FMG PUBLICATIONS

REAL WORLD GUIDE INSIDE!

SURVIVE

ARE YOU PREPARED?

10 SURVIVAL SKILLS YOU NEED!

- LIFESAVING MODULAR KIT
- URBAN SURVIVAL
- HOME DEFENSE

HYDRATE OR DIE!

ALL FIRED UP
5 WAYS TO MAKE FIRE

HOT BOX
BUILDING A SOLAR OVEN

COLD KILLS!
DEALING WITH THE ELEMENTS

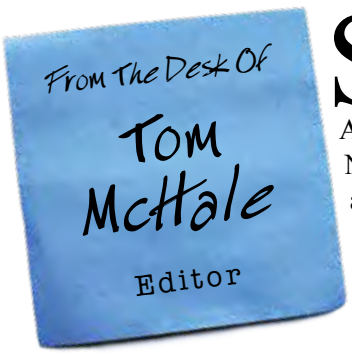
REAL WORLD GUIDE

SURVIVE

From the publishers of:

WARNING: Firearms are dangerous and if used improperly may cause serious injury or death. Due to the inherent variables in the reloading of ammunition, be sure to verify any published loads with manufactuer's data. Products mentioned or advertised may not be legal in all states or jurisdictions. Obey all firearms laws. Always consult a professional gunsmith when modifying any firearm. Be a safe shooter!

Are you ready for the next "disruption?"



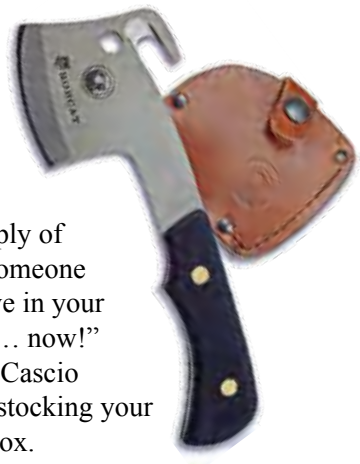
Survival strategies aren't really about preparing to prevail through Armageddon or a United Nations global takeover attempt. I suppose it could be, but there's a long list of events far more likely to impact you and your family in the short term. Think about national news you've seen in just the last 90 days. Tornadoes come with little, if any, warning and often lead to extended losses of power, drinking water, and even basic shelter. I happen to live in the middle of a hurricane magnet. Every year between June and November, odds are a hurricane or tropical storm will hit close enough to knock out basic services for a period of time.

Being without electricity, gas, or water sounds like an inconvenience until you remember humans can only survive harsh environmental conditions for hours and without water for just a few days. We can last weeks without food, but you'd better plan for the other two because time won't be on your side.

Fortunately, preparing for things like a loss of potable water is easier than you might think, and the required gear can be free or readily available (in advance of your need) at low cost. You can even purify your own drinking water with nothing more than a plastic bottle and the power of the sun. In this issue, Michael Janich teaches you ways to become water-self-sufficient. In a related article, he addresses the longer-term challenge of emergency food for when you're stuck on your own for multiple-day durations. Russ Kolkman will give you plenty of ideas on things to have handy around the house in case you're stuck there on your own as the result of a storm or other disaster.

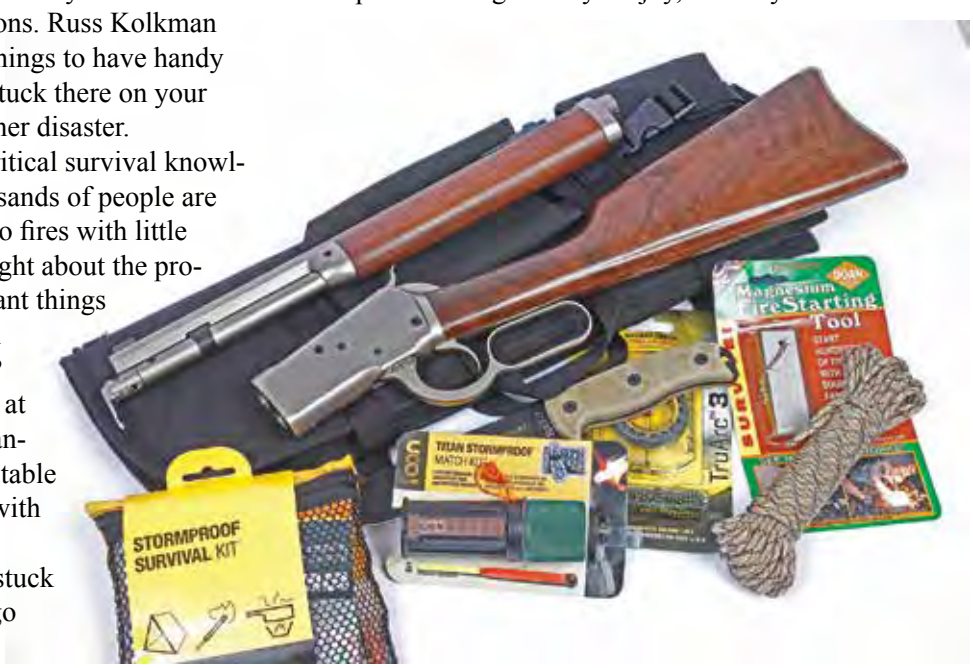
Being road-ready is another critical survival knowledge and skill set. Out west, thousands of people are evacuated from their homes due to fires with little notice. Have you ever really thought about the process of choosing the most important things you'll need and winnowing down that list to what will fit in the car? Do you have enough gas on hand at all times, not just to escape the danger zone but account for the inevitable associated traffic jams complete with gas station closures?

You might even find yourself stuck on the road. It wasn't that long ago motorists were stranded on the highway for days thanks to a massive snowstorm. Do you even carry basic supplies like blankets, water and a supply of food in your vehicle? If someone told you, "You have to live in your car for two days, starting… now!" Would you be ready? Pat Cascio offers some great tips on stocking your own vehicle emergency box.



It's often said we are our own first responders, but the fact of the matter is, statistically speaking, you're likely to be someone else's first responder too. Think about the likelihood of you being the first person to happen upon a recent car or other accident. It's almost sure to happen at some point in your lifetime. When you do come across someone not breathing, bleeding, or otherwise seriously injured, will you know what to do? Do you have the basic supplies and knowledge to improve that person's odds of survival until the professionals arrive?

There's an endless list of knowledge and strategies to improve your survival skillset. The most important thing to remember is these skills will almost certainly be used by all of us at some point — no next world war required. We have enough natural disasters and accidents to put us all in a survival situation at some point. Even if your life isn't immediately at risk, isn't it comforting to know you're prepared for the inevitable disruptions? This issue of Survive is packed full of practical tips you can put to use right away. Enjoy, and stay safe out there!



REAL WORLD GUIDE

SURVIVE

Essential content originally published in FMG Publications Special Editions

Moving water, like a stream, is a better source; however, it must be purified before drinking.

Boiling water for 1-3 minutes is one of the easiest ways to kill potentially harmful microorganisms and make water safe to drink. Remember, however, that boiling does not remove chemicals or heavy metals..

Michael Janich

WATER, WATER,

When it comes to planning survival resources, water should be at the very top of your list. It's a medical fact most people can survive for weeks without food; however, after only a few days without water, some very bad things start happening to your body due to dehydration. As such, water should be a top priority in all your survival plans.

For planning purposes, survival experts typically recommend you budget 1 gallon of water per person, per day. While that may seem easy, it's important to understand the gallon we're talking about is for personal consumption to stay hydrated. It may be drunk plain, used to prepare coffee, tea, or other drinks, or even used in cooking, but the bottom line is it's going into your body. No part of that gallon is intended for bathing, washing clothes or dishes, flushing a toilet, or any other use. If you're concerned about those other uses — as you should be — you need to budget more. You should also think about the difference between true potable water and safe, but not drinkable, water and how to make the best of both.

The Issues

In simple terms, your water needs in a survival situation boil down (pun intended) to two basic issues: Having it and making it safe to drink. Let's start with first things first.

Regardless of the specific survival situation you face, or the details of the event affecting you, you must be prepared in the event you turn on your tap and nothing comes out. When that happens, you must either have, or have access to, an alternate source of water. And, since survival is all about planning ahead, "source" isn't really good enough. "Sources" are a lot better.

The first and most obvious strategy to ensure that you have water available is to actually store a supply of it. While this may seem easy, this is where some simple math really comes in handy. Let's assume with a hypothetical family of husband, wife and one child. Three people times 1 gallon per person per day equals 3 gallons of water per day. If we also assume our motivating event is a short-term scenario like a major storm or blackout that lasts 3-5 days, we're talking about 9-15 gallons of water — at a minimum.

Since bottled water is a popular commodity these days, let's consider it first. A case of 24, 16-ounce bottles is the equivalent of 3 gallons of water. As such, you'd need to store three to five cases of water at all times to be prepared for a survival event. If you have the room to do it, don't mind the expense, and rotate your supplies on a first-in, first-out basis, you've

If you fill your own jugs or need to purify water from questionable sources, adding eight drops of unscented household bleach per gallon of water is highly recommended.

EVERYWHERE?

got a decent plan. The fact both the cases and the bottles are portable and make good bartering fodder can also be a plus.

A more cost-efficient method of storing water is to use 5-gallon jugs, like those used in office water coolers. These can be purchased empty or pre-filled and, like smaller bottles, should be rotated on a regular basis (six months or less) to ensure freshness. If you're going to start with empty jugs and fill them yourself, it's recommended that you add eight drops of unscented chlorine bleach (5 percent solution) per gallon. Seal the jugs well and mark them with the date bottled for easy reference.

Simple math dictates our family of three would need two to three, 5-gallon jugs to cope with a short-term survival situation. If they live in a single-family home, with a reasonable storage area, it's not an issue. However, if they live in a small urban apartment, or if they had to evacuate with their water supply, things get a bit more complicated. One gallon of water weighs about 8.3 lbs. Each 5-gallon jug is therefore more than 40 lbs. They may be *potable*, but they're not very *portable*. Keep that in mind as you formulate survival plans for your family.

If you live in a single-family home or an apartment/condo with its own, dedicated water heater, you're in luck. Even if the tap water stops flowing, you've got a built-in source of survival water in the form of your water heater—provided you know how to drain it. To do that, you'll need:

A 3-6' length of garden hose with a female fitting.

A container to collect the water.

A multi-tool or basic kit of hand tools (flat-bladed screwdriver or pliers, as required).

The first step in draining your water heater should be to close the feed valve at the top. If your tap water might be contaminated, this prevents the bad water from flowing into the tank.

Next, you'll need to turn off the heating element. This keeps the tank from overheating and prevents pressure from building as the tank is drained. Do this by turning the dial at the base of the tank to "off."

Connect the hose to the drain spigot at the bottom of the tank and place the other end in the container. A short container works best, since it will allow you to drain the tank to a lower level and get more water out of it.

Use the tools to open the spigot and allow the water to flow. You may need to open the overflow valve on the side of the tank to break the suction so the water flows freely.

CAN YOU DRINK IT?

Having the tools and knowledge to drain your water heater during a survival situation can guarantee a ready source of potable water for you and your family.

If your in-house sources of water are exhausted, you may need to draw water from natural sources like streams and ponds.

A hot tub or swimming pool is a great source of water during a survival scenario, but making this chemical-filled water drinkable requires a special filter, like those made by Seychelle.

Turn off the spigot when you have the water you need.

A 30-gallon tank provides enough water for a family of three for 10 days and is an excellent survival resource. If you have access to your own water heater, make it part of your "hunker-down" survival plan.

Other Sources

If your water needs — or the duration of the survival event — dictate your in-house supply of water is inadequate, you will have to look for other sources. These include, but are not limited to, collected rainwater, hot tubs, swimming pools, fountains, reservoirs, and natural water features like ponds, lakes, streams and rivers.

Fast stream: Fast-moving streams are the best natural sources of water—if you can find them.

When considering these sources of water, you'll be quickly reminded that water weighs 8.3 lbs per gallon — especially if you have to transport any amount of water a significant distance. You'll also discover the second issue of survival water supply: making your water safe to drink.

Water from "improvised" sources can be tainted with a wide variety of contaminants and must be purified before you drink it. If you don't purify it, you leave yourself vulnerable to health risks that are much more serious than simple dehydration.

The basic types of contaminants you need to be concerned about include parasites (such as Giardia or Cryptosporidium), bacteria, algae, viruses, fungi, minerals (including toxic metals such as lead, copper etc.) and man-made chemical pollutants. If you are drawing water from natural sources, it's best to focus on moving water like streams and rivers, if possible. If the collected water is cloudy, murky or colored, it should be filtered through clean cloths, cheesecloth, or paper coffee filters and allowed settle. After filtering and allowing all dirt and other particles to settle, draw off the clean, clear water for disinfection using a clean container.

Water Purification

Just because water has been filtered and allowed to settle doesn't mean it's safe to drink. It still must be purified. And the best way to do that is to boil it. Boiling water for at least one minute (or at altitudes above 5,000', three minutes) will kill potentially harmful microorganisms and is the surest way of making water safe to drink. Once boiled, pour it back and forth from one container to another and allow it to stand for a few hours, or add a pinch of salt for each quart or liter of water boiled. This will aerate the water and help improve its taste.

Although boiling water is always recommended in a survival situation, in some cases circumstances and fuel supplies may not allow it. Also, boiling does not eliminate chemicals and toxic metals. For these reasons, a high-quality water filter should also be part of your survival toolkit. Bear in mind, however, water filters are not all created equal.

First, you should know although the common pitcher-style water filters you find at the grocery store can eliminate some chemicals and metals from your water, they are primarily designed to treat tap water that is already considered safe to drink. In a serious survival situation when you're relying on uncertain water sources, these filters aren't good enough.

The same comment applies for the various ultraviolet water purifiers out on the market. These purifiers use light from the ultraviolet spectrum to damage the reproductive capabilities of waterborne microbes. Although they are convenient and effective in that role, they still do nothing to eliminate chemicals and metals that may be present in the water.

Pump-style filters, like those sold for campers and backpackers, use ceramic filters to literally filter out contaminants. Although they do a good job and are convenient, they

are not perfect. Some bacteria are still small enough to pass through the pores of the filter, so disinfection is still required. Filters that include activated charcoal pre- or post-filters are a better choice, since the surface area of the activated charcoal adsorbs (attracts) many of the potentially harmful compounds the ceramic filter misses.

Traditional chemical purification such as iodine tablets, chlorine-based tablets, or ordinary chlorine bleach can be used effectively to disinfect water supplies. However, the exact degree of their effectiveness can vary greatly. The usable life of these chemicals — especially once opened — is also relatively short and they don't eliminate other chemicals or metals.

Multi-Layered Approach

I live in a suburban community in Colorado a few blocks away from a public park. There is a creek that flows through that park and several ponds and lakes within a mile of my house. Based on that scenario, my plan for survival water supply goes something like this:

Stored water – available bottled water and several pre-filled 5-gallon jugs.

Water heater – drain as needed for potable water.

Hot tub – a 300-gallon hot tub is a primary source of water for bathing and sanitation use and a long-term source of potentially potable water.

Creek/streams – flowing, natural water sources are my last choice because of the challenge of transporting water from the source to my home.

With this priority structure in mind, my water purification plan has had to take into consideration not only the idea of filtering out microorganisms from creek water, but also removing chemicals from my handiest large-scale water-storage source: my hot tub. The chemicals that I purposely put into the water to keep it clean also make it unsafe to drink. To filter them out, I use a state-of-the-art filter from Seychelle. Their filters are unique in that they contain thousands of interconnected omni-directional pores, each a uniform two microns in size. They also have three proprietary media impregnated within the filter work in concert to greatly reduce ALL types of potentially harmful contaminants, including what is referred to as the "A, B, C, D and R" of water contamination:

Aesthetic: unpleasant taste and odors, cloudiness, silt, sediment, chlorine and chlorine byproduct. Biological: harmful microscopic pathogens, cysts and spores. Chemical: toxic chemicals, detergents and pesticides. Dissolved solids: including heavy metals such as aluminum, asbestos, cadmium, chromium 6, copper, lead, arsenic and mercury. Radiological: Radon 222.

Water is a critical part of every survival plan. In addition to the drinking water considerations addressed in this article, you should also develop primary and backup plans for water to be used for cooking, personal hygiene and sanitation during a critical incident. Like any other survival issue, the best time to prepare your water plan is now. Assemble the tools, material and knowledge you need and take a few hours to go through the process at least once. In a real survival situation that experience and the confidence it provides could save your life.

LIFESAVING MODULAR KIT

Sam Fadala

Sam demonstrates the modular kit on a Boy Scout camp-out, a few items not showing here, such as tie-on Woolrich rain parka. The kit may look cumbersome, but it is not, due to the fact that the daypack is narrow and the fanny-pack is out of the way. It "carries" well.

DON'T HEAD OUT WITHOUT IT

It's not wise to defy Mother Nature. She's a strict old dame, and she'll make you pay if you don't heed her rules. A bull moose doesn't need an overcoat to withstand the ravages of a frigid winter day, whereas the average man naked shivers at much below 70 degrees Fahrenheit, and 90 may feel too warm. Outdoors, we are no better than our equipment: from socks to tomahawks.

Bud Myers and his Indian guide, Tom Strong, left camp for a "2-mile hike" into a patch of Canadian wilderness. Ten days later they were found near death. They used up the few matches they had, with nothing to eat, and only the clothes on their backs, plus one green deer hide to ward off the cold. Had they been carrying the lifesaving modular kit, they would have waited for help: warm, dry and safe. Instead, they were compelled to seek camp — they never found it. Medicos on the rescue team agreed, one more night out and Bud and Tom would have been victims of the outback.

This campfire chat follows a trail into the wonderful world that lies outside our backyards: hunters seeking that quiet niche; fishermen walking into a trail-only lake; and hikers simply strolling into the backcountry for pleasure. These sweet experiences turn sour and potentially dangerous when Dame Nature sends a sudden storm. Compass and GPS mark the way to camp or vehicle. Go for it! But sometimes you just can't reach safety. Denied shelter for any reason, the modular kit goes into action and survival is assured in relative comfort — relative, that is, to getting stuck in a tough situation. The kit holds a promise. It promises you will make it when the chips are down. When they were handing out sense of direction, I thought it was cents, and asked for only a nickel's worth, which is what I got. Yet, I go into wild places far from the beaten track with total confidence. GPS and compass? — sure. But if I don't make it back to shelter, the kit will see me through.

It's Modular

The heart of the kit is two units plus tie-ons — backpack and fanny-

pack with straps and shock cords that attach an all-important bivy (or mountain tent). Complete with sleeping bag; ground pad, sometimes pack shovel, tomahawk or hatchet, always rain parka, vest, jacket and other garments. The design calls for both backpack and a fannypack.

The Day Pack

Mine is the Blackhawk Backtrail — for a reason. It's large enough for my requirements and it is *narrow*, which is important because this pack does not restrict rifle going into play; a wide pack may. Capacity: 765 cubic inches. Dimensions: 3.5x8.5x19".

The Fannypack

Mine is the Badlands Monster Fanny Pack. It holds all the gear I require for safety in out-of-the-way places and it rides with zero restriction of hiking or shooting. Capacity: 1,100 cubic inches. Dimensions: 8x12x19" (including five well-thought-out pockets).

The Tie-Ons

Daypack and fannypack shock cords along with straps provide for attaching vest and rain parka, as well as the three pieces of equipment that make the kit a lifesaver: bivy, ground pad and sleeping bag. Cabela's Hunter Bivouac Seclusion Outfitter bivy provides shelter from wind, rain and snow — I know from experience it works. The Seclusion goes up in minutes. It's a one-person affair just as welcome on a star-studded calm night with a gurgling creek nearby as in defying nasty weather. It goes only 2.6 lbs and is a portable 5.5x16" carry size.

Cabela's XPG Ultralight 20x72" ground pad fits the bivy with room to spare. The ground pad is for comfort. But I consider it a necessity. It folds into a neat bundle providing 1.5" of insulation plus reprieve from rocks and other sleep-robbing gremlins. It's a safety factor because an outdoors person robbed of sleep isn't as sharp as a rested person.

The Coleman Exponent Cloudcroft Goose Down FP 800 mummy bag weighs 3.4 lbs. It runs a full 31x84" open for total body coverage. It packs as a 8.5x16" bundle. I always have enough room in my daypack to stuff in a medium-weight sweat suit, good watch cap, extra cotton gloves and a thick pair of socks. Remove hiking clothes — get into the sweat suit/cap/gloves/socks and laugh at -20 degrees Fahrenheit in this sleeping bag.

The Big Four

Clothing is part of the kit because it is the first line of defense in the outdoors. Layering has become a cliché. Everybody knows about layering. The modular kit is perfect for layering because a jacket that is just right at daylight may be too warm by 10. Slip it off and attach to daypack or fannypack until needed later. Hat, boots, pants and shirt are area and weather specific. I insist on a real hat in the outdoors, not a baseball cap. My boots have medium soles. Super hard soles last a long time. But they don't do much as a cushion over hard ground. Pants with cargo pockets and shirt with button-down pockets are the ticket.

Coming back to car or truck only to find nothing other than the shelter of the vehicle can be avoided with a "car kit" such as this one by ASAP — added by the author were candle and lighter — the lighter can come in handy for igniting the lifeboat matches that come with the kit.

Outdoor clothing is not only for comfort and safety, but also part of the kit for carrying important smaller items. A little food in cargo pants pockets is handy — munch as you go on dried fruit, nuts, energy bar —whatever. The trouser belt is for handgun and multi-tool, the latter a Leatherman for me. In bear country, my handgun will be a Smith & Wesson Scandium .44 Magnum loaded with Garrett Defenders 310-gr SuperHardCast bullet. For the trail, a .22 pistol is perfect. I just added an Austrian M22 to my kit because it is light, flat-sided and small. Where I usually go, grouse, partridge and rabbits are legal campfire fare with .22 pistol — gourmet dining for the cost of a few Long Rifle rounds. I wear a Bushnell Back~Track GPS around my neck with the petite Garmin Geko 301 in a pocket.

I find the modern hand-held radio invaluable when going with a partner.

Just a sampling of some gear that goes into Sam's fannypack. The items change according to the nature of the outdoor experience—but small camera (far right), GPS and radio (far left), always go along.

The bivy shelter setup is hardly noticeable in the woods.

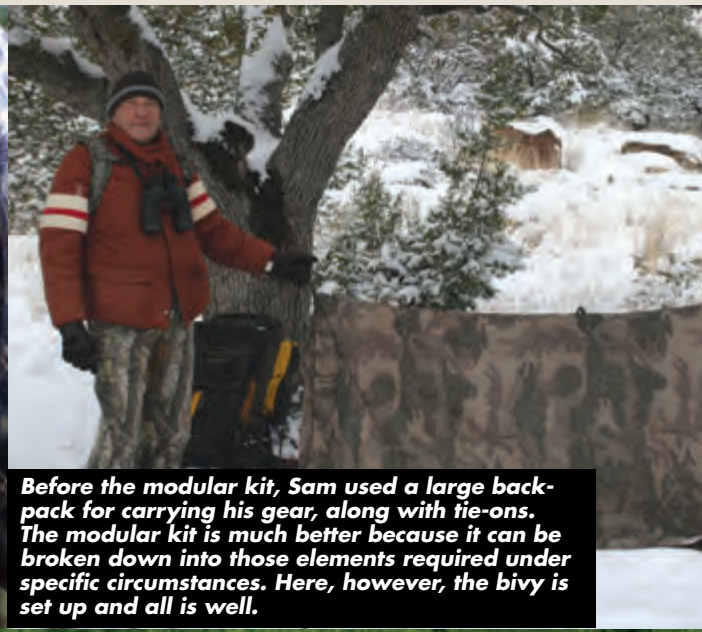
My radio attaches to the chest cross-strap of the daypack, totally out of the way — don't even know it's there until needed. A ringing cell phone shattering the quiet peacefulness of the niche is as welcome as a swarm of black flies. However, a phone can have a place in the kit. A boy phoned his father to announce a bear was climbing his tree stand with mischievous jaws. The father came to the rescue. I admit, I have stopped in out-of-the-way places to call someone just to say how much fun I was having and, "too bad you aren't here." Where the cell phone works, there is nothing wrong with a quick call to home to let people know you're okay.

While not a member of the life-saving team, it's worth mentioning I carry a rangefinder as routine. I like knowing in yards how far it actually is across a canyon I intend to cross. And it's useful before and after the shot. Before the shot, the rangefinder tells me how far off that critter stands. While not needed for most pokes where distance is not a factor, the rangefinder is perfect after the big boom to put an end to the "350-yard shot" that was exactly 247 yards. My Leupold RX-1000 TBR Rangefinder computes angle on far-off opportunities. We all know that either up or down means the bullet strikes higher than on the flat sight-in range. But the RX-1000 eliminates the guesswork, showing just how to hold. This rangefinder has an angled carry loop that puts it flat against the fannypack belt.

Water

Water is more important than food. Lack of water can bring on dehydration in only a day or two of exposure. The modular kit allows for daypack and fanny pack containers, as well as a highly worthwhile item —the water filter. Mine is the PUR Hiker Microfilter. It captures bad little animals, such as Giardia, cryptosporidium, and bacteria at the 0.3 micron level (but not viruses). While micron is a dying term in hard science, it remains a useful reference because it refers to one millionth of one meter. Obviously, 3-1/10 of one micron is pretty small. CheaperThanDirt Company sells many different water filters, including the Frontier Filter at only 10 bucks. The Frontier fits into a shirt pocket at less than one ounce and pledges to serve as high as 20 gallons of water at 99.9 percent effectiveness against

Close-up of how radio and knife, in this case a Benchmade 710 folder, are carried handy and ready for use by attaching to cross-strap of either daypack.



Before the modular kit, Sam used a large backpack for carrying his gear, along with tie-ons. The modular kit is much better because it can be broken down into those elements required under specific circumstances. Here, however, the bivy is set up and all is well.

The two Scouts, Levi left and Augustus, "test" the author's bivy shelter.

waterborne pathogens.

Food

While we can go without food for days, we shouldn't. It's last of the Big Four Defenses but vital all the same. Going hungry can have grim consequences, not the least of which is mental as well as physical fatigue. A hungry hiker may lose some of his or her ability to make good decisions. Hunger can also spell out big trouble when attempting to climb out of that steep canyon in Idaho or march through dense woods in Michigan. Food converts, of course, to energy, and carrying on in tough terrain requires plenty of energy. I've been known to pack a nice thick steak, and where good wood for cooking is unavailable, a packet of hardwood coals as well. My Purcell Trench grill resting over a couple rocks in a fire-safe spot cooks a steak to perfection on that first night on the trail, while the .22 pistol promises high-value protein for the rest of the trip.

Inside The Daypack

Each person must decide for himself just what to put into a personal backpack. The contents listed here are for reference only. Here is *most* of my "stuff" listed in no special order. Each trek may demand more or less of the following. A Coleman Micropacker LED Lantern wrapped safely in a rolled-up back brace has recently joined my kit and has proved its merit beyond all expectation. Illumination is not merely a convenience. A dark backpack tent or bivy is cheerless. The Micropacker takes care of that problem. The back brace, which protects the Micropacker, is useful when carrying out whole elk quarters or a whole sectioned deer or antelope carcass. Compact poncho is in the pack if my Woolrich rain parka is not laced on board. Extra gloves and socks as well. Ammo for .22 pistol plus extra big-game rounds. Long-johns (the latest thin jobs that take up very little space). Extra sleeping bag clothes as described above also go in the daypack.

Thermometer — to gauge camp temperatures. Food — there is plenty of room for food in the daypack because tie-ons don't impose upon space. Tins of ocean products or canned chicken are good. I always include one or more MREs. While not gourmet, the modern MRE provides good nourishment. Toilet kit is toothbrush, toothpaste, small tube of liquid soap and small towel. Hand warmers. First aid kit with moleskin and tube of triple antibiotic. Sometimes a survival kit. A plastic sleeve commandeered from a new rifle box is ideal for keeping the long arm dry in the wet of rain or snow. Sighter target. For cooking, the Purcell Trench grill fits in the pack at only 17.5" and weighs but 8 ounces. I also include: a small stick-free frying pan; and a small, leak-proof container of cooking oil plus condiments of choice — flour, salt, pepper, touch of garlic powder (not garlic *salt*), Mrs. Dash: all mixed together in a double sandwich bag works well for mountain birds and rabbits.

Tracy Villwok, full-time government hunter/trapper poses beside Sam's bivy all set up with ground pad and sleeping bag.

The Fannypack

Mine won't be yours, but as an example: *Main Pocket* — full fire-starting kit with lifeboat matches,

Tracy Villwok poses beside his backpack shelter with his favorite Pronghorn Custom longbow. Being a full-time government hunter as well as veteran bowhunter, Tracy is conditioned to outdoor survival under all conditions.

extra matches in waterproof case, "cigarette" lighter and any type of fire starter. I have a small liquor flask filled with charcoal lighter fluid. Also: cotton balls saturated with petroleum jelly; compass and map; small towel for after dressing game; Outers Pak Rod for stuck case removal, clearing bore of foreign matter; camera and small tripod for self-timer photos; two army plastic pint bottles: one water, the other Gatorade; extra batteries for flashlights, camp light, and GPS; reading headlamp for camp; Nylon cord (optional); toilet paper (not optional); health bars; and dried fruit snacks;

Back Pocket — eye wash, face mask, wind detector (such as Wind Floaters). Also, fluorescent marking tapes (three or four small rolls). Knives: one fixed blade (Knives of Alaska Jaeger). I have a Benchmade 710 folder clipped on my daypack cross-strap. Cancel-tag kit with pen, scissors and tie-ons for game tags. Also, plastic gloves for dressing game, and a diamond knife sharpener. Med kit — I require no prescriptions. But I have the basics when guiding others.

Left Pocket — knee wraps used sometimes for packing out full elk quarters or whole sectioned deer/antelope carcasses in rugged country. Electrical tape for securing knee wraps.

Right Pocket — Browning three C cell flashlight. Notepad and pen for sketching landmarks and to make notes.

Small Pocket — the Badlands Monster Pack has a very small pocket just right for my Browning Microblast H.O. LED flashlight, mini but powerful enough to supplement the larger light; also handy for camp chores and as a loaner to companions who left their flashlights home.

A fantastic bonus accompanied the creation of my own modular kit.

Small backpack tents are also portable, although the bivy is usually lighter to carry.

I call it the ultimate still-hunt, still-hunt because it is after the fashion of Theodore Strong Van Dyke in his book, *The Still-Hunter*. I add *ultimate* because it entails remaining in the niche for two, three, or more days, living with the game instead of turning for camp or car as the sun looms low on the western horizon. In later afternoon, I find a good spot, setting up a little camp with bivy, ground pad and sleeping bag ready for my return. Then I hunt the last, and often best, part of the day when game is up and about. I hunt close enough to GPS return to my shelter before full dark.

Should I get something, I use a field dressing method that leaves innards in, donating organ meats to the denizens of the wild — coyote, bear, (wolf now) and the rest of the meat eaters. This reduces a carcass to six pieces: two loins, two shoulders and two hams. I mark the spot with GPS to return later with a special meat pack for transporting the bounty to vehicle, home and freezer. Every state has that special place where footprints are few, and not just in the Rocky Mountain West — New Jersey, New York, Michigan, Wisconsin, Alabama, Kentucky — I darn near got lost in a patch of Pennsylvania woods far from any road.

Be tactical — consider every trip defensively with a contingency plan for the most unlikely event. You might not be able to return to camp. Caught without the kit for one, sometimes even more than one night, you are cold, maybe a lot thirsty, a little bit hungry, possibly wet from rain or snow; not so good. Caught out with your kit you set up with a bivy or backpack tent with ground pad, sleeping bag, night clothes at the ready; not so bad.

And don't forget "back at the vehicle." Many weary hikers have made it back to their car or truck only to find that they were only a little better off because they had no "survival equipment" waiting for them. The new ASAP Survival Pack takes care of that. It comes in a backpack because if the stranded person absolutely safe in hiking to a major road, cabin or house, the pack full of useful items goes along.

Not far from our cabin-house at 8,000' above sea level in a forested mountain an elk hunter got lost in a storm. He didn't make it. But you would have made it because you are, right now, making plans for your own personal modular kit with gear suited to what you do in the outdoors in your part of the world.

More Here:
americanhandgunner.com

Large tupperware-type box with lid carries all the emergency supplies Cascio needs in his SUV.

EMERGENCY BOX

Over the years, I've experienced just about every type of auto breakdown you can think of. When my wife and I were first married, we moved around a lot — and I mean a LOT! We literally have moved from one side of the country to the other via automobile. We've learned some hard lessons over the years, and with each lesson, we got better prepared for the next unexpected disaster that might come our way.

EVERY VEHICLE SHOULD HAVE ONE

Pat Cascio Photos: Candi Cascio

A couple small first-aid kits are a lifesaver, literally!

We drive an SUV where we live, in the foothills of the Cascade Mountains, it's a necessity to have some type of truck capable of getting us where we need to go in any possible weather conditions. On average, I find myself in the mountains at least two or three times per week, either doing some shooting, hunting or just to get away for a while. So, a 4-wheel drive truck is a must in our family. It also helps to have a bigger truck to haul dogs — we raise German Shepherds on a part-time basis, and I usually have several of my big buddies in-tow whenever I leave the house.

Emergency Box

I have put together a large emergency box for our truck — it's in there all the time, and it contains most of the emergency supplies I think we'll need. One thing that doesn't fit in our emergency box is a floor jack that sits next to our emergency box. If you've ever had a flat tire, you know that the so-called "jack" supplied with new cars is next to useless. If you can get the damn things to work, it takes forever to get your car jacked-up and the tire changed. You should try that

sometime, on a gravel mountain road, facing downhill. With a good floor jack, it's a piece of cake changing a flat tire — get one!

In the top of our emergency box, we keep a good wool blanket — it's there in case we break down and can't get help — nothing better to keep Jack Frost at bay. I also keep a variety of small tools in my truck; screw drivers of various sizes and shapes, open end and box wrenches are also useful tools to have along. And, don't forget to keep some spare fuses for your truck's electrical system too. I also keep a very good set of jumper cables — don't skimp here, buy heavy-gauge wire jumper cables, it'll save you headaches in the long run.

Flat tires are inevitable; a quick way to fix a flat is with a can of "Fix-A-Flat." If you have a small hole in your tire, you simple attach the can of Fix-A-Flat and it will pretty much fill-up your tire, and it also injects a chemical that will seal-up most small holes in a tire so you don't have to put the spare on. However, remember to have the tire repaired properly the first chance you get. I usually keep two cans of Fix-A-Flat in my truck. Also, keep a 4-way lug wrench in your truck — they work better than the tool supplied with new cars for taking wheels off.

I keep a small air compressor in my truck, as well as a couple packs of tire plugs. If possible, I'll pump up a flat tire with the air compressor (plugs into any accessory plug) and if I can find the hole in the tire, I'll simply plug it and be on my merry way. I keep a couple packs of hose bandages in my truck – if you've ever blown a radiator hose out in the boonies, this will help you make a quick repair. I also keep a gallon jug of water in the car to fill the radiator back up. A roll or two of electrical tape comes in handy for various repairs as well. A couple different sizes of hose clamps can come in handy, too. A couple quarts of oil are also kept on-hand. Never know when your truck might run low on oil – it's cheap insurance. This past hunting season, I was out hunting, and my check oil light came on. When I checked my oil, there was nothing on the dip-stick. I poured 2 quarts of oil in, and it still didn't register on the dip-stick. However, I had enough oil left in the engine to get to town and purchase some more oil.

Pat always carries spare ammo for several handguns in various calibers in his e-box. A spare mag or two for some of his semi-auto rifles are also kept in the e-box.

Some of the tools carried in Pat's emergency box. Pliers, screwdrivers, air compressor, tire repair kit, hose bandage and more.

Get rid of the jack that comes with your truck — get a good floor jack. It'll save you time, energy and headaches in the long run.

More Stuff

My truck has a towing setup, and I keep a tow hitch in the truck, along with a couple spare hitch balls of different sizes — not all trailers have the same size setup for the towing ball. Another useful item is a tow strap, I couldn't tell you how many times I pulled another truck out of a snow bank or out of a ditch. And, if I happen to end up needing the tow — I have the tow strap so someone else can help me out.

Rope! You've gotta have some kind of rope in your truck. I've often found myself at a yard sale, buying something I really don't need, and it goes on top of my truck. So, a couple good pieces of rope are something you should always have on hand.

Every vehicle should have food and water — just in case!

Two military canteens, with water and purification tablets, along with a foldable bucket — it all gets used!

If you've ever had to "go" in the desert or in the woods, TP and paper towels make the job a lot easier.

In another life, I was at one time a paramedic. I know the importance of having first-aid supplies on-hand. I keep two small first-aid kits in my truck, and they have come in mighty handy several times. I've come upon auto accidents in the middle of nowhere, and was able to administer first-aid long before professional help arrived. If you haven't taken a basic Red Cross First-Aid course, you need to!

A small transistor radio, with spare batteries is helpful out in the boonies. You never know when your car's battery will go dead, and you need to know what the weather is gonna be like, or if an emergency of some type has been declared. Flashlights! Can anyone possibly have too many flashlights? I keep several in the SUV, along with spare batteries and chemical light sticks. I rotate the batteries and light sticks every year or two, so I know I have fresh ones in my truck.

You need to know how to build a fire, for warmth and signaling. I keep several types of fire-making methods in my truck. I have matches as well as a good ol' fashioned flint and steel. I also keep fire-starter material on-hand, one of the best is a cotton ball with petroleum jelly worked into it – it will literally burn on water. A decent compass and the knowledge of how to use it are valuable too. Also, keep a good auto-atlas in your truck; it will save the day.

Can of Fix-A-Flat can save a tire change in many cases. A flat tire repair kit can also save you time and energy — plus some hand tools for other repairs on the road.

Food And Water

In a small backpack, kept in the bottom of my emergency box, I keep food and water. I keep military-style MREs (Meals Ready to Eat) as well as Coast Guard-approved survival wafers — which are really pretty tasty. I also keep water in several canteens, as well as foil packets of water. I also have water purification tablets, along with a canvas foldable bowl that can be used for getting water from a stream. This canvas bowl also comes in handy for watering the dogs. I keep a bottle of "Survival Tablets" – these are tablets that taste something like a malted milk treat. A bottle can allow one person to survive (with water) for 21 days. It's not the idea meals for survival, but it beats going hungry.

We used to live near the Oregon Coast, and we were really back in the boonies — about 25 miles from the nearest town. Quite often, in the winter months, we would either get a heavy snowfall, or heavy rains, and trees would fall across the road. Whoever was unfortunate enough in the valley, to be the first one out, had to cut the fallen trees away so they could get through. I keep a small hand axe and bow saw in my truck. I also keep a folding military e-tool (entrenching tool) in our truck – if you've ever gotten stuck off-road, or even on-road in deep snow, that little e-tool is a lifesaver. A small plastic tarp comes in handy for all sorts of things, from making a small shelter to keeping the dirt and rain off you if you have to work on a truck in nasty weather.

A roll or two of TP comes in handy, as does a roll of paper towels. If you've ever had to "go" in the middle of the desert, with the nearest rest stop or gas station 75 miles away, you'd pay anything for some TP or paper towels.

Survival Kit

I have a small survival kit that I keep in the truck at all times. Unfortunately, these kits are no longer available – a friend who used to make them up in Alaska passed away a couple years ago, and no one has picked up on this dandy little kit.

Most of the contents fit in a small tin that can literally fit in your pants pocket. I won't give you a complete list of what's in this little survival kit, but here's some of it: survival booklet, folding lock-back knife, Para cord, chicken bouillon, salt & pepper, Iodine, first-aid items, pain-killer meds, wire snares, slingshot rubber, whistle, candle, flint & steel, safety pins, matches, fishing reel, spinners, clevises, gaff hook, fishing jigs, lead weights, dry flies, sewing kit, and many, many more items.

I'm sure you all remember the Rambo movies, with "John Rambo" and his hollow handle survival knife — it saved his butt. Well, he was really limited as to what he could carry in the little confined space in a hollowed out handle of a knife. However, as an experiment, I took some of the survival items from the little survival tin I have and I was able to procure several trout for eating for several days. So, don't think you can't do the same if the circumstances are right for fishing.

Bullets

My emergency box also contains spare ammo. I try to keep at least one box each of: 9mm, .40 S&W and .45 ACP in my box. I also keep at least 100 rounds of .223 and 40-60 rounds of .308 Win. I'm always up in the mountains either shooting for fun, or shooting guns for an article. If I find I'm going to be more than 50 miles from home, I carry a handy-dandy Kel-Tec Sub 2000, 9mm folding carbine with me. The model I have takes Glock 17, 9mm mags. I toss in three of the 33-round extended Glock mags and several boxes of 9mm JHP with me. The Kel-Tec only weighs 4 lbs, and as I mentioned, it folds in half. I can toss it in my luggage or in the emergency box. It's also small enough, when folded, it will fit in the center console of my truck. I keep my concealed carry handgun on my side, with a spare mag or two as well. Everyone in my family has a CCW Permit, so we don't worry about having firearms in our truck.

If need be, I can fit all the food and water into the small backpack I keep in my emergency box, if I have to hoof it out of the boonies, or down the highway. Much of the other stuff in the emergency box is there to work on the car should it break down, and I wouldn't need those items if I were walking away from the vehicle. In many situations, it's best to stay with your truck. However, there are times when you might be forced to hike out to a main highway to get help.

One thing I also carry, that you may not want or need, is a lockout device. It's the ol' Slim Jim, used for opening car doors. I guess this comes from my law enforcement days, when I was always opening up locked doors for those who locked the keys inside. Be careful here, some areas might consider this a "burglary tool" if your state or locale doesn't allow this. I've opened more than a few car doors for folks at rest stops who locked their keys inside their trucks. It's getting harder and harder to jimmy open the locks on newer trucks.

I have experimented over the years, with different items for my emergency box, and what I now carry, seems to work for me. What your needs will be, might be different than mine. A lot of Oregon (where I live) is pretty desolate, and as I mentioned, I spend a lot of time in the mountains, so the items I have in my emergency box work best for me. No matter what your circumstances might be, everyone should be prepared for the reality of a breakdown or other emergency with their truck. You owe it to yourself and the passengers in your car. My two daughters have similar emergency boxes in their trucks.

Better to be prepared one year too soon, than not be prepared one minute too late!

When traveling outside of his home turf, up in the mountains or desert, Pat will toss in his Kel-Tec Sub 2000, 9mm folding carbine with spare 9mm ammo and some 33-round extended capacity mags.

Some items in a small backpack include: transistor radio and flashlights, extra batteries, firestarter material, and heat pack.

A good set of jumper cables is a must, along with hose bandages for blown radiator hoses, and an air compressor to pump up flat tires.

Pat has used the heavy-duty tow strap many times to pull stranded motorist out of a ditch or off the road. A trailer hitch also comes in handy.

In the back country, you need a good bow saw, small hatchet and entrenching tool — makes getting through where trees have fallen easier.

Menu For SURVIVAL

A REALISTIC APPROACH

Michael Janich

Survival preparedness is something that means very different things to different people — just as it should. While all sound survival plans should share a lot of common qualities, there is no true "one-size-fits-all" approach that will work for everyone, everywhere. And one area where this fact is very obvious is survival food storage.

Food is obviously a necessary component of every survival plan. But when it comes to guaranteeing a food supply for survival or disaster situations, opinions and approaches can vary tremendously. For example, the followers of one well-known religious group strongly believe every family should stockpile an entire year's worth of food to ensure they are prepared in the event of a disaster. In fact, a quick Internet search will guide you to websites that include on-line calculators that provide specific recommendations as to what you should buy and how much. Simply enter the number of adults and children in your family, hit enter, and you'll get a shopping list of exactly how many pounds of wheat, flour, oats, rice, beans, sugar and other supplies you would need to feed your family for a year.

Although those calculators are impressive and potentially very handy, their usefulness — and the usefulness of the staple foods they recommend — is contingent upon you sharing the same philosophy, lifestyle and skill sets with the folks who developed them. If instead you live in a studio apartment in Manhattan and consider frozen burritos a core food group, stockpiling a year's worth of grain isn't your best strategy.

If you're serious about having a survival food plan, I believe you're better off actually *doing* something practical and achievable instead of *knowing* about a plan you'll never implement. You also need to plan the other resources you'll need to prepare the food you've got. Let's take a look at the logic of this process.

Learn To Cook

The first step in really ensuring you have food, is to know how to cook. That doesn't mean you need to be a gourmet chef, but if your skill set tops out at microwaving a hot dog, you've got some work to do.

Sure, there are plenty of foods that don't require any significant preparation. But, the more skills you have, the more things you can eat. In a survival situation, those skills maximize your ability to make use of everything you have stored and everything you can find. More importantly, basic cooking skills enable you to make the most of bulk foods that are inexpensive, easy to store and go a long way toward keeping you fed in a crisis.

At a minimum, you should develop the ability to cook things like rice, beans and flatbreads using basic resources and tools.

Eat What Spoils First

When most people think of survival food storage, their minds immediately drift to things like military MREs (Meals Ready to Eat), dehydrated camping food and similar items. While these types of rations can definitely be useful in a critical situation, they shouldn't be your first choice. In fact, they should be close to your last choice. Why? Because the best things to eat in a survive-in-place situation are the things you *already* eat.

To understand this concept, let's imagine your community has suffered a short-term disaster — specifically a power outage lasting a few days to a week. This is something everyone can relate to and, unlike hurricanes, earthquakes and more "location-specific" disasters, something that could literally affect anyone, anywhere.

No power means your traditional methods of cooking — like a microwave or perhaps an electric stove — won't work, so you'll be cooking on your grill, on a camp stove, or possibly in your fireplace. It also means your refrigerator doesn't work, so whatever is in it should be first on your survival menu. Foods most likely to spoil first should be eaten first, so start with foods in the fridge and follow with the stuff in the freezer as it thaws. Note this strategy again assumes you know how to cook and cook on a regular basis.

What You Eat

If you cook for yourself and your family on a regular basis, over time

you will develop a taste for certain dishes. You will also feel confident in your use of specific ingredients and get used to keeping them on hand. Rather than MREs and dehydrated meals, those ingredients should form the foundation of your survival food storage plan because they are the ones you know best.

Although the idea of amassing a year's worth of food is intimidating, if not completely impractical, buying and storing extra supplies of foods you already eat is easy and affordable. When you go shopping, grab one or two extra cans, jars, or boxes of your staple foods as your budget allows. You should also set up an additional food storage area in your home that is dedicated to long-term storage. Organize it so all your staple foods are arranged together with the soonest expiration date in the front or on top and the other expiration dates in chronological order behind it. When you get home from grocery shopping, the newly-purchased items go to the "back of the line" and the item due to expire soonest moves from long-term storage to your pantry.

This basic "first in, first out" (FIFO) system ensures a regular rotation of your foods and ensures the bulk of your survival food stores consist of things you actually eat. For ease of reference, I like to use a felt-tip marker to mark the expiration dates of my foods in large numbers. This allows me to see at a glance what items are due to expire and need to get moved up to the pantry and kitchen. It makes tracking expiration dates much easier and reduces food waste.

If you're an apartment dweller with limited storage space, you might think long-term food storage is impossible. However, with a little imagination you can also be prepared. Consider picking up a few of the storage bins that slide under your bed. Instead of sweaters and socks, pack them with canned and dry goods and rotate them as described above.

Track Eating Trends

Cooking on a regular basis is the best way to understand how far food actually goes and what foods actually get eaten. Such knowledge is an incredibly important part of understanding how much food you really have and how long it will last. For example, a can of soup and half a box of crackers might represent one meal for two adults. An active teenager might eat that same amount all by himself, while two small children wouldn't finish the meal and might create leftovers — something difficult to store safely when you have no power.

With this type of understanding, you'll soon be able to estimate whether a box of macaroni and a couple of cans of chili represents one meal or three meals for your family. And ultimately, that's the only way you'll be able to accurately achieve specific food storage goals. This process of "doing the math" is probably the most important aspect of survival food planning—especially if you make bulk foods like rice and beans part of your strategy.

Rice is a staple food in many parts of the world. People who really rely on it as a major part of their diets know exactly how many meals they can get from a given amount of uncooked rice. Most people in our culture, however, don't have that kind of insight because, under normal circumstances, we don't have to. However, when preparing for a survival situation, that's exactly the kind of information we need, so let's do the math.

My wife and I lived in Asia for several years and love to cook Asian food. Based on this experience, I know two cups of uncooked long grain rice yields enough cooked rice to easily qualify as a full meal for us, especially when it's combined with some form of protein or vegetables. Based on this traditional Asian food strategy, where rice is the "filler" and a limited amount of meat, veggies, and sauce is used to flavor the rice, one cup of cooked rice is roughly equivalent to a meal. With that in mind, if I added a 20-lb bag of rice to my bulk survival food supply, how many individual meals is that?

To find the answer, weigh one cup of uncooked rice (make sure to subtract the weight of the cup). On average, it's about 6.75 ounces. Since there are 16 ounces in a pound, a 20-lb bag of rice weighs 320 ounces. Divide 320 ounces by 6.75 and you get about 47.4. That means a 20-lb bag of rice represents roughly 47 meals or almost 16 days of a substantial food source for one person — assuming you have also planned for the water, means, and, yes, the skill to cook it.

You should "do the math" for all your survival food stores, both by themselves and combined to yield your favorite recipes. This process will not only help you quantify your actual food supply, it will help you to buy and prepare food in manageable portions to avoid waste.

What's Missing?

Fresh pancakes are easy to cook and a great morale booster. Bear in mind, however, many pancake mixes call for things like milk and eggs — stuff you may not have in a survival situation. Plan ahead and either stock up on mixes that work with plain water or add powdered eggs and milk to your stash to ensure you have all the component parts to make your favorite foods.

Butter is another item that gets overlooked. If the fresh stuff is unavailable, powdered butter alternatives can be found that add the right taste without any storage issues.

Spice It Up

When I served in the Army and we ate C-Rations in the field, most soldiers made a habit of carrying a bottle of Tabasco with them all the time. The spice it offered really helped make the rations (which get old very quick) a lot more palatable.

With that in mind, you should also stock up on spices for your survival pantry, including lots of dried herbs. They really make a difference and can transform ordinary food into something a lot more tasty and comforting, which is important in a crisis.

I also make a habit of collecting condiment packets when I eat at fast-food restaurants and cafeterias. Unlike large bottles of ketchup, mustard, and mayo that should be refrigerated to stay fresh, these single-serving packets are extremely convenient and can be used as needed.

Bug-Out Considerations

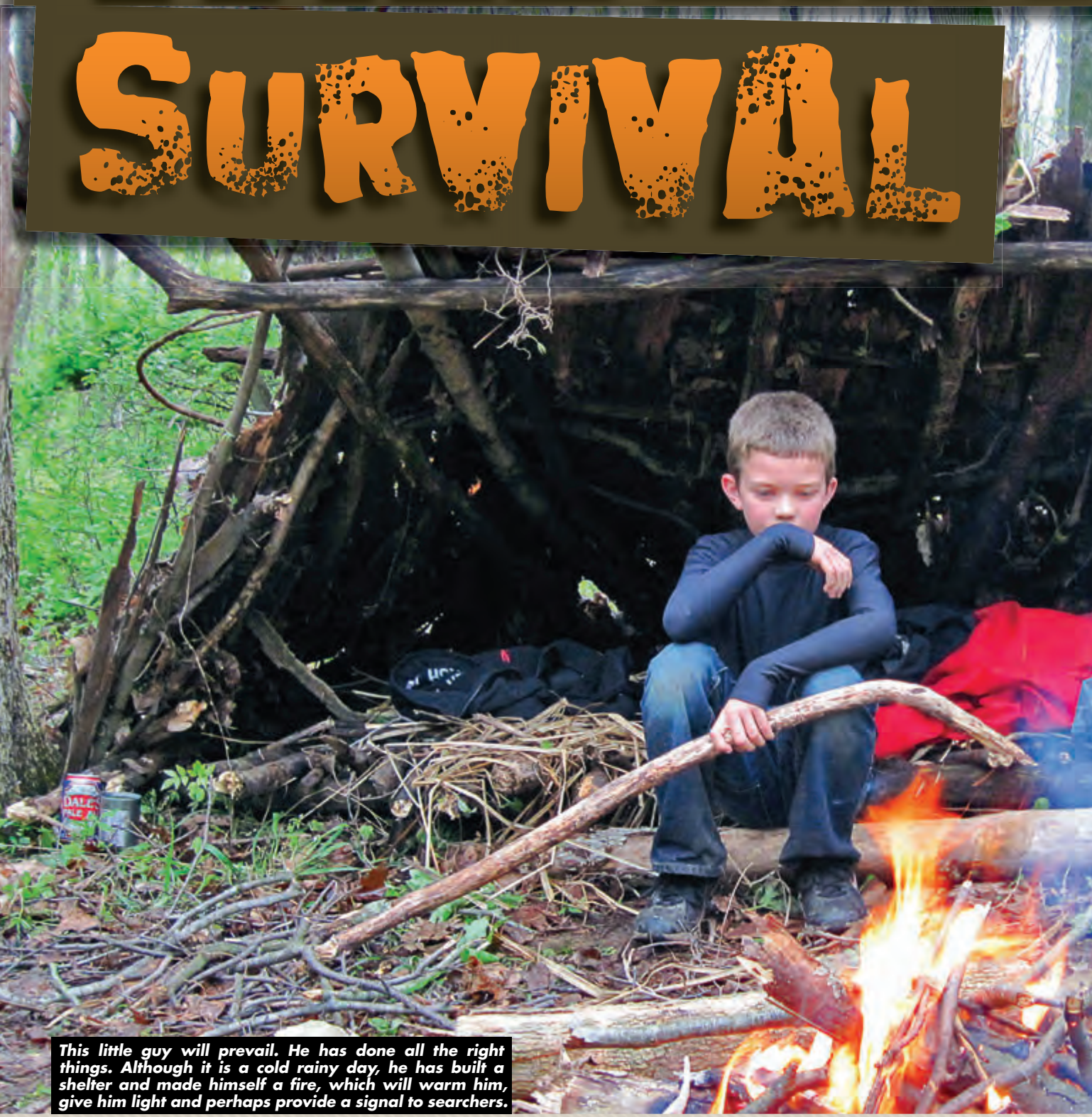
One final aspect of planning your survival menu should be packaging and weight. If the situation you face demands you bug out, you'll need to take food with you. A 12-ounce can of tuna (a great survival food) actually weighs 14 ounces. For every can you carry you're lugging 2 ounces of packaging or about 14 percent of the total weight.

If instead you bought tuna in foil packages, you'll find that two, 6.4-ounce packages actually weigh 13-1/8 (13.125) ounces. Together the two foil packages only weigh .325 ounces — about 2 percent of the total weight. They also pack flat, take up very little room and don't even require a can opener. If you're not a tuna fan, check out the foil packaged chicken meat. It's fully cooked, can be incorporated into other dishes like regular chicken breast meat, and is an excellent source of survival protein.

Survival food storage doesn't have to mean stockpiling pallets of bulk rations in your garage. Like any good survival strategy, it should mean developing a practical, achievable plan that is appropriate to your actual needs and the situations you are most likely to face.

WILDERN

Survival



This little guy will prevail. He has done all the right things. Although it is a cold rainy day, he has built a shelter and made himself a fire, which will warm him, give him light and perhaps provide a signal to searchers.

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Russ Kolkman

THE BASICS

Whether you are out on a short day hike, jogging, canoeing and riding your ATV, hunting white tail, driving across the state, or making a short flight; survival situations happen, and can happen quickly. In fact, most survival situations happen to folks who didn't expect trouble and therefore, didn't plan for it. They often find themselves thinking, "I'm only going to be gone a few hours." They also fail to tell anyone where they are going. Finally, people more often than not don't bring anything with them that would help them out of the jam they find themselves in.

If you enjoy the outdoors, fly, or drive long stretches of isolated roadways, you need to be prepared for a survival situation. It can and does happen to anyone, at any time. So what do you do? How do you prepare for such an event? Well, there are just a few basic things you need to keep in mind and a few simple tasks to accomplish to keep yourself alive in a tough spot.

Before setting out, even on a short hike, let someone know where you are going. If possible, let them know when you will be back, and call them when you return. If you take a Friday afternoon off to go hiking, then fall down and break your leg at the bottom of a ravine, you might not be missed until work Monday morning. You will have been incapacitated and exposed to the elements for 36 hours before anyone starts looking for you. In cold weather, that could prove deadly. So, let someone know. On or in your vehicle, leave a note, even on the dash. It should state who you are, what you are wearing, where you went, why, and when you expect to return. A park ranger will notice a car parked at a trailhead for a day or more and check on it. That's why it's important. Whether you were elk hunting or looking for mushrooms, a search party will be able to narrow their search to the most likely areas for those activities based on their knowledge of the local area.

Now What?

Okay, so you screwed up and now you are in a survival situation. What next? First of all, get yourself out of danger: sinking car, burning aircraft, swift water, falling rocks, attacking bear, etc. Stop the danger and then check yourself out. Stop any bleeding immediately. You will need to keep as much blood inside you as possible. You can't put it back in! Direct pressure on the wound works best. Maintain pressure and don't keep checking. Don't remove any dressings you have applied. Elevate the injured part if you can. Use a tourniquet on an arterial bleed. Stabilize any fractures by gently realigning a broken limb and splinting in place. Don't move if you think you may have broken your back or pelvis. If a venomous snake has bitten you, calm down. It my hurt like heck, and you will feel the effects, but most healthy people in the United States don't die from any of the venomous snakes present in our country. Don't cut across the bites. Don't suck out the venom. Many survival scenarios start as the result of an injury or medical emergency, so be prepared by having first aid supplies and some basic training on how to use them. There are a lot of wonderful first aid and trauma products out there, but many can be improvised once you

"Three Things": If everyone who ventured out into the wilderness, desert, snow or mountains carried these three items, they would add to their survivability: a whistle for signaling, a knife and a lighter to build a fire.

In arid environments, water is scarce and hard to find. This rock held about a pint of water in a pocket for weeks after the last rain. Be creative in your search for water.

understand the underlying principles. Once again, get professional training.

Think!

Once you are out of danger and have patched yourself up, sit down and think. Figure out where you are. Get your bearings. What happened? What time is it? How far are you off course? Take an inventory of things you have with you that can help you survive. Do you have a knife, dry clothing, matches, a cell phone that works? Start making a plan. Unless you know you are right by a road, or people, it is best to stay put and let your rescuers come find you. Moving around will only make their job harder since they typically search by grids. You could potentially travel into a grid they already searched.

Prioritize! There are actions you should take in proper order depending on your circumstances and the climate. Universally, the single most important thing to maintain, in any situation, is your core body temperature. If it is cold, you really need to stay warm. If it is hot, you need to stay cool. After breathing and blood loss, this is more important than anything else. If you get too cold, you will make bad decisions and start a downward spiral to your demise. It really does happen this way and it's ugly. If you get too hot, you will slip into a coma and never wake up. Not a pretty way to go either. So protect yourself from the elements.

That means the next most important thing is shelter. If it is cold, make sure you have dry clothing and layers. Your clothing is actually shelter that you wear. So be smart when it comes to outdoor clothing selection. Wet cotton kills. It wicks heat away from your body. Take it off. Wool, and polypro are good materials. Gore-Tex is awesome. If your clothing is wet, dry it in the wind or near your fire if you have one. Stuff leaves inside to insulate your clothing. Get off the ground. The ground robs you of heat through conduction. Build a pile of leaves, or other insulating material, to sit on. Build a lean-to shelter to block the wind or lay down behind a rock ledge or large tree. Wind takes heat away from your body through convection. A shelter will help hold in heat, block the winds and keep you off the ground. If it is hot, it will shade you and keep you off the hot sand and rocks. There are plenty of natural materials available around you to build a rudimentary shelter: pine branches, downed leaves, bark off dead trees, old dead logs, rocks, dirt, mud, snow, cut branches with large leaves, palm fronds, pine needles and so on. You can make a lean-to, an A frame, a trench shelter, an igloo or just place a poncho over you, sitting Indian style with a candle between your legs. Keep in mind that if you are huddled inside a shelter made from natural materials, you will be camouflaged and nearly impossible to be seen by searchers. If

Your ultimate goal of course is to be rescued. Redundant means of signaling to search parties will greatly increase your chance of rescue. Here is a good selection of signaling devices, both auditory and visual, day and night. Carry at least three of these in the backcountry and your stay will hopefully be shorter!

There is a large and varied selection of high quality first aid and trauma products out there. QuikClot, the "H" bandage, CAT tourniquets and various commercial or military first aid kits are some of the options available to the outdoorsman. Anyone going to the woods should carry the resources to stop severe bleeding and treat other life threatening injuries.

possible, tear off a few pieces of any brightly colored clothing you may have on and tie it to your shelter.

Fire

Next, if it is cold, make a fire. Always carry a method of starting a fire. Better yet, carry two ways. Fire will save your bacon. It will keep you warm, help signal rescuers and boost your morale. A small Bic mini lighter and some matches are all you need. However, the really small fire rods (flint and magnesium with striker) are awesome and will spark even when wet. A fire needs three things to start: heat (spark), air and fuel. Tinder can be dryer lint in your pockets or shredded dollar bills. Think outside the box. Burning that $20 bill in your wallet may be the best money you ever spent if it gets a fire going that keeps you from freezing to death. When you make your fire, gather plenty of materials, especially the small stuff (straw wood is the size of a piece of straw). Gather tinder-dried grass, dried moss, dried leaves, pine needles, milkweed fluff and cottonwood seed fluff. Then the straw wood, then pencil sized wood, then sticks the size of your fingers, thumb and finally your wrist. Don't go too big too early. A fire takes some nurturing and tending at first. Use down, dried wood, that is off the ground, perhaps leaning against other trees or hung up in low branches. This wood is best because it sheds water quicker, dries out and doesn't rot or become mossy as quickly.

Water

After fire, you will need water. This is especially true in a hot, dry environment. In the desert, I'd say water is more important than fire, even though it gets cold at night. It is best to carry water with you of course. If you did not bring any on this trip, you will need to go get some. You may not have a container to hold water, but look around. A small baggy, a condom, a Styrofoam cup, beer can or glass bottle will all do. Many times you will find an old can or bottle in the woods when there are no people around for miles in any direction. Any container will do to carry it in, but make sure you treat your water before drinking. It may look pure and clean, but you don't know how many raccoons and possums used your drinking water as a toilet. Hint: a lot! A filter is best, but boiling works too. A drop or two of iodine per quart will kill the bad stuff and so will a drop or two of chlorine bleach.

The Katadyn Micropur tablets are the best hands down because they kill bacteria and viruses. The Micropur MP1 tablets also kill cysts, which are often hard to kill. Another advantage is that they are easy to carry since each tablet is sealed in foil. Both however, require a few hours to work. Any of the water filters on the market are good. The SteriPEN has been used all over the world and has been effective in killing parasites and bacteria using UV rays. However, if you have no means to treat your water, and you think you will be rescued in two to three days or sooner, drink the water. Hopefully you will be back in civilization by the time any sickness hits you and you will be able to get treatment. Regarding solar stills: they are a worthless and foolish method of attempting to get water. You will expend more sweat making one than water you will gain. Making solar stills will quickly put you upside down in a desert environment. In the desert most barrel cactus contain drinkable water in small quantities. Never ration your water. People have been found dead, with water in their canteens. You need the water inside your body. Store it there. If you get dehydrated, you start making mistakes, mistakes that can cost you your life.

Nothing dies easily in the wilderness, however, one mistake and you may end up a scattered pile of bones in the woods.

Food

A note on food; you probably don't need any for a 72-hour survival situation. Yes, you will be hungry. Yes, your energy will decrease. But most of us in America have a reserve of body fat we can pull from if needed. However, food is helpful in the cold because it helps create heat during digestion. Bringing some food with you is great, but don't put yourself at risk trying to spear trout in a fast moving rocky stream. Many people expend more calories in the pursuit of food than they get from the food once they catch it. You can also risk injury if you start thrashing around a stream trying to spear a fish and end up falling onto some rocks.

Being Found

The final thing you need to consider is getting found. You need to attract your rescuer's attention. A whistle and a signal mirror are both great tools. Anybody can use a whistle and the sound carries much, much farther than your voice. Remember, three of anything is a distress signal: whistle blasts, gunshots, etc. A good signal plan would incorporate a ground to air signal: a large X placed on the ground, stamped into snow, laid out with logs or dirt, means, "I am here and can't continue." It would also include a signal mirror during the day (scanning the horizon and any passing aircraft), a strobe or flashing light at night and a whistle throughout the day. Bright-orange flagger tape is useful to mark your position or your back-trail if you are on the move. But have a plan. Of course a cell phone would be helpful, but it could have been broken in the initial emergency or you might not be able to get a signal where you are.

It's not rocket science but it takes a little preplanning and the mindset to bring the basic gear that will help you survive. You also need to know how to use these items. An afternoon spent practicing the signal mirror with a friend, building a shelter and a couple fires would be time well spent. The confidence gained in knowing how to survive in the wilderness also helps prevent fear from creeping in. Fear paralyzes. It affects how you think, and even how your body handles extremes of temperature or dehydration. Proper prior planning will help prevent a search and rescue mission from becoming a body recovery mission.

DON'T WAIT TILL IT'S TOO LATE

Russ Kolkman

DISASTER PREPAREDNESS

Tornados, wildfires, chemical spills, floods, blizzards, hurricanes, ice storms, earthquakes, tsunamis, civil unrest, flu pandemic; the list goes on. Any given year, Americans can expect to face any of those disasters. And they do. In fact, 2011 has been one of the worst tornado seasons in awhile, and that was just in April. The tornados in Alabama have proven that. Flooding hit the upper Midwest, like it does every year. The earthquake in Japan pushed a tsunami into our west coast causing destruction and death. Every night, dozens of families are driven out of their homes by a fire. Disaster isn't always widespread; it can be individual.

"Disaster cabinet": The disaster cabinet or closet is a good solution to gathering all your disaster supplies in one place. With this cabinet this family of four could survive a short duration disaster such as a tornado, power outage or blizzard.

So what can you do to better prepare yourself and your family to survive a disaster, big or small? Hopefully, this article will help you in that process, enabling you to prioritize your needs, establishing a plan and gather supplies and skills. So, where to start? How much do you need? First, you need to identify the most likely disasters you're likely to encounter in your area. Based on those events, could you stay in your house, or would you have to evacuate? How many people (and pets) are in your house? From there, you can start your planning. There are also steps and precautions you can take that are useful no matter what the disaster is, from a hurricane to a house fire. Regardless of the nature of the disaster, there are certain supplies and pieces of equipment that are useful to have on hand.

People who survive a tornado, hurricane, earthquake, wildfire or flood will all have similar needs. They will need food and water in the next few hours to keep going and get work done. They will need clothes, shelter and heat if it is cold. They will need to treat injuries and get cleaned up. They may need to keep at this for days or weeks at a time.

Now lets talk about a long-term event. Flu pandemic would be just such an event. The federal government even acknowledges that. Depending on what government agency you turn to for information, you will get different answers on how prepared you need to be for a flu pandemic, from three days to three months. FEMA,

"Disaster tools": Every household should keep a set of tools for post disaster recovery. In addition to basic carpentry-type hand tools, anyone serious about disaster preps should maintain a chainsaw with fuel and spare chain, a gas shut off tool, and "pioneer" tools such as axes and shovels. There is a lot of work to be done after a disaster. A good selection of the right tools will make that work a lot easier and safer.

Homeland Security and the Centers for Disease Control all agree that you should be prepared. Flu pandemic lasts for months and come in waves of 30 days at a time, recedes and then comes back in another wave of illness and death for another 30 days. It can repeat this cycle for half a year. During that time, expect travel to be restricted, and "just in time" delivery of food and household goods will be severely interrupted. Store shelves will be empty. Gas stations will be dry. People will stay home from work out of fear of contracting the flu. That means workers won't always show up at the water plant, the power plant or pick up your garbage. You see how this could be a huge disaster, lasting a long time. So how can you prepare for such an event? The same as the other disasters we discussed, but for a longer term.

Looking at each of these events we find common needs regardless of the circumstances: food, water, shelter, heat, light, medical, hygiene and recovery. We will discuss each one of these as a separate category.

Food

On average, you will need about 2,000 calories per adult, per day and about 1,200 to 1,500 calories a day, per child depending on their age. So, it becomes a simple mathematics problem. One of the best ways to start storing extra food is by buying an extra item each time you do your regular grocery shopping. Pick up an extra can of soup, an extra box of mac n' cheese or an extra bag of rice. In no time you will have a couple weeks of food stored up. This parallels your regular pantry and could be referred to as your "survival pantry." Focus on buying the types of food you and your family normally eat. During the stress of a disaster is not the time to try new foods you have not eaten before. Buy nonperishable foods such as canned goods, sealed bags of rice or beans, gravy mixes and jars of peanut butter, sauces and so on. Write the date of purchase on each one, and start a rotation schedule attached to the shelves or cabinet where you keep the food.

As a back up to your survival pantry, consider a second layer of food. Many prepared people store dried rice, beans and grains inside 5-gallon buckets, commonly found at bakeries or delicatessens. You can put a lot of rice in a 5-gallon bucket for a few dollars and it will keep for years. If you ever need it, that rice will really help stretch your survival pantry as the disaster wears on into weeks rather than days. Store all your food in a cool, dry place. A spare closet or an unused space like the area under the basement stairs is a good place to put some shelves stocked with food. Canned food will remain edible for years, even

"Good guns too": These guns will do the job just as well. Having a gun, being alert and being willing to use them if necessary, are often all that is needed to send criminals packing.

This person's preparations include a year's worth of dehydrated food and MREs for a family of six.

beyond the best by date. Don't forget about pets and their food needs when you are stocking away extra.

Water

You will need a gallon to a gallon and a half for each person, per day — some need less, some more. That doesn't include bathing or other hygiene uses. But this amount is a good start. You can purchase your water from commercial sources as bottled water, or in larger plastic containers. You can also reuse plastic soda bottles if you wash them out thoroughly. Fill to the top with tap water or if using well water, put a drop or two of non-scented bleach in each 2-liter bottle. As a back up to your water storage, you can get 30-50 gallons of clean water from your hot water heater. Be sure to shut off the water supply to your house if the water supply is contaminated. You should have at least two methods to treat water of questionable quality. Boiling, filtering, or treating with chlorine or iodine are all suitable means to make water drinkable. So, along side your water storage, be sure to keep a large pot to boil water, a camp stove or fireplace to heat the water, and a supply of iodine water tablets. Don't forget you can capture rainwater or melt snow for water as well.

Shelter

If you are allowed or encouraged to stay in your home, do so. It will provide you with the most resources available, in the most familiar surroundings. Even if your home is damaged, it is better than becoming a refugee or staying in a shelter. Keep on hand a couple large tarps to cover a hole in your roof or broken windows. Make sure you have tools like a hammer and nails, staple gun or cordless screwdriver and screws to attach any tarps or plywood needed to shore up your home. If there is a gas leak, you will need to turn off the gas to your house. You will need a gas wrench or other suitable tool for the job. Make sure you know where your gas shutoff is and how it works before you need to do it under pressure. You may need to shut off the water and electricity as well. If the heat is off, you may need to gather in one or two rooms to conserve what heat you are able to generate. If it is below freezing and you have no heat, you will need to drain your home's water supply system to avoid bursting pipes. Once again, be familiar with how to do that before you need it. You will need a means to defend your property and defend yourself. In most circumstances in the United States, that means a gun. Most looters will move on if they know a homeowner is armed. There are plenty of soft targets to hit then to bother with trying to rob you and getting killed. A shotgun has always

Here is a checklist to help you get started. This is an example for four people for a week or so.

FOOD

2,000 calories per person, per day. Keep a minimum of one week's food on hand.

- 24 cans of fruits and veggies
- 12 cans of meats and tuna
- 12 cans of soup and stew
- 4 pounds of rice and beans
- Manual can opener

WATER

- 1 to 1.5 gallons per person, per day
- One case of bottled water
- 12 gallons of water
- Four 2.5-gallon containers of water
- Large pot to boil water
- Iodine or treatment tablets

SHELTER

- Two large 9x9' (or larger) PVC tarps
- Nails, staple gun and hammer
- Duct tape
- Defensive tools/weapons

HEAT

- Propane "Heater Buddy"
- Six 1-pound bottles of propane
- Six pack of sterno
- Box of candles

LIGHT

- Two flashlights w/ extra batteries
- Headlamp w/ extra batteries
- Two oil lamps w/ 1 gallon of lamp oil
- Box of candles
- Four chem-lights

MEDICAL

- First aid kit
- Extra box of band-aids
- Trauma dressing
- Rx meds

HYGIENE

- 5-gallon bucket w/ lid
- Toilet seat for bucket
- Toilet paper
- Baby wipes
- Feminine-hygiene products

RECOVERY

- Hand tools: saw, hammer, pry bar, rope, pulley, carabiner
- Chain saw and fuel
- Copies of important documents stored in separate location

been a good choice. But a .22 rifle will do just as well. A dog is a good deterrent as well as an extra set of ears.

Heat

Depending on your climate and time of year this may be a very important need. It may very well be a deal breaker as far as staying in your home vs. going to a shelter if you have no way to keep yourself warm for an extended emergency. If your home has a fireplace that is capable of burning wood, bravo! All you need is wood. Just like your food storage, start stacking up extra wood when you get the chance. This is your survival wood. Stash away cut up limbs, scrap wood and any small trees you cut down. You will be glad you did so you won't have to burn the dining room table when the time comes. Other sources of heat include kerosene and propane heaters. These both need to be used in a well-ventilated area to avoid carbon monoxide poisoning. Small sources of heat include candles, cans of sterno and even those hot-hands pocket warmers. Be careful with whatever method you use. Be aware of carbon monoxide build up as well as any gas leaks resulting from the disaster itself.

Light

There are lots of options here. Propane or white gas lanterns, rechargeable lanterns, chem-lights, battery-powered flashlights, oil lamps, candles, headlamps, small LED lights and so on. Keep a couple flashlights with extra batteries on hand. A headlamp is handy to keep your hands free while you work. A couple of oil lamps will keep darkness at bay at night. A few candles will supplement the oil lamps and you should be fine. Whatever methods you choose, make sure you keep fuel and batteries on hand and stored safely. Gas lanterns need mantles and spare parts. Generators will power lights and a lot of other appliances. They are great pieces of equipment to have. Good ones that produce enough useful power can be expensive. They will need to be run a couple times a year to check function and keep them in good shape. Stored fuel needs to be kept fresh and stable.

Medical

Keep a well-stocked first aid kit handy. Supplement that with current trauma dressings, ACE bandages and medicine. Get trained in first aid and CPR. Make sure everyone knows where the first aid kit is located. Keep one in your vehicle as well. It could serve as a backup in case your primary is buried in debris. If anyone in your family takes medicine on a regular basis, talk to your doctor and see if they can get a 90-day supply for disaster preparedness.

Hygiene

Shit happens. If the toilets don't work, you will need a way to handle bodily waste. A 5-gallon bucket can be fitted with a toilet seat and lid. Line it with a plastic bag and use a little RV toilet deodorizer in that. Keep the bucket in an area away from your group of people. Change the bag daily if you can and bury the waste or store it in a sealable trash can that you can throw away after the disaster. For longer term you may need to dig a latrine or cat hole. Don't forget to stock plenty of toilet paper. Baby wipes will be useful when running water is a premium. A bar of soap and some shampoo is cheap insurance to stock up. Babies will need a supply of diapers on hand. This is where cloth diapers

come into play when the disposables run out. Don't forget to stock an extra set of toothbrushes, floss and toothpaste for each member of the family. Feminine hygiene is important, because rest assured, a disaster will hit at that time of the month. Plan ahead. For a long-term event: soap, tooth care, hair cutting and feminine hygiene supplies are the only things you will really need. Pioneers made do with less than that. All of your hygiene supplies can be stored in your 5-gallon toilet bucket with the seat/lid stored next to it. That way you will know where everything is.

Recovery

What does that mean? Well, what will you need to start rebuilding your life? Tools to make repairs and clean up and documents to access your bank account or to file an insurance claim.

Hand tools like axes, crowbars, shovels, hack saws, sledge hammers and so on will be needed. Strong rope and a couple pulleys will help increase your lifting capacity. A chain saw requires no electricity to run and can do a tremendous amount of work in many disaster scenarios. They are worth their weight in gold — before disaster strikes.

Make copies of your birth certificates, marriage license, car, homeowner, life and health insurance policies, bank info and will. A few pictures will be helpful if God forbid bodies need to be identified. Pictures of your household items like guns, sports equipment, antiques, electronics and so on will help the insurance adjuster. All of this can be kept as hard copies and stored in a separate location from yours. These can also be loaded onto a disc or thumb drive and encrypted. You could make multiple copies and back them up and keep with relatives out of town for example. Thumb drives will hold an incredible amount of data, including complete medical records, financial documents, house plans, hundreds of pics and so on. Keep an up-to-date contact list of friends and relatives. Use them as a clearinghouse for updates on you and anyone in your area. People will be worried about you and may not be able to reach you. But if you can get word to one of them, they can spread the word for you.

More Stuff

Get a couple fire extinguishers and make sure everyone in your house knows how to use them. Teach your children how to dial 911. Keep a complete set of clothes for each family member in a bag along with some hygiene supplies and thumbdrive of important documents at a nearby relative's house. If your house is burned down, and you escape in your PJs, you will at least have clothes to wear in short order. Put together a Bug Out Bag (BOB) to grab if you have to evacuate quickly. That bag will contain clothes, a little food and water, radio, first aid and hygiene items; enough to live out of your car for a day or so, or set up in a motel or shelter for 24-72 hours. Remember to plan for your pet's food, water and medical needs. How will you transport them if you need to evac? Learn how to shut off the gas, water and power at your house. Find out who in your neighborhood may have special needs, like the elderly. Ask your kid's school about what their disaster plan is. Find out what the disaster plan is at your work. Keep supplies on hand there like food, water and first aid.

Figure out what disasters are most likely to affect you in your area and plan for them. Work in small steps, using the sections in this article as a guide. Get training in first aid. Meet your neighbors. Learn how to become more self-sufficient.

GPS IN THE BACKCOUNTRY

Blake Miller

Land navigation is one of the most essential skills required of the wilderness hunter. Sound navigation skills rank on a par with marksmanship, tracking and knowledge of the game being pursued.

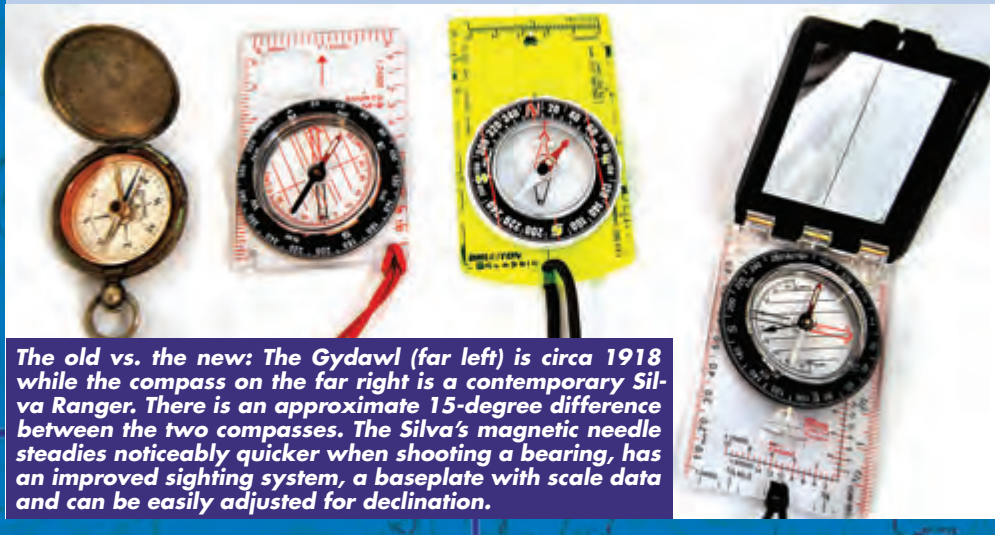
Navigation is not hard but it is a perishable skill.

I often get calls about what to look for in a Global Positioning System (GPS) receiver. Most want a basic model and I agree. A simple to operate system is the easiest to learn and run while in the woods.

Recently, I was in a sporting goods store and watched a clerk recommend a very expensive and complex GPS receiver to an elderly gentleman. The customer wanted a GPS that would "get him back to his camp" in Oregon's Ochoco National Forest during elk season. The clerk kept pushing the expensive model. The customer would have been satisfied with a basic starter unit. Instead, he left the store frustrated — without buying anything.

Things To Consider

The essential features of a GPS are based on your needs in the outdoors. For example, I am both a hunter and backpacker. I like a GPS with a Barometric altimeter because I use that function to monitor atmospheric pressure at high elevations. I know through personal experience that when the pressure drops, the weather is changing, and I may be looking for shelter. I also use maps downloaded in my receiver's memory to confirm



The old vs. the new: The Gydawl (far left) is circa 1918 while the compass on the far right is a contemporary Silva Ranger. There is an approximate 15-degree difference between the two compasses. The Silva's magnetic needle steadies noticeably quicker when shooting a bearing, has an improved sighting system, a baseplate with scale data and can be easily adjusted for declination.

DeLorme's PN60 GPS: a full color display with sophisticated mapping solutions. With DeLorme's new inReach satellite communicator, you can send and receive text messages anywhere in the field.

my position and complement my map and compass. If you travel by ATV, you will want to ensure the GPS would fit into a handlebar bracket for hands-free operation.

There are four considerations that I use when helping someone select a new model and narrow down the options. First, decide how much you want to spend. Get a price baseline from Walmart and Amazon.com. Then check a manufacturer's website (such as *www.garmin.com*) for rebate offers. Garmin's Venture (HCX) and GarminMap 60Cx, are two great units at modest prices.

Second, ask friends with GPS receivers what their recommendations are. One size definitely doesn't fit all! A hunter might opt for a model with a 2-way radio and a "data link" such as the Garmin Rino series.

Third, as an instructor I have found older folks and those not tech savvy do better with a GPS that has the push buttons on the front (GarminMap 60/62 series or the DeLorme PN60); it's more intuitive and less frustrating than units with the buttons on the side.

Fourth, determine if the model is a good fit for you. Is the screen size adequate? Will it be too technical for you to operate? Can you operate the unit with gloves on? How long do the batteries last?

Stay away from a used GPS. Your purchase should be free of defects and malfunctions so I am leery about Craigslist or some company on the Internet that sells refurbished receivers.

It doesn't have to be expensive to be accurate. All receivers will be accurate to at least +/-15 meters and some are accurate to +/-3 meters. That said, giving any receiver the time to adequately calculate position information is critical. This is especially true of my older models such as a Magellan 315 or a Garmin 12. Whatever you buy, keep the receipt and register the unit with the manufacturer soon.

After Purchase

Once you buy a GPS don't put it in the closet, or store it in your survival kit. Take it out and use it — you can't break it. Navigation isn't hard but it's a perishable skill. Practice with the new receiver by taking a hike near home or a local park. Observe how the displays change as you maneuver over ground. Mark a few waypoints. Scroll from display page to display page as you walk. Return to your saved waypoint and observe the compass and pointer in action.

Visit the manufacturer's website once every six months for free upgrades to the GPS's internal software. A simple download will make your gear current.

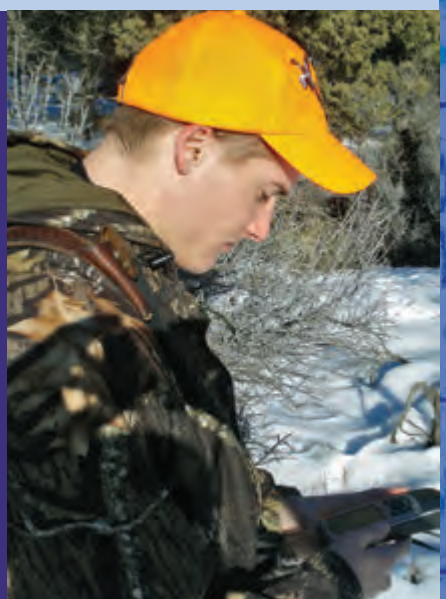
Put in fresh batteries at the beginning of a hunt or when scouting. If you leave your GPS on all day in the field, change the batteries nightly. Consider lithium batteries, they last longer and work better in cold temperatures. Carry a spare set of four batteries in your daypack. If the GPS has an electronic compass you will need to calibrate the compass after changing batteries. Lastly, determine which batteries work best in your receiver — Duracell copper tops are my personal choice.

Adjust the "zoom" setting on the map page to see what works best for you. I keep my GPS set to 800'. There,

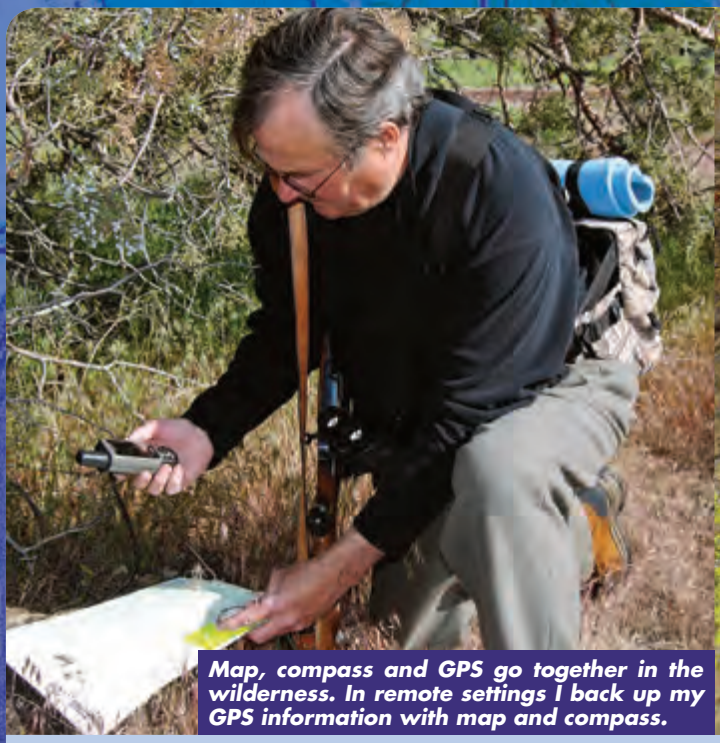
Many hunters opt for a GPS with a waterproof FRS/GMRS radio, barometric altimeter, electronic compass, NOAA weather radio and mapping software. The Garmin Rino 520HCx offers 5 watts of transmitting power, a color display and a high-sensitivity GPS receiver.

GPS TERMS AND SETUP

Coordinates refer to a geographic-grid system and pinpoint your position in the world. The most common is latitude and longitude, though many outdoorsmen quickly shift to Universal Transverse Mercator (UTM) because of its simplicity.
Waypoints are navigation coordinates that have been saved to memory within the GPS. Most receivers will hold 500.
Find/Go To is the navigation function of the receiver. It is this function that will "steer" you to your destination.
Compass – An electronic partner to a magnetic compass. The GPS compass is dependent on batteries so don't leave your magnetic compass home. Not all receivers have a true electronic compass; check the owner's manual. All GPS receivers will provide compass information such as bearing and heading. For those models that don't have a true electronic compass, compass information is based upon movement.



Always mark a waypoint before leaving the truck or trailhead. Give the waypoint a name such as "truck."



Map, compass and GPS go together in the wilderness. In remote settings I back up my GPS information with map and compass.

Garmin Map60 series GPS receiver.

I find my mapping software's topographic, road and terrain information is much more usable.

Getting Ready

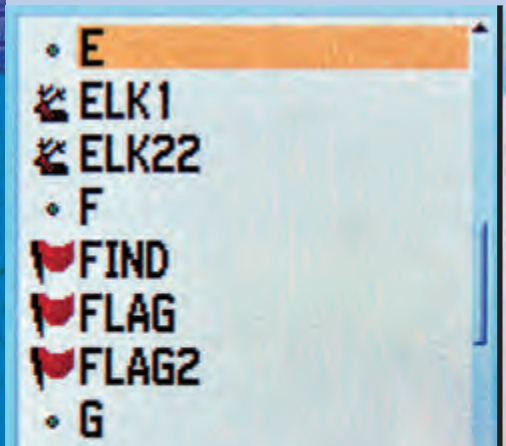
The key to efficient land navigation is to keep it simple. I've learned a few techniques during my 13 years as an instructor and as a Search and Rescue (SAR) team member. I don't use my GPS as a waypoint storage cabinet. At the start of every outing I edit or delete what is saved in memory. It's easier to work with a handful of waypoints rather than a list of 300. Delete waypoints you will never use again. Log important waypoints (e.g., elk wallow from last year) on your PC or in a notebook. Visit *www.easygps.com* for free waypoint management software.

I begin every hunt by checking the satellite information page. I look for a minimum of four satellites being received by the GPS. The darkened bars at the bottom of the figure to the left indicate which satellites the receiver is tracking. Give older units the time to capture satellite signals and develop accurate position information. The unit may take a few minutes to acquire your position accurately if it has been a while since you last used your GPS or you have traveled over 50 miles.

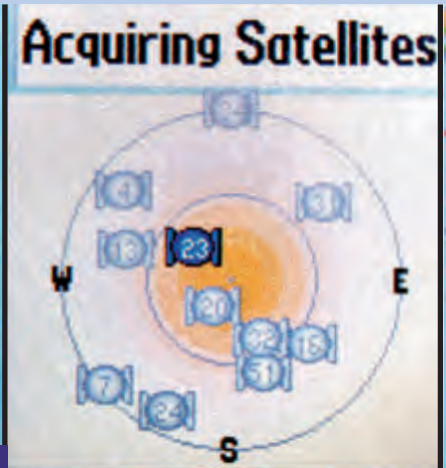
Give key waypoints names. Enter names like camp and truck. It's easier and more meaningful to find "camp" in the list of waypoints than is waypoint 542, or was it 245?

There is nothing more frustrating than determining your favorite location or hunting hot spot is not in the receiver's memory. After marking a location verify that the way waypoint was saved. You can verify by checking the "map page" or your waypoint file. On the map page look for the waypoint name or number such as "FWOOD" (figure to the left.) To get to the waypoint list select "Find" or "Go To" or "Navigate." At the waypoint list, look for the name or number of the saved location.

Mapping programs have excellent detail, continuously improve and complement my map and compass.



Keep the number of waypoints that are saved to the receiver's memory to a minimum. Give important waypoints a name such as elk, camp and truck. I can verify if a waypoint has been saved to memory by looking for the waypoint's name on the map page or in the list of saved waypoints.



I begin every hunt by checking the "satellite information" page. I want to see at least four satellites. Frequently, I track eight to 10 satellites. This screen shot was taken indoors which reduces the receiver's reception.

Mapping software complements your map and compass. I keep my map view zoomed in to 800' to .3 miles.

Expect to pay over $100. Mapping software is available from the receiver's manufacturer and a growing number of mapping companies. Visit www.huntinggpsmaps.com or call (208) GPS-MAPS. This company uses USGS maps overlaid with property ownership such as private, US Forest Service and BLM. Ownership data is updated frequently and is typically current within one year.

In my land navigation classes, I recommend to hunters that two weeks before heading to camp they take the GPS and magnetic compass everywhere they go. They should take it as they head to work, the grocery store or rifle range. Mark waypoints and return to a destination. The goal is for navigation skills to become as second nature as loading a rifle. Take a class where you will be taught the basics of how your receiver works. Check with your local community college's continuing education program or sporting goods store to see if they offer classes.

Complement GPS skills with a good review of map and compass fundamentals. Learn to back up electronic position fixing with bearing triangulation. Worst case, a broken GPS becomes a paperweight for a map while afield. Anything electronic can fail and can do so at the most inconvenient time.

Coordinates In The Backcountry

It was probably in middle school when we were first introduced to geographic coordinates. Latitude and longitude defined our principal method of fixing one's position on a map. Though used for hundreds of years, latitude and longitude can be cumbersome and not the easiest to use.

The system known as Universal Transverse Mercator (UTM) was inspired by the military and developed in the 1940s. The beauty of the UTM grid is its simplicity. This grid is a basic X/Y grid; up and down, left and right. On a standard hunter's topographic quadrangle the hunt area is divided into squares 1,000 meters by 1,000 meters. It is easily learned and youngsters pick it up quickly.

GPS receivers shift smoothly from latitude and longitude to UTM. For Garmin users, go to your main menu and select "setup." In the setup option choose "units" or "position format." All old waypoints saved in latitude and longitude shift seamlessly as UTM is selected. Identifying position coordinates (your partner's location) on a topographic map comes quickly when this grid system is used. An Internet search will open the door to many easy to read fact sheets.

Selecting A GPS

I haven't used them all, but of the ones I have used or played with, the following will give you a good place to start from.

Garmin's eTrek Venture HC is a good starter model and can be found for $150 or less. More expensive than the basic eTrek (around $90), I have found its functions and displays to be easier to use.

The GarminMap60Cx is a solid receiver for under $200. Four years ago this model retailed for about $400. It receives satellite data quickly, accepts mapping software and will do just about everything a hunter could want.

DeLorme's PN60 is compact, high-tech, has crisp and clear displays and sells for under $400. It receives satellite data quickly, accepts mapping software and aerial imagery. The PN60w comes with a SPOT locator for backcountry emergency communication and retails for around $550. When paired with the new inReach satellite communicator, a hunter can send and receive text messages in the field.

The Garmin GPSMap 62 series is the next generation in handheld units from Garmin: high-tech and very capable. It will do everything the Map60 series can do and more. This model has a large display window and some models come preloaded with topographic map software. Expect to pay $300 to $500 depending on the model.

The Garmin Rino 520HCx and 530HCx are the models for you if you want a GPS and radio combination. With Garmin's Lithium battery pack installed the radio will put out 5 watts of power. Unique to all units, this model allows you to data link and talk to your hunting partners in the field (they must have the Rino too). It receives satellite data quickly and accepts mapping software — a very versatile model for the hunter. It is a bit bulky. Prices range from $400 to $500.

About the author:

Blake is the owner of Outdoor Quest, a business dedicated to backcountry navigation and wilderness survival. If you have questions about land navigation or wilderness survival, contact Blake through his website: www.outdoorquest.biz

The Small Farm

Viable for Long-Term Survival

R. Jacob Herman

The term survival means different things to different people. Some view it as surviving a winter storm while others are planning on an economic collapse. What about being self-sufficient? The idea of not only surviving but also living well on your own property. Being a survivalist, prepper, and self-sufficient go hand in hand. When I think of being self-sufficient I think of being able to provide all or most of my needs over an extremely drawn out period of time. We are talking past basic disaster preparedness. Beyond the 6-month supply of freeze-dried food ordered from a preparedness company. Self-sufficiency is being able to grow, build, or barter for your needs.

When you set up a small piece of property for long-term survival needs you have to include basic needs. You must have a way to grow food for yourself and your animals. You must have shelter in which to keep out of the elements. Finally, you must have a means to provide yourself with a steady supply of water.

Over the past 100 years, Americans as a whole have left the farm. The American public still has an idyllic view of farming; the white picket fence and big porch with the American farmer lovingly picking each vegetable by hand. Although, the reality

Young broccolis started in cold frames.

Natures alarm clock: the mature rooster.

Number 10 cans and 5-gallon buckets are the cornerstone of long-term food storage and provide bulk storage in easy-to-handle sizes.

Home canned goods can greatly stretch your stored foods. Pickles, beans, jam and soups are easy to can and provide needed flavor to a storage food diet.

is most of our food supply outside of grain is not grown domestically. We import millions of tons of fruits and vegetables each year. That food supply is dependent on hundreds of thousands of semi-trucks moving the food around the country. Like every other industry in the United States, food production and supply is vertically integrated and delivered with no time delay. We are no longer an agrarian society. Less than 3 percent of the US population is involved in production agriculture. That is a really low amount of people growing food for the rest of us. As a result, the 100-acre and larger family farms that dotted the countryside have been broken up and subdivided. Mini farms and ranches now take up most of this space.

Mini Farms

In Tennessee, 10- to 15-acre mini farms are easy to buy and maintain. Someone who currently works full time can still have a working mini farm. If managed correctly 10 to 15 acres can provide for the needs of a small family. Meat, vegetables, fruit and fiber can be produced right on your own property. If you don't already have the property then you should look for a couple of things off the bat. Make sure to get a property that percolation (perc) rate is high — the rate at which water moves through soil. You do not want to be dealing with a septic issue during a crisis. Look for property that has a well dug, or other wells in the area. A natural above ground spring will suffice in some areas of the country, but you should ask around and see when the areas springs have a dry spell. Having water on site is a major issue. Have your soil tested and make sure that you are able to grow a garden. If you were planning on having livestock, I would seek a piece of property that has the ability to have a stock tank or pond (depending on what area of the country you live in) put in.

A great source for information about growing crops and raising animals is your local agricultural extension office and your local United States Department of Agriculture or USDA office. Here you will be able to find out about local growing seasons, prevailing animal and plant diseases in the area and possibly find out if any grants are available to help with your new farm. Many times the extension agency or USDA office will have experts available in certain fields that can come and give recommendations

Our fuel tanks are 500 gallons each. We take the hoses off when not in use, to prevent fuel loss.

Number 10 cans with a shelf life of more than 10 years.

Our 20-HP tractor with power take off and a 3-point hitch. It does everything on our 30 acres that we need.

Our mobile chicken coop or "chicken tractor" as it's known.

on particular crops or animal problems. If your property contains a large amount of standing timber and you are planning on cutting some of the trees for either profit or ground clearing be sure to find a timber expert. He will be able to give you an idea of which trees to harvest, and how much the timber should be worth.

Tools For The Job

Diesel powered equipment is the easiest and safest option. I am not a fan of keeping horses, mules, oxen or donkeys in order to plow a field and pull a wagon. My brief reasoning is as follows: Upkeep on animals is expensive. Feed bills, vet bills, Ferrier bills, and the list is always growing. Horse drawn farming equipment is still very expensive, and in some areas you may have a hard time finding someone to teach you how to use horse drawn hay rake or plow. Stick with fuel storage and diesel powered equipment. If you are accustomed to old fashioned farming techniques then by all means continue the faithful practice. A horse drawn plow is not for the beginning hobby farmer however.

On our mini farm we have found that a 25 horsepower, 4-wheel-drive diesel John Deere tractor fills all of our needs. It has been very reliable, and parts are easy to obtain. Our choice of tractor was based on the availability of parts. The nearest Deere dealer is 18 miles away. The next closest tractor dealer is double that. You can buy too much tractor. Too much tractor in too little area will cause you problems, and more than likely you will end up breaking something in the barnyard during the process. Buy the size tractor you need, not the size you want to show off. I would make sure to get the 4-wheel drive option, however. It comes in handy pulling the chicken tractor around the farm when it is muddy.

A country-living grain mill in action. It has a durable design and is easy to use.

Labeling is key to organization. I mark each bucket or can in two ways: with product inside and the date it was packaged.

Fuel storage on our farm is handled by two, 500-gallon, above ground diesel tanks. Our tanks are gravity fed. They don't require electricity for their use, which to us is a huge advantage. Having fuel available on the farm cuts down on wasted time and cost. It also ensures that you will have some fuel on hand during an emergency. While a thousand gallons may not seem to be a lot, it will go a long way in a small tractor being used around a small farm. We are not growing thousands of acres of grain, but instead we pull our chicken coop and tilling the garden. Fuel can be bought from a local fuel jobber. I would not allow the tanks to become over half empty. A fuel additive needs to be added to stored petroleum products — this will increase the shelf life, and cut down on the microbial algae growth that will ruin fuel tanks and the supply within. In the past, algae growth has not been a problem, but with the introduction of ULSD or ultra low sulfur diesel, the algae growth began to become a problem. Since sulfur has now been removed from most of the domestic fuel supplies, keeping your fuel treated is of the utmost importance if you are going to keep a viable supply of fuel.

Diversify

Growing a large diverse garden is important to any long-term, self-sufficiency plans. This will allow production of fresh and nutritional fruits and vegetables. Not only will the fresh produce bring needed nutrients to the table, it will also allow a diversity in the diet on the farm. Eating beans and rice, and then rice and beans will only go so far. A large garden producing a substantial amount of food is what most Americans would now refer to as a lot of work. It will take time, devotion, considerable effort and most

MREs — Meals Ready to Eat — are military rations that can be eaten hot or cold, and have long shelf lives. They're great for quick, easy meals during an emergency.

of all sweat equity.

That's during normal times when commercial pesticides and fertilizer are available. The seeds you buy now are of the highest hybrid and genetic modification. The results are picture perfect for commercial sales and making money, but not nutritionally. Now, during a long-term emergency all the fancy high tech fertilizers are not going to be available. Nor will the seeds purchased at the local grocery a couple of years ago on sale be viable. You are going to have to do it the old fashioned way with heirloom seeds and organic fertilizer. Organic fertilizer is more commonly referred to as manure and compost. Luck has it that we currently are living in a time where organic foods and locally supported agriculture are making huge gains. There are magazines, books, websites and blogs devoted to teaching you how to grow a large, successful garden without using modern techniques.

Using heirloom and open pollinated seeds are a little trickier than using hybrid varieties. Heirloom seeds are as the name implies seeds that were saved by the grower and passed down over generations. Knowing your local climate is a must. Currently, several companies are selling "survival" seed packs or kits. These kits do contain the heirloom and open pollinated seeds. There is a small bump in the road, however. A tomato that was grown and developed for use in northern Pennsylvania may not grow very well in South Georgia. The hardiness of a plant and its ability to resist diseases depends many times on its location. A good way to start searching for seeds is to check what growing zone you

A mixture of hens, guinea fowl and rooster.

are in. Once you find that out, a quick investigation online will reveal more information about the type of seeds you are buying.

Preservation

Being able to preserve your own food is a huge step in becoming self-sufficient for the long-term. Canning, drying, smoking and salting are just some of the methods that the people who built this country used. Canning is the most widespread today, with millions of Americans still canning every year. You can preserve vegetables, fruits, soups and meats using glass jars. Probably the single most valuable book you can have on home canning is the Ball Blue Book. Canning is a great way to extend your larder using healthy vegetables grown on your own land. For those that are interested in local agriculture it doesn't get any more local than that. Home canning requires a very small investment up front.

Livestock is more interesting and varied than growing the garden. Each breed of livestock animals in the US has a breed association working for them, telling you how the animal is the greatest thing since sliced bread. Do your research. Just like plants in the garden some animals do not fare as well as others in different areas of the country. I feel a mini farm of 10 to 20 acres is best suited for raising smaller livestock. Goats, sheep, chickens and rabbits are a smaller investment, easier to handle, require less feed and can live in much smaller spaces. These animals do not require large expensive cattle trailers or special head gates and equipment to work them.

I am not going to recommend that a mini farm have cattle. They are large animals and need more space than the 10 to 15 acres that is available. Cattle are labor intensive and are a huge investment. For long-term self-sufficiency in a world with an uncertain future, artificial insemination would not be possible. That would mean ownership of a bull. That adds more costs, which can be from several thousand dollars and up.

As with many breeds of animals in the United States, the breeding of animals for the show ring have increased the amount of inbreeding. We have seen a decline in the hardiness of many livestock breeds. While this is not a major problem during normal times, it can be when you are have little or no outside inputs as far as medicine and veterinary care. You want to pick animals that have easy births, multiple offspring, good mothering ability and can live on forage.

My favorite breed of sheep for long-term self-sufficiency is the Barbados black belly. Our farm switched from raising registered Suffolk sheep to Barbados, and have never regretted it. When lambing season came, the Suffolk sheep required constant supervision and many times help during labor. Barbados sheep are very independent. They usually twin with both lambs being born live. The young lambs are on their feet in an amazingly short amount of time. Barbados are hair sheep, they are raised for their meat not their wool. Hair sheep do not have to be sheared like other breeds. They shed like other animals such as a dog.

There are two prevalent goat breeds in the United States. The Spanish goat has been here since the Spanish missionaries crossed our country. A newer breed is the boar goat. The boar goat has been bred heavily in the past 20 years and has displaced the Spanish goat as the most popular. Many Spanish and boar goats have been crossbred in order to find better genetics. The boar goat does not fare well in many areas of the country. It seems some areas climates are too hot for the animal to do well. The Spanish

Keeping your fowl safe from predators is key. We have taken extra precaution by wrapping our mobile coup with a smaller plastic fence around the exterior.

Fresh eggs are gathered daily; a fresh bedding of hay is put down so that the eggs remain clean.

breed has survived well in the country for hundreds of years and it doesn't seem to be slowing down any time soon. Both the Spanish goat and the Barbados sheep are excellent sources of meat for the small farm.

Poultry

On our farm our most productive producers are our poultry in our portable chicken coop or a chicken tractor, as they have become known. We built our chicken tractor to be pulled by our small 4-wheel-drive tractor. We move the chicken tractor every two days to a new section of fresh grass. The chickens are able to pick the ground for bugs and seeds. This in return makes the chickens able to provide the most delicious eggs. The yolks are of a deep orange color. You can actually taste a difference. We keep eight chickens in our little portable coop. We average about six eggs per day. We also keep a rooster just in case. We don't currently raise chicks, but having the ability to do so is very cheap and great insurance. A good rooster is under $50. That is much cheaper than a registered breeding bull.

Many preppers will dream of moving to a rural homestead and being self-sufficient. With some work and dedication even a small piece of land can become a very productive farm. It will give you a place to live, food on the table, and peace of mind knowing that you will be able to survive long-term based on your skills and the ground around you, not the cans of food you buy at the supermarket. With a little work it can even be used to supplement your income. The idea of living off the fruits of one's own labor is still alive and well. Anyone can grow their own food, it just takes the idea of independence and the ability to say, "I can."

Poison Oak

STAY THE HECK AWAY FROM IT

Gary Lewis

Photo by: Julia King

Poison oak with flowers —you shouldn't smell!

Photo by: Jerry Kirkhart

These three leaves spell trouble.

Day chased the shadows away, beams of sunlight walked up through the boughs. Beside the blind, a couple of hardwood stumps were wrapped in vines with green and purple shiny leaves — poison oak. I hate poison oak. Last year, the stuff seemed to leap on me. I encountered it once in May and twice between October and December. Priority one is to stay out of the brush as much as possible, but it was turkey season, time to get back in the woods. One of my favorite areas to hunt turkey is in southwest Oregon where there is no escape from the greasy scourge.

My hunting partner wasn't one to wait around. There stood priority two, a legal turkey, still as a fence post at 20 yards. Russ dropped it with a load of No. 5s. The other birds scuttled off into the oaks. I forgot about priority one and went out and collected Russ's gobbler, which I should have remembered would be covered with urushiol. The turkeys live in the stuff. Their legs, their feathers, their beaks, beards and snoods are soaked in poison oak. I should have let Russ collect it.

Urushiol (ooh-roo-she-all) is the toxic, resinous oil found in the roots, stalks, leaves and the white berries of the poison oak and ivy plants. When the colorless oil comes in contact with skin, it binds within 20 minutes and becomes difficult, if not impossible, to get off the skin with soap and water. The rash, which shows up within one to five days, is the body's natural reaction to the poison. In the blind again, I traded places with Russ and looked out the window at the poison oak, even as the urushiol from the turkey began to bind to my skin.

Identify Poison Oak & Ivy

The leaves are divided into three leaflets with scalloped edges; the surface is bronze as it unfolds, changing to bright green. In the summer, the

Without proper treatment the affected area can get much worse.

Tecnu Extreme: a medicated poison ivy scrub.

leaves turn to yellow-green and orange, and turn red in the fall. In the spring, white flowers form and turn to white or tan berries. By late fall, the leaves and berries are all but gone, leaving naught but stems.

Most of the United States battles poison ivy while westerners go toe to toe with poison oak. Although there are slight variations in the plants, the ways that poison oak and ivy ravage a person's body are identical. Spring through fall, the plant lends beauty to sunny slopes and provides cover for deer and wild turkey. But all its virtues are rendered void when the rash appears.

After Exposure

Even the slightest amount of urushiol on a person's skin can cause a nasty rash to appear within 24 hours.

The oil can remain toxic for years and is so potent that the amount that could fit on the tip of a needle is enough to trigger a reaction in hundreds of people. Regular soap and water will not remove urushiol after it has bound to skin, it will only spread the oil around.

Available at pharmacies and grocery stores around the country, Tecnu and Tecnu Extreme are the best products I have found to get rid of urushiol. Tecnu was developed in the Cold War, designed to wash away the radioactive dust from a nuclear blast. Since that has not been a real problem since 1945, Tec Labs turned their attention to that other bane of human existence — urushiol.

To prevent a rash, Tecnu Extreme can be used at any point after exposure, but, is best to apply prior to the rash appearing; the sooner the better. If a rash breaks out, you should immediately wash all over to stop the rash in its tracks and start the healing process.

In some cases the rash is so dangerous a trip to the doctor is in order to get the appropriate shots to nullify the spread and itchy effects of the poison oak. Subsequent exposure for those most sensitive can be more intense.

Avoid A Rash

The best way to avoid a rash is identify the plant, then stay away from it. If touching the plant or items or animals that have come into contact with the plant is unavoidable, you can keep from contracting the rash by taking precautions. Application of products like Ivy Block prior to trekking out and wearing long sleeves, long pants and rubber gloves when washing the dog or cleaning a deer or a turkey. At the end of the day though, the clothes must go in the wash. Add Tecnu to the laundry. If in doubt, wash the clothes twice. Then take a shower with Tecnu Extreme and lukewarm water.

There is likely nothing in the landscape that causes hunters, hikers and mountain bikers more grief and misery than poison oak and ivy. Trouble is most people don't know what it looks like, nor do they care, till they have scratched their way through their first rash.

SODIS METHOD

Mike Janich

Sunlight and an ordinary plastic water bottle are all that is necessary to disinfect drinking water for many survival situations.

CLEAN, DRINKING WATER FROM THE POWER OF SUN

One of the greatest concerns in any survival or disaster situation is ensuring that you and your family have an adequate supply of clean drinking water. Note that the two key words in that sentence are adequate and clean. Having enough is a matter of either storing water or drawing it from whatever sources might be available. Clean means ensuring that the water you do have or can get is free of contaminants, including harmful bacteria, viruses and protozoa.

Natural disasters like hurricane Katrina are a stark reminder that it is very possible to have plenty of water with none of it safe to drink. Outbreaks of coliform bacteria, giardiasis, cryptosporidiosis and hepatitis A, have also prompted increased concern about the safety of public water supplies and a greater focus on water disinfection methods appropriate to this type of threat.

Solar Water Disinfection

Water-borne pathogens can be destroyed by boiling or chemical treatment. In places or circumstances where fuel and chemical resources are abundant, these methods are convenient and practical. However, developing countries not only have limited resources, they also have a much more critical need for water disinfection. According to the World Health Organization, more than 2 million people per year die of water-borne diseases worldwide, and 1 billion people lack access to a source of improved drinking water.

In response to this critical need, scientists began searching for alternative methods of water disinfection that are inexpensive and highly fuel-efficient. One result of this search was the SODIS method, short for solar water disinfection. In simple terms, this method uses the UV-radiation of the sun to kill harmful pathogens.

SODIS was first discovered by Professor Aftim Acra at the American University of Beirut in the early 1980s, but the bulk of the research on SODIS — as well as the refinement of the method — was done by the research groups of Martin Wegelin at the Swiss Federal Institute of Aquatic Science and Technology (Eawag) and Dr. Kevin McGuigan at the Royal College of Surgeons in Ireland. Thanks to their efforts, and the implementation of SODIS programs in developing countries worldwide, there has been significant progress in the reduction of sickness from water-borne pathogens.

How Does It Work?

There are three primary ingredi-

ents necessary to perform the SODIS method: reasonably clean water, free of chemicals or heavy metals, a PET (polyethylene terephthalate) bottle with cap and sunlight. When the bottle is filled with water and placed in the sun, the sunlight's UV-rays penetrate the water, destroying any harmful pathogens, which may be present. Sunlight does this in three specific ways:

The UV-A rays in sunlight directly interfere with the metabolism of bacteria and destroy its cell structures.

UV-A rays also react with oxygen dissolved in the water to produce oxygen free radicals, highly reactive forms of oxygen, and hydrogen peroxides that are both also believed to damage pathogens.

The solar energy absorbed by the water and radiated from the surface supporting the bottle heats the water and can improve the efficiency of the process. If the water temperature rises above 122 degrees F (50 degrees C), the disinfection process is three times faster. Higher temperatures can achieve even better results.

SODIS Step By Step

To use the SODIS method, you first need to find an appropriate supply of plastic bottles. Specifically, you'll want clear PET plastic bottles less than two liters in volume. PET bottles are most easily identified by looking at the bottom of the bottle for the recycling symbol (three arrows in a triangular pattern). PET bottles will have a number "1" inside the triangle. Smaller bottles are preferred since they have less depth and allow the sun's rays to penetrate the water more readily.

To work effectively, the bottles must be clear — not tinted or frosted. You should also remove all labels and stickers, again, to maximize the sun's ability to penetrate the bottle. Since the bottles are meant to yield clean drinking water, they should be clean and should never have been used to store any substance that could be potentially hazardous if consumed. Empty soda or water bottles with their original screw caps washed out with a mild bleach solution are perfect for the SODIS method.

Once you have a supply of bottles, you should collect the water you intend to disinfect. Obviously, the cleaner the water you start with, the better the results you will achieve. If you are starting with tap water that is potentially contaminated with pathogens, you have a good head start. If you are drawing water from natural sources, you'll want to use an intermediate container — preferably a clear one — to collect the water before pouring it into the SODIS bottles. If your water source has a high degree of turbidity (cloudiness), let the water sit for about 30 minutes so any sediment in the water can settle.

If possible, you'll want to add a final filtering step when you pour the water into the SODIS bottles to eliminate any remaining

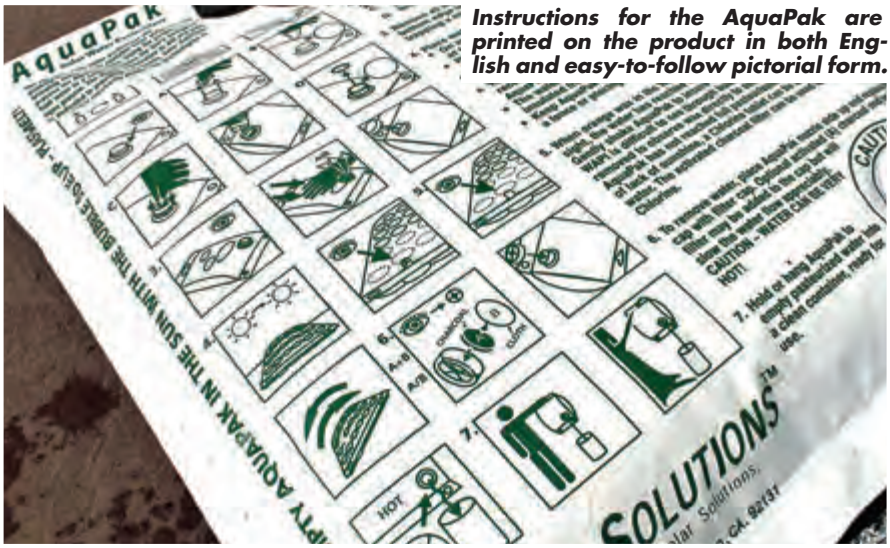
Bottles for the SODIS method should be made of PET plastic, easily identified by a recycling symbol containing the number 1.

An ordinary paper coffee filter used to line a funnel helps remove particulates from the water and makes filling bottles easier.

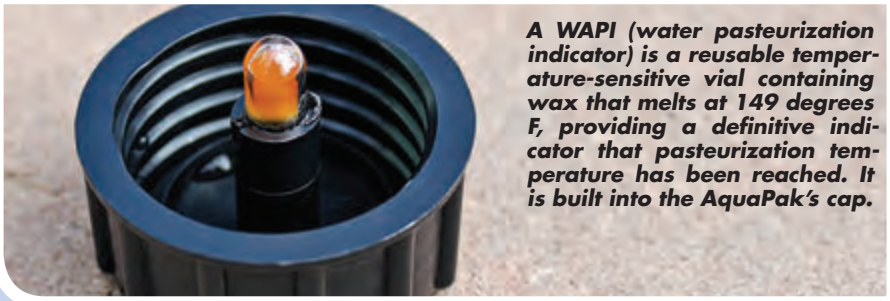
(Below) Start with the cleanest possible water. If it is cloudy or contains sediment, allow it to settle in another container for about 30 minutes.

Once filled, place the bottles in full sunlight for 6 hours. The sun's UV-rays and, if possible, heat radiated from the supporting surface attack the harmful microorganisms in the water.

The AquaPak from Solar Solutions is a purpose-designed water disinfection product that combines an ultra-efficient SODIS method with solar pasteurization.



Instructions for the AquaPak are printed on the product in both English and easy-to-follow pictorial form.



A WAPI (water pasteurization indicator) is a reusable temperature-sensitive vial containing wax that melts at 149 degrees F, providing a definitive indicator that pasteurization temperature has been reached. It is built into the AquaPak's cap.

sediment. A cheap and easy way to do this is to line a plastic funnel with a paper coffee filter and fill the bottles with it. To improve the oxygen saturation of the water and enhance the process, fill them about two-thirds full, put the cap on, and shake them vigorously for about 20 seconds. Then fill them the rest of the way.

Once the bottles are full, cap them and find a place to put them where they will receive at least 6 hours of full sunlight. Ideally, you'll want to lay the bottles flat so the sun can easily penetrate the full depth of the water. Laying the bottles on a dark surface that readily absorbs solar energy, like a corrugated metal roof, is even better. The corrugated surface keeps the bottles in place and the metal heats up from the energy of the sun. That heat radiates into the bottles, raising the temperature of the water and increasing the efficiency of the process.

After 6 hours of sunlight exposure, the SODIS process is complete and any harmful pathogens in the water should be dead. The same 6-hour guideline applies for skies up to 50-percent cloudy, though some experts recommend adding an hour or two to the process just to make sure. If the skies are more than 50-percent cloudy, the bottles should be left out for two full days of exposure to the available sun. If it is so cloudy that you believe the SODIS method will not be effective, you will hopefully have the opportunity to collect rainwater from those clouds. Otherwise, you will be forced to use a different method of water disinfection.

The AquaPak

Research on the SODIS method showed that at water temperatures higher than 113 degrees F (45 degrees C), the combined effects of UV-radiation and temperature greatly enhance the disinfection efficiency. With this idea in mind, inventor and entrepreneur Frank Husson decided to develop a purpose-designed water disinfection product that not only provided more efficient SODIS process, but combined it with solar pasteurization of the water as well. The result was the Aquapak, which is produced and promoted by Husson's San Diego-based company, Solar Solutions.

Although the SODIS method is very effective, Husson realized that plastic bottles have several shortcomings that make them less than ideal. Since they are cylindrical, they have significant depth at their diameter and offer limited surface area — both factors that limit the sun's ability to penetrate the water. Plastic bottles

also do not have any way of capturing solar energy to generate heat, nor do they offer any indication of how hot the water actually gets during the process. Husson therefore developed the AquaPak to address all these issues.

The AquaPak is basically a flat polyethylene plastic envelope with a clear bubble-pack layer on the top and a black layer on the bottom. These layers are bonded with tapered seals to ensure durable, watertight construction. The back layer includes a screw-style spout that accepts a special cap that contains a device known as a WAPI (water purification indicator). The WAPI consists of a glass vial filled with a specially formulated colored wax that melts at the exact temperature required to pasteurize water: 149 degrees F (65 degrees C). The AquaPak comes with a built-in carrying/suspension handle and a piece of filter material for filtering the water when the pack is filled.

The directions for using the AquaPak, which are printed and offered in easy-to-follow pictorial form on the back of the pack are very easy. First, remove the WAPI cap and cover the spout with the filter material, which is held in place with the supplied O-ring. Fill the AquaPak between the minimum and maximum fill lines marked on the back, remove and store the filter and O-ring, and securely attach the WAPI cap. Now, simply place the AquaPak in a location where it will receive full sunlight for several hours. To increase its efficiency, you can also attach an optional reflector panel that reflects additional sunlight onto the pack.

The AquaPak's shallow depth and large surface area allow the sun's rays to penetrate the water much more easily than a plastic bottle. When those rays strike the black bottom panel of the pack, they are converted into heat that is radiated directly into the water. When the water temperature rises to 149 degrees F, the colored wax in the WAPI vial in the cap melts, providing a clear visual indication that the water has reached the threshold temperature for pasteurization.

Named for the man who discovered it, the famed Louis Pasteur, pasteurization is basically the process of heating a substance to a controlled temperature to kill potentially harmful bacteria. Widely used in the dairy industry and many other aspects of food manufacture, it is an extremely reliable means of disinfecting foods without having to heat them to boiling temperature.

Once the WAPI confirms that the water in the AquaPak is at the required temperature, the pasteurization process is basically complete and the number of harmful pathogens in the water has been drastically decreased. In scientific tests conducted by BioVir Laboratories in San Francisco and Environmental Engineering Laboratories in San Diego, the AquaPak eradicated over 99.99 percent of the pathogens present in contaminated water through its combined SODIS pasteurization process.

Unlike the 6 hours required to disinfect water by the SODIS method alone, the AquaPak is much more time efficient. Its large, flat shape also allows it to process larger volumes of water more efficiently. Depending on the availability of sunlight throughout the day, a single AquaPak can produce as much as 3 gallons of clean water per day.

Because of its unique design, the AquaPak can also be hung by its carrying handle in a static location or even on a backpack while hiking. It and its WAPI indicator are reusable and will last almost indefinitely.

Although the AquaPak is definitely a great addition to any disaster preparedness kit, its inventor, Frank Husson, is primarily focused on making these amazing products available to the people and communities that need them most. AquaPaks are currently in use in 57 countries that have a critical need for safe drinking water. More than 2 million people in 28 developing countries currently use the bottle-based SODIS method for daily drinking water treatment. Together, these programs have significantly improved the quality of drinking water for millions of people and drastically reduced the incidents of sickness due to water-borne pathogens.

It Works And Is Cheap

Solar water disinfection is a proven method of making contaminated or suspect water safe to drink. Like most water treatment methods, it only addresses microbiological contamination and does not remove chemicals or heavy metals. Nevertheless, it is a viable, easy to use, and incredibly economical method of ensuring that your water supply is safe to drink in a disaster situation. And it's definitely a resource that you should have in your survival toolkit.

DO IT YOURSELF

HOT BOX

Building A Solar Oven

Mike Janich

Being prepared for a disaster requires a lot more than just stockpiling supplies. It also means understanding the resources you need to make use of those supplies and how to stretch those resources as far as possible.

For example, in a survival situation, fuel — in all forms — is a precious commodity. Using it to disinfect or boil water is inefficient if not wasteful. Conversely, sunlight is a free and virtually unlimited source of energy that can be used for both water disinfection and slow cooking of many foods. And all you need to harness it is a simple solar oven.

The oven described in this article can be built in a few hours at minimal cost using mostly scavenged materials like cardboard boxes and scrap lumber. The remaining supplies you'll need, like aluminum foil, duct tape and Velcro, will only set you back about $20.

The Basic Concept

Solar ovens basically work like a greenhouse. Sunlight enters the oven through a clear "window" and is absorbed by the cooking pot and transformed into heat energy. Radiant heat energy created by this process, which has a longer wavelength than sunlight, cannot escape back through the window and is trapped within the box. This causes the temperature on the inside of the box to rise, further heating the pot and cooking the food.

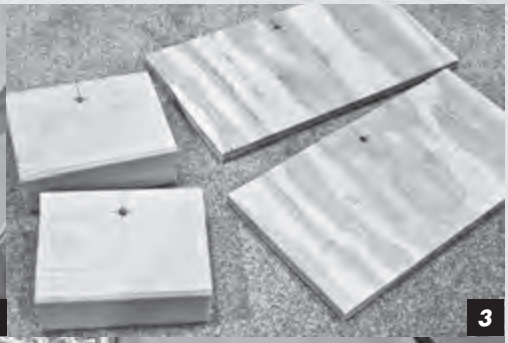
Logically, the more sunlight you can get into the box, the more solar heat gain you can create. This can be accomplished with reflectors that reflect sunlight through the window and into the interior of the box. For maximum efficiency, the oven should be moved periodically to keep it faced surely into the sun. It should also have insulation to prevent heat loss through the sides of the box.

The oven that I made for this article is based on these principles and a fusion of several solar cooker designs I found on the Internet. My design was also shaped by the availability of scavenged materials. If you decide to make an oven of your own, feel free to adapt this design based on the materials you have available.

Big Box, Little Box

The first step in making the solar





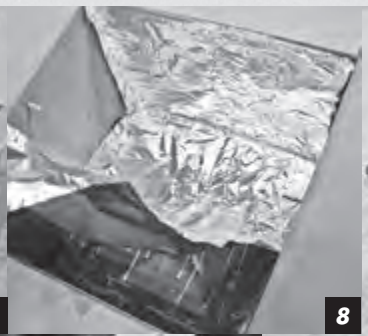

(1) The first step in planning your oven should be to choose a heavy black cooking pot, a cardboard box that will easily fit it and a medium cookie sheet. This will be the interior of the oven. (2) The outer structure of the oven should be a cardboard box several inches larger than the interior box. (3) A frame allowing it to be angled into the sun, supports the oven. Several pieces of scrap wood glued to the outer box will help support its weight. (4) Scrap 2x2 boards glued vertically to the sides of the inner box support it and the weight of the gimbal on which the pot rests. (5) Here, all the supports are glued in place. Note that they have been drilled with 1/4" holes to accommodate carriage bolts to support the oven and the gimbal. (6) To prevent heat loss, the space between the two boxes is insulated with shredded paper from an office shredder.

oven is finding a suitable cardboard box for the oven interior. To do this, I started with the cooking pot that I planned to use — a cast iron 5-quart casserole that I found on sale at a big-box store. Since I wanted to pasteurize water in the oven, I knew that I'd have to have some way of keeping the pot level when the oven was tilted into the sun. My plan was to use a medium cookie sheet (11x13") and some wire to create a pivoting gimbal. With that in mind, I knew the inner box for my oven would have to be big enough to accommodate that cookie sheet and allow it room to pivot. After a bit of scrounging, I found a corrugated cardboard box that measured: 4x12x14".

With the inner box in hand, find an outer box that is about 6" larger in every dimension. This outer box supports the oven and provides enough air space between the two for insulation to prevent heat loss.

To allow the oven to be mounted into a frame and easily adjusted, cut four pieces of scrap wood — two pieces of 2x4 and two squares of plywood — and drill 1/4" holes through them near one end. Using carpenter's glue, glue these pieces to the top edges of opposing sides of the outer box — 2x4s on the inside and plywood on the outside. Center the holes along the side of the box and insert 6" long 1/4" carriage bolts and nuts through the holes to align them. Make sure to insert the bolts from the inside out. It and the wood will support the weight of the oven.

You'll also need to glue scraps of wood on the outside of the inner box. They should be the same height as the outer box and glued vertically to


(7) The flaps of the outer box are trimmed to fold around the inner box, then glued and taped in place. The flaps of the inner box will serve as mounting surfaces for the reflector panels. (8) Coat the inside of the inner box with glue and line it with aluminum foil. This will help reflect sunlight onto the cooking pot. (9) It's made by drilling holes in a medium cookie sheet for wire "A-frame" hangers. (10) Here the gimbal is shown hung from the carriage bolts in the interior box. (11) The "window" of the oven is made from oven roasting bags, scrap lumber and glue. (12) Glue blocks at the corners of the wood frame provide strength and keep the structure square.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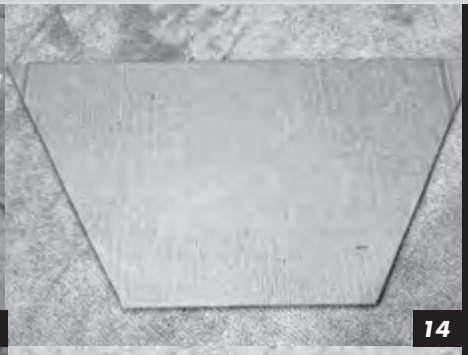
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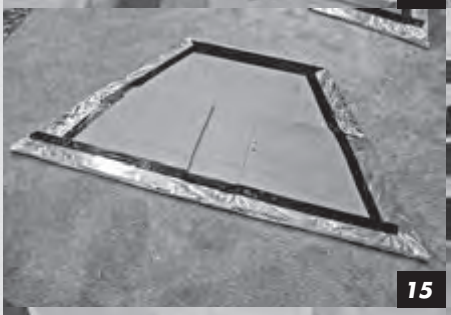
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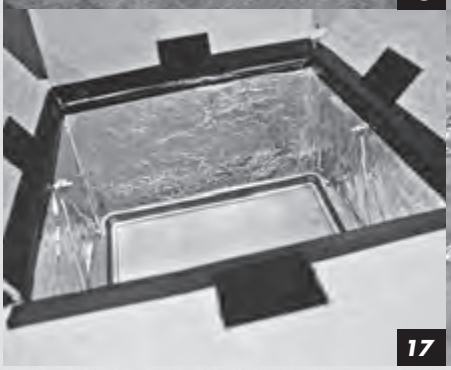
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(13) A single- or double-layered roasting bag may be used for the window. It is glued to the top edge of the frame and replaced when the sun's UV rays make it brittle. (14) The reflector panels are cut from corrugated cardboard. The bottom side is the same width as the flap of the oven's interior box. The top-side is 2.5-times that length. The height of the panel is 1.5-times the length. (15) The reflector panels are covered with aluminum foil, then held in place with duct tape. Mylar survival blanket material can also be used. (16) The diagonal edges of the reflector panels are secured with adhesive Velcro tabs and strips. This allows them to be removed for transportation and storage. (17) The reflector panels are attached to the flaps of the interior box with Velcro. (18) The reflector panels attach to the interior box flaps.

the centers of opposing sides of the inner box. Drill 1/4" holes through, both near the top. Insert 1/4" carriage bolts through both pieces and secure them with a flat washer and a nut. These will support the weight of the gimbal and pot.

Insert the inner box into the outer box so all the wooden supports are on the same sides. Trim the flaps of the outer box so when they are folded down they evenly enclose the inner box. Then, pack the air spaces between the boxes with shredded paper or crumpled newspaper to serve as insulation and tape or glue the flaps of the outer box down. The top flaps of the inner box should extend slightly above the outer box so they can be used to attach the reflector panels.

Next, coat the inside of the inner box with glue and line it completely with aluminum foil so the shiny side is visible. This will reflect the sunlight directed into the box onto the cooking pot.

The Gimbal

To make the gimbal (a self-leveling platform) that will support the pot, drill two holes in each of the short ends of the cookie sheet. Cut two pieces of heavy wire (picture hanging wire works great) and thread them through the holes to create "A" shaped hangers. Place the loops at the top of the hangers over the carriage bolts on the inside of the oven and hold them in place with washers and nuts. When the oven is tilted to face the sub, the gimbal will automatically stay level and keep the food from spilling.

The Window

The window of your solar oven can be made of glass, but a cheaper, easier, and less breakable solution is to make it from an oven roasting bag and a simple wooden frame.

Measure the inside top edges of the inner box and cut four pieces of scrap wood (wooden lath strip works great) to length. Also cut four right triangle glue blocks for each corner. Glue the frame together with carpenter's glue and let it dry. Then apply glue to the top edge and glue the oven bag in place, stretching it as tightly as possible. You can either cut the bag along the edges to create two panels of plastic, or use it "as is."

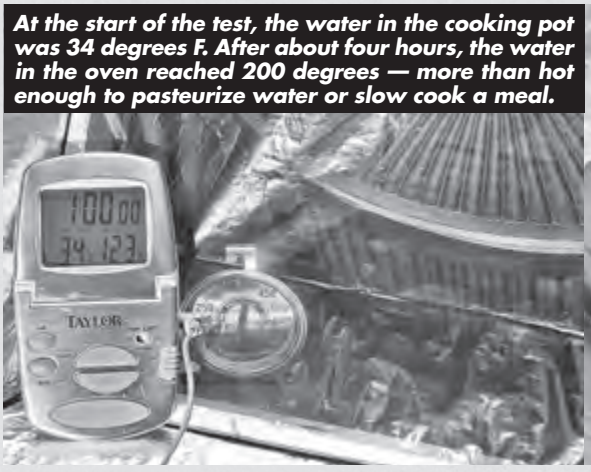
Once everything is dry, test the fit of the window in the box. It should fit snugly so it traps heat inside the box.

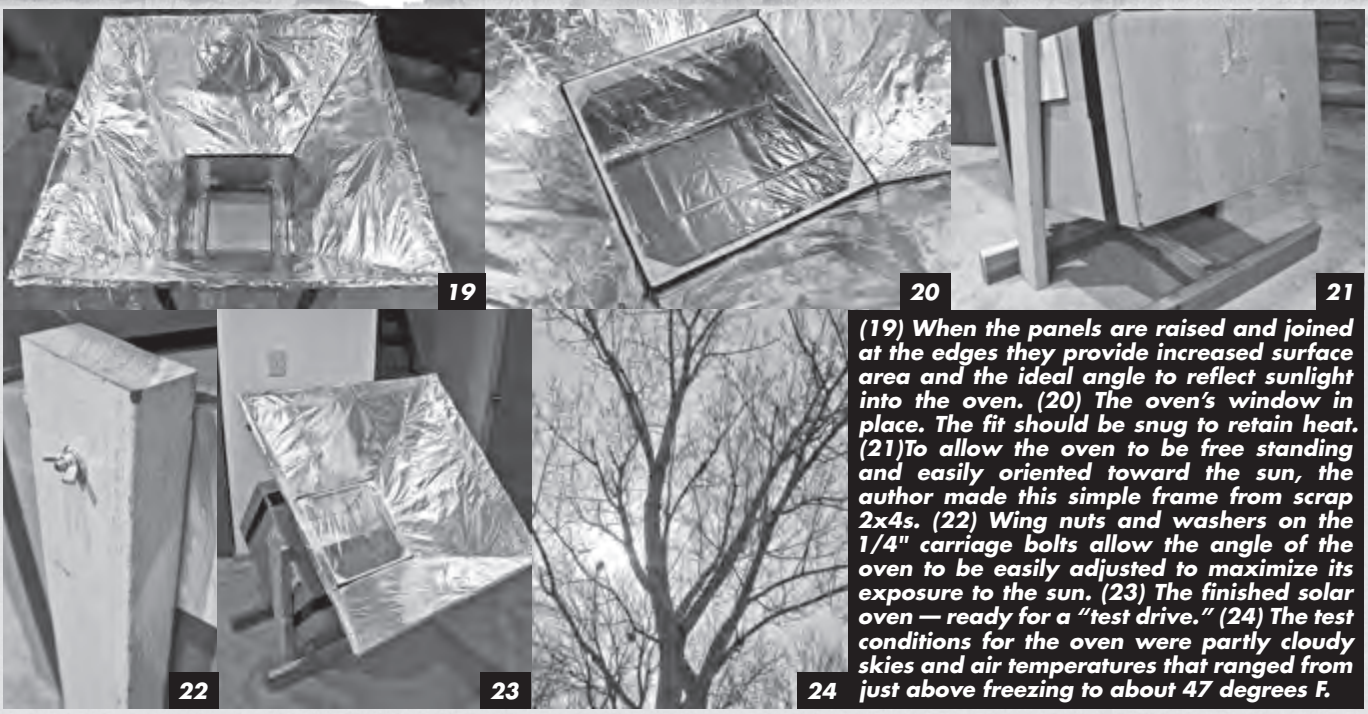
Reflector Panels

To maximize the amount of sunlight directed into the box, I decided to use four reflector panels. When set at 60 degrees to the plane of the window, they reflect almost all their light into the box. The easiest way to achieve that angle and ensure a strong structure is to join the reflectors at their edges to create a "funnel."

Start by measuring the widths of the top flaps of the inner box. This measurement determines the length of the short side of the trapezoid-

At the start of the test, the water in the cooking pot was 34 degrees F. After about four hours, the water in the oven reached 200 degrees — more than hot enough to pasteurize water or slow cook a meal.





(19) When the panels are raised and joined at the edges they provide increased surface area and the ideal angle to reflect sunlight into the oven. (20) The oven's window in place. The fit should be snug to retain heat. (21)To allow the oven to be free standing and easily oriented toward the sun, the author made this simple frame from scrap 2x4s. (22) Wing nuts and washers on the 1/4" carriage bolts allow the angle of the oven to be easily adjusted to maximize its exposure to the sun. (23) The finished solar oven — ready for a "test drive." (24) The test conditions for the oven were partly cloudy skies and air temperatures that ranged from just above freezing to about 47 degrees F.

shaped panel. The long side of the trapezoid will be 2.5-times the length of the short side, and the distance between the two sides should be 1.5-times the length of the short side. If you have a square box, your panels will all be the same size. If your box is rectangular, you'll have two longer sides, but the final result will still be the same.

Cut the panels out of heavy corrugated cardboard. If necessary, you can glue two layers together, crossing the direction of the corrugation, to make the panels stronger. You can also use foam-core hobby board, but it's expensive and not a salvage item like cardboard.

With the panels cut, the next step is to cover them with heavy-duty aluminum foil, shiny side out. Fold the foil over the edges and tape it in place. If the panels are wider than the foil roll, overlap the foil slightly and use glue or clear tape to secure the seam. If desired, you can use a reflective Mylar "space" blanket instead of foil. Although it's slightly more reflective, it's harder to work with, so I prefer foil.

In my design, I wanted the panels of the oven to be removable. That makes the oven easier to move and store and allows easier access to the oven. To do this, use pieces of adhesive-backed Velcro to secure the narrow side of the panels to the flaps of the inner box of the oven. Raise the panels up until the angled edges meet and use Velcro to secure them. With everything secured, the panels should form a large funnel. No matter where the light hits the panels, it is reflected into the interior of the oven. If you have a laser pointer, aim it straight at the panels like the rays of the sun and you'll see how this works.

The Stand

To work effectively, the solar oven must be oriented so the sun shines directly into the oven interior, the rays passing through the "glass" perpendicularly. Although many solar cookers use bricks and other materials to prop the oven up, I wanted something that would allow the oven to be free-standing and easily oriented. To do that, I built a simple wooden base from scrap 2x4s.

To build the base, first measure the width of the oven from the outside of one plywood panel to the other. This is the distance you'll need between the uprights that will support the oven. You also need to measure the distance from the bottom of the oven to the carriage bolts that will support it and add about 8". This will determine the height of the uprights and provide clearance for the oven to tilt.

Using 3" deck screws, build a simple H-shaped 2x4 base wide enough to accommodate the spacing of the uprights. Then, drill 1/4" holes near the top of each upright and slide the uprights over each of the carriage bolts. Secure them in place with flat washers and wing nuts. Then, position the uprights so the oven is centered on one side of the "H" frame and attach them with 3" deck screws. Your solar oven is now complete.

Setting Up Your Oven

To set up your oven, first find a level area that receives full sunlight for most of the day. Position the oven so it faces the sun and loosen the wing nuts in the carriage bolts that support it. Tilt the oven and adjust it laterally until there are no shadows on the interior of the oven. That means it's facing straight into the sun. Tighten the wing nuts and ensure that the gimbal is level or at least nearly so. Place your cook pot (which must be black and have a tight-fitting cover) on the gimbal and then insert the window frame into the top of the oven interior to seal it. It should fit snugly to trap hot air in the oven.

Now, just let the sun do its job. You'll want to check on the oven every 30-60 minutes and tune its orientation to track the moving sun. A digital cooking thermometer with a wired probe is handy, since it can be placed in the pot and the wire run to the outside of the oven. This allows you to monitor the temperature of the food as it cooks.

Test Drive

The initial testing of my solar oven was done in February with an outside temperature that ranged from freezing to about 40 degrees F. I placed a pot full of cold water in the oven and adjusted its position once an hour. Despite slightly overcast winter skies, the water's temperature went from 34 degrees F to a maximum of 201 degrees F in about 4 hours and stayed steady at 200 degrees F for an additional 2 hours.

Since that test, I've used the solar oven in better weather to slow cook rice, beans, and a number of crock-pot-style recipes. It definitely works, it's fun and, best of all, the sunlight is free.

CHAIRMAN OF THE BOARDS

Mike Janich

Installing the window insert. Once in place, it is secured to the window frame with long wood screws.

Anyone who has ever lived in a hurricane-prone area is familiar with the process of boarding up your windows to protect against the effects of nature's fury. More importantly, anyone with firsthand experience of this process knows the absolute worst time to start thinking about it is when everyone else is doing the same, and plywood is suddenly worth its weight in gold.

If you don't already have, or can't afford purpose-designed storm shutters, properly applied sheets of plywood are your next best option to protect your windows and your home's interior from serious damage. In addition to covering your windows and protecting them from flying debris, they can also increase your home's security should you be forced to evacuate and leave it uninhabited for a period of time.

Like all things related to disaster preparedness, the sooner you start to address the process of boarding up your home, the better prepared you're going to be. In this case, however, the advantages of early action are pretty compelling.

Haves And Have-Nots

One obvious advantage of planning now is simple availability of materials. When a storm is already on its way and everyone is frantically trying to prepare, the normal supply system is quickly overloaded. You may not be quick enough to buy the materials you need, you may not get enough material to do the job properly and, quite possibly, you may end up paying far more than the standard price.

Taking the time to start buying plywood now offers many advantages: you can spread your purchases out to make them more affordable and convenient, take advantage of any lumberyard sales, and ensure that, if you don't already own a pickup truck or similar vehicle, you can borrow one to transport your materials. Obviously, it also ensures that you can actually get the materials you need.

Buying ahead also means that you can work ahead. One of the many effects of major storms (and other potential disasters) is their effect on electrical power. And since the operative word in "power tool" is power, cutting plywood to fit your windows properly is a task best done well in advance of a disaster.

Hurricane Shutters

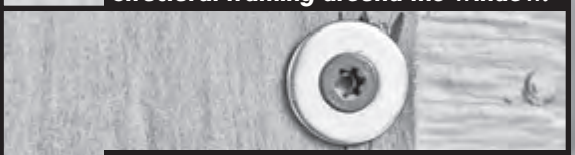
First of all, you should understand that preparing for a hurricane is different than keeping looters out of your house. The winds and flying debris associated with hurricanes are tremendously powerful and destructive, so you need to prepare accordingly. The best solution is to install actual hurricane shutters that are approved by the building code in your area. Plywood shutters will always be second best to purpose-designed ones, but they are better than nothing.

To make plywood hurricane shutters, first make sure that you buy exterior-grade plywood that is at least 5/8" thick. Then, take a close look at the windows of your home and determine the best way to install the shutters. If you're lucky, the windows will be set in from the surface of the exterior wall at least 2". If so, you can cut your shutters to fit inside the window recess. This keeps the high winds

INSTALLING IMPROVISED WINDOW SHUTTERS

***Socket as a screwdriver:** If the power goes out, a socket wrench with a 1/4" socket can be used as an improvised power screwdriver.*

***Lag bolt:** For hurricane protection, flush-mounted shutters should be installed with lag bolts that anchor deep into the structural framing around the window.*



***Torx:** For security against looters and intruders, use non-standard screw heads for your mounting screws — like the Torx head shown here. Note the screw passes through a flat washer to increase the surface area in contact with the plywood and make prying it off more challenging.*

***Power drill:** Make sure your power drill is charged and consider investing in an extra battery so you can mount your shutters even during a power outage.*

from getting under the edges of the plywood and tearing it off the house.

To cut your plywood to fit, measure both the top and bottom and both sides of the window recess and check the corners with a carpenter's square. Most windows are not perfectly square, so adjust accordingly to replicate its actual shape. Transfer that shape to your plywood and cut it out with a table saw or jigsaw.

With the panel cut to size, the next step is to install barrel bolts (the latch hardware that operates like the bolt of a rifle) about every 18" around each panel. The ends of the bolts should be flush with the edges and the protruding end of the bolt facing outboard. Place the panel in the window, mark the spots where the barrel bolts touch the window recess, and then drill holes into the recess to allow the bolts to extend into them. If the wall around your window is brick, concrete, or stucco, you'll need a masonry bit to do this — and a fair amount of time. That's another reason to start now.

If you don't have recessed windows, you'll have to mount your plywood shutters flush to the surface of the outer wall. You'll also have to anchor them very securely into the framework of the wall to keep them from being torn off by the wind. To do this, it's best to cut the panels at least 8" larger than the size of the window so you'll have 4" overlap on all four sides. Drill a series of holes 2" from every edge about 18" apart. Then, center the shutter over the window and mark through the holes onto the wall. With those marks as guides, drill holes into the wall to receive lag bolts. For windows 3x4' or smaller installed on a wood frame house, use 1/4" lag bolts and plastic-coated permanent anchors. The lag bolts must penetrate the siding and frame surrounding the window at least 1-3/4". For larger windows, use 3/8" lag bolts that penetrate the wall and surrounding frame at least 2-1/2".

To finish your panel, drill four small holes in the center of the panel to equalize air pressure and, if necessary, attach handles to it to make it easier to maneuver. You'll also want to waterproof it with exterior paint or weatherproof sealant. Finally, do a basic sketch of your house and number every window that receives a shutter. Then, as you complete each panel, number them to match to prevent confusion when installing them.

Security Shutters

If you don't live in a hurricane-prone area, shutters may still be a viable and desirable addition to your home security. During normal circumstances, the standard level of physical security of your home should be adequate to prevent intrusion. However, if a disaster or emergency situation arises, normal may cease to exist and you may choose to harden your home to eliminate possible avenues of forcible entry. For example, if you have a typical, well-prepared home, your doors are all high quality and properly reinforced. Your ground-level windows are also secured by means of an appropriate alarm system that detects glass breakage or open windows. If a window is breached, the alarm gives you the time to react and get to safety and summons the cavalry.

In a disaster scenario, the cavalry won't be coming, so you'll need to fend for yourself. And the better prepared your resources are within your home, the more attractive they may become to scavengers, looters, and other miscreants outside your home.

The process of securing your windows against this type of threat can be very similar to the process described above for the threat of a hurricane. The difference is that you'll be less concerned about wind and water

Window insert: A simple window insert can be installed from the inside to secure potential avenues of entry. The insert is made from a piece of plywood and a 2x4 frame. Note the foam insulation panel to help retain heat.

Window insert back: The other side of the window insert panel. Now that's classic plywood!

Interior window: This basement window is vulnerable to entry through the window well outside.

Power saw: Cutting plywood to fit windows properly is best done with power saws, and they work best with — power. Since blackouts often accompany disaster situations, it's best to plan ahead.

(Left) Recessed window: For hurricane protection, it's best if your windows are recessed at least 2" from the face of the wall so the shutter can be mounted inside the recess. (Right) Improvised window shutters are a great way of protecting your home against the elements and potential intruders, but if you want to use them in a disaster, you need to start working on them now.

and more concerned about bad guys with tools and weapons. With that in mind, shutters secured by barrel bolts alone are not a good idea. If someone wants in, they can easily remove the shutters without even needing tools.

For security purposes, flush-mounted shutters are a better choice. They should be made as described above and still anchored securely into the framework around your windows, but they should also have the benefit of tamper-resistant screw heads. Rather than conventional hex-head lag bolts, use 3" deck screws with Torx, square-drive, or some other specialty screw head. That will make it more challenging for the average thug with a screwdriver to remove the screws to get inside.

You should also use a flat washer with every screw to spread the force of the screw head over a larger area of the plywood. That will make it more difficult to pry the plywood away from the house over the screw heads.

Kiss My Axe

When I was a kid in Chicago, our neighborhood had a rash of garage burglaries. Since our lots had unattached garages located far from the houses, thieves would target the side doors of the garages with a fire axe. A couple of chops would usually go unheard, yet be enough to break the door panel to reach through and open the lock. Once inside, it was an easy process of gathering tools, loading them in a waiting car, and driving away.

I clearly remember spending a long summer day with my Dad sheathing our garage door with Masonite. Glued and screwed over a wood door, Masonite provides a hard outer shell that literally causes axes and similar tools to bounce off. If you're the overachieving type, you might consider adding a layer of Masonite to your plywood security panels.

As described earlier, once your security shutters are complete, number them for easy reference and coordination with the correct windows. You'll also want to make sure that you keep your cordless drill charged and maybe get an extra battery. That way if the power goes out when the balloon goes up, you'll still have enough juice to install your shutters. As a backup, get one of the "Yankee-style" push-driven screwdrivers or remember that an ordinary socket wrench with a 1/4" socket will accept 1/4" drive bits, making it a very useful, improvised power screwdriver.

Window Inserts

If the idea of boarding up your house from the outside doesn't appeal to you — or if your house design makes it

impractical — you may want to consider window inserts that can be installed from the inside. These are basically plywood panels that fit into the window wells on the interior of your home. The outer edge of the panel is supported by a simple wooden frame that allows you to secure it into the frame around the window with deck screws.

The advantages of interior window panels are that they don't expose any exploitable screws or edges to the bad guys, you don't have to go outside to install them, and they can be embellished to provide additional benefits. Their down sides are that they are larger, heavier, and harder to store and they do nothing to protect your window glass.

To make a window insert, measure the window well top and bottom and both sides and check if the corners are square. Most aren't, so invest in a carpenter's bevel to measure and replicate the corner angles on your plywood. Cut the plywood panel to fit and then add a 2x4 frame around the perimeter of it. Secure the panel to the frame with wood screws or, if you're an overachiever like me, with glue and wood screws.

Test fit the assembled panel in the window and sand or plane as necessary to get a proper fit. Then, predrill a series of holes through the 2x4s for the deck screws that would secure it into the window frame, number it to match the window, and mark the top for easy orientation.

The basic panel provides a formidable barrier against intrusion. If you're concerned about giving up your ability to visually monitor that area of your home perimeter, get a fisheye peephole and install it as you would in a door. In cold climates, consider adding a panel of Styrofoam insulation to conserve the heat in your home. And, if you'd like to add some ballistic protection, save up some old phone books, thick catalogs, or even hardcover books. Tape the edges so they will stand on end and use them to line the inside of your window insert. If necessary, add a retaining panel to keep them in place. While not perfect, books offer pretty substantial ballistic protection and are certainly better than nothing.

With some inexpensive materials, a few simple tools, and — most importantly — a good head start, you can significantly improve your home's safety and security in a disaster situation. *So what are you waiting for?*

BAD BREATH: DIY BLOWGUNS

DEADLY AND EASY TO MAKE

Michael Janich

The blowgun is a surprisingly powerful, effective and silent weapon ideal for many survival applications.

My first real exposure to blowguns was when I was about 13. I was warming up before martial arts class when I saw the head instructor walk in with a 6' mailing tube under his arm and a mischievous smile on his face. Opening the tube, he reached in and pulled out a 5-1/2' .38-caliber blowgun and a fistful of darts that looked like large needles with plastic beads on the ends.

For years I had seen ads for Jivaro Blowguns in the back of magazines with a photo of a guy holding up a "35-pound anteater killed without poison." Like much of the junk advertised in the back of magazines, I dismissed the ad as hype and, in the process, pretty much wrote off blowguns as well. As kids we all shot paper spitballs out of our pens, but I didn't believe a blowgun could be a serious weapon.

Sensing my skepticism, my instructor agreed to not only demonstrate his blowgun, but to let me try it as well. The only condition was I had to retrieve the darts. No problem, or so I thought. The instructor loaded a dart into the breech of the gun, took aim at the school's plywood sign at the other end of the dojo, and blew a focused breath into the gun. The dart flew across the room with much more authority than I expected and stuck in the sign with a resounding "twang." He repeated the process a few more times and then told me to go get the darts.

I walked over to the sign, took a firm grip on one of the darts, and pulled. Nothing. I pulled harder. Still nothing. After several more vain attempts, I turned around to see my instructor with a huge grin and a pair of pliers. With the help of the

pliers, I was able to remove the darts and realized they had penetrated 1/2" into the solid plywood. I also had much greater respect for blowguns.

To prove it wasn't a trick, my instructor let me shoot the gun. After just a few shots, I was achieving the same power he was. I also knew I had to have a blowgun.

First Effort

The next day, I made my first blowgun from a piece of plastic tubing I found in our garage and a 35mm film can for the mouthpiece. The darts were made from long pins and plastic beads I bought at a sewing store. It wasn't perfect, but it definitely worked.

In the 35+ years since then, I have made dozens of other blowguns and amassed a sizeable collection of both commercially made and native blowguns. In the process, I've learned a lot about what makes blowguns work best and refined my blowgun-making skills considerably. Based on my background, this article will lead you step-by-step through the process of making a homemade blowgun and a variety of darts and projectiles for just a few dollars.

Why A Blowgun?

The blowgun is an excellent tool for the survivalist because it fits a niche few other weapons can. It and its projectiles are extremely inexpensive, can be reused repeatedly, and can be stored indefinitely. With proper projectiles and tactics, it's effective against small game and excellent for pest control. Best of all, it's low powered and completely silent, ideal for discreet use in almost any environment.

Another great benefit of the blowgun is it's amazingly simple, quick, and inexpensive to make and the component parts for it can be easily scrounged. A case in point: Back in the early 1990s, I was working for the US government and was required to travel to Vietnamese refugee camps throughout Asia. One camp, on Pulau Bidong in Malaysia, had a serious rat problem. The camp administrators put out a bounty on rats, offering choice food supplements in return for every rat-tail turned in. The enterprising Vietnamese knew breeding rats was far easier than catching rats, so that's what they did. Unfortunately, the rats easily chewed through the bamboo cages the refugees made and the rat population on the island skyrocketed.

Sleeping with rats was never high on my fun-to-do list, so I looked for a way to at least protect my area. A quick walk through the admin office yielded a 5' piece of electrical conduit, an empty 2-liter bottle, some typing paper, large paperclips and Scotch tape. Thirty minutes later, I had a functional blowgun and by the next morning, two of my would-be rat roommates had met their maker.

DIY Blowgun

The key component of a blowgun is a tube of some sort with an inside diameter of 3/8" to 5/8" and a smooth bore. Although it's possible to use tubing with a smaller or larger bore diameter than this, this range works best at harnessing your breath effectively. Although traditional blowguns could be more than 10' long, for practical purposes, 3' to 6' works well.

One of the least expensive and easiest to find barrel materials is 1/2" Schedule 40 PVC pipe. For this article, I bought a 10' piece at a local hardware store for just over $3. I used a hacksaw to cut off a 6' section for the barrel and still had enough for a second, shorter blowgun.

Once you've cut the barrel to length, clean up the edges of both ends with a file or sandpaper to remove any burrs that might affect the flight of your darts. For best results, sand or chamfer inside the mouth of both ends of the tube.

The DIY blowgun and several styles of homemade darts.

The materials for the DIY blowgun are simple and very easy to find.

The process for making a blowgun is simple. First, cut the PVC barrel tube to length with a hacksaw.

Sand the ends of the barrel to remove any burrs that might affect the darts' flight.

Cut the mouthpiece from the neck of a 2-liter soda bottle.

Trim the mouthpiece to size with scissors.

Sand the edges of the mouthpiece smooth with sandpaper.

Slip the mouthpiece over the breech end of the barrel.

Tape the mouthpiece to the barrel with duct tape.

The other component of the blowgun is the mouthpiece. Again, to keep things easy and cheap for this project, I used the neck of a 2-liter soda bottle. With a pair of scissors, I cut off the neck of the bottle, leaving a generous amount of extra plastic around it. Then, carefully trim the bottle's neck into a circle about 1-1/2" in diameter. Remove any sharp or jagged edges by sanding them with fine sandpaper.

Once you've achieved the finished shape of the mouthpiece, slip it over one end of the barrel tube. Its inside diameter is very close to the outside diameter of the tube, so the fit is typically pretty good. To make sure it stays in place and to ensure an air-tight seal, wrap a piece of duct tape or electrical tape around the outside of the neck and tube. Your blowgun is now complete.

Depending upon the length of your gun, it may sag slightly when held out in a shooting position. Also, although you should always pick the straightest tube you can find, sometimes there will be a slight bow in it. To make your gun as accurate as possible, play these two dynamics against each other so they cancel each other out. Hold your gun up and look through the bore at the circle of light at the muzzle end. Then rotate the gun until you see a perfect — or at least near-perfect circle. Mark the top of the mouthpiece or barrel for easy reference.

For the record, the total time required to make the gun shown in this article was less than 10 minutes.

DIY Darts

Traditional blowguns typically shot wooden or bamboo darts about 4" to 12" long. Tapered to a sharp point and in some cases featuring a carved miniature broadhead, these miniature arrows were effective on small game. For larger game, the wooden darts were the perfect vehicle for delivering poisons, since the porous wood allowed the toxin to stick to the surface. In some cases, the shaft of the dart was notched just behind the point so it would break off in the wound, leaving the poisoned tip in the flesh to do its work.

In order for the blowgun to launch a dart, the dart must be able to achieve a good air seal in the bore. Native blowgunners typically did this by attaching a "stopper" to the rear of the dart made from a small plug of cork or similar lightweight wood. Some cultures also wound kapok or thistledown around the base of the shaft like a cotton swab to create a seal.

Wrapping cotton balls around the blunt end of a bamboo barbeque skewer makes wooden darts. The result is like a big cotton swab.

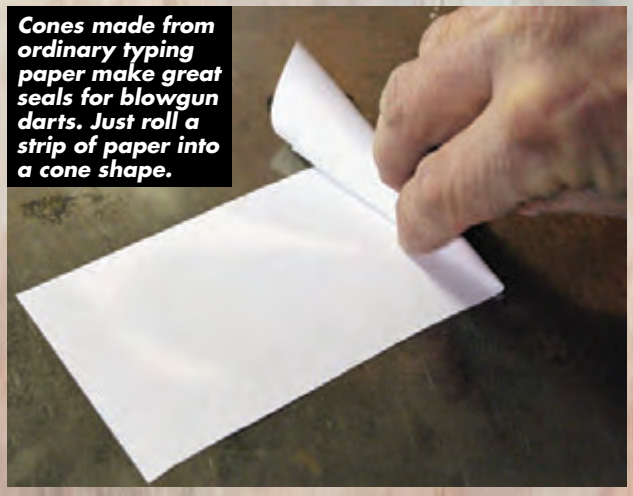
Check the fit of the dart's seal by cutting a small section of barrel tube for test fitting.

The easiest way to adapt these native dart-making strategies to a modern DIY approach is with bamboo barbeque skewers and ordinary cotton balls. First, check to make sure that your skewer is straight so the dart will fly true. With a pocketknife, carefully carve a few shallow notches into the rear of the dart to "snag" the cotton. Spin the dart shaft in your fingers as you feed the cotton around it to form a ball the same size or slightly larger than the bore diameter of the gun. Once finished, you can also spray the cotton with clear lacquer or paint so it will endure multiple shots.

A more modern dart construction method mirrors commercial darts, which typically feature shafts made of spring steel wire about .04" in diameter. This wire can be purchased at most hobby shops or you can substitute nails, bicycle spokes or, as I did in Malaysia, even straightened heavy-duty paperclips.

To make a quick, easy and aerodynamic air seal, take a strip of typing paper about 2" to 3" wide, roll it into a cone, and tape the edge with Scotch tape. Next, wrap a short piece of double-sided tape around one end of the wire shaft to create a small cylinder. Insert the point of the shaft through the open end of the cone and pull it through until the tape cylinder sticks into the cone's point.

A useful trick to trim your dart cone to the right size — as well as a great gauge for testing all your darts — is to cut a short piece of barrel tube and rub pencil lead on the inside edge. Insert the dart cone, twist it to create a mark, and then trim to the mark with scissors. Test with the short tube

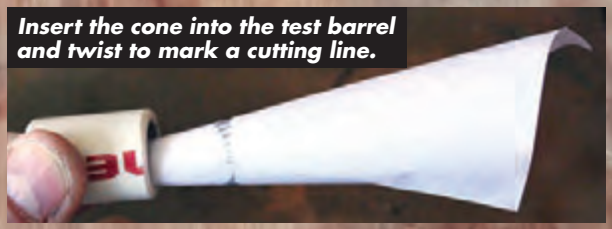


Cones made from ordinary typing paper make great seals for blowgun darts. Just roll a strip of paper into a cone shape.

Secure the end of the cone with Scotch tape.

Using a shaft made from spring steel wire or a similar material, wrap the end with a few turns of double-sided tape to create a small cylinder.

To cut the cone to the proper diameter, mark the inside of the bore of the small test barrel with a pencil.



Insert the cone into the test barrel and twist to mark a cutting line.

Insert the wire dart shaft through the mouth of the cone and pull until the tape cylinder sticks in the narrow end. If desired, you can add a few drops of white glue inside the cone.

Out of a 5' DIY blowgun, the bamboo skewer dart achieved a velocity of 161 fps and easily stuck into solid wood.

The spring steel/paper cone dart achieved a velocity of 172.2 fps.

To demonstrate the power of the DIY gun, Michael used it to shoot this dart through a piece of 5/16" of plywood.

to ensure a good fit. Again, sealing the cone with spray paint or lacquer will make it last longer.

Test Firing

To shoot your blowgun, pick a safe place and an appropriate target and load a dart into the breech. Hold the gun with one hand near the mouthpiece and the other supporting the barrel. With your mouth away from the mouthpiece, take a deep breath. Press your lips against the mouthpiece to create a firm seal, take aim and blow a quick, explosive breath into the gun. Think of gunpowder exploding, not playing a cheap trumpet and you'll quickly get the hang of it.

To assess the performance of my DIY blowgun, I first chronographed several shots with each style of dart. The 5' gun launched the bamboo dart at an average of 161 fps and the spring steel/paper cone dart a respectable 172.2 fps. To see how this translated to effect on target, I took aim at a 5/16"-thick piece of plywood with a 7.5" spring steel dart. The dart easily punched almost half its length through the plywood.

Blowguns have no sights, so aiming is mostly instinctive. Nevertheless, I had no problem hitting an orange consistently from 30'.

A blowgun is a practical addition to any survival arsenal and one of the easiest weapons to "MacGuyver" from very basic materials. For less than $5 you can crank out a highly functional gun and a batch of darts in less than an hour and wreak havoc on rats, squirrels and similar-sized quarry. Best of all, you can do it silently and with controlled power no other weapon can match.

Try here:

gunsmagazine.com

Jacob Herman

You've Stored The Grain

Now it's time to make bread

You will not rise to the occasion — you will default to the highest level of training you have mastered. Skills are needed in a survival situation. Skills you have mastered will be your No. 1 resource. One of the skills needed during a disaster is cooking; there will be no fast food, no salad bar, no frozen dinners and no aisles full of sliced bread. If you did not prep, there will be hunger. If you had the foresight to actually stockpile food then you will have to prepare it. There are only so many MREs you can eat, and freeze-dried food is expensive and requires large amounts of water. A few issues ago I wrote briefly about food storage. Most of the food we store is dried food with an extremely long storage life. Buckets of wheat, rice and beans last for years. The one problem for most people is knowing how to prepare this kind of food.

Americans began going to the store post World War II. Huge advances were made during the war, and after the war was over men began working in factories more than farms. We, as a culture, moved farther and farther away from the farm. This meant less and less people were actually involved in growing, processing and making food. Instead of growing wheat, grinding the wheat and making the bread, we go down to the supermarket and buy a loaf. If you plan on eating bread during a long-term disaster, then you are going to have to learn how to make it yourself.

Raw Goods

Actually grinding wheat and making bread is so foreign to some Americans they don't even know that you get flour from wheat. For those who do know wheat is connected to bread, they don't understand the concept of the wheat berry. I asked a woman once what kind of grinder she had purchased with her food stores. She did not even know she needed a grinder. She

Whole-wheat berries on left and the fresh finished wheat flour from the Nutrimill on the right.

actually believed the big 5-gallon buckets labeled wheat contained wheat bread. The lady had no idea what she was going to do with all the food she had purchased. Sad state of affairs, but true all over America. She was just another example of a person who threw a bunch of money into a problem, but did not really fix anything. Here is a current real world problem that you will face in a disaster.

buckets of dried foods. In many ways, if you poured it into jars and crocks, it looks like the food our ancestors ate when they conquered the wilds of America. Dried fruits and veggies, and buckets of grain covers about 85 percent of what you bought. In any survival manual you read, it will tell you wheat and corn are the cornerstone of a food storage program. This doesn't mean storing flour, but storing whole, unground grains. The

be wheat flour, and you will be getting a wheat-style bread. Empires have been built on the grinding of grains. Throughout the centuries, the gristmill owner was a wealthy man in the community, and at the turn of the century flour companies dominated advertising time. Country legend Hank Williams Sr. actually made his first recordings for a flour company. This should impress upon you how important turning wheat into flour

"Grain is a cheap and efficient way to store food. Learn to grind, store and cook with it and you will never go hungry."

Women in developing countries spend a quarter of day just getting enough water for the family. This doesn't count the food preparation and cooking. Cooking requires most of the time of the day. Preparing, cooking and storing takes hours without modern appliances and prepackaged food.

After some reading up on the Internet, you decided to order a year's supply of food from a vendor. You may have used Emergency Essentials or Wise Foods, or one of the many countless Internet suppliers. What arrived were boxes and

reason for this is wheat will last for years as long as it is not wet. A bucket of wheat that is not nitrogen packed will last for at least 5 years — just keep the bugs out. Flour on the other hand doesn't last very long; flour will go rancid very quickly.

Making Bread

So how do we get bread? To start the process you have to grind the raw wheat into flour. Keep in mind this will not be the bleached white flour you buy once a month in the store. This will

has been for the survival of the human race. You need to purchase a grinder so you will not be giving part of your stored food to the guy who has one. This is how a gristmill worked — the mill owner took part of your flour and sold it to pay for the services.

I always, always suggest buying the Country Living Grain Mill, as it's hand operated and adjustable. The grinding portion is made from stainless steel and not stone. The large crank wheel has a "V" cut into it so you could hook it up to an electric

Nutritious organic wheat and raisin bread. This bread's ingredient list is mainly wheat, milk, raisins, yeast and honey. This bread can be made using a home grinder.

The reservoir of the Nutrimill will hold several pounds of grain. I do not fill it all the way up as I do not want that much flour on hand.

The vibrations of the Nutrimill will ensure that the grain is moving properly. No reason to handle it or help push it down inside. It is a very hands-off operation.

motor or even an exercise bike. The Country Living mill will literally last forever, but is not always the most convenient. My mother who has gotten into grinding grains pointed out "she did not want to be stuck in the kitchen turning a handle." If you are going to use your food storage program on a regular basis I would buy two different grinders, a electric one for the kitchen, and a hand grinder for the bad times. I borrowed a Nutrimill to grind some wheat for this article. The Nutrimill is very common in the US. It's used in commercial kitchens and some bakeries even use them. It does have some issues I do not like. It is electric, plastic, loud and I can't see how fine the flour is without stopping the entire operation and removing the bowl. This is annoying if you are used to a hand grinder. The upside is it's electric, lightweight and you don't have to crank it. If you have a power source plan during an emergency, the electric version may free up some time to do other chores.

This is the top of the storage container located beneath the grinder. Make sure the seal between the machine and the storage container is sealed or you will end up with a flour cloud all over the kitchen.

The vent and fill hole on the storage bowl. All of the flour is shot through the small square hole. This area seals to a male portion on the actual grinder.

Nutrimill controls. I run this batch on high, while maintaining a finer ground. You will need to check the flour for yourself to ensure you are getting what you want.

The Nutrimill comes completely apart into four sections. The base, the grinder, storage area also contains the lid, and a bolt that holds it all together.

Start Small

The first few times you grind wheat using the electric mill you will need to start with small amounts. There is a large range of adjustment on the machine. You will need to find the coarseness you are comfortable using. Be careful, you can burn the motor out if not enough grain is moving through the machine. You will also be able to tell by the sound the machine is making if you are grinding, (you can actually hear the wheat berries being turned into flour). You will be able to feel when the grain starts grinding as you adjust the knob. You can make the flour very fine, just like you would purchase in the store, but it takes longer. If you are more concerned with getting calories in the body then crank it to course and let it ride. A warning, you will end up with a larger amount of flour than the grain you poured into the machine.

Once you have turned the grain into flour, then you can use it in any recipe. It works just like the flour in bags you buy at the store. You will want to make sure the grind is the right type of flour for the recipe you are using. There are several types of wheat in your food storage, or at least there should be. Hard red winter wheat is the most used in prepackaged food storage programs. I used organic white wheat in this article. It has a milder flavor, and is fantastic for making breads. You can also crack it open and eat it for breakfast. I like it for baking better than the hard red winter wheat. I store organic wheat. Organic costs more, and will probably be harder to obtain. I feel like it is worth it in the long run. I am not a fan of the pesticides sprayed all over

On the left is whole-wheat organic pasta made using a grinder such as the Nutrimill. The right is commercial "kids" pasta that listed 47 ingredients. The only ingredient for the wheat pasta is listed as wheat flour.

crops in the United States so I use organic when I have the option.

Just The Beginning

Wheat is only one of the cornerstones of food storage. I will admit it is a large one, but there are dozens of other food items you will need to learn how to use. Dehydrated fruits and vegetables cook differently than canned items. The best way to learn how to cook for a disaster is cooking when you are not in the middle of one. Since you buy food for storage in bulk it's usually cheaper overall than shopping at the grocery. There are many excellent cookbooks on using storage foods. Implement your food storage program in your daily cooking will help ensure you will not be caught with your pants down during a disaster. I stress to preppers all the time that the middle of a disaster is not time to be perfecting a skill. Do your homework before the lights go out.

Do not let not owning an old-school wood oven stop you. Bread does not only come in shiny bags, pre-sliced. Bread can be fried, baked or even boiled. Most fried bread will be of the pita type, or in the western states known as Navajo Bread. It involves making dough and then beating it into a disk. This disk is then fried in oil. I am sure this will make health nuts cringe, but it will give you much needed calories without an oven. Almost every Southerner has eaten boiled bread. Dumplings are just boiled dough. Bagels are boiled before they are baked. I have read stories of people during the depression eating wheat dumplings every night, except there was no chicken involved. Using storage foods will sometimes require you to think outside the box.

I can't stress enough the importance of getting as much information and practical experience you can. The book *Cooking With Stored Foods* is an excellent book available on Amazon. There are dozens of books on storage food cooking and countless websites. You can also look at how early settlers and mountain men ate. Their diet contained tons of dried food such as wheat and oats. Try as many recipes as you can, being careful to watch for developing an allergy to taking in lots of grain-based food. One of my favorites is wheat pasta; you can make this in your home using recipes found in some of the fantastic cookbooks. Pasta goes a long way to stretch out soups.

There are hundreds of recipes for bread from all over the world. Some are simple and some elaborate. What bread you make will be determined by your cooking situation and the products you have stored. You should have this planned out and written down. Figure out what the best way for you to make bread is. Bread, at the end of the day, is a way to get calories into the body. This has been true for centuries, and will continue to be. Grain is a cheap and efficient way to store food. Learn to grind, store and cook with it and you will never go hungry.

THE Remarkable .22 LONG RIFLE

Richard Mann

IS IT THE ULTIMATE SURVIVAL CARTRIDGE?

When it comes to choosing a firearm for survival, there are a lot of factors to consider. The most important factor is (and this is often overlooked) what is it you intend to survive? Do you want to be prepared for a camping trip gone badly? A natural disaster? Being lost in the Alaskan wilderness? Or maybe, the collapse of society? The situation dictates the need, but a firearm chambered for the .22 LR cartridge has a place in any of these bad times.

According to *Cartridges of the World, 13th Edition*, the .22 Long Rifle cartridge was developed by the J. Stevens Arms & Tool Company in 1887. Originally, the cartridge was loaded with five grains of black powder and fired a 40-grain bullet. The .22 LR is a rimfire cartridge, meaning the priming compound is built into the rim of the cartridge case, and instead of the firearm's firing pin impacting the center of the case head, it hits the rim. Because it's a rimfire cartridge, the .22 LR is not reloadable. That didn't seem to matter however, as it wasn't long until a plethora of firearms — rifles and handguns — were chambered for this cartridge, and by the early 1900s it was the most popular cartridge in America.

Nothing has changed in the last 100 years except the .22 LR is more popular than ever. Hundreds of firearms and hundreds of ammunition options exist, from very affordable options to very expensive versions of both firearms and ammunition. With regard to rifles, Ruger's 10-22 might be the most popular, and it sells for less than $300 new, while used versions can be found for as little as $150. Ruger's Mark III semi-automatic handgun is just as popular with a suggested retail of $389, with used samples going for as little as $200.

Survival Rifles

Many firearms chambered for the .22 LR are well suited for survival situations. I keep two .22 rifles around just for that purpose. The first is a Smith & Wesson M&P 15-22. This is a lightweight, poly-framed semi-automatic rifle with a high-capacity magazine. It lives in my closest and has been accessorized with a Zeiss Compact Point red dot sight and a Crimson Trace Modular Vertical Foregrip (MVF), which contains a high-output light and laser. This rifle can be handled and accurately fired by everyone in my home and is kept handy for intruders of the bad-guy and bad-critter type.

The other survival .22 is a US Survival AR-7 from Henry Repeating Arms. At 3.5 pounds, this is another lightweight rifle. The AR-7 is unique in that it is a takedown rifle; the barrel and action are removable and fit inside the stock, which provides waterproof protection. Heck, it will even float! I keep this rifle under the rear seat in my truck just as much for an impromptu hunt and range session as to be handy in case of a bad situation. Ruger's new 10-22 Takedown rifle would be just as effective for this purpose, and it even comes with a backpack.

Surviving doesn't always mean you are wrapped up in some apocalyptic event. Not too long ago a rabid red fox was nosing around our home. The M&P 15-22 in the closet was quickly retrieved and the problem was solved.

Henry Repeating Arms' little Mini-Bolt is a very compact and accurate single-shot .22. Because of its minimal size and weight, it would serve well as a survival rifle.

The idea of a survival rifle conjures up all sorts of thoughts of situations and guns. In reality, a .22 rifle is all you will likely ever need.

Poisonous snakes can also be a threat in some locations and a .22 handgun or long gun can eliminate those threats handily.

Of course, notions of survival are generally considered to be of a more troublesome nature like being lost in the wilderness and needing food or protection. In these instances you need a firearm, which can kill an animal or ward off a predator of the 2- or 4-legged variety. What can you expect to do with a .22?

Realistic Expectations

Obviously, taking small game with a .22 LR is a given. Critters up to about 40 pounds can be cleanly and easily dispatched with a shot to the vitals. Larger animals, even as big as a deer can be put down with headshots. I know several farmers who used a .22 rifle for dispatching pigs and even steers. The key for quick and clean kills is obviously bullet placement, but bullet selection matters too.

But what about the .22 LR for protection from animals who might want to eat you or bad guys who might want to do something mean and nasty to you? With regard to animals as large as wolves, mountain lions or even rabid dogs, you can fend them off and even kill them with a .22 LR. Several things make a .22 LR firearm (particularly one that isn't a single shot) suitable for dealing with threats like this. They are easy to shoot accurately and because of the compact ammo, you can carry a lot of it.

Yeah, it may take 10 rounds to put down that rabid dog but 10 rounds of .22 LR ammo will weigh about 1.2 ounces. Compare that to 10 rounds of .357 Magnum, which weighs 5.4 ounces, or even .308 Winchester, which will weigh 8.5 ounces. Now, this may not seem like a big deal, but let's imagine you are lost in the wilderness. You can only carry so much weight and you are going to need to carry your firearm and a host of other gear like a knife, compass, etc. If you have decided you can carry only 1 pound of ammunition, then you can carry over 100 rounds of .22 LR ammo, but only about 30 .357 Magnum or about 19 .308 Winchester cartridges. Now, let's imagine you're shooting is average and you miss half

Ruger's 10-22 is probably one of, if not the most, popular .22 rifle of all time. It's affordable and dependable.

You can feed yourself for a long time with an accurate .22 rifle and just a handful of ammo. Three shots with this New Ultra Light Arms .22 and dinner is served.

the time. With both the more powerful cartridges you'll have less than 20 shots you can count on.

With regard to bullets, .22 LR ammunition comes in basically two different varieties: target loads and hunting loads. Target ammo is generally loaded with roundnose lead bullets, which are launched at a moderate velocity slightly faster than the speed of sound. With headshots, .22 target loads can take small game but they are not the ideal round for survival.

For hunting use .22 LR hollowpoint bullets to insure expansion and that expansion amplifies the terminal damage the bullet is capable of inflicting. Most hunting loads for the .22 LR also have a high velocity, and this contributes to wounding. Some .22 LR hollowpoint loads like the CCI Stinger and Velocitor are very fast and will surprise you with how well they will put down small game.

If the CCI 40-grain Velocitor load is fired from a rifle and hits a block of 10 percent ordnance gelatin at 100 yards, you can expect the bullet to penetrate about a foot and the bullet will expand to around .30 caliber. At that same distance, the .32-grain CCI Stinger load will penetrate to about 10" and show the same amount of expansion. When fired from a handgun at a range of a couple feet, the Velocitor load will not expand but it will penetrate about 14". The Stinger load performs very similarly out of handgun at close range as it does at a 100 yards when fired from a rifle.

Terminal ballistics like this is nothing to laugh at. Properly placed, these bullets will not only kill small- to medium-sized critters — even as large as a human — they will also inflict some serious pain which should work to convince either a hungry coyote or a human predator easier prey can be found elsewhere.

A Fun Cartridge

Of course the ability of the .22 LR to feed and protect you is not its only virtue. It is without question the best cartridge for teaching new shooters and it is also, at least in my estimation, the most fun cartridge to shoot. I grew up with an old Winchester pump-action .22 in my hands and I still frequently shoot a .22 rifle and handgun to keep my skills in check. In fact, I have several of what I call understudy guns — .22 caliber guns that are similar to centerfire guns — which I use to train with.

Yes, a .22 is a serious gun but it is also the gun that's easiest to have fun with. Sometimes surviving means stress release on the range from everyday life.

A .22 rifle will excel at surviving a bad situation and hunting small game. But it is also the best firearm to start a new shooter on or to just have fun with. It has been around for 126 years for a reason!

CCI's Stinger load is a great load for a survival .22 LR whether it is a rifle or a handgun. It is one of the best small-game .22 loads available.

This brings up another interesting facet of the .22 LR cartridge, particularly with regard to handguns. You can purchase a .22 LR conversion kit for many semi-auto handguns. Kimber offers one, which will fit most 1911s. These are easy to install and are a great way to practice with these handguns at minimal cost. However, if you feel you really need a survival handgun more powerful than a .22 for protection, you could also pack one of these conversion kits for your pistol along with a couple hundred rounds of .22 LR ammo and use the pistol in that format for hunting small game.

Regardless of your survival considerations, everyone needs a .22 LR. My son who is 13 has several .22s. He has a self-customized Ruger 10-22 and a Marlin 39A, but his favorite firearm — a Ruger Single Six single-action revolver — is also a .22. Of course that Ruger Single Six has an additional cylinder, which allows him to shoot .22 Magnum cartridges, which are substantially more powerful. But, the .22 Magnum — America's second favorite rimfire cartridge — is a topic for later discussion. And, a .22 Magnum may even be a better option for a survival firearm.

FOR MORE INFO:

CCI AMMUNITION
www.cci-ammunition.com
(800) 256-8685

HENRY REPEATING ARMS
www.henryrepeating.com
(201) 858-4400

KEL-TEC
www.keltecweapons.com
(321) 631-0068

SMITH & WESSON
www.smith-wesson.com
(800) 331-0852

RUGER
www.ruger.com
(603) 865-2442

COLD KILLS!
BLACK TIMBER SURVIVAL

Sam Fadala

Learn the elementary essentials for dealing with the elements.

The white fury fell upon the mountain with maniacal intensity. Three feet of snow obliterated trails so quickly hunters in black timber — some several miles from camp — had no chance to make cover. They were on their own, and rescuers knew it. Helicopters, fixed-wing aircraft and a fleet of snowmobiles penetrated over 18,000 square miles of rugged terrain, rushing to beat the forecast of another storm. The mercury fell to well below freezing that night. Fifty men were rescued, some contacted by authorities using cell phones. Sixteen remained unaccounted for, but were later located.

One hunter fell victim to a falling tree, which cracked to earth by blizzard winds just under 80 miles an hour. But a much larger disaster was averted. How? Hunters who made it to their camps were prepared with adequate shelter and food, plus generators, propane bottles, ATV's, UTV's and other 4WD vehicles. But most important, they were wearing proper clothing when the storm struck. Clothing, after all, is the number-one defense against the elements. A naked man starts shivering at under 70 degrees F.

Homo sapiens are the most vulnerable creatures on the planet without tools. No fur, no claws and no true speed — almost every animal in creation can outrun, out climb or rend asunder those standing on two legs instead of four. A wild creature can always find cover against the ravages

“A wild creature can always find cover against the ravages of nature. But it takes tools for man to survive the bleakest conditions. Storm survival is a matter of equipment.”

of nature. But it takes tools for man to survive the bleakest conditions. Storm survival is a matter of equipment — from coats, hats and boots, to cell phones. It’s also a matter of proper shelter — from hasty hatchet-made brush lean-to’s and carry-tents to cabin walls.

Those who have suffered — even succumbed to — bleak weather conditions were usually without the essentials, especially in black timber, which is any wooded area with a canopy. The storm that struck out high-mountain hunters could just as well have fallen upon squirrel chasers in Arkansas.

First Line Of Defense

Watching Mount Everest climbers on television (which is as close as I want to get to that 29,000-foot snowball) shows how modern clothing can protect against the most savage elements. I keep a sharp eye out for outdoor clothing, and recently had the chance to investigate some “new rags” from Wellington, New Zealand — Icebreaker Merino Wool — base layers, mid-layers, jackets and socks. I personally tested four items: socks, Men’s Quantum LS Hood Monsoon and two undergarments. I am no salesman for any company, but the smooth merino wool performed as advertised.

On a January Wyoming depredation deer hunt, parka, pants and proper base clothing and boots kept me going at minus 52 degrees F wind chill. Did I collect my three deer in comfort? No. But I wasn’t a victim of hypothermia either. Take special care of the bottom and the top — feet and head. For the bottom, pack along a pair of Therma-CELL Heated Insoles. They come in a small carry bag. If you get stuck for an overnighter, put them on.

On top, consider a “convertible” hat, a prime example being the Woolrich Shearling Trapper Hat with fold-down earflaps. Shearling is the key to warmth. And losing heat off an uncovered head is something to be avoided.

Dan’l Boone may have scoffed at cell phones, handheld radios, GPS units, perhaps even a compass. He had a “compass” in his brain. Most of us do not. For us, there are even aerial locators to signal planes overhead should we suffer injury or get lost. All of these tools are available and should be considered, not only as conveniences, but also potential lifesavers. Being a chap who wears a belt with suspenders, I carry all of the above, save the locator, which I have not yet invested in. GPS units can fail. That’s why I carry two.

The Eternal Flame

Listing all items in my hunting pack would consume too much white space in this magazine. But most important for survival is fire-starting

Bare bones cold-weather survival: gloves, emergency poncho and survival matches.

Something's brewing: Walking into a storm means being prepared to tough it out in a blizzard, perhaps for a few days or more.

gear. I believe if you can get a good blaze going — even under the worst weather conditions — you'll make it. My flame-making kit consists of commercial starters including a cigarette lighter, but also a metal flask filled with charcoal lighter fluid. Lifeboat matches — always! Anyone who has read Jack London's "To Build a Fire" will empathize with the man who failed to make flame. Lifeboat matches flare hot, even in the wind. Buy a bunch of them.

Gimme Shelter

A small hatchet comes in handy to thatch together cut limbs for an overhang to keep snow — and most rain — out. I recently tested the Hunters Hatchet from Knives of Alaska. This stout tool divided limbs quickly and efficiently. Some big "survival knives" are also fit for building what is known as a "tomahawk shelter." Being prepared to make some form of shelter is wise. But carrying a small, one-man "bivvy" may be even wiser. Mine is a Cabela's Hunter Bivouac. As I carry it, weight is 3.5 pounds, providing 39"x84.5" of setup space. It is impervious to three deadly black timber threats: wind, rain and snow. Plus, when the bivvy is closed, it'll keep out the deadliest creature on earth — the mosquito.

Mountain tents also create secure shelters. If the pack-in is not too long or arduous, consider the larger mountain tent. Warning: While they can look enticing, never camp inside long-abandoned pioneer cabins, they're good places to contract Hantavirus.

The Survival Kit

Pocket-size kits are better than nothing. But investment in a serious

On a smaller scale, it's amazing what can be installed in a fanny pack (right). Fire-starting material, light sticks, water purification items — all potential lifesavers. Fuel yourself and forestall foraging: These food items (below) can be eaten right out of the can or reconstituted with a little water and a backpack stove.

The Cabela's one-person bivvy folds to only 5.5"x16". The door can be tied open to form a sort-of lean-to for an open fire out front, or closed against the elements.

package is much better, and it need not be weighty. Automobile survival kits, of course, can go several pounds, but are gist for another mill. Contents of the new SOKOA kit include weatherproof fire tinder and windproof matches, a high-decibel whistle, heat reflecting blanket, water filter straw and purification tablets, 4X magnifier, day/night signaling mirror & reflector, luminous compass, mini multi-tool, fishing kit, waterproof bag and more. Be prepared to burn a hundred dollar bill for this kit, but as Bart Combs, CEO of the company says, "You wouldn't buy a cheap parachute." For years I have carried an Outdoor Safe Survival Kit from the Outdoor Safe Company. One of the best features of this kit is a large, bright orange trash bag. Get fully

Packed to prevail. This is a fairly complete selection of what Sam likes to have on hand should things go sour!

From scenic and sunny to snowy and socked-in, high-country weather conditions can change in a heartbeat. Don't ever assume things will stay the way they were when you arrived at camp.

inside. Cut a small hole for your nose and thwart wind and moisture.

First Aid Always

No way can every contingency of outdoor bodily trespass fit into the fanny pack or backpack. However, a basic kit need not be large. Sometimes a dab of triple antibiotic for a cut and a Band-Aid is good enough. As a PH in Africa with a total time now of about three years, I remind all clients — bring your medications! (And don't forget a spare set of eyeglasses.) Meds, ointment, bandages and eyeglasses are all part of a health-maintenance plan in black timber. I carry pain pills, not only should I have to trudge to camp injured, but for my companions. Don't forget the moleskin for blisters, plus elastic bandages for wrapping a tweaked ankle.

Let There Be Light

I rank light above food and water, because lost outdoorsmen face darkness far more than starvation or dehydration. If you stay put and signal with gun and whistle, chances are you'll survive just fine for several

HARD LESSONS*

Backtracking Through The Mistakes Made By Others Shows What Not To Do.

"The match struck and he mumbled, 'Thank God.' The twigs caught and the fire licked up around his hand. When the whole bundle was blazing, he laid it carefully on the ground and reached for more twigs. But in that instance, the handful of twigs fell apart and the wind snuffed out the tiny blaze. Bob Fisher looked off into the snowy woods around him, where trees and stumps were turning indistinct in the gathering dark and where snow swirled in clouds, driven by a bitter wind." — Ben East, Survival. *

Let's backtrack a bit and examine what went wrong here with Bob Fisher.

° He had no bivvy, or even big plastic trash bag to keep off the snow, his effort at a branch lean-to proved inadequate.

° Although he was able to start a few fires, his match supply was inadequate and the tips of his regular, kitchen-type matches were getting damp and soft."

° He had no fire-starting materials.

° He forgot to leave word with others as to where he was headed.

° He found a logging road but decided to look directly for his camp rather than following it.

° He had decent clothing, but not sufficient for the frigid overnight conditions.

° Bob had a .300 Savage rifle, but only six rounds of ammunition, which he quickly used for signaling, after which he abandoned his useless rifle. At one point, he heard a three-shot signal a few hundred yards out, but had no rifle or ammo to respond with. Bob learned later his partners were firing shots and blowing horns all afternoon, but he was too far away to hear the horns and could not pinpoint the shots. Had he another dozen or so rounds of ammo, he may have been located.

° He had a compass, but didn't know the area well enough to effectively use it.

° He had no food, not even a candy bar. He did have access to creek water, however.

° Rather than staying put, he wandered back and forth hoping to find camp.

Good fortune eventually saved Bob from death in the black timber. By pure chance he walked into a sawmill and was saved.

**Modified from the original.*

days without food and, yes, even without water. But the blackness of night is to be respected. Even without werewolves, zombies and vampires — or some ravenous clawed beast — there's always the prospect of an ankle-wrenching obstacle, or a wild ride off the edge of a dropoff. Light also serves to signal others. APALS are modern chemical lights, they can be seen afar in the ink that comes after sundown. Running time after pulling the starter tab is 80-plus hours.

Modern "super flashlights" prevail today. There are many, and they eclipse the "electric torch" of yesteryear. I recently added an Apollo Cyclops to my kit. It's called a "Hi-Output Lantern/Flashlight" because the aviation-grade aluminum body houses a pull-out that exposes a lantern mode. At 200 lumens, the Cyclops will put out a magnifier beam to 600'. The light can be seen in a hill-to-hill situation for miles. It works on three AAA batteries, and one thing my backpack or fanny pack will never be without is plenty of batteries. My pack, incidentally, always also contains a Browning mini-light and a headlamp backup.

Life is Liquid

Our bodies require life-sustaining water to function. Non-leaking pint military canteens are my favorite. As for making field water potable, there are filters available from simple straws to refined units capable of blocking those little organisms causing giardia and other maladies (not viruses, though). There are also simple pills, such as Potable Aqua water purification germicidal tablets. A little bottle purifies 20 or more quarts of water. Taste is of no consequence when thirst strikes. Drop the pill in as directed and drink. Cold weather can mask dehydration, and dehydration is a potential killer.

Survival Shooting

Television's "North Woods Law" features Maine game wardens in action. Lost hunters are often the subject, with shots fired as a main means of locating them. A compact .22 pistol on the belt, along with a 50-round box of ammo tucked into the pack translates to a lot of "communication power." My little rimfire pistols have also provided quantities of excellent high-protein trail meat over time in areas that hold "rimfire-legal" small game and birds.

The only thing worse than cold is "dark and cold." Today's flashlights are brighter than ever. This Cyclops Apollo has its sleeve withdrawn so it will serve as a camp light.

Black timber protein: A .22 pistol, like Sam's 1911 rimfire conversion, can be used for blue grouse (where legal) and squirrel (inset).

As a young hunter full of bravado, I prided myself in loading my big-game rifle's magazine and setting out with no extra ammo in pocket or pack. Now I somehow find the room to fit in at least a dozen or so emergency rounds. It only makes sense.

A rifle can be a survival tool against anything from a rabid skunk to larger threat. I respect my holstered Smith & Wesson Scandium .44 Magnum. However, for a rifle I chose the Ruger American .308 with 30mm Leupold VX-R 2-7x33mm — with a FireDot reticule for black timber. This light — but not ridiculously ultra-light — combination is perfect. The black, all-business American is uncanny for reliability in a survival situation. But twice I have had to call on a backup rifle on important hunts, once when a very old rifle broke apart, once when a hunter waltzed into my camp with a sad story — a broken rifle. I loaned him my extra — an Italian-made, near-bombproof Explorer 11413 double rifle that I pulled out of the airtight, waterproof, shockproof case which also held my main rifle.

The Shape You're In

Getting in shape, of course, pays off should you get lost or get caught in a storm. Do some serious walking with a modestly loaded pack before backpacking into the hinterlands. If the venture includes high country, do stairs (your local high-school stadium has plenty). Get to the high country

A big-game rifle can be used for emergency signaling as well as for its intended purpose. Okay, a Pancho Villa bandolier is overkill, but the point is, carry enough ammo to attract attention.

a couple days ahead of time to acclimate yourself. And test all your clothing and gear before striking out on a trip. And don't forget to break in your boots — make it part of your exercise program — using the clothes and gear that will be relied on later. If you've packed on a few extra pounds, think about shedding them. And have a physical before you go.

Of course, there are always situations even the best preparation can't deter. No matter how good your gear is, use your common sense. Check the weather report. Sometimes postponing a trip is the smart thing to do.

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IT'S THE LITTLE THINGS

John Higgs

URBAN SURVIVAL

When the subject of survival comes up, people often spend their time discussing how to survive huge natural disasters or long periods alone in the wilderness. There is nothing wrong with this type of thinking, except as more and more Americans live in cities and suburbs there is a growing likelihood a person's survival emergency will also occur in or near a familiar environment, such as work or home, and the episode may last minutes or hours rather than days or weeks. It doesn't make much difference because dead is still dead, injured is still injured and your friends will "Monday-morning-quarterback" your actions long after your body is cold.

When I present survival options to people I often ask them, "What is our most important goal?" Most of the answers are about self-improvement: They want a better job, better health and they want to look after their family. While these are all important, I think our most important goal should be to end each day in the same or better condition than when the day began. If we don't achieve this every day, it means we risk not being able to achieve all the other goals that are important to us.

Proper Mindset

We must begin by developing the correct mindset, which can be summed up in three words: prepared, aware and decisive. Being prepared

The streets look peaceful in broad daylight. When the lights go out it may be a totally different place — are you prepared?

means we have various simple plans for specific situations. It also means we have the ability to execute the appropriate plan when needed and we know when to act. Awareness means we are actually using our five senses: see, hear, touch, taste, smell and the sixth sense — when you just know something is wrong. Our radar is running and when we get a blip on the screen we focus on it and make a decision to either take action or ignore it.

Founder of Gunsite, Colonel Jeff Cooper promoted a color code system of a human being's four conditions of mental awareness. Condition White: Unaware of our surroundings or physically asleep. Condition Yellow: Aware of our surroundings, our radar is running. Condition Orange: Alert! Focus on a specific thing and evaluate potential danger. Condition Red: Take action! Run or fight.

In the same way ships and aircraft use radar to scan in a 360-degree sweep to detect other ships and aircraft, we can also develop our own form of awareness radar to detect potential problems before we get a nasty surprise. Being decisive means when we detect a potential threat or problem we already know what to do and when to do it.

Plans should be short and simple. The good news is most of us are already conditioned to doing this when we are driving. On the highway, we are watching for traffic and road hazards (Condition Yellow: Aware). When we see another vehicle getting too close (Condition Orange: Prepared) we execute a plan (Condition Red: Action) change our speed or direction to avoid a collision. We can take those same principles and apply them to other aspects of our lives.

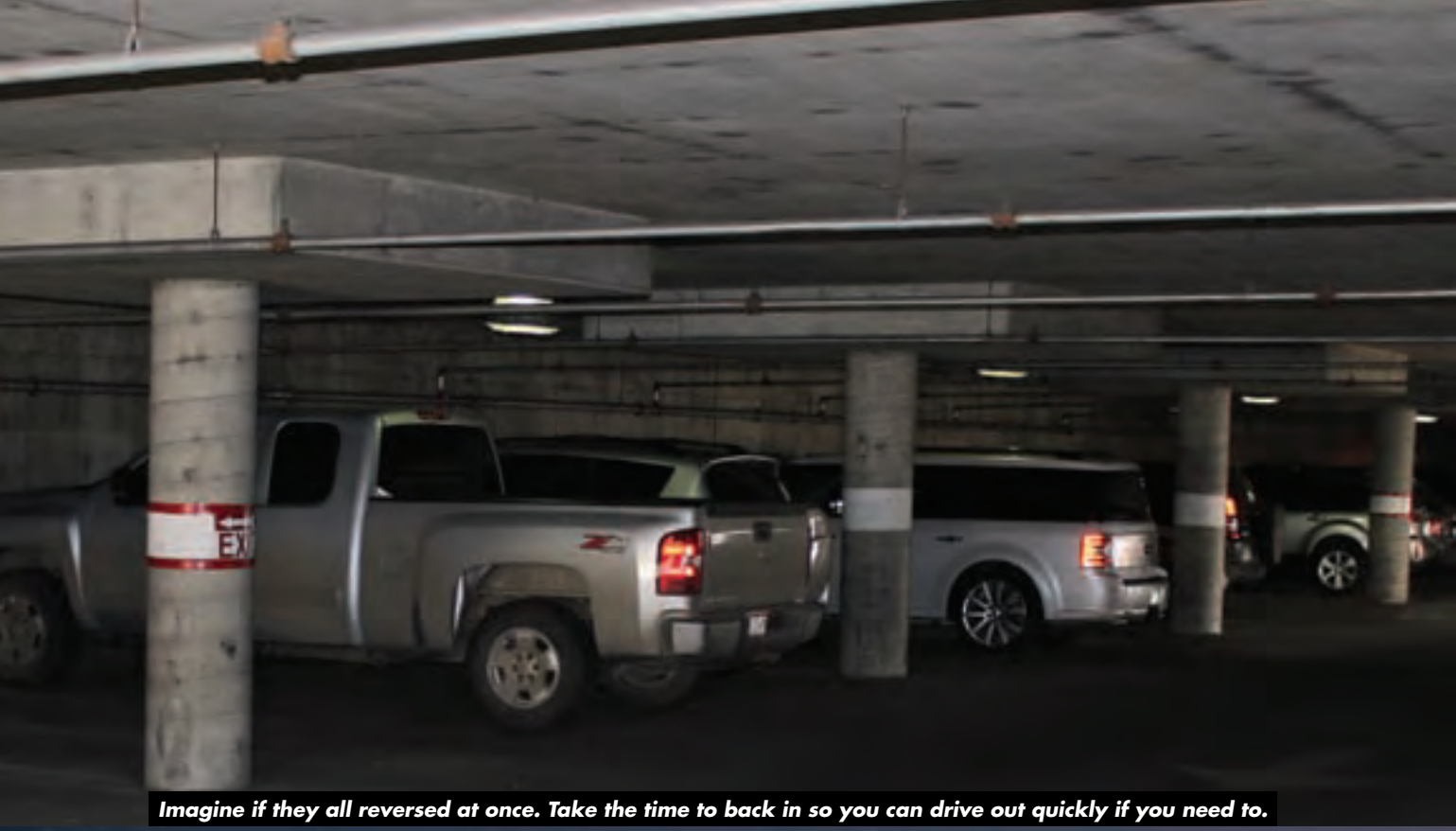
For example, I'm walking along the street (Condition Yellow). I see a bunch of gang bangers walking toward me on the other side of the street. I focus on them (Condition Orange). I decide if they stay on their side of the street and I stay on mine, we can just pass each other. However, if they cross the street toward me, I will step into one of the stores or businesses on my side to avoid them (Condition Red). If they start something, then it's game on and I'm already in Condition Red. If they ignore me and keep walking, I can go back to Condition Yellow and be on my way.

Some might criticize me for not standing my ground: "Man up! Face those guys down." If there is more at stake than my pride, then I'll fight. I've taught the NRA Personal Protection class for more than two decades and I've carried a firearm for most of that time. I believe honest, upstanding law-abiding citizens have one get-out-of-jail-free card. One chance the legal system could give them the benefit of the doubt based on their good reputation and spotless record. I'm not going to waste my one card on an incident I could easily have avoided if I hadn't let my ego get in the way of common sense.

There is an old saying when you shoot someone you have two problems to deal with: First, survive the gunfight and second, survive the court case. Let's look at some ways we can avoid both and still end each day in the same or better condition than when the day began.

Parking Lot Security

Parking lots can present some security challenges for law-abiding people. Large, open-air lots with background noise from passing traffic make it difficult to attract attention by shouting for help. Background noise may also rob us of our ability to hear warning sounds like screams, angry shouting and glass breaking. Underground parking lots typically have poor lighting, which creates shadowy places for criminals to hide. The law-abiding person parks their car and gets out and leaves. They come back to their car and get in and drive away. We have to assume anyone loitering inside a parking lot is either dealing with a car problem or they have criminal intent. People waiting



Imagine if they all reversed at once. Take the time to back in so you can drive out quickly if you need to.

for a ride from a friend will likely wait at the main entrance. Anyone else hanging around a parking lot should be treated with caution. There are some simple things we can do to increase our safety. When I drive into the parking lot I'm looking around to see if anyone is loitering there. If it looks safe I will choose a parking space. I prefer to spend an extra few moments backing into a space so I can drive away quickly if there is an emergency.

Once I have parked, I get out immediately, looking and listening for potential problems. If I hear glass breaking or people screaming I will get back in the car and leave. If everything seems normal, I will walk out of the parking lot quickly. I will look and listen for any signs of trouble. I will walk wide of any corners, dumpsters and other potential ambush areas. I never take short cuts between rows of parked cars and I never walk next to a van. People have been dragged into vans in an instant and it usually doesn't end well. I constantly look around me and listen. I don't get distracted by talking or texting on my phone. If the lighting is dim, I will carry a small flashlight in my hand. It helps to guide my way and if someone confronts me, I can give them a quick flash in the eyes and move off the line of attack.

When I return to my vehicle I continue to look and listen for trouble. If possible, I will circle my car at a distance to be sure it's safe to approach. If I'm carrying bags or groceries I load them into the vehicle as quickly as possible, get in, lock all the doors and then I drive away immediately. I don't sit in my car with the motor turned off while I check voice mail. Locked doors in a vehicle are an important safety feature. If a stranger tries to open my car door without me inviting them to do so, I will interpret this to be an aggressive action.

Never take shortcuts between rows of parked cars and never walk next to a van. People have been dragged into vans in an instant and it usually doesn't end well.

Consider the case of Reginald Denny. He was driving a large truck through a Los Angeles neighborhood in 1992 during the infamous Rodney King riots when a gang of youths dragged him out of the cab and beat him badly. Of course, car windows can be smashed, but a locked door will provide the occupants a few moments delay in an attack, which may be enough time to drive away or access a weapon. Faced with a violent mob blocking the street, the average car with locked doors and windows and a steel roof will provide some level of protection while the drivers lays on the horn and moves slowly through the crowd without causing injury.

Micro Bug-out Kit

The concept of a bug-out or go bag is quite well known. It's the bag people carry when they have to leave their home in an emergency. A typical bug-out bag will hold items such as important personal papers, a change of clothing, energy bars and other comfort food, prescription medication, a first aid kit and any other personal items to help a person survive away from home for 72 hours. A large duffel bag or backpack standing ready in the hall closet to be thrown in the trunk of the family car is a good thing to have for bug-out situations such as imminent heavy flooding or a local chemical spill. Bug-out bags are a smart idea, but they are not the complete solution to the problem of being forced to bug out. People are often forced to leave other buildings such as their workplace and hotels.

I've spent a lot of my career in an office environment and I always carried some form of a briefcase. Inside I

This micro bugout kit can help a person to exit a darkened, smoke-filled building, summon help, buy food and if needed, buy a ticket home.

Wallet, car keys, passport and anything else you need to get home goes in a small nylon bag on the hotel bedside table. Flashlight stays outside the bag.

kept some spare cash, car keys, pencil and notepad, a mini first aid kit and a multi-tool with a blade, pliers or tweezers, screwdriver etc. Whenever our office conducted a fire drill I always grabbed my briefcase on my way out the door. I was surprised at the number of people who evacuated their office for the drill, but left their personal belongings behind because it was "only a drill." There is an old saying, "under pressure, training takes over." In a real fire I was confident I would grab my bag on the way out because I trained to do it that way and I'd have the means to get home.

There are times when even a small bag isn't practical, so I developed my own micro bug-out kit for everyday carry to give me the bare minimum of items to escape and survive: cell phone, a pocket flashlight, a credit or debit card and at least $20 in small bills. All the items except the cell phone are stored in a small Ziploc bag to keep them dry and together. Also, keeping the cash separate from cash in my wallet prevents me from spending it and insures I always have some emergency money on hand. With these four items I can summon help and notify relatives and friends of my situation, find my way out of a building where the power has failed and signal for help, pay for transportation, lodging, food and water.

Hotel Evacuation

Typically, people who are staying in a hotel are a long way from home. They may even be in a foreign country. People get evacuated from hotels mostly because the fire alarm has sounded. In some cases, it's a false alarm, but even if it is, my objective is the same: Get outside quickly and with the items I need to get home. I don't want to evacuate wearing only what I was sleeping in and I don't want to waste time in a smoke-filled room trying to find my wallet and airline ticket.

Before I go to sleep in a hotel I assemble all the items I need to survive and to get home: Wallet, passport, cash and credit cards, check book, car keys, some extra batteries, hotel key (in case it's a false alarm) and cell phone. I put them all in a small nylon shoe bag with a drawstring top and put the bag on the nightstand next to the bed. I put a small, powerful flashlight next to the bag. There is generally a chair in the room and I lay out a pair of jeans, shirt and shoes on the chair. Next, I check the hotel layout diagram on the back of the door or I walk down the hallway to establish where the emergency stairs and fire escape is located.

If the alarm sounds in the night I can grab the flashlight, get dressed, grab the bag and be out the door in about a minute. I know where the fire escape is and I can use the flashlight to find my way if the hallway is dark.

Bug-out Planning

It's not uncommon for people to get evacuated from their homes for various reasons. A chemical spill on

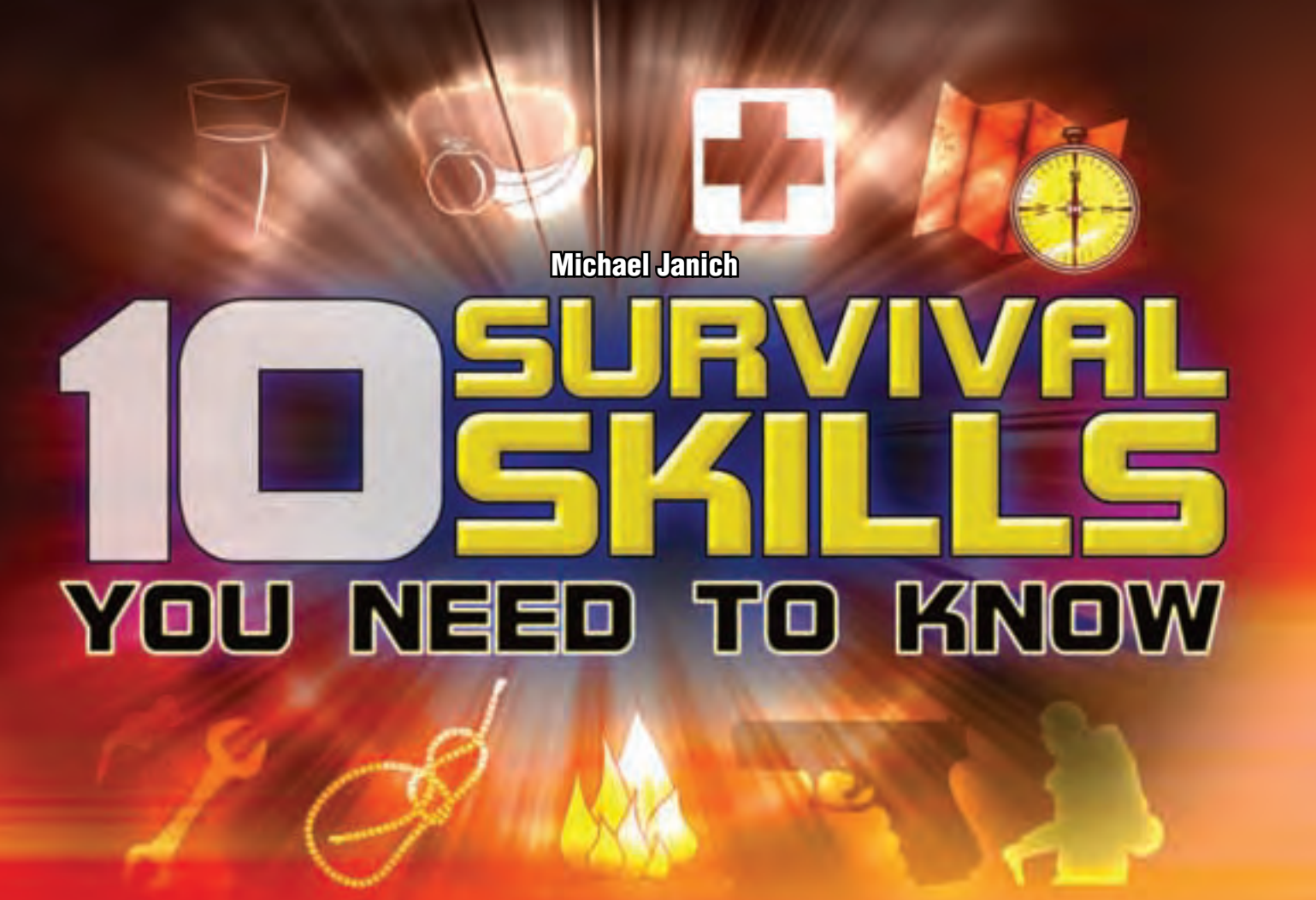
A typical bug-out bag will hold items that will help a person survive away from home for 72 hours.

a nearby road may force an evacuation of a few hours. Flooding or forest fires may cause entire neighborhoods to be shut down for days. This is where the full-size, bug-out bag we packed at the beginning of fire or flood season gets deployed. Where do we go and how do we get there? Have a route and an alternate route. In my subdivision there is one road in and out, plus one bike trail as an alternate exit. The road you choose to evacuate on may be blocked. In some circumstances it may be possible to follow a railroad line rather than sit in a miles-long traffic jam. Be careful to avoid trains.

When travelling on foot, be aware of entering areas such as tunnels, alleys, bridges and riverside pathways where there is only one way in and one way out. These are choke points where as few as two muggers or assailants (one at each end) can block your entrance and exit. This applies not only to bugging out, but also to our everyday activities. When people take the same route to work or some other frequent destination they become complacent about their personal security. They also become predictable, which means they may become an easy target for muggers, rapists and even kidnappers.

I think it's great so many people are prepping for catastrophic disasters like 100-year floods, summer forest fires and the annual hurricane season, but let's not forget the little, mundane things like texting while crossing the street — it's far more likely to kill us than a giant asteroid.

John Higgs is the author of Dealing With Danger. *Find him at www.junkyard-dog.net.*



Michael Janich

10 SURVIVAL SKILLS YOU NEED TO KNOW

It has often been said survival is more about skills than equipment. While I wholeheartedly agree, I also think many people who want to be better prepared focus on the wrong skill sets. For example, if you live in a city or suburban area, taking a desert survival course might be lots of fun and a fulfilling personal challenge, but the skills you learn may not translate well to the environment in which you'll probably be surviving.

When I teach personal-protection skills, one of my mottos is "If you prepare for what is most likely to happen, when something happens, you'll most likely be prepared." The same thing applies to survival. You are best served by focusing on the relevant stuff.

One of the easiest ways to define a good survival skill set is to look back a few decades to the ways people did things before we became obsessed with conveniences and high-tech gadgets. For most of us, a "survival" situation is probably going to be a matter of coping with a temporary disruption of normal, everyday life. A big part of this disruption will be the loss of many modern conveniences we've come to rely upon. When this happens, our job is to know how to stay hydrated, fed, warm and safe by using the more "primitive" resources that are still working.

With these thoughts in mind, I've defined 10 skills every savvy prepper should have if society poops the bed. If you don't have one of these skills, you might consider working on developing it before you drop your hard-earned dollars on an Arctic survival course.

Hydration

Water Acquisition and Purification: Staying hydrated is the top priority in any survival situation. Although many people think they have an emergency water plan, very few have ever validated theirs by actually doing it and drinking the result. Don't be that guy.

A detailed discussion of survival water plans is beyond the scope of this article, but to illustrate the point let's take a representative example: For whatever reason, your tap water supply is interrupted. When you turn the faucet, nothing comes out. The plan in your head for this situation is to use your water heater as a built in reserve of drinking water and simply drain it to get what you need. That makes sense, but do you know how to turn off the supply line to the water heater? Do you know how to turn off the heat source so it doesn't overheat and create an overpressure situation? Do you have a clean piece of hose to attach to the drain spigot? In short, have you actually done it and proved to yourself you have the knowledge and skill necessary, or are you oper-

ating on theory? Real skill is based on real experience.

Chow Time

Cooking: If your idea of preparing a meal is navigating through a fast-food drive-thru or pushing buttons on a microwave, you are not a cook. Some of the best and most economical long-term survival foods — like rice and beans — require actual cooking skill to end up qualifying as food. And the time to learn that skill is now — when the drive-thru is an easy back-up plan — not when eating your mistakes is your only option.

You don't have to be a chef to cook survival meals, but even something as seemingly simple as cooking a pot of rice requires skill and experience. Start now and begin developing unconventional cooking skills. Try different recipes and cooking styles to determine which ones are easiest for you and most suitable for survival situations. Very importantly, validate your recipes and cooking skills with the cooking tools you'll actually have available during an emergency — like a backyard grill, a camp stove or a fireplace. If you don't get the results you want now, learn the necessary skills or adjust your recipes until your survival cuisine tastes the way you want it to.

No ER To Go To

First Aid: If you were to be injured today, you could easily go to an emergency room or clinic and get the care you need. However, during a major natural disaster or other emergency situation, medical facilities will probably be overloaded and just getting to them may be difficult or impossible. Having the skills and knowledge to effectively deal with minor or even moderately serious medical emergencies is therefore critically important.

The Red Cross regularly offers a wide variety of training courses all over the country. Their basic courses include first aid/CPR, wilderness and remote first aid and even pet first aid. Visit their web site at www.redcross.org, plug in your location and the type of training you'd like to get and you'll get a list of all the available courses in your area.

In addition to learning important skills, these courses are also an excellent way of meeting like-minded people in your area and doing some networking. Having skills is good; having reliable friends with skills is even better.

Navigation

Map Reading: One of the greatest disservices of modern technology has been the deterioration or complete loss of core skills everyone used to have — like reading a map. Many people — especially younger folks — have become almost completely dependent upon smartphones and GPS. Hand them an actual map and ask them to find where you are and you'll invariably get the pig-looking-at-a-wristwatch confused look.

Map reading is a core skill enabling you to do a lot more than just find the nearest Starbucks. It allows you to truly understand the geographical details in your area and both the advantages and potential threats they present. If your survival strategy includes a bug-out plan, you need to remember "out" is not a place. You need to be going somewhere specific and, depending upon the status of the supporting infrastructure, you may have to get there without the benefit of a GPS or smartphone. The skill to read a map enables you to plan routes, navigate effectively and adapt your travel to road closures and detours.

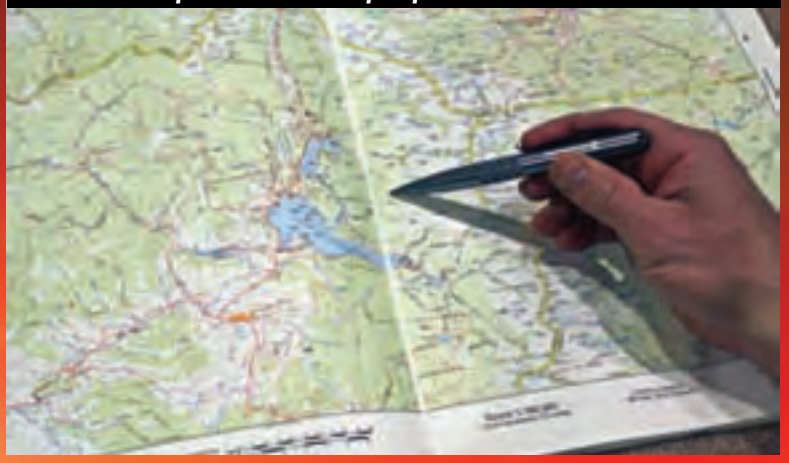
Land Navigation: Reading a map and navigating in a populated area is pretty easy because there are plenty of reference points. Finding where you are can be as simple as finding the intersection of two streets, and "navigating" is just a matter of following the right streets to the desired location.

In a rural or wilderness area, however, things aren't this easy. Determining your location may require orienting the map to major landmarks and using a compass to determine azimuths to those landmarks. Wherever the back azimuths drawn from those landmarks cross is where you are. If that's not where you want to be, you have to know how to use your map, your compass and your knowledge of terrain features to plan a safe route to someplace better. You also need to know how to navigate the route, determine the distance you've traveled and maneuver around obstacles on your way.

In a survival situation, water is the top priority. Developing your water purification skills now will ensure you don't go thirsty in an emergency.

The better you can cook, the more food options you'll have in an emergency. Make sure you validate your skills on the cooking methods you'll actually be using if things get crazy — like a gas grill.

Land navigation combines map reading skills with the effective use of a compass, distance calculation and many other practical skills to get you from point A to point B without a GPS.



Your GPS or smart phone is handy, but not infallible. Map reading skills don't require batteries — just practice.

Land navigation is a serious skill requiring a thorough knowledge of map reading, the ability to use a magnetic compass in conjunction with a map and the capability to translate the conceptual representation of the terrain into well directed boot prints on the ground. If you're stuck traveling on foot for any reason, land navigation skills will be critically important to your survival. It's also a great way to get some exercise and get to experience the outdoors.

Knowledge of a few basic knots and how and why to use them for different purposes goes a long way in an emergency.

MacGyver It

Fixing Stuff: When I was a kid, if something broke around our house my dad would pop it open, figure out how it worked, determine what went wrong and nine times out of ten, bring it back to life. While his ability to fix things was amazing, he wasn't alone. People of his generation knew how to fix things out of necessity because fixing them was usually cheaper than buying new stuff.

Granted, the world has changed. Many products manufactured today are designed and made to be expendable — when they break, you're expected to buy a new one. Some products also rely on complicated electronics beyond the reach of ordinary handyman skills. However, there are still a lot of things capable of either be fully repaired or at least jury rigged to extend their useful lifespan. In a disaster, survival, or other emergency situation, this can be critically important because running down to the mall to buy a new one may not be possible.

I'm not recommending you start breaking your stuff on purpose, but the next time something does break don't be so quick to throw it away. If it's something mechanical, figure out how to take it apart and study its guts to discover how it works. If you can't fix it, at least determine the cause of the problem and go through the mental exercise to know what you would need to do to make it work. YouTube videos, DIY books and TV shows, and your public library are also great sources of information on simple repairs. Use them to tackle a few simple fixes now so you'll have the skill and confidence you may need later.

All Tied Up

Knots: Tying and untying knots is another lost skill common a few decades ago. Other than tying our shoes, most of us don't work with rope or cord on a daily basis, however, in an emergency situation, this can change drastically. You might find yourself tying down the ends of a tarp to create a temporary shelter or lashing a load of supplies to a vehicle or trailer. You might also be throwing a rope to someone caught in a flash flood so you can pull him to safety. Knowing which knots to tie for which application and having the skill to tie them properly can make a huge difference.

Most public libraries have a wealth of old-school books on knot tying. If you have trouble learning from a book, there are also plenty of YouTube videos teaching individual knots very effectively. You don't have to learn every knot, but a good arsenal of the most useful ones and the ability to tie them quickly and reflexively can go a long way.

Fire Making: When most people think of making fire, they tend to focus on the initial spark, ember and flame and often obsess over learning multiple primitive methods. While that's useful, it's just as important to have the skill to use that initial flame to create a true fire that's suitable for

Don't just blow smoke; validate your actual fire-starting skills now and you'll be much better off later.

How far out can you actually bug with your bug-out bag? There's only one way to find out: Strap it on and go for a hike. The stronger and fitter you are, the more prepared you are to survive.

cooking and keeping warm. Doing this involves selecting and collecting proper tinder, kindling and fuel and arranging them into a structure that ignites and burns efficiently. Doing this well takes skill and practice, and the time for that is now.

Practical Shooting: There's a big difference between marksmanship and practical shooting. While they are closely related, marksmanship emphasizes the mechanics of shooting under favorable circumstances. A survival situation is, by definition, a less-than-ideal situation. To shoot effectively in this context, you need to train and practice your skills in that context, ideally focusing on the situations most relevant to your needs and environment. If you live in an apartment, training for 1,000-yard rifle shots may be fun, but probably not the most relevant skill to your survival needs. Assess the problems you may face and train accordingly.

Functional Fitness: Many people separate skill from fitness, but when it comes to potential emergency scenarios, they can be very closely related. One simple, but often overlooked example is the bug-out bag (BOB). Most of us have them, but when was the last time you strapped yours on and walked any significant distance with it? Have you ever tried to climb over a fence with it? These actions involve fitness, balance and dexterity and are definitely necessary skills in a real survival situation. The best time to start getting into shape was 10 years ago… or today.

In an emergency situation, skills trump toys. Focus on developing usable skills now so you'll know how to do what you need, when you need it most. Get to work!

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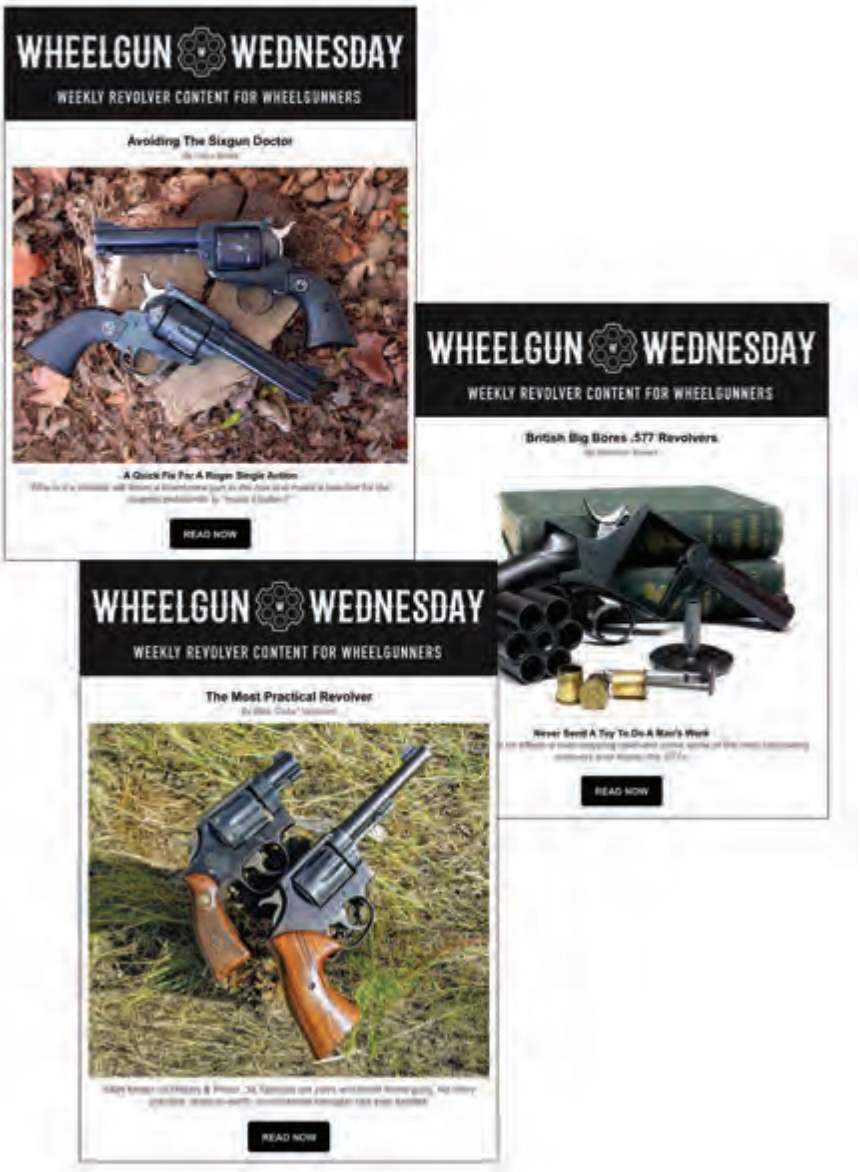

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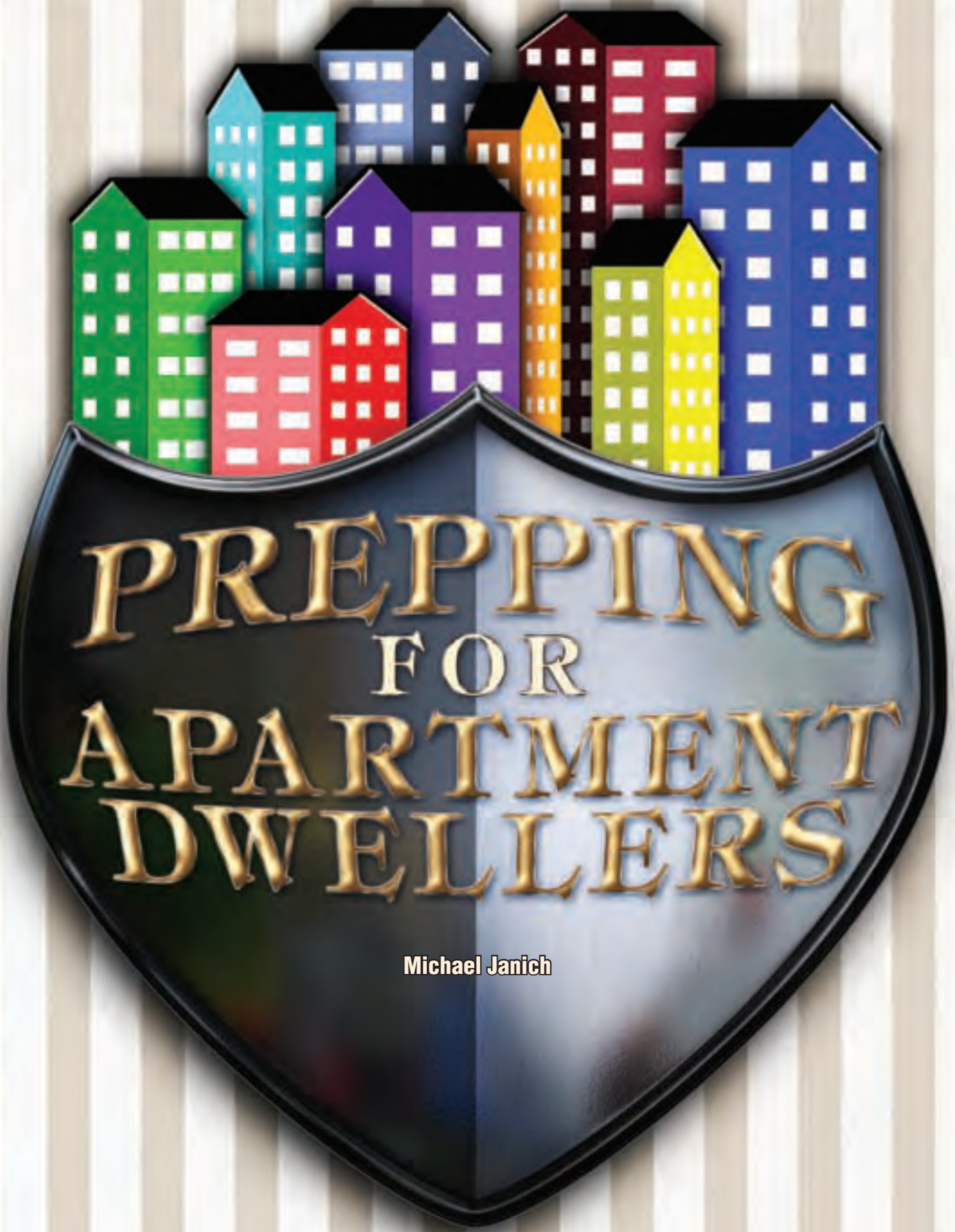


Michael Janich

Thanks to some of the sensationalistic "reality" shows aired in recent years, the word "prepper" often conjures up visions of eccentric isolationists stockpiling mountains of supplies in remote compounds or underground bunkers. While those folks do exist, intelligent people — like those who invested in this publication — know better and understand preparedness and self-sufficiency don't require such extreme measures. In fact, they don't even require you to own a home at all.

In its simplest form, prepping means having the resources necessary to ensure you and your family can maintain a safe, healthy lifestyle during disruptions in the normal function of society. Whether those disruptions are caused by a weather event, a power outage, civil unrest or any other reason, you and your loved ones should have the supplies and the skills to stay safe, warm, well-fed and hydrated until things return to normal. This basic concept applies to everyone, including those who live in apartments, condos or other types of housing offering less space and fewer options than a typical single-family home.

Fortunately, with a little research and creativity, everyone can be better prepared — no matter where you call home.

What You've Got

If you live in an apartment or condo, your first step in assessing your situation should be to determine where your basic resources are, how they work and who controls them. To be more specific, you need to understand how your water, your hot water, your heat and your electricity get to your apartment and what elements — if any — you can access or control. For example, if your unit has a dedicated water heater, you should know where it is located, how it is powered and whether you — or anyone else — has access to it. Why? Because if there is a disruption in the supply of tap water, your water heater represents an important reserve of potable water you can potentially use to survive. All you need is a short section of garden hose with a female fitting and the knowledge to drain the tank. If the water heater is located in a lockable service room, you may also have extra storage space for other survival supplies.

Understanding how your heat, oven and range work enables you to know which resources are affected during different types of situations. For example, if you have electric heat and a gas stove, a power outage caused by a winter ice storm means your heat and lights are out, but you can still cook easily and boost your morale by maintaining a degree of normalcy during a crisis situation. The ability to boil water is not only useful for cooking and sanitizing drinking water, it also means you can fill a few old-fashioned hot water bottles to tuck into beds or sleeping bags to help stay warm. Although an oven isn't recommended as a primary source of heat, using it for cooking during the emergency can certainly help take the chill out of the apartment. You can also extend the heat it generates to other areas of the apartment by placing a few bricks into the oven while you cook. They absorb heat and can then be carefully removed to serve as sources of radiant heat elsewhere. Make sure you handle the hot bricks with oven mitts or heavy gloves and place them on properly insulated surfaces to ensure safety.

Again, the key to making use of these strategies is understanding how

Know where your utilities are located and whether you have access to them or not. Access to your water heater — and a little knowledge — means you have a significant cache of potable survival water.

Two-liter bottles of water frozen in your freezer turn it into an old-school icebox when the power goes out. When the ice melts, it also provides clean drinking water.

your utilities work and what is really affected during different types of outages. As simple as this may sound, many apartment and condo dwellers don't have a clue. Don't let that be you.

Back-Up Plans

Once you have a clear understanding of how your utilities work and which resources (like the water heater) you have access to, the next step is to develop back-up plans or alternatives to them. If, for example, both your heat and kitchen stove are electric powered, a winter power outage can leave you in a desperate situation. At the most basic level, you'll need a supply of foods that do not require cooking and some extra blankets and sleeping bags to help you stay warm. If storage space is tight, the blankets can be compressed in vacuum-style storage bags or replaced by inexpensive Mylar "space blankets."

Although it might be tempting to use kerosene or propane space heaters to generate heat, this isn't a good idea because of the dangers of carbon monoxide — especially in a confined space. In fact, two important components of any apartment "kit" should be a battery-powered smoke alarm and carbon monoxide alarm. They will warn you of smoke or carbon monoxide threats even if they don't originate from your dwelling. If your neighbors are doing something stupid to stay warm, you're still protected.

If you have a balcony, patio or other controlled area suitable for grilling, a gas grill is an excellent investment. In addition to its obvious function during non-emergencies, it can easily become a full-service cooking station in times of crisis. Like an oven, it can also be used to heat bricks during the cooking process. To make sure it's ready when you need it, invest in an extra propane canister and always keep a full one on hand.

Without electricity, you'll also need light sources of some sort. LED-style flashlights are inexpensive and last almost forever, but must be supported by a good supply of batteries. For emergency use, common, easily available batteries are a better choice than the expensive, exotic ones used in high-speed tactical flashlights. The traditional solution to emergency light — candles — is also a good choice; however, they should be enclosed in glass containers to minimize the fire hazard.

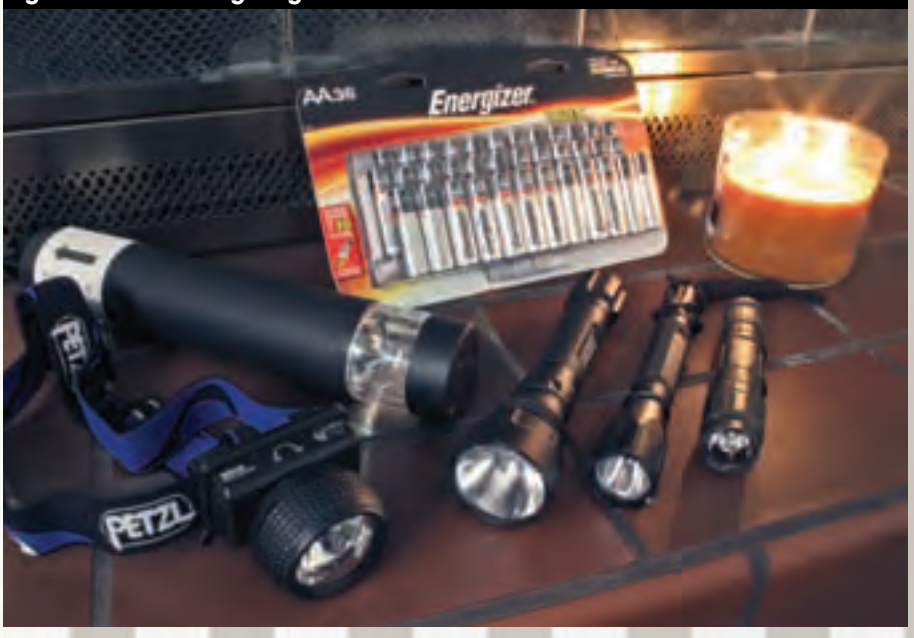
My favorite source of emergency lighting is a solar lawn light. These LED lights are battery powered and charge during daylight. When it gets dark, built-in photocells automatically turn them on and they emit a low, but very useful level of light. They can be bought individually for a few dollars each and stored on a windowsill or balcony so they charge every day. If the power goes out, bring them inside and you've got safe, passive utility lighting.

Water

As all preppers know, water is your most critical survival resource. We all need roughly a gallon a day just to

If you have a balcony or patio, invest in a good gas grill — especially if you have an electric stove. In addition to cooking food and boiling water, it can be used to heat bricks that can be brought inside for radiant heat.

Have multiple sources of emergency lighting, from headlamps for hands-free work to safe candles. One unorthodox but practical option is to use solar lawn lights for ambient lighting.



If you think your supply of tap water might be affected, put a few 5-gallon buckets in the tub or shower and fill them. Separate buckets are portable and allow you to use water for different purposes without cross-contamination.

In an apartment or condo, storage space is always at a premium. Plastic containers designed for under-bed storage can be packed with food and other survival items and tucked under beds, couches and similar areas. They are also portable and a great way to keep your supplies well organized.

stay hydrated and healthy, and this doesn't include water for cooking, washing dishes, bathing or sanitation.

Water can be a critical concern for apartment dwellers. If the tap water supply to your building is cut off, alternative supplies of water may be very limited. As noted previously, if you have a dedicated water heater and access to it, you've got a head start on a reserve supply. If you don't, it's a good idea to plan ahead. One simple option is to buy a few flats of bottled water and rotate them into your normal consumption every few months. If storage space is a concern, buy risers for your bed to elevate it a few inches and use the area under the bed for survival storage (more on this in a bit).

A cheaper alternative is to buy one or more 5-gallon water cooler bottles. You can buy these pre-filled, but I prefer the empty ones because they are resealable. Fill them up with fresh tap water and add one teaspoon of unscented chlorine bleach to each 5-gallon bottle. Mark the date on the bottle and repeat the process with fresh water every six months. Although heavy (about 40 pounds each), these bottles are convenient and represent a five-day supply of drinking water for one person — an easy reference. They should be stored in a cool, dark place and can easily be tucked into unused space in closets or other out-of-the-way locations.

Another double-duty method of storing water is to place a couple of two-liter plastic soda bottles in your freezer. Clean them and fill them slightly less than full with tap water, then freeze them. If the power goes out, they and your frozen foods can be moved into your refrigerator or a camping cooler to turn it into an old-fashioned icebox. They help keep your refrigerated food cold and allow you to eat it first before digging into your other food supplies. Buy a thermometer to monitor the temperature in the fridge or cooler and keep it below 40 degrees Fahrenheit to prevent spoiling. When your ice bottles melt, you've got an additional supply of drinking water.

In addition to drinking water, you should also think about water for washing dishes, bathing and manually flushing your toilet. If you have some advanced warning of a crisis — like a pending weather event — you can simply fill your bathtub with water. The disadvantage of this is all the water is in the same container. A smarter approach is to put a clean plastic trash can and/or several clean five-gallon buckets in your tub or shower and fill them. This way you can maintain separate containers of soapy water, rinse water and clean water and make them last longer. When the water in one becomes dirty, use it to manually flush your toilet by just pouring a quart or so into the bowl.

Creative Storage

One of the greatest challenges apartment and condo-based preppers face is finding adequate room to store their supplies in the limited space available. If your apartment has an external storage area or garage, it helps a lot — provided it's secure and convenient.

If you don't have a dedicated storage area, you need to get creative. As mentioned earlier, placing risers under your bed to elevate it a few inches can create a significant amount of storage space. A 6" storage space under a queen bed creates more than 16 cubic feet of storage area — enough for a significant cache of survival supplies. Plastic bins specifically designed for under-bed storage can help you organize your supplies, make them easier to access selectively and keep the weight of each manageable.

Another space-saving approach to survival storage is to use plastic milk

Milk crates are a convenient, extremely space-efficient storage method. Designed for stacking, they enable you to store a lot of supplies in a very small area. They're ideal for corners, closets and other out-of-the-way spaces. They are also portable and a good part of a modular bug-out plan.

crates, which are readily available from most big-box stores for a few dollars each. These crates are available in various sizes, but in their most common form are about one square foot. Because of their interlocking design, they can be stacked several layers high and are very space efficient. They are therefore an excellent way of turning an empty corner, a hall closet, or any other small section of floor space into an extremely practical freestanding storage system. The sturdy construction of these crates allows them to hold considerable weight, making them ideal for storing and organizing canned goods, bulk foods like bags of rice or beans, and many other supplies. For stability and convenience, place the heavier crates on the bottom of the stack and lighter items — like powdered milk and dry goods — on the top of the stack. Top it off with a few five-gallon buckets stuffed with rolled blankets and you've got a formidable "pillar" of survival supplies in a single square foot of floor space.

Being prepared doesn't have to mean living off the grid. With a little planning and creativity, even apartment and condo dwellers can ensure that they're ready to cope with almost any emergency.

Mike shooting his DIY Montagnard crossbow.

Making A Montagnard Crossbow

Michael Janich

One of my passions as a kid was watching war movies. Every time John Wayne's "The Green Berets" would air (this was before the age of videos and instant gratification), I was literally glued to the TV. One of my favorite parts of the movie was when the Montagnards, accompanying the Green Beret unit, used crossbows to take out North Vietnamese sentries. Since seeing that scene, I have been fascinated with crossbows — especially traditional Southeast Asian versions.

Years later, as a member of the US government's POW/MIA search mission, I had the opportunity to work in remote areas of Southeast Asia where Montagnard crossbows were still made and used. I acquired several authentic bows and still marvel at the simple genius of their construction. The simplicity and functionality makes them worthy of study by all survival enthusiasts. The fact you can make one in a weekend for about $20 in materials also makes them too cool to ignore.

The Basics

"Montagnard" is a French word meaning "mountain people," and was used primarily to describe the indigenous people of Vietnam's Central Highlands. The crossbows they used, however, were not restricted to one area and can be found in various forms throughout Indochina, Thailand and Myanmar. Their basic components include a stock, a prod

(bow), a bowstring and a simple trigger mechanism. Prods are typically made of a single piece of bamboo or springy hardwood and the strings are hand-woven from bamboo or other natural fibers. Trigger mechanisms vary, but typically consist of a simple notch in the stock to hold the string and a lever of some sort, when squeezed, lifts the string out of the notch to fire.

My DIY crossbow project is a hybrid using the basic design of an authentic bow I bought in Central Vietnam and the lever-style trigger of one I got from Northern Laos, which is easier to make and offers a lighter trigger pull.

Materials

The materials required for this project are pretty simple. The stock is made from a piece of 1x3 red oak that can be bought at any Home Depot. You'll need about a 3-foot length. The prod is also made from oak — specifically two four-foot pieces of 1/4 x 1-1/2" hobby stock," also from Home Depot. In this design, they are glued together to form a 1/2" thick composite bow. However, you can also use a single 1/4" piece for a less powerful bow or, if you can find solid 1/2" stock, use it instead.

The trigger is a simple pivoting lever made from a piece of 1/4" stock about 6-8" long. For a uniform look, I used the same oak material as the prod. To keep it traditional, the trigger pivot is made from a bamboo peg made from a chopstick.

The most challenging component of the crossbow is the string. Traditional strings were made from natural fibers like strands of bamboo or hemp. They were plaited into cordage and eyes woven at each end to allow them to fit matching grooves in the tips of the prod. Although it's possible to replicate this with natural materials, it's easier and safer to use modern bowstring thread that can be purchased from archery supply shops. Even then, it's a tedious process, the complete details of which are beyond the scope of this article. More on strings later.

Authentic bolts (arrows) were typically made from carefully shaved pieces of bamboo and fletched with natural material-like leaves. An easy modern substitute is to use bamboo chopsticks and either natural or synthetic fletching material.

Step by Step

1. The first step in the process is to design and shape your stock. Most Montagnard crossbows don't have true shoulder stocks and some are quite short compared to the length of the prod. I prefer a longer stock so I can brace it against my shoulder, so mine started as a 30" piece of 1x3 red oak. The exact profile isn't critically important; just make sure the forward end that will house the prod remains near the full width of the board (which is actually 2-1/2"). This area should be about 5" back from the front of the stock. Sketch your outline with a pencil and then cut it out with a band saw or coping saw. Finish shaping and smoothing it as desired with files and sandpaper.

2. To make the prod, take two pieces of 1/4x2 red oak and cut them to 42". Coat one side of one piece with carpenter's glue and carefully mate it with the other side to ensure complete glue coverage. Clamp the pieces to the top of a workbench using bar clamps and scrap board on top to ensure uniform pressure. Let dry overnight.

3. When the glue is dry, it's time to taper the ends of the prod. Make a mark across the board 12" from each end. At each end, measure in 3/4" from the edge and make a mark. The space between the marks should be 1/2". Draw lines from those marks to the other marks to define the tapers you'll cut on the prod limbs. Then carefully cut along those lines to remove the excess wood. File or sand the sawn edges smooth and radius all the edges.

4. The bowstring is held in place by "nocks" (grooves) in the ends of the prod. Measure in one inch from each tip and mark a line on what will become the front face of the prod. Then draw a 60-degree angle from that line across the edge of the prod to the other face. Repeat this on the other edge and other tip. Then, using a narrow rattail file, carefully file grooves on all the lines you drew. Connect the grooves to form smooth notches about 1/8" deep as shown in the sequence photos.

5. Mark the halfway point of the prod with a pencil and measure its width as compared to the height of

Sketch the outline of the stock on a piece of 1X3 red oak (above). Cut the stock out with a bandsaw or coping saw (left). Used files and sandpaper to smooth the stock to finished form (below).

Step 2

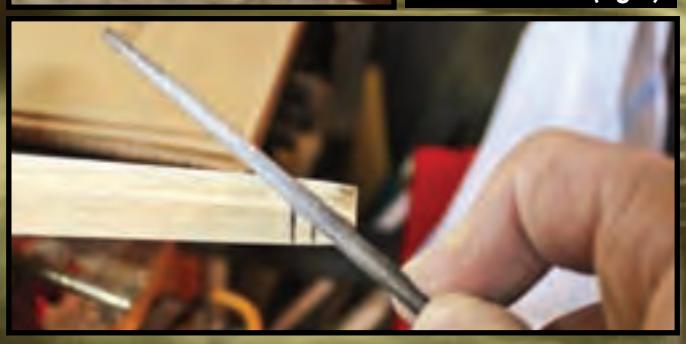
The prod (bow) is made from two pieces of 1/4x2-1/2 red oak "hobby stock" glued together to create a composite (above). Once the glue is applied to the prod halves, clamp them to a bench and let them dry overnight (below).

Step 3

Draw lines to define the taper of the prod ends (above). Cut the tapers with a saw (left). The prod, cut to final form and sanded (below).

Step 4

Draw the outlines for the nock grooves at both ends of the prod (above). Use a round file to file the grooves for the nocks (below). The completed nock grooves, filed and sanded smooth (right).

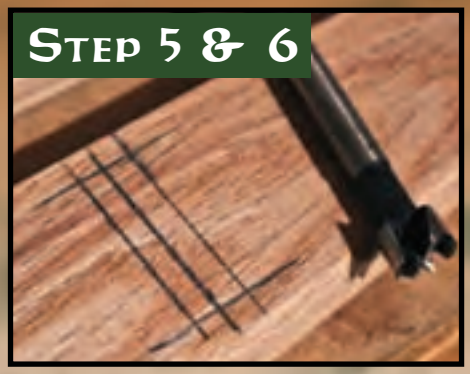


the stock where it will be mounted. If necessary, reduce the width of the prod by sanding so it's about 1/2" narrower than the height of the stock where it will be mounted.

6. Place the middle of the prod over the spot where it will be mounted in the stock and center it vertically. Mark above and below it with a pencil. Using thickness of the prod as a guide, mark vertical lines on the stock to define the boundaries of the hole for the prod.

7. Carefully drill several holes in the marked area to begin creating the hole for the prod. Remove the remaining wood with a coping saw

Step 5 & 6



Make sure the prod is about 1/2" narrower than the height of the stock where it will be mounted. Use it to mark the top and bottom of the prod hole and use its thickness measurement to mark vertical lines.

Step 7

Carefully drill several holes in the marked area to begin creating the hole for the prod (above). Remove the remaining wood with a coping saw and files, testing the fit of the prod frequently to achieve a snug fit (left).

Step 8

Use a carpenter's square and pencil to mark a centerline on the top of the stock for the bolt track groove for the bolt track (above). Use the edge of a triangular file to start the bolt track groove (center). Use a round file about 1/4" in diameter to continue to shape the bolt track groove. Then sand it and the top of the stock smooth (left below).

Step 9

Use the distance between the prod nocks to determine the size for the string jig. This jig is used to make the bowstring.

and files, testing the fit of the prod frequently to achieve a snug fit.

8. Using a carpenter's square and pencil, mark a centerline on the top of the stock from its front edge 11" back. This line will be a guide for making the groove for the bolt track. Use one edge of a triangular file to start the groove, then switch to a round file about 1/4" in diameter to shape the groove. When you've achieved the final shape, sand the groove and the top of the stock smooth.

9. As noted earlier, making the bowstring is a detailed process that could easily be an article in itself. Due to space limitations, I'll describe it briefly. Check YouTube and the archery section of your local library for more complete instructions. First, measure the distance between the nock grooves on your prod. Get a scrap piece of 2x4 or similar wood longer than that measurement and drill two 1/4" holes exactly that distance apart. Place dowel pins in those holes to create a simple string jig. Tie the string to one of the pins and wrap it around both pins eight times to create a continuous loop with 16 strands. Secure the loose end, then to wrap the "serving" around opposite ends of the loop to create the eyes to fit the nocks at the ends of the prod. You also need to wrap serving on the center of the string to protect it from abrasion against the stock. If this sounds too complicated, you can shop around for pre-made commercial crossbow strings and adjust the size of your prod as necessary to accept them.

10. To string the prod, slip one eye over one end and then anchor the other end into the nocks in the prod. With the nocked end on the floor, support the other end on a stair and push on the center of the prod to flex it until you can nock the top end. The goal should be a brace height (distance between the prod and string) of about an 1". If the string is too long, progressively twist it and repeat the process until it's the right length. Apply beeswax to the center serving to lubricate it and keep it from fraying.

Step 10 & 11

Mount the prod in the stock. If the fit is loose, use a hardwood wedge to snug it up (left). String the prod after it is mounted in the stock. The brace height (distance between prod and string) should be about an inch. Twisting the string a few turns will shorten it and increase the brace height (right).

Step 12

Using flat files, carefully file a notch about 3/16-inch deep in the top of the stock. This notch holds the string when the crossbow is cocked.

Step 13

Make the trigger pivot pin from a bamboo chopstick by filing it round, but leaving a shoulder and a larger head to hold the trigger in place. Here an electric drill is used like an improvised lathe.

11. Remove the bowstring and insert the prod into the stock. If it doesn't fit snugly, tap a small wedge of hardwood under it to cinch it in place. Now restring the prod. Bracing the butt of the stock against your hip, pull the string back to flex the prod. Don't go too far, but make sure the string will reach about 1-1/2" past the end of the track.

12. Measure 12-1/2" from the front of the stock and mark a spot for the string notch. Using flat files, carefully file a notch about 3/16" deep. Cock the prod and make sure the notch is deep enough to hold the string securely.

13. Make the trigger pivot pin from a bamboo chopstick by filing it round, but leaving a shoulder and a larger head to hold the trigger in place.

14. Cut a piece of 1/4" thick oak 7" long and shape it into a long teardrop shape for the trigger. Mark a point 1-1/2" from the wide end and drill a hole for the trigger pivot the same diameter as the pivot pin. Position the trigger so the front end extends 1/4" in front of the string notch and the pivot location allows the front of the trigger to rise above the top of the stock. Mark and drill the pivot hole. Insert the pin through the trigger and seat it in the stock.

15. Bolts for the crossbow are made from heavy bamboo chopsticks. Sand them round, cut a 1" slot into the back

Step 14

Cut a piece of 1/4" thick oak 7 inches long and sketch a long teardrop shape on it for the trigger. Mark the trigger pivot hole location 1-1/2" from the front end (upper left). Position the trigger on the stock and use it to mark the pivot hole location on the stock (upper right). Drill the pivot hole all the way through the stock (lower left). Install the trigger pivot pin, then trim off the excess from both ends and sand smooth (lower right).

Step 15

Bolts for the crossbow are made from heavy bamboo chopsticks. Cut a 1" slot into the back end and file a point on the front end. Sand a paint stirring stick to thin it and glue it into the slot. Mark the fletching outline and shape to size. Cardboard can also be used.

The Montagnard crossbow in the cocked position. Depressing the trigger lever with the thumb raises the front end, pushing the string up out of the notch and firing the bow.

At 10 yards the Montagnard crossbow easily achieves 6" groups.

end and file a point on the front end. Cut a piece of fletching from wood (like a thinned paint-stirring stick) or cardboard and glue it into the slot with white glue. Then taper the fletching evenly on each side. The butt end of the bolt should be sanded flat.

Take a Shot

To shoot your crossbow, first make sure you have an appropriate target. I made one from stacked corrugated cardboard about 2" thick. Brace the butt of the stock against your hip, pull the string back and seat it in the string notch. Pointing the crossbow toward the target, place a bolt in the groove in the stock all the way to the rear of the groove. Aim the crossbow by sighting over the bolt and slowly depress the end of the trigger lever with your thumb. When the front of the trigger raises the string out of the notch, it will snap forward, hit the end of the bolt and launch it toward the target.

The crossbow I made for this article has a 30-pound pull and shoots chopstick bolts at a consistent velocity of 120 fps. At 10 yards I can easily stay within the 7 ring (6" circle) on a typical pistol target. Will I be taking out VC sentries anytime soon? No. But the result of this project was definitely an authentic replica of a Montagnard crossbow that is every bit as functional as the traditional versions. And if the Montagnards can use them to achieve their survival goals, so can you.

Michael Janich

ROAD WARRIOR

STAYING SAFE AWAY FROM HOME

Always lock all the available door locks every time you enter your room. Good security habits and making the most of all your resources go a long way toward keeping you safe.

If you're reading this magazine, your head is already in the game when it comes to survival — including personal- and home-defense. Odds are you've taken substantial steps to fortify your home's physical security and you've trained to develop the skills to defend yourself and your family both inside and outside your home. Given the context of your normal daily routine and environment, you're well equipped and well prepared to protect yourself.

Unfortunately, when you have to travel outside your home turf, things change. Staying in hotels, working in unfamiliar areas and operating in jurisdictions that may have vastly different weapon laws all make staying safe significantly more challenging. Survival on the road can be tough. However, by learning and following a few simple guidelines and developing some sound traveler "tradecraft," you can drastically reduce your chances of being victimized.

Plan Ahead

One of the most important things you can do before you travel is to research the area or areas you'll be visiting. If you're traveling on business, ask your business contacts at your destination for recommendations for good hotels in safe areas. At the same time, ask them if there are any areas you should avoid. If you don't have any contacts to rely upon (or the ones you do have aren't much help), visit some Internet travel sites and look for reviews of the specific areas and the hotels you're considering. Focus on comments relating to security and the overall safety of the surrounding area and use them to narrow your choices.

To further refine your options — and to assess the safety of the neighborhood surrounding your hotel or office — check out web sites like mylocalcrime.com, which allow you to enter an address or zip code and instantly see a map of the crimes recently committed in that area. The "street view" available on Google maps also allows you to remotely recon an area before you commit.

Choosing hotels part of a national chain has a number of advantages. Because higher-end hotels have a reputation to maintain, they tend to be located in better areas and have higher security standards. In most cases, they are laid out so their rooms can only be accessed through interior hallways. This limits public access to room doors and ensures the area outside your door is well lit. If you travel often, sticking with the same chain also means consistent room configurations. If something does happen and you need to react quickly, familiarity can give you a definite edge.

If you plan to travel with weapons — especially firearms — research and planning are critical. In addition to state laws governing the legal possession and carry of firearms, you also need to be aware of any applicable municipal laws that might be even more restrictive. The NRA's web site and those of concealed carry organizations provide useful guides on state gun laws, CCW reciprocity and protocols for legally transporting firearms. You should also plan your travel to avoid driving or connecting flights through cities with draconian gun laws.

Respond to knocks at the door by looking through the peephole and talking to the person through the door. Verify the identity and purpose of hotel staff members visiting your room by calling the front desk. It's also a good habit to look through the peephole before you open the door to leave.

Non-firearm weapons like knives and pepper spray are much easier to travel with and, from a practical standpoint, are probably better suited to use in a hotel room because they don't pose the danger of collateral damage due to over penetration or missed shots.

Getting Settled

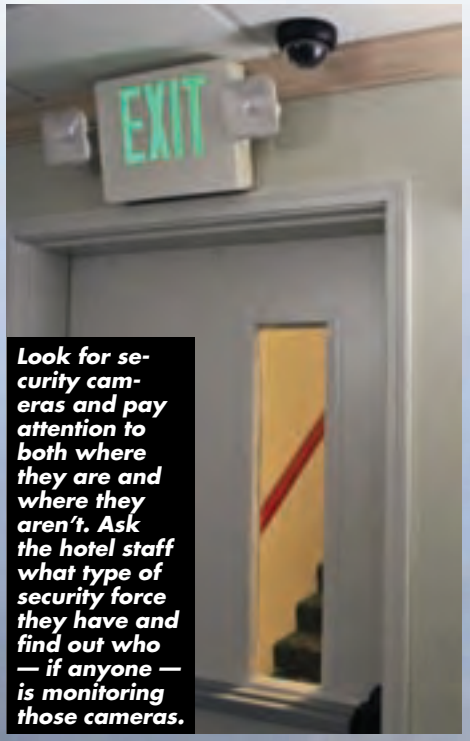
Checking into a hotel is often a metaphorical sigh of relief at the end of a long journey; however, don't let this be a reason to let your guard down. Protect yourself from prying eyes and ears while checking in and be aware for any potential causes for concern.

First of all, maintain control over your bags during the check-in process. Keep them in front of you where they are always in view and keep your briefcase or laptop bag between your feet. Have your ID and credit card ready and maintain conscious control over them so they go back in your wallet as soon as they're returned. When you receive your room keys, the clerk should not announce your room number verbally. If he does, don't be shy about asking for a different room and asking him not to say the room number out loud.

If at all possible, travel light and manage your luggage yourself. This way you can avoid being separated from it or having to use bellmen. If you must use a bellman, show him your room number — don't announce it to the world.

When you get to your room, unlock the door, open it and then

Check the integrity and function of your window locks — especially if your room is on the ground floor. Then close the drapes to avoid prying eyes.



Look for security cameras and pay attention to both where they are and where they aren't. Ask the hotel staff what type of security force they have and find out who — if anyone — is monitoring those cameras.

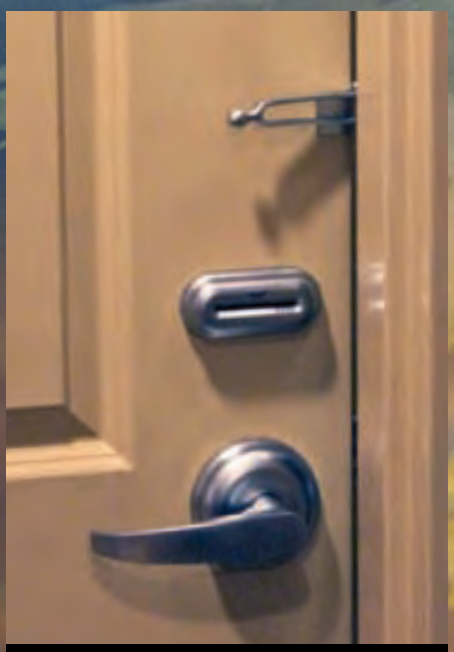
close it again to test the proper function of the lock. If it's not working properly you won't be staying in that room anyway, so get that test over with right away. If the lock is healthy, open the door and prop it open with your bag while you do a quick sweep of the room. Specifically, look in the closet, the shower and anywhere else a person might be able to hide to make sure you're alone. Then, bring your bag inside, close the door and consciously engage the secondary lock and the door guard or chain. The idea is to make this a well-trained habit every time you enter your room.

While you're there, take a moment to look at the escape plan diagram on the back of the door to figure out where you are in relationship to the stairways. You should also look through the peephole to make sure it's working properly and hasn't been altered (some dirtbags have actually reversed peepholes so they provide a view from the outside).

After ensuring that the door will do its job properly, it's time to take a look at the physical security of the rest of the room. If your room has a door that adjoins the room next door, check it out carefully to ensure it locks properly and won't allow access if your neighbor happens to open the door on his side. To be absolutely sure, it's a good idea to secure it with a good doorstop. More on those later.

Check out the security of your windows as well — especially if you happen to get a room on the first floor. If they can be opened, make sure the locks operate properly. If you have a balcony, ensure the access door has a substantial lock and it also operates properly. While you're at it, take a moment to check out your balcony and assess the possibility of accessing it from adjacent balconies on either side and those above and below your room.

Obviously, if any aspect of your room's physical security isn't functioning properly, grab your bags, head down to the front desk and demand another room. Don't settle for the "we'll send someone up to fix it" excuse. Who knows how long that will take and whether they'll actually be able to fix it to your satisfaction. Get a new room.



Never let your guard down! Propping your door open "just for a second" to get some ice or go to the vending machine is all a criminal needs. If you're lucky, you'll just lose your wallet or purse. If you're not, he'll be waiting to take more — a lot more — when you get back.

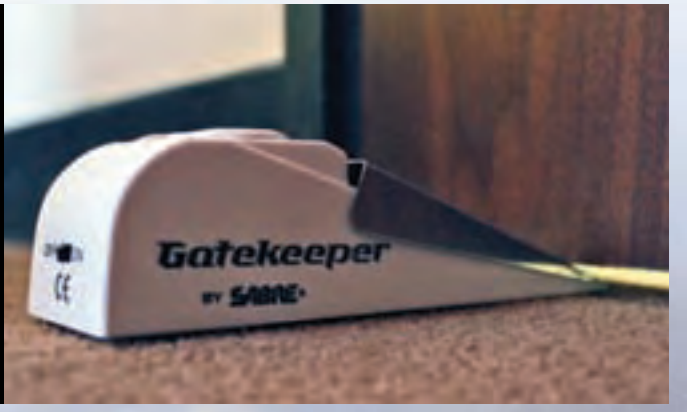
Take The Stairs

Once I've settled in to my room, I like to find the stairwells and figure out where they go. Some allow access to other floors and exit directly to the street at the ground level. Others allow access to the lobby or interior hallways on the ground level. If there's a fire, either one will do. If I'm trying to escape a violent attack, I'd rather have the option to head to the front desk and hotel staff rather than being stranded on the street.

While you're out and about, take the time to look up and see if the hotel has security cameras. Take note of where they're located and what areas they cover. More importantly, look for any critical areas not covered. You should also ask the front desk what type of security staff they have — if any — and who's on the monitoring end of those cameras.

Avoiding Company

When you head back to your room, pay attention to anyone else who might be in the hallway and have your key ready to go. This will help you avoid a "push-in" attack during which a criminal times his movement with your entrance into your room. As you open the door, he shoves you



The SABRE "Gatekeeper" doorstop alarm is an inexpensive way of bolstering the security of your hotel room door. In addition to preventing an intruder from entering, its built-in alarm warns you (and everyone else) of a security breach and will probably scare the attacker away.

in and attacks you in the isolation of your own room. If you do notice someone suspicious in the hall, keep walking past your room or simply stop and let him go to change the dynamics of the situation. When the coast is clear, enter your room and consciously lock all the security measures on the door. Do this every time you enter your room and don't ever "prop" your door open — even for a moment — while you get ice or go to the vending machines. It only takes a second for someone to enter and lie in wait for you.

If you hear a knock on your door, use the peephole to see who it is and talk to him through the door. Don't open the door or rely on the security bar; a single swift kick will defeat it. If it's a hotel staff member, ask to see ID and call down to the front desk to verify the person's identity and reason for needing to enter your room.

Obviously, you must be extremely careful in allowing anyone access to your room — especially "companions" that just became your new best friend at the hotel bar. If you purposely let your guard down, you deserve what you get.

Bolstering Your Security

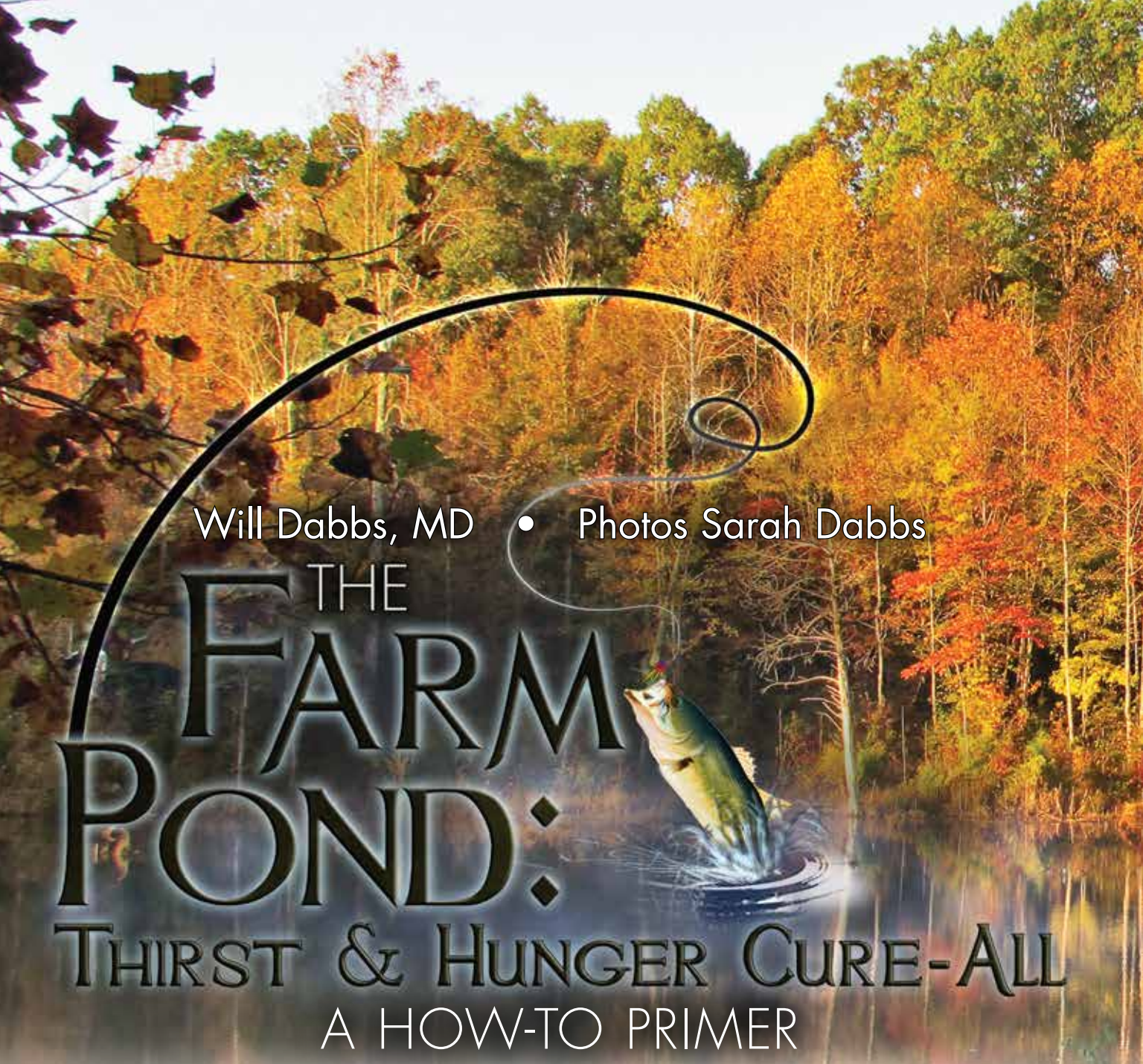
Even if you do everything right, it's still possible someone will try to enter your room to steal your valuables or try to get to you. If possible, take your valuables with you when you leave your room so you know they're safe. If that's not practical, you could secure them in the room safe, but bear in mind it may be a calculated risk. Because guests sometimes forget the combinations they programmed into the safe, the hotel staff must have "master" combinations or keys. Some hotels may even leave the default master codes (all zeroes or sequential numbers) programmed into the safes for their convenience. Criminals know this and will exploit it.

One alternative to the in-room safe is to use a Pelican case, cable and padlock as an improvised safe, locking your valuables inside and securing the cable to the bed frame or some other solid object. If you're really concerned, however, the ultimate security for high-value items it to lock them in the hotel safe. This keeps them secure at all times and also puts the onus of liability more squarely on the hotel.

The deadbolt and door guard on your room door provide good physical barriers, but they aren't foolproof. To strengthen your security, all you need to do is to wedge a hard rubber or wooden doorstop under the door from the inside. Even if the locks are overcome, the wedge will hold the door — at least long enough for you to react and mount a solid defense. To up the ante even more, invest in a "Gatekeeper" alarm doorstop from SABRE. If the door is opened, it sets off a shrill 120-decibel alarm while the doorstop does its job, warning you and most likely scaring off the would-be intruder. Simple, inexpensive and easy to pack, this accessory is a must-have for travelers.

If all else fails and you do need to defend yourself, it's best to do it armed. In addition to a good tactical flashlight to shed light on the situation, consider pepper spray, an impact weapon like a cane, or perhaps a knife and invest in the training to use them effectively. If you opt for a firearm, plan your fields of fire carefully so you bracket the intruder between you and a solid backstop. You can also increase the effectiveness of your defenses by staging chairs between you and the door and using the bed and other furniture as obstacles.

"Survival" is not just for emergencies; it's about staying safe and protecting your assets no matter where you are. Plan ahead, invest in good equipment, develop sound security habits and then follow them religiously.



Will Dabbs, MD • Photos Sarah Dabbs

THE FARM POND: THIRST & HUNGER CURE-ALL

A HOW-TO PRIMER

Prepping for unpleasant eventualities has become comfortable conversation fodder in even the most genteel circles these days. Where once survival "preppers" were scorned by the public and persecuted by the government, nowadays such stuff comprises acceptable water cooler chatter from sea to shining sea. Amidst a bewildering array of gear, vehicles, shelf-stable food, top-flight reading material, and firearms, little is of greater practical utility to the contemporary rugged individualist blessed with a sufficiently rural address than the humble farm pond.

A farm pond obviously requires some land and appropriate topography not available to just everybody. However, if appropriately constructed and subsequently managed, a farm pond can cure depression, boredom, thirst and hunger while serving as a fresh new habitat for a variety of God's more fascinating creatures. Ours is the most remarkable aspect of our rural Mississippi farm.

Construction

It sounds obvious but you'll need a little space and you'll need water. Though rainfall can keep a pond fresh in many climates, a flowing stream of some sort is always better. We live in a hilly area with several seasonal springs feeding our modest, nameless creek. Our little stream dries up in the hottest parts of the year but it has been more than adequate to service our 7-acre pond.

Beavers are simply brilliant little monsters. When we first bought our farm it was awash in the industrious rodents and they had picked the perfect location for a dam. Tying together a pair of small ridgelines, a gargantuan beaver dam served as the obvious starting point for our more formal civil engineering pursuits. The first step was to remove the offending dams.

There are indeed laws in many parts of the country governing molestation of such structures, but down here in the Deep South beaver dams are considered more nuisance than biological *objects d'art*. Beavers are large, bucktoothed aquatic rodents after all, and their resilience and capacity to procreate are prodigious.

In my case, blowing things up was one of the few marketable skills I retained from the military so we bought a couple dozen binary explo-

sive charges from a licensed dealer and cleared 12 beaver dams out ourselves. This being pre-911, the explosives required nothing more than a driver's license to purchase. The time my kids and I spent rigging charges and clearing beaver dams ranks right up there among the most fun we have ever had together. Beaver dams can of course be removed with heavy machinery but you lose quite a few man points by eschewing explosives.

After a lifetime of diligently paying taxes I can honestly say I seldom benefit directly from my government. I have always been one of the producers who poured money into the insatiable machine that is the US government without ever really getting much out beyond decent roads and an admittedly remarkable supply of dead terrorists. My farm pond, however stands as a gleaming exception.

Representatives from the local Soil Conservation Service came out and surveyed my site, took soil core samples, and drew up plans for my pond without charging me a single cent. They produced a plat showing the ultimate footprint of the lake, calculated the drainage that would feed it and estimated the volume of earth required to form the dam. Their calculations were so precise, this number was what the earthmover eventually used to calculate the price required for building the dam. At long last we got to see our tax dollars at work in a tangible way.

After blowing the dams we let the ground dry out about six months before obtaining the services of a local dirt man. The good folks from the Soil Conservation Service can help you find one, as can Google or the Yellow Pages. On the appointed day they arrived with a track hoe, a bulldozer and a gigantic four-wheel-drive tractor towing a dirt pan.

Theory And Execution

You don't want your dam to leak so it needs to be made from clay rather than dirt. To ensure the dam is indeed watertight, the earthmover will dig a core ditch down surprisingly deep to form a foundation for the dam. This ditch follows the ultimate track of the dam itself. He then uses the dirt pan to skim the topsoil away from the footprint of the lake. Once the topsoil was removed he ran the tractor and pan in monotonous circles for several days scooping clay and then dropping it into the core ditch. Once the core ditch was filled with clay he continued building up the dam with clay until it met the dimensions laid out by the government surveyor. His bulldozer was equipped with a precise GPS locator and a laser leveler that made the finished dam look like it was fashioned by an artist.

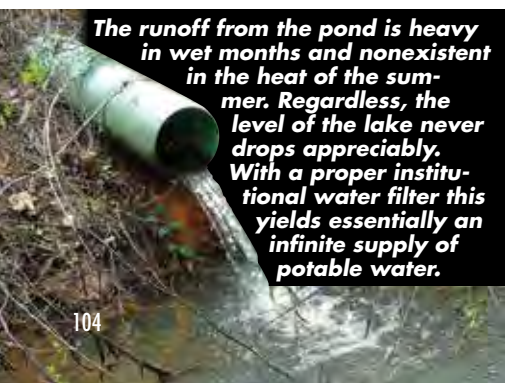
The earthmover built us a spillway on one end of the dam to accommodate overflow in times of heavy rains as well as a giant PVC snorkel to keep the level of the lake constant. As I had always wanted to own an island we had him fashion us one while he was in the neighborhood as well. It is perhaps 10' across and we call it Australia. The bowl from which he harvested the clay for the dam ended up being maybe three acres scraped down clean. We left the rest of the footprint of the pond with its trees and brush intact to serve as fish structure. Our pond is about 13' deep at its deepest point and required

Nothing will cure what ails you like drowning crickets with your daughter after a hard day at work.

To get big bass the small ones must be culled. They make great eating or they can be used Indian-style as fertilizer in the garden.

Studying and managing the associated wildlife is half the fun of building a farm pond. Animals are drawn to the water and flourish around it. While this in itself is fascinating, they could also provide a ready source of edible protein in dire circumstances.

A giant PVC snorkel keeps the water level constant, independent of rainfall. The water is about 13′ deep at this point. A trio of holes drilled in the top of the pipe keep it from siphoning too much.



The runoff from the pond is heavy in wet months and nonexistent in the heat of the summer. Regardless, the level of the lake never drops appreciably. With a proper institutional water filter this yields essentially an infinite supply of potable water.

about four months to fill completely with water.

Critters And Management

The most fun we have gleaned from our farm pond has been from introducing and managing the associated wildlife. There were a few small sunfish left over from the beaver dams. We also stocked the lake with 50 fingerling Florida bass along with 75 little pumpkinseed bream. Along the way we added perhaps another 45 big black bream we caught in other places along with a dozen or so 1- to 2-pound bass. We fashioned a battery-powered minnow aerator in an ice chest to keep the fish healthy during transport.

Bass will gain about a pound per year and the bream procreate like locusts. Within three years the lake was simply filled with fish. If you want big bass the small bass need to be culled. They make great eating or can be used Indian-style as garden fertilizer. The bream require no attention at all.

Here in the Deep South the lake attracted water moccasins. No offense to the environmental purists in the audience, but my kids grew up playing around the lake and a plethora of venomous serpents was incompatible with my vision for the place. I killed 13 the first year, nine the second and a couple each year after for several years. When the bass got big enough to eat the small snakes and my hunting pressure took its toll, we now see a new one perhaps every other year.

Despite all this effort we still had some frighteningly close calls. I shot one out from underneath my boot once after stepping on it during a walk with the kids and my daughter came within a whisker of stepping on another while barefoot. The farm is still populated with copious non-venomous varieties, and these guys help keep the frog and mouse population in check.

Applications And Pitfalls

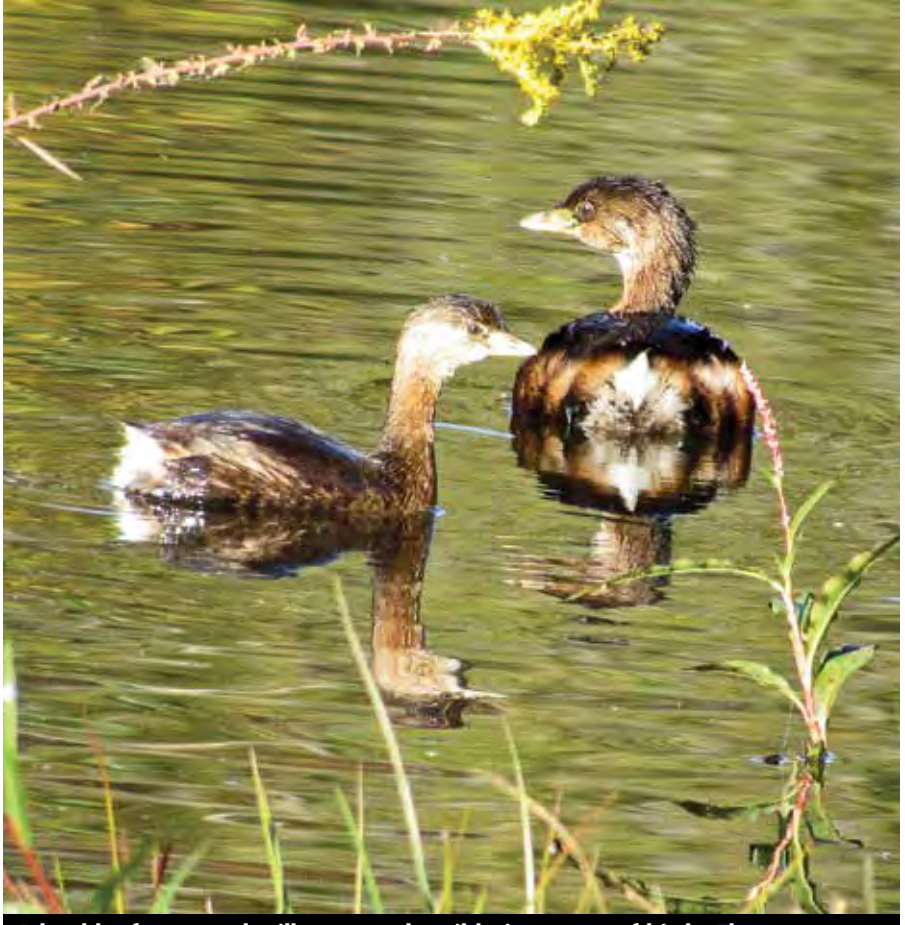
With a decent institutional water filter my family retains an infinite supply of drinking water from the lake. My farm dog takes her water from the same source. In a pinch we have untold tons of protein swimming about just waiting to be harvested if the world goes sideways and we can no longer rely on the local supermarket.

Nothing, and I do mean *nothing,* will melt your cares away like coming in from a hard day at work and climbing into the canoe with your daughter to drown a few crickets. In good weather we can catch bream until we get tired of doing it or they threaten to swamp the boat. Raising our own fishing crickets made for yet another fun home school project. Be assured, stalking the periphery of the lake with a rubber worm on a casting rig right at dusk will cure anything ailing you.

When my kids were young they swam in the open part of the lake every day the weather was nice. Capsizing the canoe transformed it into a splendid mock submarine and running a garden hose such that it drained into the lake made for a mudslide par excellence. I'll never forget the image of the three of them wearing nothing but their underwear all caked in mud. The only things visible through the sticky mess were six eyes and three big grins. It is times such as this that make memories without equal.

When the water gets clear and the summer grows hot enough to allow sunlight to penetrate, the weeds take off. Chemical herbicides are an option but we opted for a couple dozen diploid grass carp. These voracious herbivorous fish eat one and one half

The farm pond attracts all manner of wildlife. In an emergency the transition from deer to jerky is fairly straightforward.



A healthy farm pond will attract a bewildering array of birds. These creatures are a joy to behold and would be edible in an emergency.

times their body weight daily in foliage and eventually grow to be about 60 lbs. They are bred to be sterile so they do not take over the lake. These industrious aquatic weed eaters have done a great job of keeping the lake tidy and we didn't have to fill the lake with chemicals. Breeders sell such fish as this out of specially designed trucks down here in the Deep South. Google can find them for you.

When it rains heavily, the water drawing through the snorkel roars like a jet engine. I drilled a trio of 3/8" inch holes in the top of the device to break the resulting suction and keep it from siphoning unduly.

Lumberjacking

While all the brush and drowned trees do make great fish structure, they are unsightly and prone to cause marital friction if left standing long enough to become eyesores. As a former mechanical engineer, I knew there must be an engineering solution to this vexing problem.

A chainsaw in a canoe is a bad idea. I'll give you one guess as to how I know that. Use your imagination and you can visualize all the many-splendored ways to kill yourself with that undertaking. However, a rechargeable drill sporting a 1" spade bit makes a tidy hole at the waterline. Pack that hole with a little plastic bottle filled with Tannerite material and then shoot it from a safe distance with a high-velocity projectile and the resulting explosion will cut the tree like a knife both safely and easily. If *that* doesn't strike you as a fun way to kill a lazy Saturday afternoon, then something is wrong with you!

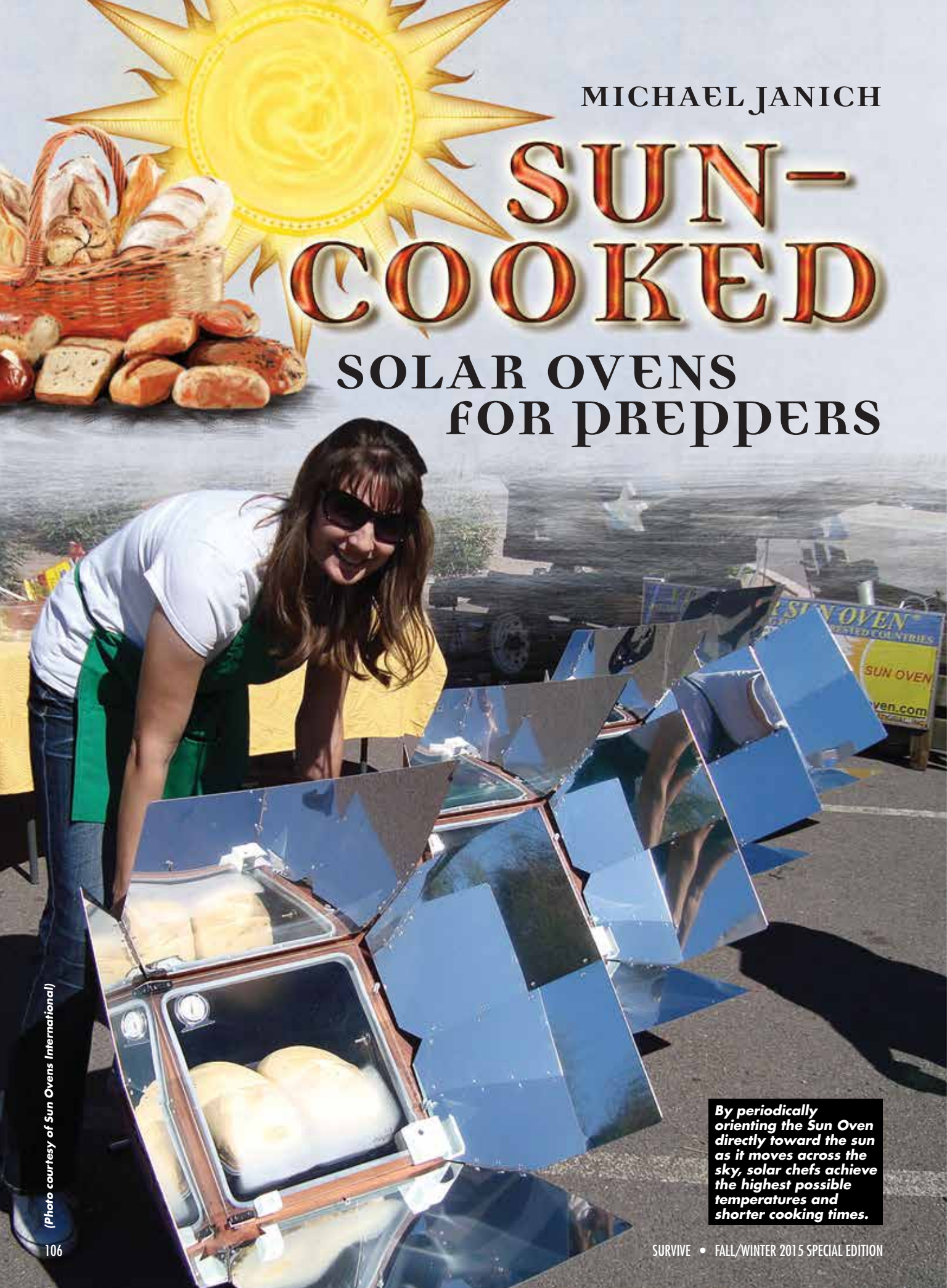
Musings

Our 7-acre farm pond plays host to a wide variety of transient water birds every year and our island serves as a nursery for a healthy gaggle of goslings from a family of Canadian geese who call it home each spring. We have itinerant otters periodically and the lake has rendered splendid service as a swimming pool, science lab, food pantry and stress reliever for my home schooled family for well over a decade. The construction cost — along with my long-suffering bride — represent literally the two best investments I have ever made. We have discovered Indian artifacts around the site and harvested a couple of tons of petrified wood from the hole as it was being built, much to the delight of my kids. Should you be blessed with a little land amenable to the construction of a proper farm pond, it is good medicine indeed. For the responsible American Rugged Individualist it is the most versatile, and productive piece of prepper kit anywhere.

MICHAEL JANICH

SUN-COOKED

SOLAR OVENS FOR PREPPERS



(Photo courtesy of Sun Ovens International)

By periodically orienting the Sun Oven directly toward the sun as it moves across the sky, solar chefs achieve the highest possible temperatures and shorter cooking times.

Preparing for a survival situation typically involves stockpiling resources so you can continue a reasonably normal life during periods of emergency. Although stockpiling supplies is a necessary part of any good survival plan, anytime you can make use of readily available resources, you can conserve space, save money and make your life a lot easier. With this in mind, you owe it to yourself to explore the most abundant resource we've got: the sun.

When most people think of solar energy, they imagine high-end, off-the-grid electrical systems with banks of batteries in the basement. While that's certainly a valid approach to taking advantage of the sun's power, you don't have to go to extremes to make solar energy part of your survival strategy.

A simpler, much more affordable tactic is to use the sun as a source of cooking fuel. When the sun is shining, conserve your firewood and propane and use a solar cooker to prepare a meal. Need to pasteurize some questionable drinking water? Don't burn fuel; let the sun do it for free.

One of the most versatile types of solar cookers is the solar oven, like this one from Sun Ovens International. Like a standard oven, it can be used to bake, roast, boil and even dehydrate food.

(Photo courtesy of Sun Ovens International)

Types of Solar Cookers

Solar cookers are an amazingly effective way of tapping into the sun's power. On a sunny day, they can generate impressive temperatures and can be used to cook a wide variety of foods just as well as a traditional oven, crock-pot, or stovetop.

Solar Ovens: A solar oven is basically an insulated box with a clear glass or plastic top that traps the sun's rays and converts them to heat energy. Like a greenhouse or your car on a sunny summer day, the clear top allows the short-wavelength solar rays to pass through, where they are absorbed and converted to long-wavelength infrared rays, creating heat. To maximize this effect, the box interior and the cooking vessel are typically painted black, which readily absorbs all frequencies of light. The glass traps the heat, causing the temperature within the oven to rise. Most solar ovens have one or more panels around the top to reflect additional light into the oven's interior. Solar ovens can easily reach temperatures of 300 degrees F (150 degrees C).

Solar Panel Cookers: Similar in concept to a solar oven, a solar panel cooker uses a series of flat reflective panels to reflect and concentrate the sun's rays into the center of the cooker, which holds a dark-colored cooking pot. For maximum efficiency, the pot is enclosed within a larger covered glass container or a simple plastic roasting bag. The clear outer containers replicate the glass lid of the box-style solar oven, allowing light in but trapping heat. Since they lack the insulation of a solar oven, panel cookers are slightly less efficient; however, they are typically smaller and simpler. They are also easier to adjust as the sun's angle changes throughout the day.

Curved Concentrator

Curved concentrator solar cookers are similar to panel cookers, but focus the sun's rays much more precisely. Since light travels in a straight line, when it is reflected off a surface, the angle of reflection is the same as the angle of incidence (the angle at which it hits the surface). Because of this, flat panel cookers reflect an "area" of light basically the same size as the panel. If the object to be heated is smaller than the area of light, some of the light literally "misses" the object.

A curved concentrator is based on a parabola. The math-geek definition of a parabola is: *A plane curve generated by a point moving so that its distance from a fixed point is equal to its distance from a fixed line.* For our less-geeky, more practical purposes, imagine the parabola is a reflective curve and the fixed point is a focal point. The curve of the parabola is perfectly shaped so rays of sunlight entering the mouth of the curve are all reflected directly at the focal point. This concentrates the sunlight and focuses its energy to achieve impressive temperatures.

Trough-style parabolic cookers take the shape of a parabola (which is technically a two-dimensional shape) and lengthen it to create a trough. The light they collect is therefore concentrated on a line that runs parallel to the trough at the focal distance of the parabola. Although trough-style solar collectors are used mostly for heating water (by running a pipe along the focal line), this style of construction is also used in Evacuated Tube Solar Cookers, which focus the sunlight on a long glass vacuum tube — similar to a Thermos — to create a small but super-insulated oven.

Parabolic Dish Cookers

As mentioned earlier, a parabola is a flat shape. Extend it to create a trough and your focal point becomes a line. However, if you rotate the shape 360 degrees, you get a bowl or a dish. All the same reflective magic still happens the same way, but now the focal point is a true point, not a line. This means the reflected sunlight is super concentrated, so the temperatures gained are truly impressive — especially if the cooker is of a substantial size. A well-designed parabolic dish cooker that's five feet in diameter can achieve temperatures in excess of 800 degrees F (427 degrees C) at the focal point.

Because they produce such intense heat, parabolic dish cookers are perfect for direct cooking methods. Want to fry bacon (who doesn't)? Aim your parabolic dish at the sun, put a heavy frying pan on the support at the focal point and have at it. You can also use a Dutch oven or similar covered pot as a cooking vessel, but make sure it has thick, heavy walls that distribute heat well. Thin pots can get too hot in one spot and burn the food.

Magnifying Cookers

One other type of solar cooker worth mentioning is basically a magnifying cooker. Remember when you were a kid and used a magnifying

(Photo by Erik Burton from Kapaa via Wikimedia Commons)

Solar cookers take advantage of the sun as free fuel and are a great tool for preppers. In addition to cooking, they can be used to pasteurize drinking water.

glass to fry ants in the sun? Well, these work basically the same way, using large Fresnel lenses as magnifying glasses to focus the sun's rays on the cooking vessel to generate heat. Like parabolic dish cookers, magnifiers achieve very high temperatures and cook food quickly.

Which Is Best?

All these basic types of solar cookers work well, but like anything else, they have advantages and disadvantages. For all practical purposes, solar panel cookers are sun-powered crock-pots and work best cooking stews, soups, rice, and similar foods cooking at low temperature over long periods of time. Solar ovens also excel at the "low-and-slow" style of cooking, but tend to be more efficient than panel cookers because they are better insulated and capitalize on the light reflected by their panels more efficiently.

The downside to these cookers is they must be repositioned every hour or so to make the best of the sun's changing angle and they require several hours of sunny or partly sunny weather to cook a meal completely. If the weather goes south before your food is fully cooked, be prepared to finish the job with a different fuel source.

Because parabolic and magnifying cookers achieve higher temperatures and do so more quickly, they can take advantage of short periods of sunny weather. They also offer the option of high-speed direct cooking methods, which can be both good and bad. On a bright, sunny day a parabolic cooker can turn into a death ray. If you're not extremely careful, it's easy to burn yourself as you work near the focal point of the dish. And though achieving high temperatures can be good, when you're working with the sun, controlling those temperatures can be difficult. You'll need to keep an eye on your food to make sure it doesn't burn.

Commercial Solar Cookers

The popularity of solar cooking has inspired a number of enterprising companies to produce turnkey solar cookers. These are the easiest way for forward-thinking folks to add solar cooking to their preparedness arsenal. Here are just a few examples of what's available…

Sunflair Solar Oven: At first glance, this unique product looks like an ordinary panel cooker, but its clever design also incorporates a clear zippered cover and insulated polyester construction to trap heat, which makes it extremely efficient. Specifically designed to be camper and bug-out-bag-friendly, it is available

(Photo by Fluffyarse via Wikimedia Commons)

Curved Concentrator Solar Cookers are epitomized by parabolic cookers, like this SunGril model. These cookers focus sunlight on the cooking vessel, achieve extremely high temperatures, and can be used for direct cooking methods like frying and grilling.

The Sun Oven is a lightweight, portable, turnkey solution to solar cooking.

(Photo courtesy of Sun Ovens International)

(Photo by Vera de Kok via Wikimedia Commons)

Another type of Curved Concentrator Solar Cooker uses trough-style reflectors to concentrate the sun's rays on a central axis. This "Solar Kettle" is specifically designed for heating and pasteurizing water.

in several sizes, all of which are lightweight, collapsible for easy transport and produce temperatures of 210–250 degrees F (99–127 degrees C). They also come complete with collapsible silicone cooking pots, a special solar thermometer, and a carrying bag. The Deluxe Sunflair Oven Kit retails for $154.99 and smaller kits are even less expensive. If portability is a priority, this is a great choice.

The All-American Sun Oven: This is one of the most popular commercial solar ovens, and with good reason. Capable of achieving temperatures of 360-400 degree F (182–204 degree C), this durable, large-capacity oven can be used to bake, steam, boil, roast and dehydrate food. Its efficient reflectors also allow you to either adjust its position periodically to follow the sun to achieve maximum efficiency and highest temperatures, or to simply aim the oven at the center of the sun's arc of travel for a set-and-forget slow-cooker approach. In addition to its high-quality construction, the Sun Oven features a built-in thermometer, a spill-proof leveling gimbal, an adjustable elevation leg and a CD with more than 600 recipes and preparedness tips. The standard Sun Oven model retails for $349 and includes free shipping in the continental US.

SolSource Solar Grill: If your idea of survival cooking is to grill a steak in 5-10 minutes using only sunlight, the SolSource parabolic Solar Grill from One Earth Designs is for you. Perhaps the most advanced parabolic cooker on the market, it is the result of more than five years of painstaking research and development. Its parabolic reflector panels are made from tough endurance plastic with exceptionally efficient mirrored surfaces. The base and pot stand are made from coated carbon steel and allow 360-degree rotation of the 1.3-meter dish and an elevation adjustment range of 5-60 degrees. In addition to its high-quality construction, the SolSource is also unique in that its reflector dish has a gap at the top — like a missing slice of pizza. This gap allows the chef easy access to the cooking vessel from the rear of the cooker and is a brilliantly simple way of avoiding the "death ray" effect. The SolSource retails for $499 from the manufacturer and accessory packages including covers and grill pans are also available.

The sun is free fuel. And when you're living independently or coping with an emergency situation, free fuel is a good thing. Solar cooking is also fun, environmentally friendly and great for your tan!

Sam Fadala

ATV SURVIVAL TIPS

Sam takes good care of his rig and himself, ensuring both make it home in the same condition they left in.

GEAR UP ... AND GET OUT!

All Terrain Vehicle (ATV) Survival is immensely more involved than car or truck survival for at least three reasons. First, the ATV is capable of ferrying driver and partner into realms of rare to near-nonexistent human traffic, beyond the reach of many other conveyances. My favorite way into the hinterlands is on dead logging roads abandoned decades earlier. Because sunlight reaches the ground along these serpentine routes, plant growth is tight and firm. There is not the slightest trespass on Mother Nature's turf. But should something go wrong "way back in," the explorers could find themselves miles distant from a legitimate road.

Second, there is severe lack of security from the elements with the usual ATV.

Third, a truck or even car, offers considerable space for survival equipment. The ATV bed is large enough for the basics. But the operator must choose wisely.

Getting Stuck

Bogged down in the outback. Walk out or stay put? Never strike out in a blinding whiteout blizzard. But if weather is good and your GPS marks the route to evacuation, hiking is acceptable.

Wind chill is the enemy in an open ATV. My wind chill chart shows 40 degrees with a 30 mile per hour (mph) wind "feels like" 15 degrees. Make that -39 degrees at 10 below/30 mph. ATV enclosed cabs can run three to four figures. Commercial full covers are available, but be prepared to shell out a pile of cash.

Currently I am relying on two large tarps, lengthwise and sidewise, to fight wind chill, but only until I find the commercial cover I can afford! Stuck during frigid weather for longer than a night, compact mummy bags coupled with a mountain tent or bivvy allows stretch-out on the ground. Consider adding a blow-up air mattress — it makes a great barrier from the cold ground.

Got Clothes?

Man is soft, furless, featherless, clawless and fangless. He remains at the top of the food chain only because of equipment, starting with clothes. We shiver naked at much below 70 degrees and may feel a bit warm at 90+. Think clothes for ATV travel. Squash a large strong plastic garbage bag into the ATV bed packed with

hats, shirts, pants and boots. I rely heavily on my Icebreaker Merino garments — they don't take up space and are warmer than you would expect when comparing their weight.

For first time ever, I invested in a totally custom boot. The tab for these Kangaroo Thula Thula Russell Moccasins was hefty, but they proved the best barrier between foot-and-ground ever, especially with compression socks (for diabetics). I have never before enjoyed such ankle support for long-range hiking.

Got Food?

If not, you'll make it for a long time. But it's nice to have a good water container and a 72-hour kit. Brownells has several survival kits, such as the "Get Home Bag" for enough "stuff" to take the sting out of being delayed in the outback for 72 hours. Keep a first-aid kit on board to care for minor injuries.

Got Light?

I am not afraid of the boogey man. I have frightened many away over time just by staring them down. However, I like light after Mr. Sun goes to bed. The Cyclops Apollo XP 200 Lumen is always in my glove box and the Extreme Beam M-1000 Alpine-TAC is in my 72-hour kit. Light not only illuminates with its rays, but also brightens the spirit when stuck out in the boonies.

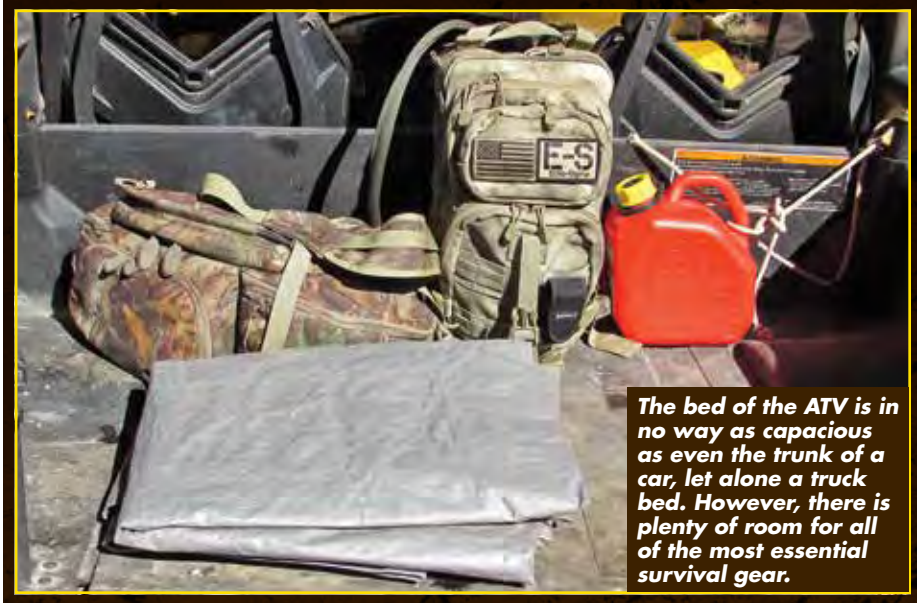
Assorted Hardware

You don't have much space so make your tools count. Include a small shovel, some sort of jack (for lifting disabled ATV more than changing a tire), a Flat Pack ATV Tire Repair Kit, plus a CO_2 bicycle tire inflator (bike shop), which works well for my fat-tire bike. It does not inflate mightily, but several cartridges can bring a slow leak ATV tire limping back home.

I include the winch under tools. Days before this epistle was tapped out, I winched a stuck ATV out of an ice slough. Not often, but in some forested areas, I take along a small chainsaw, which can be purchased for about a hundred bucks. A log to move a log blocking the trail is removed in minutes.

Communication

While the cell phone can be an intrusive pain upon personal peace, what a great tool it is where service is available. I've made calls from high places far, far from home. Handheld radios can also be useful. A weather radio is good, although pre-checking weather is always wisest. The days



The bed of the ATV is in no way as capacious as even the trunk of a car, let alone a truck bed. However, there is plenty of room for all of the most essential survival gear.

Sam's Ruger 9E shown with a couple of factory loads, plus American Eagle practice ammo.

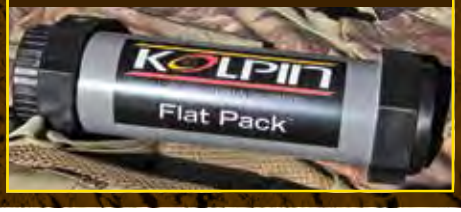
The CO_2 bicycle tire inflator doesn't put out massive flow, however, a few CO2 cylinders can encourage a slow leaking tire back to the ATV.

The gun rack is essential for safely carrying long arms. The Great Day rack holds fast, but releases fast as well.

As a temporary measure, Sam carries two tarps in his Can Am Commander; one goes lengthwise, as shown here, to block the wind and the other goes sidewise.

ASAP Survival bag packs a lot of gear in small place.

The Flat Pack contains essentials for in-the-field tire work.



of the 50-50-weather report are gone. I find most long-range reports quite accurate.

Armament

It is never a mistake to be ready with firepower. You just don't know what may come up when bogged down in the faraway. A son got stuck about 20 miles from a main road. He started to walk out in good weather. Ten minutes into his stroll he met a mountain lion hissing from atop a boulder. He had no gun. I think he got lucky. The cat had kittens, which took off and she followed. But happy she was not. I have three ATV survival guns. Two long arms are mounted in a Great Day Overhead Rack, secure, but easy to dismount. Of course, other arms are exchanged for hunting.

One is a single-shot .410 shotgun. The other is a single-shot .22 WMR. Either will provide protein if the driver has remembered to put in a small mountain stove, a pan or two, plus a leak-proof container of cooking oil.

My third firearm is on my waist. It's a Ruger 9E 9mm 17-shot loaded with high-power ammo, such as Federal's 124-grain Hyrda-Shok JHP or 124-grain HST JHP. Obviously not designed to stop a bear, although a heap better than a pine-tree switch, but enough enough power to handle many different threats, especially with a second 17-round magazine in the holster.

I went to the Ruger 9E 9mm for easy recoil and plenty of prime practice. I feel confident with this sidearm. And 17 bullets, well-aimed, should turn the charge of an enraged field mouse every time, or a rabid coyote for that matter. Today's 9mm ammo elevates this classic round to a whole new level.

Got Fuel?

I got lucky. I decided to take a brief ATV run with a Ruger SR-22 pistol for some squirrel hunting. The fuel gauge showed low. No problem. Should it be necessary, there was a one-gallon gas can tied down in the ATV bed. Down the road I decided to put the fuel in. Could not open the moron-proof cap even with tools, and I had no funnel. I made it home on fumes.

Two lessons: Check all items, even gas cans, before heading out — and have plenty of fuel — not only for covering ground if you have to get out on a longer path than what you took into the country, but also for heat. The engine of the ATV puts out warmth. There are also ATV heaters, but I have been content without one so far.

Pre-Ride Checklist

Not just for the machine, but also safety and survival gear is a good idea. Keep the list in the glove box. While a spare tire is fine, ATV's fronts and backs differ, and I can't compromise space with two tires. So I include the already-mentioned CO2 bicycle tire inflator and the Flat Pack ATV Tire Repair Kit, plus I never trust worn rubber and replace tires when needed.

Tell a reliable person of your destination and time plan. And stick to the plan so people don't go looking for you when you are neither lost nor stuck.

Some of the smallest items can also make a big difference to ATV safety, survival and health. Two friends took an ATV ride to a high mountain trout lake — in summer. They were sun-cooked medium-well to well-done when they got back. A little sunscreen would have helped. Gnats were annoying. Vanilla extract and repellant would have been useful.

Going in tandem is always smart. If ATV number one gets in trouble, there is ATV No. 2, if only to go for help. Or, while neither wise nor prudent normally, in a threatening situation the riders from ATV 1 tough it out in the bed of ATV 2.

Driver fitness is easily overlooked. The captain of the vehicle should feel "pert" and ready to go. A friend normally healthier than a hog in a mud hole got whacked with a flu bug. He took a long ATV ride and felt lucky to get back home without mishap. A teaspoon of wisdom is worth a pint of bravado. If a driver feels dragged down, he should postpone a long trek.

Be prepared for the elements. When the sun dominates the earth with its warming rays, even in cold climes, the world looks bright in spirit as well as light and warm. But when darkness rules, it's odd how shadows can seem more real than reality. Not a problem for a prepared ATV team prepared to duke it out under harsh conditions. The ATV is a fine vehicle. You just have to keep it mechanically fit with good tires and hot battery and it will churn its way through a lot of challenging terrain and return you to home and hearth. So have a great time with the great ATV. But safely.

WATER

HYDRATE OR DIE!

Will Dabbs, MD • Photos Sarah Dabbs

Water, H_2O — the universal solvent — the elixir of life. It makes up about 3/4 of your body mass and roughly the same percentage of the planet is covered with the stuff. Second only to air, clean water is the substance most critical to life. No matter your circumstances, you'll not go much more than three or four days without it before succumbing to a most unpleasant demise.

Those three tiny atoms bound together at an angle are the most fundamental component of life on our planet. In a solid blow the collective egos of physicians everywhere, more lives are saved worldwide each year by clean water than by all medical efforts combined. No matter the circumstances, climate, season, or threat, clean water is always at the top of anyone's list of critical commodities in any survival situation.

At a minimum you will require two quarts per person, per day, of decent drinking water to keep the human machines running smoothly. At times when water is scarce, drink infrequently. But when you do drink, try to drink your fill. This will squeeze the most mileage out of a limited supply.

In most places save the desert, water will be readily available in the environment. The rub is we are not the only organisms who value it. An awful lot of microscopic creepy crawlies like the stuff as well. The only thing worse than trying to survive a catastrophic event is trying to do so while managing a raging case of infectious gastroenteritis with its nausea, vomiting and explosive diarrhea.

Once you have your water, there are three broad techniques for rendering it safe for human consumption. In each case let your untreated source sit for a while if possible then decant the clearest quantity off the top to minimize contamination as your starting point.

Sterilization

Sterilization is the simplest approach and requires little as regards supplies. In this case the microscopic bugs remain in the water but are rendered inert by either heat or chemicals. You harmlessly drink up their little miniature deceased corpses at the end of the process. However, before you think this unduly objectionable, just ask somebody in the know what you are ingesting along with that yummy pork sausage you enjoyed for breakfast. Sometimes ignorance is indeed bliss.

Cut the bottom out of a water bottle and stuff it full with clean white socks. Run your raw water through this improvised filter to get as much of

A remarkably cost-effective solution to the thorny problem of providing enough water to support a family in an austere environment is a DIY filter kit. Available at very reasonable cost from Amazon.com, this kit combines with a pair of standard utility buckets to make an excellent gravity-fed filter system suitable for survival.

the particulate matter out as possible before you get started. Obviously the less foreign material you have at the outset the better.

Boiling water to sterilize it requires nothing more than a proper container and a heat source. Bring your water to a vigorous boil for a few minutes and then let it cool. Boiled water never tastes very good; let it sit for a bit then shake it up to introduce a little air and the taste improves.

Clear water can be treated with fresh unscented bleach at the rate of 8 drops per gallon to render it safe for drinking. Bleach is a dilute solution of sodium hypochlorite, about 6 percent by volume as you get it from the store, and is an indispensable and inexpensive survival staple. Treated water should be left out in the sun for a half hour or so before use and should smell very faintly of bleach. The resulting treated water will sometimes make you feel a bit queasy but should be safe to drink.

Bleach has a shelf life and should be stored in a dark cool place. More concentrated solutions can be used for camp tasks such as dishwashing. While dilute treatments do indeed produce safe drinking water, straight bleach is terribly poisonous if ingested. Military water purification tablets are also effective and I have used them before, but the resulting taste can be sub-optimal.

Distillation

Distillation produces the absolute safest drinking water. In this case the liquid water is evaporated and then subsequently condensed away from the original source. This process actually physically removes the water from the impurities so it can be used safely. While this mechanism produces the cleanest water, it can also be time-consuming or expensive.

A factory distillation machine runs off of electricity and produces a steady supply of drinkable water from literally any source, to include seawater. These marvelous devices work like a champ but can set you back a thousand dollars or more. The same process can be improvised with nothing more than a sheet of plastic and some sunshine, but the yield is very low.

Dig a hole in wet ground and place a pot or cup in the center of the hole. Then cover the hole with a sheet of plastic anchored and sealed around its edges. Drop a rock in the center such that the plastic forms a cone leading down into the pot. In bright sunshine water will evaporate out of the ground and condense on the plastic before running down into the pot. The water you collect by this process is perfectly pure, but even under ideal conditions this method is a full-time job to make enough water to keep yourself alive.

The heart of the DIY water filter kit is a ceramic filter core containing activated charcoal. The cloth sock fits over the filter and secures with a food-grade rubber band to exclude gross contaminants. The filter may be backwashed and cleaned with pure water for extended use.

This may look like a discarded water bottle filled with old socks and some generic household cleaning supplies. It is actually several thousand gallons of drinking water if used appropriately. The resulting water will likely make you feel queasy but remains safe to drink.

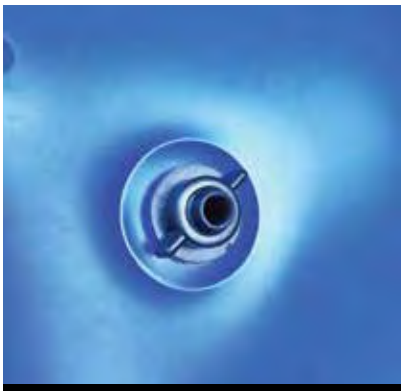
It can take a while for the untreated water to make its way through your improvised filter. Be patient and the resulting product is a good starting point for subsequent purification techniques.

Filtration

Water filters represent the most convenient method of harvesting drinking water from an austere environment. Filters come in a broad array of sizes, capacities and prices. They are both simple to use and effective. I have lived for weeks on filtered water taken from a variety of sources to include silt-filled glacial melt while suffering no ill effects. Water filters work by excluding contaminants while allowing pure water to pass. Most filter units are ceramic and are silver-impregnated or include activated charcoal.

The simplest sort is likely the Lifestraw. The Lifestraw is usually around $20 and is but a click away on Amazon. This remarkable little device rides around your neck on a string. Just dip the end into most any conceivable bilge and give it a slurp. Clear, pure water comes through the good end with trivial effort. For individual use it really could not be simpler.

Larger filters usually incorporate a small hand pump and are sufficient to produce plenty of water for individual use and cooking needs at a trivial weight and space penalty. These devices will usually set you back $50 to $100. Good ones will last for extended periods though operational life is a function of how funky your starting material might be.



The filter is secured with washers and a screw fitting between the bottom of the top bucket and the lid of the bottom bucket, resulting in a single watertight assembly.

Once the filter is in place the rest of the device just snaps together. Ceramic filters are brittle and should be handled carefully.

The hole for the spigot is located 2" from the bottom of the collection bucket. This allows clearance for the tap. A standard spade bit bores the hole painlessly.

It can be illuminating to peek into a drop of untreated lake water with a microscope. Water from raw sources is usually teeming with microscopic life, most of which can make you sick.

Commercial water filters are lightweight, portable and reasonably priced. Such devices will ride in a rucksack or bugout bag and are sufficient to keep one person hydrated.

Large family-sized water filters are also readily available but they can be expensive. These devices look like institutional coffee urns and are gravity-driven. Just pour the untreated water in the top and potable water comes out a spigot at the bottom. These units are sufficient to produce enough drinking and cooking water to keep a decent-sized family going but can set you back $400 or more. There is, however, a very cost-effective alternative.

Several companies offer kits that convert a pair of standard utility buckets from Lowes or Home Depot into an institutional water filter suitable to supply a family in a crisis. Mine cost me $39 from Amazon. The buckets were $3 each from our local home store. In this case you drill a pair of holes in the buckets per the instructions and install the included fittings. I found standard spade bits were the best tools to bore the holes.

Once the filter assembly is installed and the buckets are stacked you simply fill the top bucket with untreated water and gravity does the work. Be careful, the ceramic filter is fairly fragile and should not be handled roughly. The resulting device will produce a prodigious quantity of sparkling drinking water for less than the cost of a meal out with your family.

Preparation Is Key

There is a great deal of uncertainty in the world. The more our society evolves the more dependent we become upon technology and infrastructure. As a result we become all the more fragile as a species. Whether the precipitating insult is a hurricane, societal unrest, currency collapse, terrorist attack or something on the order of zombies or aliens, we are never more than one headline away from a fairly feral lifestyle.

Where once preparing for such stuff was the obsession of the lunatic fringe, nowadays survival prepping is both mainstream and big business. Capitalism being what it is, the market now allows us to do a bit of sensible prepping at reasonable cost. In the case of water, the most critical of all commodities, the means to secure an adequate supply of the stuff is now portable, reliable and inexpensive.

A little shelf-stable food, a proper firearm, and an inexpensive DIY water filter can transform a crisis of terrifying proportions into a fun family adventure. As is typically the case, the key to success rests in a little forethought and planning.

ALL FIRED UP

5 METHODS OF SURVIVAL FIRE MAKING

Michael Janich

Fire and the ability to create it and harness it is a key element of human survival. Whether it's used to keep you warm, cook food, purify water or signal for help, its importance as a component of a sound survival strategy can't be overstated. Given that critical importance, let's take a look at some high-probability methods of making fire in the field with expedient means. Based on the old adage "Two is one, and one is none," let's stack the odds of redundancy in our favor and pick five.

Fire Plow:

While not quite as simple as "rubbing two sticks together," the fire plow method of fire starting isn't far off. The base is a dry piece of soft wood about 18" long. Using a rock, knife or other tool, carve a groove about 8" long down the center of the base close to one end. The plow is a hardwood stick about a foot long with a point at one end.

Place the base on the ground and rub the pointed end of the stick back and forth down the groove until you create some sawdust in the groove. Tilt the base so the sawdust gathers at one end of the groove. Now repeat the process as fast and hard as you can, generating enough heat to ignite the sawdust and create embers. Transfer the embers to a well-prepared tinder bundle and gently blow on them to get the tinder to catch.

Hand Drill:

Another primitive method of fire making, the hand drill is basically a long, straight stick spun between your palms to generate friction against a divot or notch in a base piece of wood called a "fire board." Both pieces of wood must be dry and you must maintain constant downward pressure as you spin the "spindle." Done properly, the friction between the two pieces will generate an ember, which you carefully transfer into a prepared tinder bundle and nurture into real fire.

I learned this method from a Shona tribesman in Zimbabwe many years ago. Although he made it look easy, it's hard work and its success can depend heavily upon the types of wood you have available.

Bow Drill: Conceptually similar to the hand drill, the bow drill adds two pieces to the process to make it more efficient — a hand-held socket to provide a pivot bearing for the top of the spindle and a bow to spin the spindle more efficiently. The bow can be improvised from a shoelace or other cordage tied to the ends of a branch. Wrap the bow cord around the spindle, place the tip in the fire-board divot, and apply pressure to the other end with the socket, which should also have a divot or depression in it. While maintaining firm downward pressure on the handhold, draw the bow back and forth to spin the spindle.

While easier than a hand drill, the bow drill still takes practice, skill and appropriate dry woods to create fire efficiently. Like all fire-making methods, the ember it creates must also find a home in dry tinder and be carefully nurtured to become real fire.

Magnifying Glass: If you were like most kids — or at least kids with magnifying glasses — you are responsible for the crispy, sun-induced deaths of hundreds of ants. While you contemplate the gravity of those sins, remember a magnifying glass can indeed focus sunlight intensely enough to generate fire-producing temperatures.

Why would you be carrying a magnifying glass in a survival situation? If you're the forward-thinking MacGyver type, it would be one of the many tools in your Swiss Army knife. If you're not, you can still find that magnifying, sun-concentrating power in a simple plastic water bottle. The curved portion near the top of a full or partially full water bottle is functionally a bi-convex lens — just like a true magnifying glass. Find a piece of paper — ideally with some light-absorbing black print on it — to use as kindling and, starting with the bottle close to it, slowly pull back until you have a tightly focused spot of light. Maintain focus until the heat builds and the paper begins to burn.

If you aren't lucky enough to have a water bottle, but were hoping for a different kind of luck by packing a condom in your wallet, you can still make fire (no, not *that* kind). Filled with water or other field-expedient clear liquid, a condom or balloon can also become a bi-convex lens capable of focusing sunlight, generating focused heat and ultimately making fire.

Gum Wrapper And Battery: If you can scrounge a gum wrapper (the kind with a layer of aluminum foil and a layer of paper) and a small battery (like a flashlight battery), you've got the makings of a quick, easy fire starter. Cut or tear a strip of the gum wrapper so it's long enough to span the battery terminals. Then, trim the center of the strip to create a narrow section—about 3/16" wide. With the battery close to your tinder, hold the foil side of the ends to the terminals at each end of the battery. The effect is almost like blowing a fuse — the narrow center of the foil will quickly heat up, igniting the adjacent paper layer and giving you the makings of fire. This happens quickly and doesn't burn long, so have your tinder ready and close at hand.

Fire is a critical component of every survival plan, so fire making should be a top priority in your skill development. Learn several methods and make sure to practice them regularly in a variety of environments to ensure you have the skills you need when you need them most.

Michael Janich

GREATEST HITS

UNDER-THE-RADAR IMPACT WEAPONS

Good craftsmen know a big part of doing something well is using the right tool for the job. And when your "craft" is violence and the job is self-defense, the right tool is a good weapon. "Good," however, is a relative term.

Low-profile, under-the-radar impact weapons like these can give you a serious edge in a self-defense situation.

According to the FBI's Uniform Crime Report (UCR), there were 657,545 aggravated assaults committed in the US during 2012. This category of crime accounted for 54 percent of the total number of 1,214,462 violent crimes reported. Of the aggravated assaults, 22 percent were committed with firearms, 19 percent with edged weapons, 33 percent with other weapons and 27 percent with personal weapons (hands and feet). If you crunch those numbers, just over half of the weapon-based assaults (52 percent) used contact-distance weapons. If you add personal weapons, 79 percent of the attacks occurred at contact distance.

While it's tempting to think you'll be smarter, more aware and quicker to draw your gun than all the victims in these statistics, there's no guarantee. The temptation would also have you drawing your gun on lots of unarmed people, which may not be legally justified unless there is a significant disparity of size or numbers.

A wiser approach is to be well prepared to hit people and to have the ability to hit them with great effect. And one of the easiest ways to do this is to carry and train with purpose-designed, low-profile impact weapons. Weapons of this type are typically convenient to carry and, with a little practice, easy to bring into play quickly. Against low-level threats, they enable you to hit harder than with empty hands alone and may be all you need to stop an attack. If they're not enough to solve the problem by themselves, they make a great "invitation to the dance," allowing you to stun an assailant long enough to have time to draw a more potent weapon like a firearm. Very importantly, unlike pure empty-hand strikes, good impact weapons help you avoid injury to hands that might make it impossible for you to draw and operate a gun effectively.

Old-School Cool

Practical, street-oriented impact weapons are by no means new. Blackjacks and saps used to be very popular among cops and certainly responsible for their share of busted heads. My dad — an old-school Chicago street kid — was partial to a roll of coins (usually nickels, since we were on a budget) as either a fist load or carried in a sock as a makeshift sap. Add in brass (or other metal) knuckles, chain, hose and countless other "classic" street weapons, and it's clear the old timers knew how to hit.

Unfortunately, legislators eventually took exception to old-school thumping tools and many state and municipal laws now make them illegal. While it doesn't absolutely preclude you from using them in self-defense (especially if

you ascribe to the "I'd rather be tried by 12 than carried by six" philosophy), you should definitely do the research before you decide to carry any weapon for personal defense. Any choices you make — and the consequences of those choices — are fully on you.

With this clear, let's take a look at some of my favorite "new-school" street weapons, including some very clever items from three of my favorite evil geniuses.

Got Change?

As mentioned earlier, the "roll of quarters" trick is a time-tested street tactic and one offering a high degree of "plausible deniability," since coins are not purpose-designed weapons. About 10 years ago, French knifemaker and close-combat expert Fred Perrin took this concept a step further and developed a coin purse sap. Basically a long leather tube closed at one end, it's pretty harmless — until you put a few ounces of coins into it. The tough leather structure holds the coins together and allows them to be swung with impressive force, making a simple "coin purse" every bit as effective as a traditional sap.

In recent years, Perrin switched from traditional leather to a tough neoprene-like cloth and added a snap-style retention strap. The basic premise, however, remains the same. Either version carries very comfortably and discreetly tucked into the waistband or looped over the belt. I prefer the waistband carry, since it allows me to grasp the "handle" end, draw and strike in one fluid motion. Although I am a fan of Perrin's original handcrafted coin saps, holster maker DeSantis also recently introduced their own version.

Brace(let) for Impact

Another signature street tool from Fred Perrin's arsenal is his metal bracelet. An extremely talented blacksmith, Perrin hand-forges a wide range of braided steel bracelets, making excellent fashion accessories for both men and women. Aesthetics, however, are only part of their purpose. Made of durable spring-tempered steel, they make formidable striking weapons when left in place on your wrist and powered with backhand-style blows.

If you take the time to plan ahead, you can move them from your wrist to your hand, bracing one end against your palm so the other end extends above the knuckles of your fist. Held this way, an ordinary punch is transformed into a crushing blow with the impact shock transferred harmlessly into the soft tissue of your palm — just like purpose-designed metal knuckles.

With a little preparation, you can also slip your hand or three fingers (depending upon the size of your hands) into the bracelet so the solid side is on the palm side of your hand. In this position, it becomes a very effective "palm sap" and turns a simple slap into a life-changing experience for the bad guy.

If you're into knife culture, Perrin's wider bracelets also double as highly effective "vambraces" — wrist guards designed to protect the tendons and arteries of your inner wrist.

These are just two examples of Fred's creatively twisted approach to personal-defense tools. He and his life partner Elsa Fantino — who is also a highly skilled blacksmith and martial artist — produce an impressive array of handcrafted jewelry serving double-duty as self-defense weapons.

Bubble Blower

Mickey Yurco is a retired Youngstown, Ohio, police officer with extensive street and SWAT experience. He is also a lifelong martial artist and a talented custom knife maker who is fascinated with all types of weapons. When you combine all these qualities with his slightly demented sense of humor, you get some very novel personal-defense tools.

One of my recent favorites from Mickey is his "Bubble Blower" — a Kubotan-like impact weapon with an integral ring at one end. As its name implies, it looks like a kid's bubble blower; however, it's crafted from solid 440C stainless steel and cleverly designed to maximize its function as a striking tool. Insert your finger through the hole and grip it in your fist and you're ready for powerful hammerfist strikes and steel-reinforced punches with the ring. By opening your hand and snapping it forward, you can spin the free end out like the blade of a karambit to strike with extended range. The edges and textured surfaces of the Bubble Blower can also be used to apply focused pressure against bones

Mickey Yurco's "Bubble Blower" (above) is a unique, all-steel self-defense tool that combines elements of a Kubotan, metal knuckles, and a karambit knife into a very versatile package. Gripped like this (below), the Yurco Bubble Blower can be used to hammer with the base or punch with the ring.

An old-school flat police sap shown next to two of Fred Perrin's coin saps — an original leather one and the current neoprene one. The bad guy on the receiving end won't be able to tell the difference.

By slipping the bracelet over the hand so the solid side covers the palm, it becomes an effective palm sap. A simple slap now becomes an incredibly potent hit.

Fred Perrin's forged steel bracelets are brilliant personal-defense weapons that easily pass as jewelry. When gripped like this, the bracelet anchors against the palm and creates the perfect offset to punch with the other end. This keeps the knuckles safe — just like well-designed brass knuckles.

Perrin's hand-forged steel bracelets are innocuous pieces of jewelry that are stout enough to serve as formidable weapons.

The Pocket Sap (above) is made of custom-molded Kydex filled with solid lead. It tucks neatly into the watch pocket of a pair of jeans and can be quickly drawn by hooking the paracord loop with your fingers. It's a very effective way of "making an impression" on someone. When tucked neatly into a watch pocket, the cord handle of the Pocket Sap can be easily snagged with the fingers to draw it in an instant (below).

and nerve centers. Best of all, unlike a traditional Kubotan, the ring makes dropping the Bubble Blower during a fight extremely unlikely. It also makes it possible to carry the tool very unobtrusively in the hand.

Pocket Sap

As a veteran cop, Yurco has a special affinity for saps. At the same time, he realizes carrying a traditional version isn't always practical. His compromise was to develop a low-profile "pocket sap" tucks very nicely into the watch pocket of a pair of jeans. Made from beautifully molded Kydex, and filled with solid lead, two grommets on the tapered end provide an attachment point for a short loop of cord that forms the tool's "handle." When placed into a watch pocket, the cord loop sticks out just enough to be easily snagged with a couple of fingers. The sap can then be lifted out of the pocket and brought into action immediately to deliver a stunning blow.

In addition to swinging the sap, you can also insert your fingers through the cord so the body of the sap rests in your palm. In this position, it works extremely well as a palm sap to elevate an ordinary slap into a bone-rattling strike. In cold weather, I like to carry Yurco's Pocket Sap in the palm of my hand inside my glove. My hands stay warm, yet I'm prepped to hit and hit hard without having to remove my gloves. If the first few strikes don't do the trick, they will at least buy me time to remove my gloves and transition to a more capable weapon.

The design of the Stinger focuses impact on the point and transfers the force into the fleshy part of the palm. Punches hit like a ball peen hammer.

Keating Stinger

When I was teaching in Paris several years ago, I had the opportunity to visit the French Police Museum. Among the various artifacts displayed there was an amazing variety of brass knuckle variants. In addition to the classic full-fist, four-fingered versions, there were a surprising number of single-ringed devices and other more compact shapes. They are very discreet and concealable, yet literally packed a potent punch. The exhibit gave me a greater appreciation for old-school Frenchmen on both sides of the law, as well as a deeper understanding of one of my all-time favorite impact tools: James Keating's Stinger.

I first started corresponding with Master at Arms James Keating in 1992, when I was assigned to the US Embassy in Bangkok. Several years later, I had the opportunity to meet him and work with him on several video projects for Paladin Press. Although I have known him now for 20 years, I am still consistently amazed by the depth and breadth of his knowledge — especially when it comes to the historic and esoteric aspects of violence in different cultures. He not only knows what works, but why it works, and who made it work first.

The Stinger is a deceptively simple device made of durable, injection-molded plastic. Developed by Keating

A selection of real-deal, old-school brass knuckles from the Police Museum in Paris, France. The James Keating's Stinger takes the proven functionality of these and adapts it to a low-cost, modern self-defense tool.

in the 1990's, it combines the critical functional elements of a push dagger, brass knuckles, and a Kubotan into a compact, extremely effective impact tool and it also makes a great keychain.

The key design feature of the Stinger is its two-tiered handle, which resembles a capital "H." One side of the "H" is designed to brace against the soft tissue of your palm. The other side is spaced perfectly to allow your fingers to wrap around it in a comfortable grip. The section connecting the two sides extends between your fingers and terminates in a short, mushroom-shaped nub forming the striking surface of the tool.

When you throw a punch with the Stinger, the striking nub focuses the impact of the strike on a very small area to maximize its effectiveness, even through heavy clothing. Most importantly, the shock of the impact is transferred through the center section of the tool to the portion of the handle braced against your palm. This large surface area contacts the meatiest section of your hand to create an amazingly effective shock absorber preventing injury to your hand.

In a real self-defense situation, gross motor skills will rule and you will find yourself hitting your assailant as hard as you possibly can. Unfortunately, many so-called self-defense tools are not well designed for this and can cause serious injury to the hand wielding them. Not so with Keating's Stinger. Its brilliantly simple design manages impact shock so well your hand hardly notices it. This allows you to hit harder and with more confidence. For the hapless attacker on the other end of it, it feels like being peppered by a ball peen hammer. You can also use the striking point to dig and gouge with focused pressure instead of ballistic impact. The pain it generates is life changing.

Keating's Stinger is extremely inexpensive and an excellent self-defense accessory for all your friends and loved ones — especially those who are hesitant to carry "higher-profile" weapons. Buy them by the pound.

By definition, personal defense is a very individual issue. There is no one-size-fits-all solution. Even if you make the commitment to carry a "full-service" purpose-designed weapon like a firearm, if you're smart, you'll complement it with other weapons more appropriate for less-serious situations … as well as provide immediate-response options enabling you to "earn" your draw and get your primary weapon into play. Although the weapons detailed in this article are only a small sample of the options available, they are an excellent place to start and well worth your consideration.

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PICNIC SURVIVAL

Make Sure Your 'Day' Outing Stays Fun — And Safe

Sam Fadala

There's a saying in India: *"When hunting a rabbit, be prepared to meet a tiger."*

Similarly, when planning a one-day outing, be ready for an unexpected outdoor adventure, as in a joyful trip turning into a serious overnighter or a sunny sandwich-and-soda family outing turning into a blizzard. It's called fickle weather. We read: *Survival equals food, water and shelter.* But, in reality, it's shelter, water *then* food. Man is a clawless, fangless, furless creampuff compared to denizens of the wild. The equalizer is having tools and knowing how to use them. The simplest list may seem like a preparation to cross the Rocky Mountains in winter. However, *compactness* rules. Lifesaving gear fits neatly into pockets, backpacks, fanny packs and, of course, vehicles.

John and Mary "Average," along with children Dick and Jane, go on a day-run to a national forest setting on a reasonably decent dirt road leading to a beautiful established campground 22 miles off the main artery. Odds of anything going gunnysack are two: slim and none. Funny, though, when that distantly remote negative falls upon thee and me, there is no comfort in positive odds.

Things happen. The trusty sedan refuses to start. Dick and Jane see a fox. The fox sees Dick and Jane. The little beauty walks straight toward the children. Dad draws his trusty pistol and shoots the little furbearer. Tears flow. *How could you*? Dad explains signs of rabies, hence the "friendly approach." Wild animals are — wild. Even a bear cub can rip a person from head to toe. Leave wildlife alone, including snakes.

Shelter is most important, and an inexpensive tent and related survival items like water and food are important, even on a simple day trip into the woods. You never know when a storm or vehicle emergency might strike. A back-up vehicle battery would be smart too if you're going off-road.

Shelter

Stuck 22 miles back in, shelter is the byword. The vehicle is a refuge. Don't leave it. Since most daytrips are in relatively tame territory, someone will eventually come along to jumpstart your stranded motorcar. But if walking out on an established road or trail becomes absolutely necessary, remove your comfy sandals and grab hiking shoes/boots from your stash. Rain ponchos are also nice. I have a waterproof, not water resistant, but *waterproof* Woolrich parka. Have jackets for all. Important: gloves and warm hat for when temperatures drop. And while a cowboy sombrero is handsome, ear-covering insulated headgear is more practical. The point being clothing is the first line of defense against the elements because garments are *shelter*. Remember, you can take clothes off, but you cannot put on what you don't have.

Water trumps food. As a rough estimate, depending on many factors, two adults plus two children could consume up to nine gallons in 72 hours. At over 8 pounds per gallon, that's about 80 pounds. A water filter can reduce that weight — if there is water nearby, and you have a filter. In a summer desert setting, a bathtub full may not be enough. Even in winter, dehydration is a threat. H_2O equals life. In only a couple days, especially if a person is lost and using hiking energy, water becomes absolutely critical.

A vehicle died on a remote summer desert "sedan-worthy" road in a recent news story. No help showed up for two days, so the couple decided to walk for it. They did not die of starvation. They "dehydrated to death." Had they remained in shelter, especially with a signal fire going, the pair may have made it.

Boy, am I hungry. Sandwiches and snack food — all gone. Now what? If you brought a commercial kit, you have nothing to worry about. A single Patriot 72-hour kit (pictured) will keep one person nourished for that promised duration, while the ES 72-hour kit (also pictured) provides tools as well as edibles. The MRE will not challenge Chef Bobby Flay's finest, but nutritionists promise one packet will sustain a soldier for one day — emphasis on sustain. At one time, prepared foods could be pretty grim. Today, they are much improved. Browse supermarkets for ready-to-eat edibles. Forget browsing on wild plants unless you are an ID expert. And forget what the birds eat — often what they digest may kill you.

Fire

Water over food and also fire over food. There must always be a fire-starting ability. Fire provides a modicum of light, lifesaving warmth, flame and smoke signal and cheer. The human body can sustain itself without food for a number of days — with a distinct limit. It is highly unlikely the day-tripper will have to hunt for edibles. But fire can represent "eats." Even without the "fixins," a rabbit over coals is toothsome to a hungry person. Having to bag bunny, squirrel or game bird when "stuck" in the normal one-day setting will be a rarity, but not an impossibility. Two fishermen hiked down into a remote canyon on a one-day trip. They could not ascend the steepness to get back to their vehicle. They walked miles to get out. They made it — very hungry, weak and exhausted. Hunger is such a power that maritime cannibalism was accepted.

Fire may mean life or death. Sam's dedicated fire-starting "kit" has a flask of fuel, BIC and Zippo type lighters, weatherproof matches and tinder. You should have something similar.

If you're 20 miles into a dirt trail hoping to come out the other side to fuel and food and are confronted with a downed tree, it may require a back-track. Will you have enough fuel to make it, or the tools to handle the downed tree?

Sam has had his way blocked with fallen trees many times. If you're really prepared, take a chain saw along. It might save the day!

There is a natural, normal and proper desire to stroll away from the picnic site for a look-about. Outdoorsmen, meaning men or women who are proficient in Mother Nature's theater of operations (hunters, campers, hikers), can give hands-on lessons to young people as well as inexperienced adults on a daytrip stroll. But even Daniel Boone got lost at least once.

Location

No one is immune to getting "turned around." We have now arrived back at "square one." Shelter. Map, compass and GPS amount to *shelter* because these tools lead back to vehicle and supplies. My wife, being a trainer for Boy Scouts and Girls' Camps, truly knows how to use a compass/map. For me, a compass shows only magnetic north, and nothing more. That is why I hike with two GPSs, one an older but sophisticated Garmin Geko 301, the other a much simpler Bushnell Back-Track. Practice with your GPS. It can save your bacon.

Hunting with son Bryce in an area neither of us had trod, our wanderlust took us into deep unfamiliar territory. We finally realized Jolly Mr. Sun was about to vacate the heavens. My GPSs showed eight miles to the truck. We decided to cut cross-country, defying the little gem and thereby saving hiking distance. After all, we were "outdoorsmen" — we wagered. After two hours, we decided to read the GPS again. Even though it was night, we got satellites. Had we continued on our chosen path, we would have gone miles out of our way. The GPS delivered us to our vehicle.

Would we have been in trouble caught out for the night? Absolutely not. And here is why: my pack.

My full-size fanny pack is the single most important survival device I own — along with clothing — against the elements. It's set up for hunting, but goes on any outing. It fits into any corner out of the way. And it can save a life. Water's nemesis is fire. Water puts out fire. But fire saves lives in a dreadful snowstorm. Even with minimal shelter, build a raging (but safe) fire, and defy that phantom called *hypothermia*. My personal fanny pack has a compartment totally dedicated to placating the gods of fire. An excellent survival class my wife and I took at an SCI convention provided superior details from a professional survivalist, including fire starting under difficult conditions.

The only point I differed with was this expert's suggestion to nix the Bic-type lighter in favor of the Zippo-type. His reasoning: the plastic fluid-filled lighter requires constant finger pressure, while the Zippo can be lit and stand alone, freeing hands to introduce burnable materials. The trouble is — you might forget to ensure the Zippo is filled with fluid and has a good flint. I stand to be corrected on this point, but it also seems to me the fluid in the plastic lighter "burns hotter" than the flame from a Zippo. Incidentally, my fire-starting kit includes an orange-colored Zippo and a Bic-type lighter. If I have allowed the Zippo to dry out, the Bic will save the day. Warning: be careful — don't drop your Bic into the fire.

My fanny pack "fire-starting compartment" holds a whisky flask filled with charcoal lighter fluid and matches.

The Skinner Sights "Bush Pilot" set is a sort of "ultimate" survival kit. The take-down Model 92 in .44 Magnum (imported by Chiappa) is a Winchester clone and well made. Andy Larsson of Skinner Sights also supplies a made-in-the-USA case and a slew of survival goodies like a stout bush knife, fire starter, paracord and other must-haves. This set-up would take care of virtually anything you'd be likely to encounter when it comes to protection.

While having a firearm is a personal decision, remember wild animals or bad guys can easily become threats. Sam has found a 9mm 1911 to be accurate and able to handle most threats in the 48 states as well as taking small game if needed.

There is only one type of match to have in glove box or pack: windproof/waterproof. I carry a waterproof container of regular "kitchen" matches for non-emergency use, but for me the stormproof match is essential. And, by the way, Neanderthals were probably good at making fire by rubbing two sticks together. I prefer matches. Ditto for flint 'n' steel. Nothing wrong with adding the latter to a pack. Sparks delivered into dry tinder equals fire. Still, give me a good match.

Guns

Of late, my wife and I are enjoying UTV daytrips around our forest home. Secured in the overhead rack is a TriStar over/under .410 shotgun within easy reach. These close-to-home runs are not for hunting, but in open season a big fat tree squirrel has been known to find its way field-dressed for the table. And, while odds of being attacked by a zombie are as rare as finding a hundred-dollar bill stuck to the bottom of your shoe, dangers from *Homo sapiens* do exist.

On a lone run to the end of a dirt artery leading to a creek, I heard an approaching roar assaulting the quiet as I fished. I reeled in and stood firm. Six cyclists skidded amidst a cloud of dust, circling me as I stepped away from the fishing stream. I smiled. They saw the pistol on my hip. They left. Good for me. And good for them. Even when the little .410 is "riding shotgun," I wear a pistol as regularly as a pair of pants.

Following an extensive run of shooting into Sam's Bullet Box, a non-scientific but reliable ammo-evaluating tool, I became convinced the modern 9mm Luger is sufficiently potent to defer most would-be problems that might arise during a one-day fun trip. I recall mentioning to my handgun trainer that *"practice makes perfect."* He smiled and said, *"No, Sam. Only perfect practice makes perfect."*

At the time, my trainer had me shooting at a large white piece of plain paper, the object being: put a bullet hole somewhere near center, with every following shot into the same hole. Not to be, of course, but great practice. I could not then, nor can I now, match the performance of my instructor. But from that point forward, I burned a lot of ammo — every round with pure intent. Carry wisely, meaning a sidearm you can shoot like the Lone Ranger.

As far as carrying firearms where the powers-that-be says you can't? I leave it up to you. Suffice to say a handgun deep in a pack may save your bacon. Your call.

It Can Happen Anytime

Every year people are stranded in places normally as serene as a cathe-

Survival gear doesn't need to be fancy. Here's our publisher Roy Huntington's ancient gear: a "Survival" knife he has many miles on from the late 1970's and a Buck Personal (Model 105) he's had since he was 14. Both still see regular use as well as the Maxpedition pack behind them. The sheath for the survival knife is marked with the remains of duct tape from being taped to vehicles and pack straps countless times. Note the leather thong wrapped around the grip.

The Knives of Alaska's Bobcat small hatchet is one of Sam's constant companions. From camp cooking to making tinder, it or something similar is handy and light to take along.

Tomahawks or small hatchets are handy and light. A custom "Hawk" on the right (note easy to see purple paracord handle-wrap) and classic Marbles hatchet would be a handy companion. And, of course, a quality pocket tool of some kind could be used for countless tasks.

The new Savage Model 42 take-down kit is a .22LR or .22 Magnum over a .410 shotgun. It takes down easily and stows in a supplied soft case with room for ammo. This is arguably the ultimate "keep-it-in-the-trunk" survival long-gun for those who don't venture too deeply into the badlands. And either of the .22 calibers or the .410 (especially) could defend your family if needed.

dral on Tuesday morning. Suddenly, a storm rages in to displace the sun. One not-to-be-forgotten surprise storm struck as I backpacked high country in Wyoming. Glassing for deer in sunlight turned into black-cloud darkness with pelting rain and chest-vibrating thunder. I found a rock overhang for shelter, and, with fire, waited out the storm overnight, heading for camp in morning light. The temperature dropped like an eagle screaming down on a duck. But I was not worried. Not with my pack. Fire again. I was hunting, but the same situation could have fallen on a day-tripper. Sometimes even today's superior satellite weather reports fail. Go smart. Pack smart — always.

When we think we have encountered all eventualities, something new comes along. Our home is last before entering thousands of public land acres. Twenty-two miles south is a tiny

Along with a bigger knife or hatchet, it's handy to have along a "personal" sized folder. L-R: Zero Tolerance, Kershaw, Steel Will and a small "Executive" Swiss Army knife are all good examples. A small light and magnifier (can be used for fire starting as well as peering at a splinter!) are handy and effortless to carry.

MUST-HAVES

A Day-Tripper's 'Possibles' Bag

We are told of the mountain man's possibles, being needful, along with comfort items, like flints, extra powder and ball, jerky, tobacco, sewing kit and many other usefuls. Here is a possibles list — all items do not pertain to all situations. The list can be, should be, personalized.

Pack: One like my fanny pack, loaded with lifesaving implements, water bottle, flashlights, fire-starting materials, marking tape, signal mirror, whistle, knives and sharpeners, GI can opener, insect repellant, sunscreen and much more.

Vehicle: Aired-up spare, full gas tank, auto emergency kit, jack that works, tow rope, tool box, duct tape, fire extinguisher, compact sleeping bag, extra clothes bag, maybe small mountain tent, flares, tire iron, orange safety vests for emergency stops on a highway, heavy trash bags used as containers (and shelter), car flashlight, candles for heat, small shovel and more.

Meds: Of course any daily-required medicine, but also Benadryl for rashes, along with aspirin-type pills or capsules, toothache medicine, anti-itch, antibiotic ointment, suntan lotion, insect repellant, colloidal silver antiseptic and more.

Communication: Cell phones, not only for calling for help if necessary, but also intercommunication with members of the group. Handheld radios also for intercommunication. Consider a good weather radio.

Way-finders: GPS, compass, maps.

Water: More than you think you will need, plus water filter such as LifeStraw.

Food: 72-hour kits, one per person, plus additional edibles, MREs, ready-to-eat prepared foods, energy fiber bars, sport drinks (not energy drinks).

Clothes: Duffle bag of warm clothes, even in summer.

Light: Always in pocket: TAT EDC 511 — two AAA batteries provides more light than old-fashioned three-D cell flashlight. It's a couple of inches long and weighs two ounces with batteries. For pack — big-time light: XtremeBeam.

Cutting: One big knife of high quality. A pocketknife. A useful tool around any camp, even a one-day, is the Bobcat mini-hatchet from Knives of Alaska. Originally designed as a field-dressing tool for big game, the super sharp edge shaves kindling and serves as "outdoor kitchen cutlery." The gut-hook is sharp as a razor — only 9.5 ounces and a tickle over 8 inches long.

Cash: Have a couple hundred bucks handy. Might not make it home that night, but could reach a motel.

Road Service: If cell phone is working, reach AAA or other road service help.

Every trip should also have a simple "day" pack along for the ride. Sam keeps his packed with everyday survival items like fire starter, meds, lights, small tools and such. See the side bar for more ideas.

Fixed blades from fancy to functional. L-R: The custom Greyman fixed blade is modest in size but cuts like a big knife. Next up is a CRKT, which does double-duty as both a sort of "everyday carry" defensive knife or field knife. The custom fixed-blade forged Bowie by knifemaker Bill Helton can handle any field chore and looks good too. Last, with the bright orange handle (a great idea!) is a fixed blade by Benchmade, a sort of cross between a short machete and biggish field knife. This one could get you out of just about any bit of hot water. Knives like this turn "emergencies" into mere inconveniences.

riverfront ranching community. My UPS driver told a tale. Upon his return trip from a delivery, he was met with a huge tree blown across the road. He could walk to get help (from me), return to the river community or use his tow chain to drag the tree free of the road. His big truck was up to it.

On an elk hunt, I drove on a mountain road for miles, planning to go over the top of the range down to another major road. Fallen across the narrow road was a huge tree. All I could do was return the way I had come, a long trip. I cannot recommend a small chainsaw for every one-day trip, but going "away back in" the saw can cut heaps of firewood as well as removing fallen tree obstacles.

The US Forest Service warns high winds topple trees. After a good blow, we went for a short UTV ride. Turned out to be very short. Fallen trees blocked the road. Since close to home, I returned with a chainsaw and cleared the road. And if planning a forest hike during high winds, don't let a tree fall on *you*.

Personal radios can be had for as little as $10 for the "consumer" hobby models and work around a mile or two, great for keeping tabs on kids and such. More serious radios, like these Olympia Model 342's, are UHF/FM and can easily transmit many miles in the right conditions. Great for a base camp or someone out and about exploring.

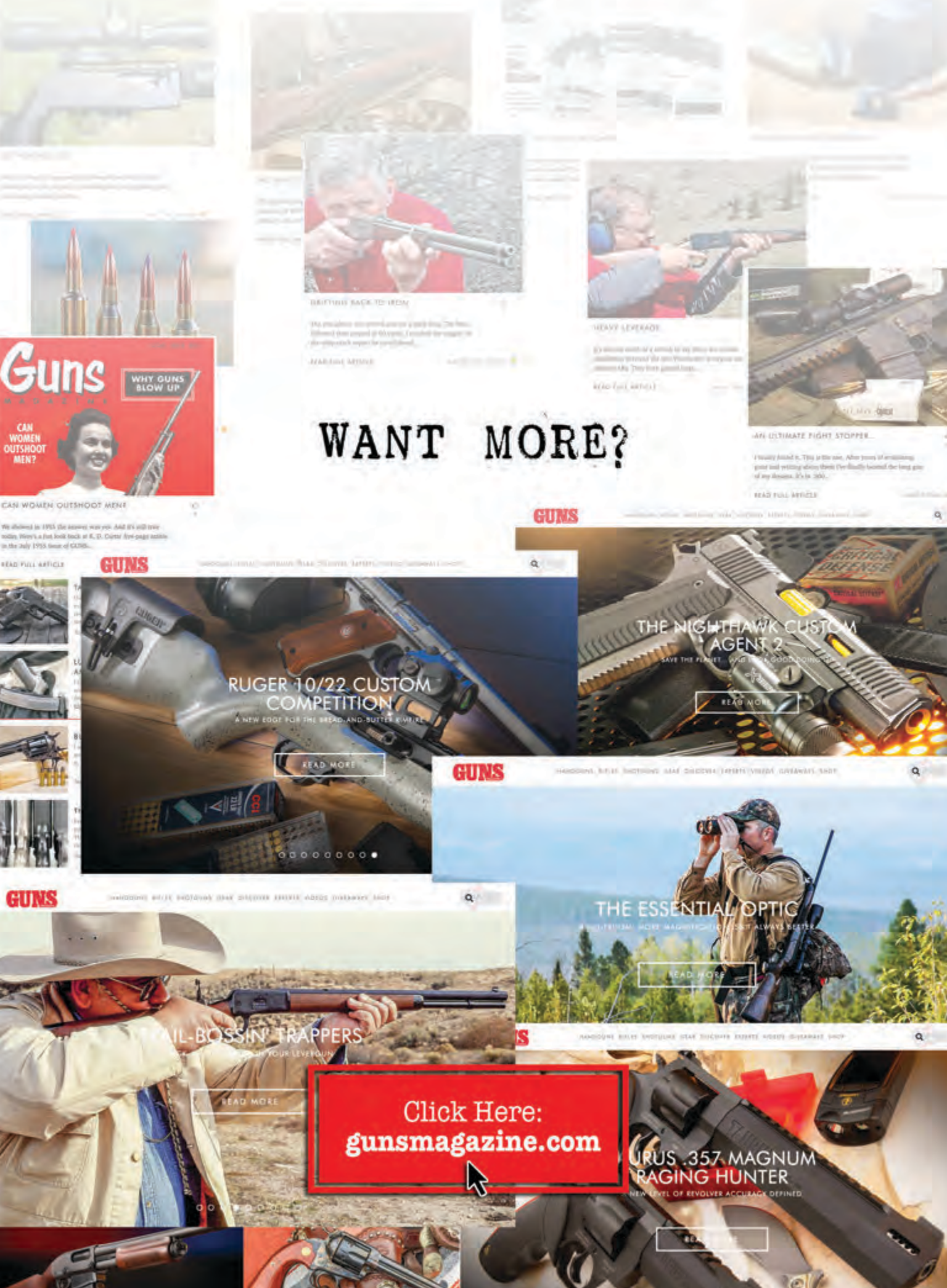
Communication

Cell phones and handheld radios equal communication. I've been surprised with cell phone function in the most unlikely locations. Hunting at elevation around 10,000 feet, I got a huge-bodied bull elk. Darkness was not far off. I got on my cell phone and called a friend in a nearby town. He, his brother and another fellow helped me get the bull out. That was not an emergency situation. Field-dressed, the meat would have cooled during the night. But I had been invited to call for help, so I did. We have a pact. We help each other. Although I was hunting alone, the cell phone brought a mini-crew. Picnickers — daytrip lovers — always take a cell phone. It could bring assistance.

Use your noodle. The tendency to consider one-day outings void of serious problems is dangerous. Trust but verify, as the Russians say. Trust your gear is sufficient and in good condition, but verify by scratching off a checklist. One is provided here. It is not an end-all. Work up your own. Also, modify any standard list where prudent. The 72-hour kits for wife and self have been personalized with a professional-type multi-tool, large high-quality knife, somewhat extensive first-aid kit, change of socks and underclothes, extra windproof matches, candles, fiber bars, extra flashlight and more.

Going prepared provides peace of mind, and peace of mind means a better experience on that day-run.

For more info:
www.americanhandgunner.com/index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RAGING HUNTER

Jim Mace

RAISING CHICKENS FOR SURVIVAL:

It's More Than Eggs And Meat

A flock brings fun and festivity into your yard, helping your good humor survive too! Best of all? It's easy ...

Free-ranging your chickens not only delivers better eggs and gets rid of bugs, it makes your yard come alive with activity. It's great fun.

Jim's grandson, Peter (left), with Izzie. Kids and chickens go hand-in-hand and raising them shows the kids food doesn't just appear magically in the store. What's it all about? Almost-free food (below)!

Much time and energy is focused on guns, tools, shelter and such in case of an emergency or survival situation. And that's all fine — you should be prepared in every one of those categories.

And trust me, canned beans and dehydrated grain products get old fast.

But there's a remarkably easy way to both augment your diet and have a lot of fun in the process — raising chickens!

It's not only a rewarding hobby to spend time on while society clicks away on their devices — we do it for the eggs and even a chicken dinner in a pinch. It's amazingly easy, inexpensive and a never-ending source of good humor. Whoever said chickens don't have personalities has never lived around 'em for any length of time!

Getting Organized

The thing you need to look at first is how many eggs a day you want. A dozen hens will give you eight to ten eggs a day. We like having a rooster too, as they perform multiple functions. If you get a good one, he will be the leader and protector of his girls, providing the breeding function. And we just like the sound of chickens in the yard. They cluck and fuss and scratch and cluster and add life and adventure to your place.

Our rooster, Dempsey, will stand in the middle of the field and crow and crow until all his girls come out from wherever they are, so he can do a head count. He then lets them go back to what they were doing. He does this a couple of times a day, and he has all his girls back in the coop by sundown. He's a tough SOB too, and I've not cut his spurs off. He can be foul humored at times, but we've found if you carry a staff he won't mess with you. So we have bamboo staffs staged around the place: the front gate, on both porches and outside my shop door. Roosters are handy, even practical, but they do need to be reminded who's boss sometimes!

If you decide to give this chicken raising a shot, it's my advice to start out small. Get a half-dozen chicks and see how it all works out. You might end up with a couple hens and a couple roosters. That way you'll find out if you want to butcher chickens for meat. I can do it but you can't make me like it.

Don't run out and get two-dozen chicks, just sneak up on it. That way you'll be a lot smarter about what you want to end up doing and what you're capable of doing. A few chicks (they're easy to raise) will give you two or three eggs a day once they start laying and take no more than five minutes tops daily to care for. If you like it, bingo, get more. Publisher Roy Huntington (the guru of this magazine) raises 'em at times, and he has had 20 or more at one time — over a dozen eggs a day! It gets to where you can't give 'em away fast enough. Make sure your friends save their egg cartons too!

The Basics

You get to plan a coop and the pen. They both have to be vermin-proof, so you don't end up like "Chicken Delight" for the raccoons and other critters that love to eat poultry. Our chicken coop is an 8'x8' section of the barn. It's all caged in with hardware cloth and a secure door. The nest boxes are plastic milk crates attached to the walls at different heights. Our barn just happens to be built on a slope with the west side about 3 feet off the ground. I built a 16"x16" removable panel in the middle of the floor. This way, with a wheelbarrow under the barn, we just remove the panel and rake the old straw to the center of the room and it falls into the wheelbarrow. This makes periodic cleaning of the coop a lot easier. It's very important to keep their coop clean with fresh straw or wood chips. We also dust the coop with a product called "Sevin" to control lice and mites.

Take a look online at "chicken tractors." There're lots of web sites with pictures and plans. These are small pens with nest boxes, all on wheels so you can move them around your area. I have used 4'x8' pen on old lawnmower wheels, covered with chicken wire to raise pheasants. Every week, you just roll it about 8 feet to give them a whole new feed patch.

Making more chickens ain't that hard. You learn pretty quickly which hen is the "broody" one. She's the one who prefers to stay on the nest rather than go outside and growls and pecks at you when you try and retrieve the eggs. She's just doing what comes naturally, protecting her brood.

Now you get to build a nursery. Hens need some sort of separate nesting place where she can get away from everybody and hatch her eggs. She will need her own feed and water. It's a good idea to mark the eggs she wants to hatch, say with a Sharpie. That way you can check on individual egg development when candling. Candling is where you use a bright flashlight and look "through" the egg with the light behind it to see how they're doing. It used to be done with a candle. You will do it a couple times during the process.

She'll sit on her eggs for about 21 days. It might take a couple of tries with different hens to find a good broody one. Some might not sit long enough or might kill the

Check your local farm supply store because many have small coops on-hand. It's more expensive to do it that way, but certainly more convenient.

This is a chicken "tractor" coop Roy built on his property. He also built a "run" they could access if the coop was parked against it.

This is a commercial coop the Huntingtons have at their place. While a bit expensive (around $1,200 for this one), it's full of features, well built, safe for the girls, has nesting boxes, roosts and such already made. It easily holds 20 chickens.

A brooder can be any small area you can warm with a heat lamp. Here some chicks, only a few days old, are getting used to their new home. After a few short weeks, you can move them to a bigger enclosure.

No, the chickens are not in jail, but that's a stout heavy wire fence Roy built after the standard chicken wire was torn open by feral dogs.

Often several chickens will share a nest box, delivering delightful egg color combinations.

Publisher Roy Huntington's old dog, Jenna, took care of the chickens and even shared their like of cracked corn. Here, she's sharing a treat with part of the herd.

chicks when they hatch. You have no way of knowing. This is all done by trial and error. Some breeds make better broodies than others. Do your research! When I was a kid, we had a Banty hen that would try and hatch a doorknob if you let her. Sometimes we would bring home wild duck eggs and let her hatch them out and then watch her go nuts when the baby ducks went for the pond. She hatched everything we gave her, quail, pheasant, killdeer, even a robin.

When you first start getting eggs, you will see some strange things. Some hens will lay double yolk eggs at first or really small eggs. We've even had eggs with no shell, just a tuff membrane — that's a strange one.

Feed and Protect

It's easy to over-feed chickens. Free-range chickens don't need that much feed. That is the idea — you want them outside getting those bugs and worms. It makes for better eggs and more flavorful, darker yolks. They will find your compost pile and turn it over for you. Well, they will tear it up and spread it around. You get to fork it back into a pile.

If you are after eggs, feed them a little "layer" feed. It has calcium for better, harder eggshells. Broodies need "scratch" for the carbohydrates and protein. They don't need layer, they should get "chick starter" because that's what chicks need when they hatch. Cracked corn is like candy to chickens. But don't feed them too much of it, because too much corn will impair or stop egg production.

We store all our chicken feed in galvanized garbage cans with bungee cord securing the lids. This keeps the other critters and vermin out of the feed. The only problem with this is when you go to take the garbage out, and you pull the lid off the garbage can, all the pheasants I've raised and turned loose, come flying out of the woods and mill around your feet thinking they are going to get fed.

You must be prepared to protect you chickens and this is best done with a good .22 rifle. I prefer .22 Short hollowpoints. They are nice and quiet and deadly out to about 50 yards without overpenetrating. I restored a Winchester Model 67 Boy's rifle for my wife Bonnie. It's her "Garden Gun" that lives just inside the back door. Basically, your chickens are food for everything out there: raccoons, coyotes, feral dogs — you name it, they eat chickens. It's not uncommon if you have free-ranging chickens to find a pile of feathers now and again.

Which reminds me, don't name 'em. If you name them, then they get personalities (which they'll have anyway). But then when one gets eaten, it's not, "Oh, they ate a chicken." It's, "Oh no, Zelda got eaten!"

The next thing is a good dog. Not one that kills chickens but one that hates raccoons and possums. Between a good dog and a good rooster, they will let you know if anything is after the girls. We happen to have a 6' chain link fence around an acre, which provides pretty good security. We had a 130-pound female Akita named Michi who hated raccoons and possums. She would literally eviscerate them, but enjoyed just watching the chickens. When there were baby chicks in the barn, Michi would sleep in the barn to keep and eye on things.

Over the years we've raised a bunch of different breed of chickens. Bonnie likes all the varieties, kind of like "Rainbow Chickens." A favorite breed has been the Araucana or

As they grow, a kid's plastic pool (with bedding (left), heat lamp and water/food) makes a great temporary "coop" with a netting cover. But it needs to be inside a garage or shed to keep them safe and warm. This old Winchester Model 67 .22 with a light attached (below) is Jim's "Chicken Gun," used to ward off raccoons and the like. You'll need something too if you raise chickens!

Suzi Huntington was "mom" to the flock, and when she was outdoors, they'd follow her like a cloud, clucking and fussing. It's great fun at every level.

Americana because they lay colored eggs — light blue or green in color — and they're known as Easter Egg chickens. We make sure there is at least one colored egg in each dozen we sell to our friends.

Besides, it's fun to have different breeds running around the yard. Crested Polish are a conversation piece. And there was a rooster we named Shaka Zulu.

Another beautiful breed is the Yokohama. The roosters' tail feathers grow really long. We had a Yokohama rooster named Tojo. He knew I sometimes carried cracked corn in my shirt pocket and would fly and land on my shoulder and stick his head down into my shirt pocket looking for a treat.

Personality-Plus

I know chickens only have a brain about the size of a BB, but they can develop a personality and become quite a friend. We got Izzie, an Americana, as a chick a couple years ago, and within a day or two we discovered she had a damaged lower jaw and beak. Her lower jaw is not properly aligned. It sets at about a 30-degree angle to her upper beak. This meant she has difficulty in picking up food. We don't know how this happened.

So we've always handfed her. This has resulted in Izzie's development into a very special and colorful personality. My wife Bonnie carries a small-galvanized bucket with a bed of cracked corn to retrieve the eggs. Izzie has learned this bucket is a good food source. When Bonnie turns her "girls" out for the day, Izzie will ride the lip of the bucket back toward the house. She then jumps off the bucket and heads for my shop because she knows I keep a 3-pound coffee can of feed there.

Izzie runs right into my shop and finds her feed can. It's usually on the floor next to the compressor. If I have put the lid on her feed can, she mills around and plaintively looks at me as if I have done her some grave injustice. If I ignore her, she then jumps up on my lap to question both the logic and intent behind my lapse in judgement. She enjoys being petted and scratched and all of our company in general.

In the winter, when the door is closed, she jumps and gets in the window to let me know she's there and ready for her feed fix. She also seems to enjoy most anything I have to munch on from potato chips, apples and sandwiches to anything Bonnie brings us for lunch. I think she figures if I'm eating it, it must be good stuff.

She's very curious and shows great interest in whatever I'm doing in my shop. She will get up in my lap or the workbench so she can see better, and it's like she's trying to figure out not only what I'm doing but also how I'm doing it.

I have MS so I can relate with Izzie's situation. We both have special needs, and Bonnie is both our caregiver and mentor.

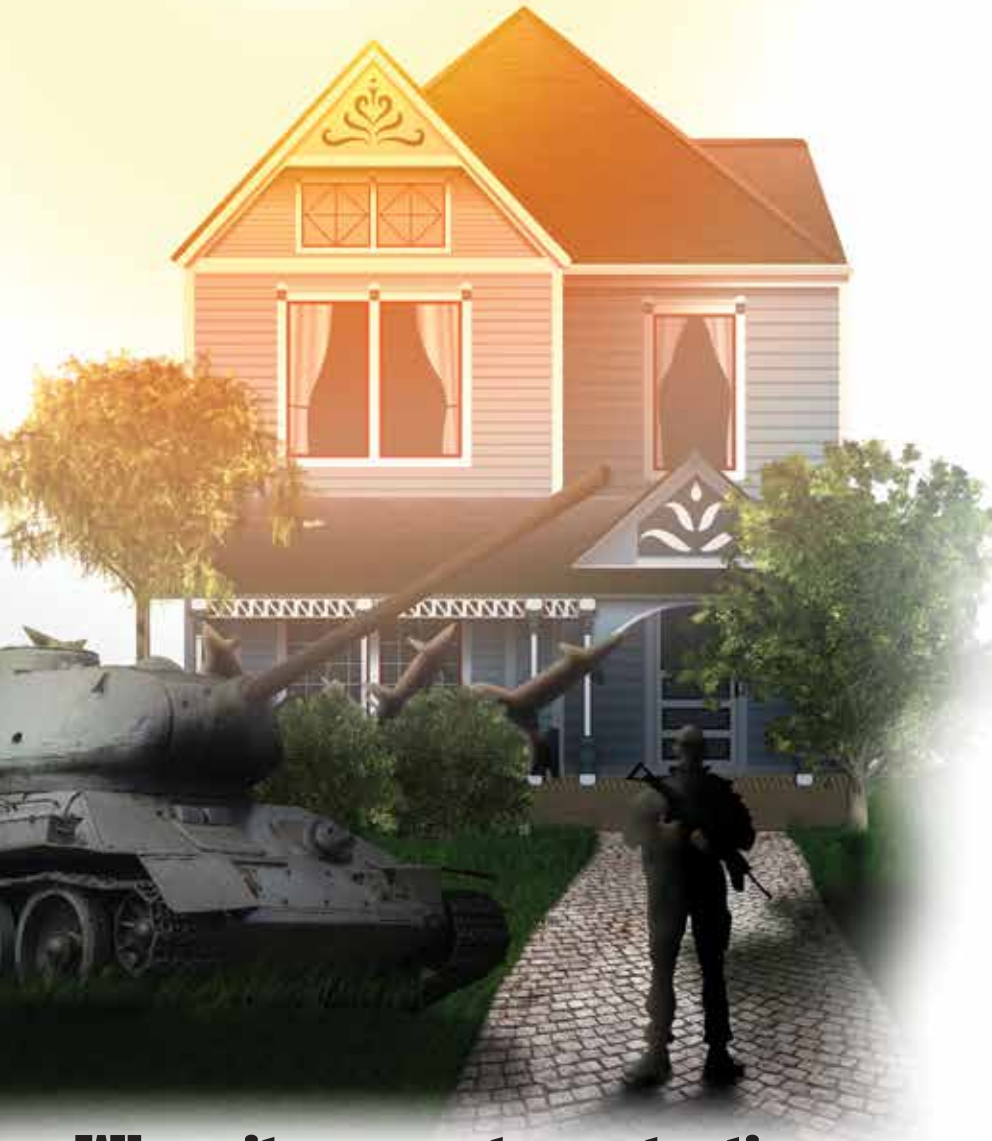
All in all, they're much more than just fresh eggs and chicken tenders. They bring a fuss and fanfare to the yard, and you'll find yourself talking to them all the time. And yup, they even answer at times.

To paraphrase Winston Churchill, "There's something about the outside of an animal that's good for the inside of a man."

True in more ways than the obvious when it comes to chickens!

Robert Kolesar

REAL-WORLD HOME DEFENSE



When it comes to protecting your castle, planning and research trumps guns and loads.

Because we live in the age of the internet and a 24-hour news cycle, local news can go national quickly. Police shootings, home invasion robberies and citizen confrontations with criminals are considered extremely newsworthy.

From reading the headlines today, you'd get the impression this country is awash in violent crime. Add in the overseas terrorist element and it gets scarier. And it is *if* you live in Baghdad or parts of Central America.

But here, in the United States, violent crime levels are at historically low levels. There has been a noticeable spike in serious crime lately, but criminal activity is still way less than just 25 years ago.

Now low crime rates are all well and good, *unless* you're a victim. But approaching your particular situation analytically will keep you safe and spending to a minimum.

Before choosing a handgun or deciding on which kennel to buy a guard dog from, you need to know what the threat level is in your neighborhood. The preparations I take are different than someone living on an isolated ranch five miles from the Mexican border, a rural farm in Pennsylvania or in downtown Detroit. We gun people tend to argue handguns, calibers or ammo without seriously considering the possible threat. Your weapon should complement your tactical plan, based on the threat you may face.

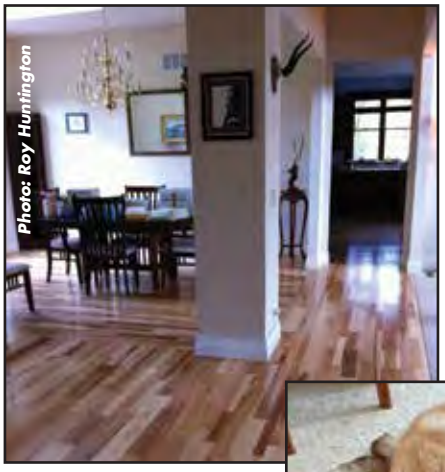
Harden Your Home

Before looking at your arsenal, look at your home. Having a cool gun next to you at night isn't much good if someone is able to quietly walk in on a sunny afternoon. You can't build an impregnable fortress, but you can make your home difficult to penetrate. I like *lots* of lighting. One switch should bathe your home and yard in light.

Doors should have good deadbolts; sliding glass doors need a piece of wood in the track to keep the door from opening if the lock is compromised from the outside. Keep your windows closed and locked at night when you're asleep or not at home. If it's hot, turn on the AC.

I investigated dozens of entries that started with the suspect climbing in through an open window. Don't stash keys around outside for access when you've misplaced yours. Leave your garage doors closed when you're at home. This is basic stuff, but most people (including gun owners), ignore the easy fixes.

Proper search techniques are critical. The best solution is to stay put and call for help, but sometimes you must search your home before the police arrive. Keep the weapon in one hand, protected by your body, finger off the trigger. Your off-hand remains free to open doors, deflect an attack, etc.



You probably have a better chance of confronting a burglar in the daytime than at 3 a.m. — something to consider if you work nights and sleep in the daytime.

Having a dog sleeping next to your bed is a great idea. Any dog is territorial and makes a great alarm system.

Never leave a gun unsecured while you're away. I've talked with a few homeowners who faced their own gun upon returning from shopping. Always carry your handgun with you and be mentally prepared to use it upon your return. Look at your home critically before you walk in. Homeowners surprising uninvited people inside their home is more common than you'd think.

There is, of course, a fine line between paranoia and preparedness. Personally, I don't have a loaded gun stashed in every room, and I don't wear one around the house. I won't live like that; if it's that bad I'll move.

Plan for what could happen based on your own research. Home-invasion robberies with multiple armed suspects don't happen that often; when they do, the suspects usually know the victim very well. Stay away from narcotics trafficking, and you'll

Remember, your property alone does not justify employing deadly force. If he drops it and runs, let him go.

Always close your garage door and lock it, especially if you're home inside. Otherwise an unwanted visitor might surprise you. Also, bad guys cruising by can see what's inside your garage worth taking.

A classic S&W from the '50's that was a favored revolver for both cops and citizens. It's still a relevant home defense weapon if better, more efficient ammo is chosen.

ANALYZING THE THREAT

For the most part, residents don't have a clue about what's going on in their neighborhood or town. Get to know your neighbors well and learn their routines and their vehicles. Watch their homes and who's showing up. It's not being nosey, just neighborly. Believe me, if you call the police about a stranger next door when the owners are away and it's a burglar, the homeowner will be your friend for life.

It's always good to be on a first-name relationship with the street cops who patrol your area. Talk to them about the crime in your neighborhood and city. Also engage the detectives who investigate burglaries, robberies and assaults. The stats aren't secret, but you do have to ask.

I like to know about the kids in my neighborhood. Who are the problem children? Local teenagers commit a great percentage of daytime burglaries; skipping school and doing break-ins is a common juvenile pastime, usually in the early afternoon.

If you live in a mid-size or larger city, learn about the gangs that operate in it. Discover the parts of town to stay away from. You may be surprised to learn the apartment building close by is inhabited by some bad actors. The cops in your area can give you a heads-up on this.

Crime is also cyclical. Homicides and robberies go down in periods of foul weather and back up again in the summer. Look at your town's problems and try to anticipate the trends. Formulate your defensive plan around what you know, not what you think or heard. Just buying a gun isn't enough; it needs to be fitted into a greater plan of preparation and survival.

It's always good to be on a first-name relationship with the street cops who patrol your area. Talk to them about the crime in your neighborhood and city.

probably avoid a frontal assault on your home.

Keeping an accessible handgun or two and being observant will take care of most any situation the average homeowner will be faced with. This is my take based on several hundred investigations I was involved in while working a large city in Southern California. And it's how I deal with the possibility of an intrusion now.

A Tool for the Job

I'm not going to recommend a specific gun for you. You may already have one (or several) you like, shoot often and trust. I'll just tell you what I've settled on based on my experience.

I have two .38 Special revolvers when I'm at home. One is usually my daily carry 2", the other a larger K-Frame. The specific models may vary, but there are always two of them stashed in locations both wife and kids know about. I have *lots* of semi-auto pistols, but revolvers work well for our situation. They're easy to use for someone who doesn't shoot often. And there's no complicated manual of arms to learn, unlike an M9 or 1911.

A revolver is perfect for an occasional shooter or someone only interested in home defense. Maintenance is low (especially if it's stainless steel) and training is a snap. Open the cylinder and you're clear. The long double-action trigger pull is simple and hard to have a negligent discharge with.

If I were on that ranch just north of the Mexican border I mentioned earlier, I'd have a loaded AR with several extra high-capacity magazines and more than a couple of pistols within reach. But a pair of revolvers will work well in an urban setting where your better half or the kids may be using them. Firepower isn't an issue; I can't recall one shooting I've looked at that included a reload. Many times a weapon was produced and the suspect(s) fled without any rounds being fired.

Tactics to Consider

There are are a few points to consider which could make a difference if you find an uninvited guest in your residence. Always keep your handgun in the same place. You don't want to be looking for it when the back door is crashing down.

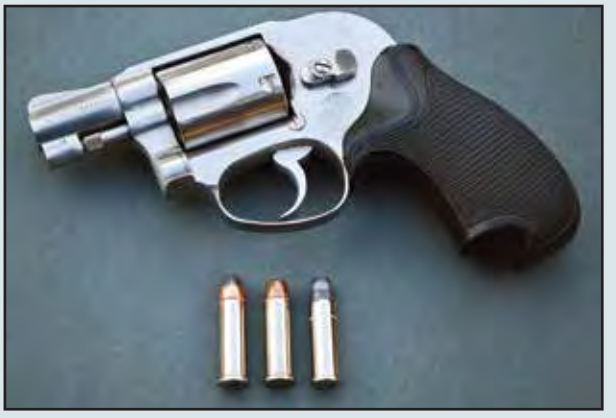
INSIDE AMMO

There's a lot of nonsense out there about the best ammo to use indoors. There's no such thing as an "indoor-friendly" round that won't zip through most walls. Sheetrock and plaster won't stop a .22 bullet. Best to load your weapons with effective ammo and concern yourself with the background before you shoot. Any centerfire rifle will go through several walls. I have an AR, but it's not my primary tool for nighttime duty — the risk factor is too high in a suburban setting.

Buy the best anti-personnel handgun ammunition you can find and concentrate on target identity and background if you have to shoot.

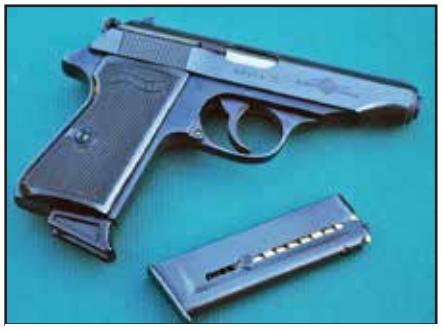
I like a good 158-gr. +P lead hollowpoint in my .38 Specials. It's still easy to control recoil-wise in a mid-sized revolver for someone who doesn't shoot often (like a family member), but has an impressive track record with dozens of police departments. Remington, Winchester and Buffalo Bore are my favorites.

Another good one is the Speer Gold Dot 135-gr. +P. Developed especially for short-barreled revolvers, it's now the issued load for both the NYPD and LAPD for officers still carrying revolvers.



This is Bob's old off-duty, back-up revolver, with three loads that work well. From left, the old LAPD-issue 125-gr. Remington JHP, a Speer 135-gr. Gold Dot and Remington's 158-gr. lead HP. All three loads are +P rated.

The S&W 1911.45 (top), while an excellent pistol, needs an operator who has trained with it often in order to gain the advantages of its firepower and quicker reloads. In a home defensive situation, the disadvantages of the S&W J-Frame revolver — 5 or 6 rounds and slower reloading — aren't really a factor.



This Walther PP in .22 LR isn't the best choice, but it can do. Tactics, a good plan and common sense will always beat the best weapon.

Leave a dim light on somewhere centrally located in your house (I got into the habit of having one on with teenaged daughters coming home late or very early). Searching a blacked-out house, no matter how well you know it, is stupid. Lights also mean someone is home to a possible intruder. A small lamp in the living room might prevent a tragedy like shooting a family member by mistake. It happens.

You probably have a better chance of confronting a burglar in the daytime than at 3 a.m. — something to consider if you work nights and sleep in the daytime. I like to leave a car in the driveway — day or night — instead of pulling into the garage. Having a dog sleeping next to your bed is also a great idea … *if* you like dogs. Any dog is territorial and makes a great alarm system.

Lastly, don't go outside. You're giving up all the advantages you have defensively and opening yourself up to criminal prosecution if you do engage someone with deadly force. Property isn't worth an armed confrontation; always let the bad guy come to you. The advantage stays with you — both in your home and later, in court.

A STITCH IN TIME

Roger Smith

"Awl things" considered, you really should have an arsenal of shooting and survival gear repair tools.

Duct tape is great stuff, but deep down you know you should also include large safety pins, large pieces of repair material and *real* fabric repair tape, plus needles and thread as part of your essential gear. You also know you *should* learn how to do your own sewing repairs to your gear. Maybe you're put off — thinking you'll need a sewing machine, or get to know someone who has one. Hand-sewing may seem mysterious to you.

A lot of great outdoor gear is made by do-it-yourselfers with an old metal-geared home-sewing machine. Many repair jobs are too awkward to be done with a machine, though. No problem. The truth is, doing it by hand is a simple — and ancient — skill. Just using one or two needles and a length of thread will get the job done, but using a sewing awl allows you to easily make a machine-like lock-stitch. There are a couple of different designs on the market, both made in the USA, the Speedy Stitcher and the Myers Awl for All. I use them both, but I have a slight preference for the Myers because its longer and slimmer nose design lets me work in tighter, more difficult places that would be impossible with the Speedy Stitcher.

Awls all come with instructions. Tandy Leather has a nice how-to video on their website and there are plenty of others on YouTube. Once you discover just how simple it is, you'll kick yourself for not learning this skill years ago. If you sew a patch over a tear or hole,

Rips and holes in your gear from sharp objects and rodents should be repaired immediately, or at the very least patched with duct tape both inside and out until you can sew them.

A seemingly minor hole near the top of the long right-side pocket of Roger's Combat Field Pack CFP-90 proved embarrassing and potentially fatal when the grip of his Kel-Tec SUB-2000 promptly poked out through it (left), making it difficult and dangerously time consuming to extract the gun. He sewed a patch over the holes (right) and then sewed around the edges of the biggest hole to prevent stuff from slipping through the hole inside the patch.

it's a good idea to reinforce the weakened fabric with a piece of fabric or self-adhesive repair tape underneath. If it's in too awkward a location, use a larger patch and then sew around the perimeter of the hole as well. Use about 6 to no more than 8 stitches per inch to avoid weakening the fabric. For leather, definitely no more than 6 or your stitch holes will become tear-here perforations.

Thread Considerations

What size thread to use? The heavier the better, but only up to a point. The largest-size thread home-sewing machines can handle is size 69. For your gear, never use a thread size smaller than 69. For a grand you can buy a new machine that will handle size 92. Next larger sizes after 69 and 92 are 138, 207 on up for industrial-grade sewing machines.

A common combination for machine-sewing heavy materials like tarps, boat covers and leather holsters is size 207 on the top spool through the needle and 138 from the bobbin underneath, and a 138/92 combo for thinner stuff. My ex-mil and commercial gear all seem to be sewn with 92 top and bottom. High stress areas simply have two or more rows of stitching for strength.

I don't own a sewing machine, so I use size 138 or 207 when sewing heavy stuff with an awl or stitching holsters with the two-needle method, and drop down to size 92 for thinner stuff. It's debatable, but nylon thread seems to be better for outdoor gear than polyester.

Fabrics

When fabric shopping, especially on the Internet, "denier" refers to the thickness of the threads in fabric. The higher the denier number, the thicker and heavier the fabric. There is no way to directly correlate denier to the ounce weight of fabrics, though. Quality gear is usually made from 8 oz. or 1,000 denier fabric with water-proof backing — like Cordura — for abrasion and tear resistance. Sleeping bag shells and lightweight tents are much thinner.

Heavy Lifting

Good carrying bags should come with their carrying straps — detachable or not — sewn all the way around the bottom of any bag used for heavy, expensive gear. If you have an otherwise nice bag you like, it's time consuming, but usually easy enough to hand-sew nylon webbing around the sides and bottom and securely sew it to the existing attachment point. Simply sewing an attachment point to a bag without some sort of reinforcement behind it is begging for a ripping good disaster. Carrying handles sewn directly to a bag should also have an extra reinforcing piece sewn under the bag's own fabric.

A quality awl with proper thread can handle an amazing amount of fabric problems. When it comes to buying one, Roger recommends the American-made Speedy Stitcher or Myers Awl for All.

Roger's sewing buddy Whiskers decided to help him pull the stitches tight while patching the hole in his CFP-90 pack. Photo by Pamela Smith

A hot knife is basically a soldering iron with an X-Acto-type blade tip. If you don't sear the edges of the Cordura fabric or nylon, they will fray.

To upgrade my semi-useable TufForce AK/AR15 pistol case into a truly great carrying case for my loaded Kel-Tec SUB-2000 and five extra 33-round mags, I added D-rings to accept a removable shoulder strap and added wraparound carrying handles. I used a hot knife to cut the webbing for the straps so I didn't need to make an ugly mess sealing the ends with a flame. I stitched them on with a Myers Awl For All. I no longer have any concern for the stupid original single carrying strap ripping out my bag's fabric when carrying the full 12-lb. load.

I used the same hot knife to cut a patch from a piece of woodland camo Cordura to cover the hole in the side pocket of my CFP-90 pack. The cover patch was stitched around the perimeter, then again around the big hole in the center so nothing could go through between the hole and the outer patch.

If you have the DIY gene, there's probably a sewing machine in your future. It needs to be a metal-gear-driven walking foot machine with reverse and a servo motor. But that's a whole new subject, far beyond this appetite-whetting article. There are days' worth of DIY gear research waiting for you on the web.

Just say goodbye to whatever free time you had left.

For More Info:
Webbing, straps, hardware and fabrics:
www.libertymountain.com
www.rockywoods.com
www.countrybrookdesign.com
www.rochfordsupply.com
www.sailrite.com, www.owfinc.com
Sewing awls and supplies:
www.awlforall.com
www.harborfreight.com
www.speedystitcher.com
www.tandyleather.com
www.thethreadexchange.com

RABBIT! FIELD TO POT

Surviving on the Whole-Earth Game Animal

Sam Fadala

Rabbits are the whole-earth game animal. They're no. 1 in North America, leading the tree squirrel, and are found worldwide as well. Where not indigenous, many species have been introduced for various reasons, including meat and fur. Can man survive on a rabbit-only diet? Some say not, pointing to "rabbit starvation" aka "protein poisoning." Controversy exists. One expert claimed eating "the seven food groups" was the only road to vitality. He must not have heard about the Maasai, who consume no vegetables and no meat, living entirely on cattle milk and blood.

Rabbit is high in protein and low in the various fat groups. Consumed with other foods it's a highly valuable meat source, easy to hunt and a cinch to field dress, butcher and cook. Seasons are generous, with legal "means of taking" ranging from pellet gun (not BB!) to shotgun. There are also dedicated rabbit hunters who enjoy the chase with dogs. Most of us will still-hunt, strategically covering habitat on foot. My personal favorite — winter hunts in snow where following a "rabbit run" leads to old homesteads, collections of scrap, plus natural thickets and cover.

Hardware

While a .22 rifle is top-of-the-list, my most enjoyable hunts are with a .32-caliber flintlock. A friend from "back east" was visiting my Wyoming home. Big game season was passed, but cottontails were open. I loaned Bob a scoped .22 while I packed the flintlock. My companion chided I'd get more misfires than rabbits. Our self-imposed limit was five each, plenty for a few suppers.

The flintlock fired five times consecutively following the simple method of using a touchhole pick to block the vent, securing the powder charge firmly into the breech, followed by careful removal of the blocked flash hole passage. This ensures a "jump" from powder flash to main charge, whereas a touchhole vent loaded with packed powder is a "fuse." Do not overfill the

Methods of take can vary to about anything you have at-hand. A .410 like the double Stoeger, simple .22 like the Stevens, an air rifle (shown left is an Airforce .22 and a vintage Benjamin .20 cal. pump) and even a child's bow (shown with a short range "flu-flu" arrow) would all work just fine. Butchering tools needed are few. A stout knife is handy to cut legs and such, and a smaller knife (even a pocket knife) can get the field cleaning chores done in no time. Game shears are also useful.

pan. Try to keep powder about two-thirds to the outside away from the touchhole entrance.

My rabbits are unsophisticated. Shots at 20 to 25 yards are common, often closer. Rock piles in mountain country make good rabbit cover. Binoculars reveal sedentary rabbits sitting close to escape routes into the boulders. Stalking is the wrong word. Quiet walking in plain sight is the rule. Take careful aim. Squeeze the trigger. Collect your prize after the perfect meat-saving headshot.

Or work the brush with a shotgun. If you are as good as one of my teachers, Mr. Mullins the Louisiana Man, then go with your rifle. He had a single-shot Remington Rolling Block .22 (short only, no need for long rifles). Aim. Pop! Another cottontail for the pot. I never got that good.

The final result? A warming meal, easily hunted in the field, quickly dressed and just as easily cooked. This is the recipe Sam talks about in the article.

Prepping

Skinnin' a rabbit is simple. Don plastic gloves to keep hands clean and go to work. The coat is worn loose. Pull the stomach fur out, slice with small knife, strip hide up over head and down over tail. Off comes the pelt by cutting head and back legs off. A slit is made from anal canal through sternum. Evacuate the entrails. Centrifugal force works fine. Hang on firmly to the hind legs and whirl the opened-up rabbit swiftly. Scrape out the cavity. You're done.

You have in your hand a parcel of prime meat ready for cooling. If snow is handy, rub carcass clean with the white stuff and secure cooled meat in game bag. Do not leave it in the snow to collect later. If magpies are in the area, they will discover your cache and devour as much as possible, starting with the tenderloins. I haven't seen it, but I bet crows and ravens will also partake.

Secured in plastic bags, the field-dressed rabbits come home. Plop into cold saltwater with a little white vinegar, leaving as long as overnight in a cool spot. Vigorously rub dry with cloth towel. This step removes any clinging tissue. It's so easy. Place the rabbit on a secure surface, such as a chopping block, and with heavy knife or cleaver, lop off bony lower leg parts. Section front and back legs where each meets back. Run a sharp knife tip right down the center of the backbone. Lift the flaps of skin on either side of the backbone and discard. This is the tough stuff.

Divide back legs. Split sternum to separate front legs. If the tailbone was not discarded in the field, slice it away from the back legs. Lying on the block are five pieces. Two front legs with rib cage attached. Two rear legs attached.

Tidily wrapped in a vacuum bag (left), rabbit can sit in the freezer for up to a year to supply needed protein. Once broken down into the bits (right), you have five healthy, protein-rich pieces. Think "chicken" in texture and flavor, and it works great stewed, fried, in a crock-pot, stir-fried or anything you can dream up. Truly a do-anything food, always close at hand.

One back. Ribs may be cut away with game shears. Wrap well for freezing, in plastic and then freezer paper, marked with date. Vacuum sealing is also fine. While a deep freeze should hold the meat for as long as a year, consume within six months.

A friend and I have a partnership. He does not hunt. I provide the rabbits. He does the barbeque. His grandfather taught him "pot boiling," which his grandpa in turn learned from his grandfather who lived on a Southern plantation. We term it parboiling, which tenderizes the meat. My electric pressure cooker does the job in 15 minutes. Now the pieces are ready for grill or fry pan. To strip the meat entirely off of the bone for hasenpfeffer and stews, parboil or pressure cook longer. Recipes abound. One I have never tried is "Crispy Rabbit Ears." Maybe someday.

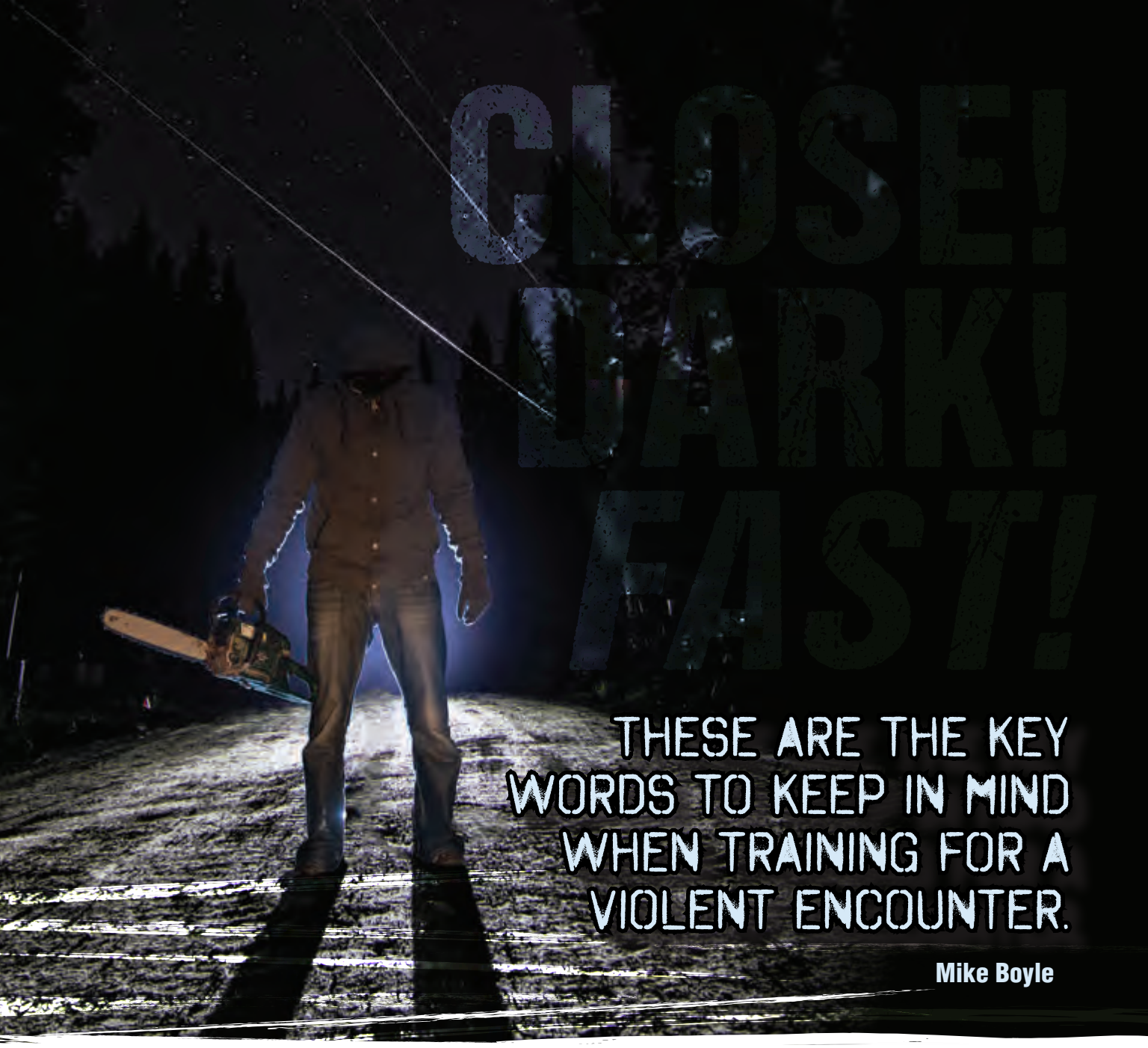
More Cooking Tips

A sure-to-please method is slow-frying tenderized meat in 50/50 canola oil and butter. Sprinkle a little Goya Adobe All Purpose Seasoning and Lawry's Seasoning Salt on the raw meat. While cooking, add a little splash of Jugo, or Dales Steak Seasoning, or soy sauce (these are optional). When just about cooked add chicken broth with bouillon cubes and simmer away. Serve tender pieces over white rice. Experiment until you find your personal recipe.

The whole-earth game animal is a powerful addition to the hunter's menu. Abundant, easy to bag and field dress, it's a basic meat that can be secured without much expense, along with a lot of outdoor enjoyment. Also much easier to pack out than deer, elk or moose!

I have had house guests turn down delicious sherry wine rabbit stew, not wanting to eat Peter Cottontail. It's not nice to trick either Mother Nature or supper guests, but attach a pretty name to your recipe — something French — and your family and guests will love it. I'm not keen on snails, but escargot ain't bad.

And now, excuse me. Breakfast time. I'm having chicken embryos and hog fat.



CLOSE! DARK! FAST!

THESE ARE THE KEY WORDS TO KEEP IN MIND WHEN TRAINING FOR A VIOLENT ENCOUNTER.

Mike Boyle

At present, more than 40 states allow their citizens to carry a concealed firearm. Despite what critics have predicted, the streets have not run red with blood. On the contrary, there have been numerous instances where responsible citizens have used a firearm to protect their lives or loved ones.

Having ready access to a firearm is certainly a good first step toward ensuring your personal safety. Once you've acquired it, the next step is learning how to use it. If you're serious about defending your life, you need to take in some professional training. There are many high-profile shooting schools offering cutting-edge training. Unfortunately, attending such a class is often outside the realm of possibility for many folks because of the expense and travel requirements. The good news? There are probably some very capable instructors in your area who can get you up to speed at a fraction of the cost of the big name schools. Training is a perishable skill, and from time to time you have to sharpen the saw. So frequent "maintenance intervals" are part of the picture.

As a career law-enforcement trainer, I've noted many similarities between assaults involving weapons, as well as those without. Events studied include attacks on both law enforcement officers as well as other citizens. I regularly use data from definitive sources such as the DEA, FBI, and New York City Police Department in my training to better prepare officers in my agency. Many of those same lessons would serve the armed citizen equally well. Are patterns of assault on non-law enforcement much different? Not really. Just check out the "Armed Citizen" section of *American Rifleman*.

Typically, the bad guys will try to have things working in their favor before launching a violent attack and the element of surprise is high on their list of priorities. In a great many instances, prevailing conditions can be best described as close, dark and *fast*.

Condition 1: Close

Unlike the make-believe scenarios we see on the silver screen, most real-life gunplay takes place in very close quarters. There is indeed a common

The Neck Index is an intuitive "hands apart" flashlight-assisted shooting technique proven to work well in close quarters.

thread between armed assaults, verbal disputes with your significant other and an altercation you had with the schoolyard bully back in the 6th grade. These things tend to unfold at what we would categorize as "conversational distance." This dynamic is especially true in events involving non-law enforcement personnel where the assailant has targeted someone as a potential victim.

Recently, I had the opportunity to review the firearms discharge report of a big city police department. In one recent year, officers engaged armed criminals in 15 separate incidents. Only one took place at a distance of greater than 5 yards. Should an armed citizen have to resort to a firearm, the most likely scenario is the assailant will invade your personal space in order to appear more intimidating. Often they will attempt to get you off guard by asking for the time or directions.

Your assailant may have a weapon other than a firearm, such as a knife or bludgeon which require proximity to bring it into play. Recognize such weapons are equally deadly as any gun inside of arm's length. Extremely close-quarter attacks can be very difficult to defend against because there is little time to react to the assailant's actions. In many instances, an initial reaction with your firearm is not possible and may not even be the best course of action. Stay switched on. Be wary of people who want to get close to you for no apparent reason.

Condition 2: Dark

Most violent crime takes place during the evening hours. If you are targeted to be a victim of violent crime, more than likely light conditions will be poor.

At close quarters it may not be possible to immediately draw your gun. An elbow strike (above) followed up by a palm strike (below) allows for an opportunity to disengage and fire from the retention position. This sort of realistic training does not require a range.

When our vision is compromised due to darkness, our performance is handicapped in any number of ways. Simple tasks become complicated and our ability to make sound decisions is at a deficit. Even simple navigation in unfamiliar surroundings can be problematic. Should something go bump in the night, we first have to locate it and then quickly decide whether or not it poses a threat. This can be a piece of cake in bright light, but not so easy in the dark.

Darkness affords bad guys the opportunity to conceal their true intentions and hide weapons. They've already formulated a plan of what they want to do and are simply waiting for the right time to put it into action. While countering an attack in low light can seem like a daunting task, it can be done. The best strategy is to deny your opponent the chance.

Although many attacks occur in very close quarters, a small tactical flashlight is an indispensable tool. It can help you spot danger, help you sort out the good guys from the bad guys, and serve as a less-lethal weapon. By all means, get familiar with a flashlight-assisted shooting technique. For close-quarters shooting, I feel very well served by the Neck Index technique (see photo).

At the first sign of potential trouble, draw your flashlight and place it in your support hand. Mike prefers a simple "tailcap" on and off switch.

Condition 3: Fast

Most violent street attacks are over in a matter of seconds. This is especially true if weapons are involved. Certainly a high-capacity pistol provides some comfort should your world turn upside down, but the bottom line is you're more likely to run out of time than bullets.

Our daily routine places us in close proximity to all sorts of people on the street, the checkout line, or on mass transit. Unless you live the life of a hermit, this is a reality of modern living. In close quarters, a surprise attack even by an untrained individual will be difficult to counter and time and time again it has been proven action beats re-action.

High on my list of precautions would be to avoid stupid places,

GO-TO GEAR

The current crop of defensive handguns is better than ever and if you stick with the offerings of the well-established players, you'll be pretty well served. Defensive ammunition too, is light years better than what we had available to us a generation ago.

There are, however, a couple of areas where I constantly see folks cut a corner in order to save a buck or two. They include holsters and flashlights, both critical elements.

A good holster will set you back a few bucks, but will provide years of reliable service. Your chosen holster should be comfortable, allow for a fast draw and a one-hand return. Did I mention it should also help conceal the gun? I use several different holsters to carry my GLOCK 19, but my favorites include a Rusty Sherrick horsehide rig and a Kydex scabbard from Crossfire Tactical. Both are outside-the-waistband rigs and can be readily concealed under a lightweight covering garment.

Next to the pistol, I consider the flashlight to be the most important tool. I've come to prefer small tailcap lights I can carry discreetly and can be quickly brought into action. Many lights feature multi-function switches which can be tricky to manipulate under stress. Best keep it simple.

One light to recently make an impression on me was the PowerTac E9, an extremely powerful LED unit. The E9 is crafted from aerospace-grade aluminum alloy and sports a military-grade, hard anodized finish. The tailcap is easy to operate and the small side switch allows you to select from four different power levels, plus strobe.

At the highest setting, the E9 puts out an incredible 1020 lumens of intense white light. A blast of this into the night-acclimated vision of any aggressor will certainly play havoc with their vision and allow you a window to escape or counterattack. Make no mistake about it; a bright white light can be a very effective measure of less-lethal force. Best of all, it helps us sort out the good guys from the bad guys.

The flashlight is just as important as your gun. The Powertac E9 is an excellent choice.

Two of Mike's favorite holsters are a Crossfire Tactical Kydex rig for everyday carry (top) and a Rusty Sherrick concealment rig when more discretion is required.

Two hands (left) will generally yield better hits and recoil control, but any number of factors may prevent you from doing so in a violent encounter. Don't neglect practicing with one hand (right).

hanging out with stupid people, and doing stupid things. This alone can spare you a world of grief.

Practice With A Purpose

In order for training to be valid, it must meet the challenge of the anticipated encounter. Think close, dark and fast. To make yourself as hard a target as possible will require commitment, especially when you balance it against the demands of job and family.

Most of my live-fire training takes place at relatively short range. I like to mix both a one- and two-hand response against targets set to my left, right and behind me, as well as the classic "downrange" position. Real life bad guys are seldom arranged in a neat line downrange. Be sure your training includes drawing your handgun from concealment.

I recognize many public ranges don't allow any sort of realistic practice. Humanoid targets, drawing from the holster and shooting "at speed" are not allowed. And shooting in the dark is totally off the table. But rest easy pilgrim and practice those basic marksmanship skills. There are other ways to address our concerns.

I strongly suggest going out and purchasing an inert training facsimile of your preferred carry gun. Ring's Manufacturing of Melbourne, Florida, markets an extensive line of replica training guns. External dimensions are identical to the real deal and the trainers can be safely used to practice the draw stroke, flashlight-assisted shooting technique and tactical movement, as well as the transition from empty-hand defense to handgun. Best of all, you don't need a range to work out with them.

By all means, get familiar with some basic empty-hand techniques. In a worst-case scenario, an attacker may have closed the distance and has denied you the opportunity to draw your firearm. In many street assaults, you may not be justified responding with deadly force.

Contrary to popular opinion, you don't need to study the martial arts for years — or be in superb physical condition — to incorporate a few basic, but very effective, empty-hand techniques into your toolbox. Of course, the better trained you are in this area, the greater the odds of meeting with success. Being a one-dimensional "gun guy" represents only part of the picture.

Practice with what you carry. A Ring's Manufacturing "Bluegun" serves as an understudy to the holstered S&W J-Frame. A Spyderco P'Kal trainer fills a similar role and complements the real blade.

Final Thoughts

While it might be impossible to predict the exact pattern of attack in every instance, we have a pretty good idea of the obstacles we might be facing. Hopefully, you've taken steps to tip the odds in your favor. Regular practice is essential, but it doesn't have to take the form of a trip to the range. Dry firing and practicing the draw stroke can all be done in the comfort of your home (empty gun — check it *twice*). Likewise, we can practice getting a flashlight into action with the inert training gun. If you can find a training partner to refine some of those skills, so much the better. Again, the inert training gun is just the ticket.

Success in a close-quarters armed conflict requires a bit of skill with empty hands and the gun, as well as a winner's mindset. Clearly, this multi-dimensional approach gives you the best chance to prevail. Do something fast, do something as hard as you can. The last thing your assailant expects is a sudden, violent counterattack.

Sources
www.powertac.com,
www.crossfiretactical.com,
www.c-rusty.com, www.blueguns.com

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