even more so because access and moving in general are difficult and can be dangerous. With a good radio you can reduce some of this risk, but during winter in a strong storm you may not be able to walk out and rescuers may not be able to get to you for hours or even until the next day, and that is when hypothermia and general exposure take their toll.

Of course, if you have adequate gear with you even with minor injuries you should be able to survive a storm with no problems. This is why it's best to get a little experience before risking such a circumstance, so you can understand the risks you might face before beginning any trip. Even if you do find yourself in such circumstances, don't give up. Chances are you're way better off than Shackleton and his crew in their 1914 expedition to Antarctica.

When backpacking bring along most of your kit, but consider leaving behind your firearms, replacing their weight with extra water to see what it would be like. In many places they are legal and in some national parks it is okay to carry them, but make sure first. In some places other hikers may be uncomfortable seeing firearms carried openly (and may report you even if it is legal), and concealed carry may not be allowed (especially if you don't have a concealed carry permit). On the other hand, in some places every other person you pass will be carrying a large handgun and you'll even see rifles every now and then.

Along with simulating failed infrastructure by getting away from civilization, you might try simulations of other disaster conditions. For example, you might try spending a few days in your home with the power turned off intentionally. During the winter this can be especially enlightening (and potentially hazardous if pipes freeze and burst). You could even try turning

off the water to see how things are, but make sure you have a composting toilet, a chemical toilet or at least a bucket for feces since neighbors and local government officials often have problems with holes in the ground filled with poop, even if you do add chemicals to help with the odor.

Also consider participating in CERT, Red Cross, or other disaster simulations that often get much more elaborate than you could orchestrate on your own or with family and friends. For radio there are RACES events in many places you can participate in. In some places there are still orienteering clubs where you can practice “old school” navigation with tools like a map and compass. To practice with GPS, geocaching can be a pleasant way to pass a weekend afternoon.

If you are at least somewhat experienced in the outdoors and with emergency first-aid, Search & Rescue volunteering can help you gain new skills and refine the ones you have. Other organizations like the Boy Scouts practice many of these skills and are often looking for volunteers, especially if you have boys of that age or you’ll be working with others you know in your community.

Many organizations need volunteers for all sorts of things, and that is a great way to experience simulated or real emergencies, to gain and refine skills useful in emergencies, and to build relationships with others in your community who are interested in similar things.