The background of the entire page is a soft-focus photograph of a forest. Several tall, thin evergreen trees stand prominently against a lighter, hazy sky. The overall atmosphere is mysterious and natural.

JESSIE KREBS

Teaches Wilderness Survival



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This course is for informational purposes only. It does not contain any medical advice and is not intended to be a substitute for professional advice. As always, please consult a qualified healthcare provider or professional with any questions you may have.



From series survival training
to lighthearted climbing,
Jessie has always been in her
element outdoors



Meet Your Instructor: Jessie Krebs

Jessie is living proof that wilderness survival is a mindset – and that it's something anyone can learn



**FOR 35 DAYS, JESSIE KREBS LIVED IN
fear of hyenas.**

She (along with 19 others) had been trained to fight off crocodiles and had survived a warthog attack during a 227-mile trek across the Tanzanian Serengeti in 2015 – an expedition meant to mimic wildebeest migration patterns that was filmed for a National Geographic television show – but it was the roving packs of hyenas she feared most. Seven members of her party gave up en route. In the end, Jessie was one of the remaining 13 people who successfully made the crossing, which was conducted

entirely without a support crew or modern equipment. She carried a 50-pound pack made of cloth and twine. Quitting, she says, never crossed her mind.

A unique combination of creativity, optimism and sheer toughness has propelled Jessie to a storied career as one of America's leading survival experts. She may have first entered the public eye with her televised Serengeti crossing, but as a former United States Air Force SERE (Survival, Evasion, Resistance and Escape) instructor, she is a sought-after survival expert, lending her opinion to the likes of Fox and the Science Channel.

She's also the founder of SERE Training School, based in Denver, Colorado.

Still, Jessie would be the first to tell you that resilience – the kind it takes to reach the pinnacle of your industry, endure 35 days on the Serengeti or both – isn't a genetic trait. It's learned.

A survivor of repeated childhood sexual abuse, Jessie grew up painfully shy and plagued by horrific nightmares. At night, drawn by some instinct, she'd sneak out of the house, away from the memories that filled those rooms, and run out into the yard.

'I'd climb a tree. Sometimes I'd fall asleep in the tree,' Jessie says. 'Up there, I could look down. I could see what was around me. I could see if anybody was coming. And I felt safe.'

As she grew older, the outdoors remained the place where she felt safest. So when she enlisted in the U.S. Air Force in 1990 and learned that wilderness survival instruction was a possible career path, she immediately signed on.

Over the gruelling year of SERE training, Jessie found that she had a knack for picking up wilderness knowledge and technical skills. Perhaps more importantly, she discovered an ability to grit her teeth and endure conditions that physically and mentally crushed her classmates, all of whom were men.

The training helped Jessie build an ironclad self-confidence. It also helped her hone one of her strongest assets: the ability to tune into the intricacies of her surroundings, find critical resources and optimise survival amid any level of chaos.

After she spent years training soldiers to survive in some of the most hostile territories on earth, Jessie received an honourable discharge in 1994. She worked as a camp director, a climbing instructor and a high school teacher – but she felt aimless. Then she moved into a career in wilderness therapy, a mental-health treatment strategy focused on promoting self-efficacy and reframing

a clinical environment using the social dynamics inherent to the outdoors. She spent more than a decade immersed in the field, an experience that deepened her understanding of the human psyche under stress and left her with a vast repertoire of skills for managing that psyche when it matters most.

Jessie's work in studying the psychological aspects of survival has put her at the leading edge of the movement to demystify the wilderness, promote survival skills as a tool for individual empowerment and offer technical knowledge to those who are traditionally left out of

wilderness education (particularly women and people who grew up without outdoor access). Now, she's sharing her insight and experience directly with you.

'I think the thing you'll learn in this class that's the most valuable is that you're more capable than you thought you were,' Jessie says. 'And that confidence can translate to business. To the office. To everything else you're doing in life.'

That's because survival is about so much more than knowing how to make fire or forage – although in this class, you'll learn how to do both. But you'll also learn how to calm a panicked mind, critically assess emergency situations and tap into your instincts so that you can better explore nature and

the outdoors with confidence.

'The wilderness has everything we need to exist, or we wouldn't be standing here in this moment,' Jessie says. 'When [nature] seems like she's being really brutal, look around. She's still giving you all the tools you need to make it.'

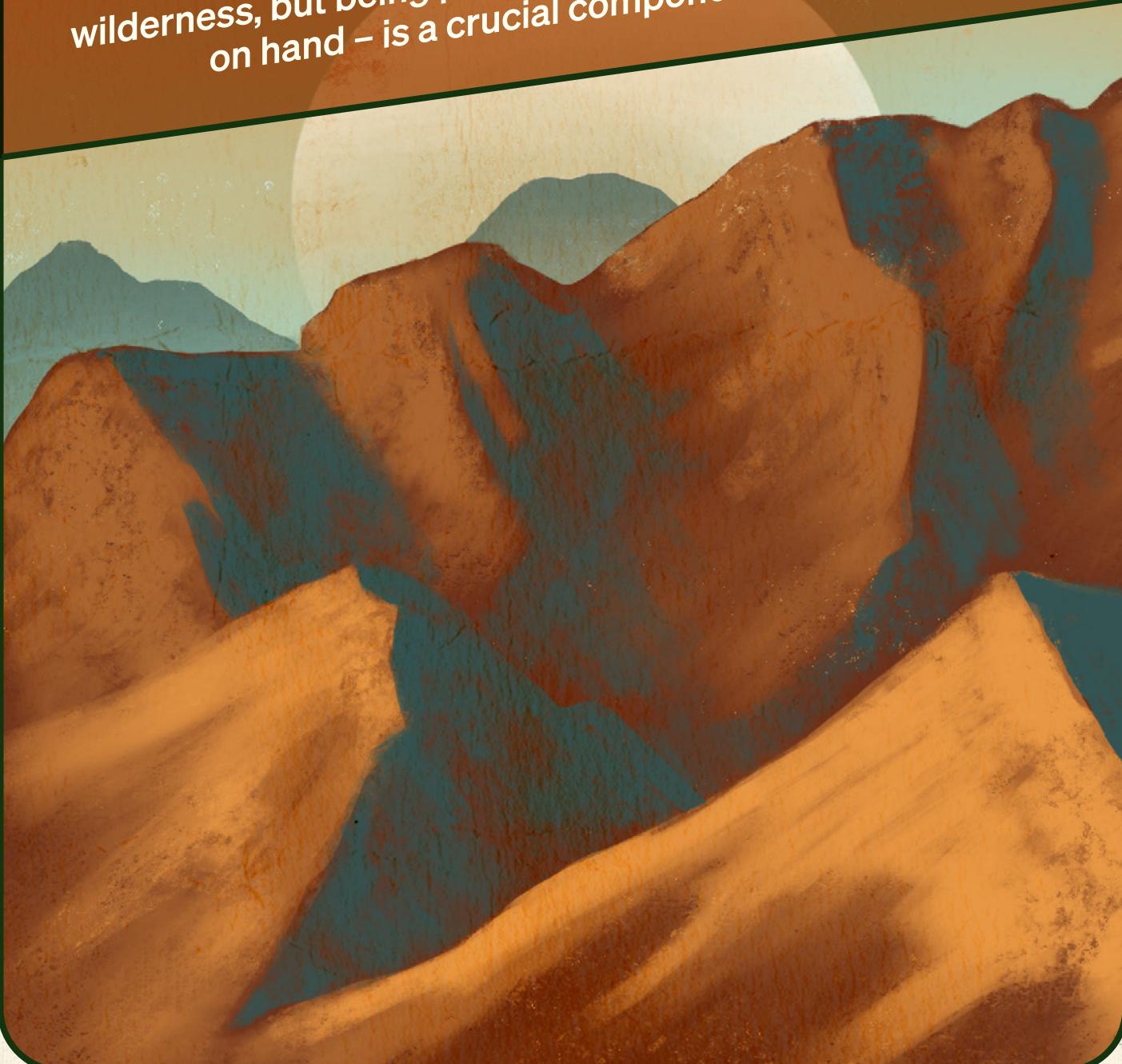
The wilderness is reaching out. All you need to do is reach back.



Prior to her work in wilderness therapy, Jessie enjoyed a successful military career, serving as a U.S. Air Force SERE (Survival, Evasion, Resistance and Escape) instructor

PACKING

Your brain may be your most important tool out in the wilderness, but being prepared – and having the right items on hand – is a crucial component of survival



WHEN IT COMES TO PACKING FOR YOUR
trip – especially in terms of your emergency gear – Jessie
emphasises that purchasing one of those prepackaged
survival kits probably isn't the best idea. Why? For start-
ers, your needs will vary depending on your destination,
the weather conditions and the nature of your outing.
Also, everybody has different proficiencies; you could be

skilled at tying knots but less comfortable with building a
fire from scratch. Bottom line: There's no one-size-fits-all
solution.

That said, there are some essentials that you'll want to
consider taking on any trip. Use the following lists as a
starting point to help determine which items you might
want to bring on your next (or first) wilderness outing.

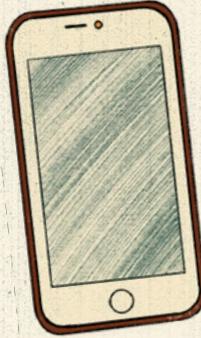


Personal Protection

- Rain shell
 - ★ **Neon is the new black:** Brightly coloured jackets and tents stand out to rescuers.
- Insulating layers
- Sun hat
- Sunscreen
- Sunglasses
- Sun shirt
- Warm hat
- Gloves
- Wool or synthetic base layers
 - ★ **Avoid wearing cotton,** which saps warmth when wet.
- Wool or synthetic socks
- Sturdy shoes
- Sandals (optional)
 - ★ **Nice for water crossings and hanging out in camp.**



Other Essentials



- Trekking poles (optional)
- Headlamp
- Extra batteries
- Toilet paper
 - ★ PSA: You'll want to 'pack out' (read: collect for later disposal) TP and wipes; even the flushable kinds aren't biodegradable.
- Disposal bags
 - ★ Heavy-duty zip-closing bags work fine for packing out.
- Hand sanitiser
- Medication
- Feminine hygiene products
- First aid kit
 - ★ You can purchase a handy pocket book, *Wilderness and Remote First Aid Emergency Reference Guide*, from the American Red Cross. The organisation also offers online and in-person basic training classes, as well as an advanced, multi-day wilderness first aid (WFA) course.
- Bandanna
- Phone
- GPS
- Maps and compass
 - ★ Local gear shops are a great resource for paper maps. You can also order online from National Geographic, or print custom versions from your country's geological survey website. As a backup, use a GPS app to download maps to your smartphone before leaving a mobile service area. (Your phone's internal GPS will show your location on the map, even in aeroplane mode.)



Emergency Gear



- Knife
 - ★ For survival tasks, you'll want a fixed-blade knife. The tang, or the part of the blade that's sandwiched in the handle, should extend at least three-quarters of the handle's length.
- Small knife sharpener
- Six feet of paracord
 - ★ Prone to tangles? Make a survival bracelet instead.
- Lightweight tarp
- Flint or waterproof matches
- Fire starter
 - ★ Clumps of dryer lint (or cotton balls soaked in petroleum jelly) sealed in a water-tight bag work great. They're highly flammable and easily squish down in your pack, allowing more efficient use of space.
- Signal mirror
 - ★ In a pinch, you can signal using a compact mirror; a flat, high-polish metal object, like a belt buckle; or your smartphone, provided it has a glass screen.
- Personal Locator Beacon
 - ★ See more on page 26.
- Iodine tablets
 - ★ Learn about effective water filtration methods on page 13.



Shelter (for Overnights)

- Tent
- Extra tent stakes
- Sleeping bag
- Sleeping pad
- Camp pillow (optional)
★ As an alternative, you can pack extra clothes into your sleeping bag's stuff sack before bed.



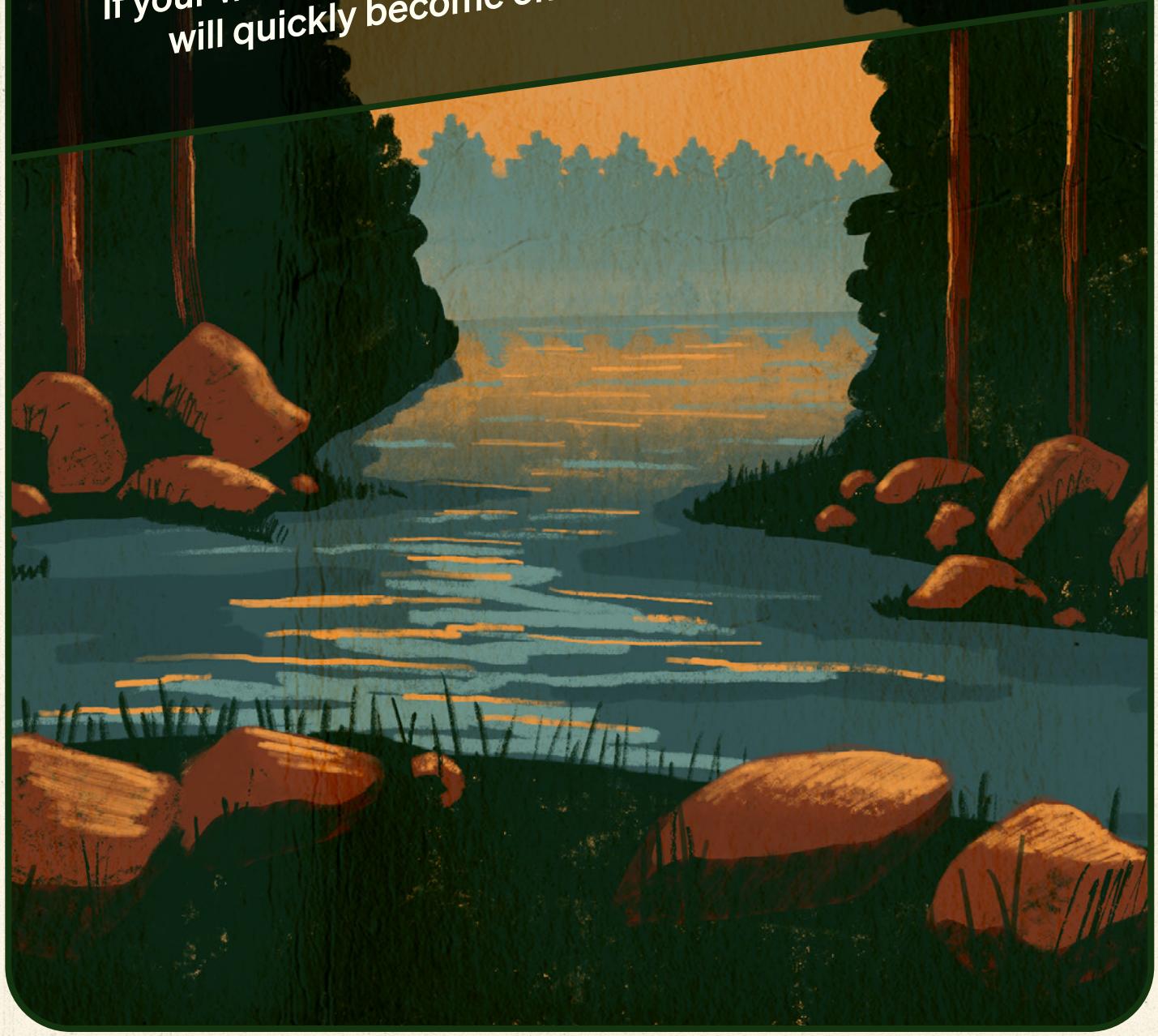
Food and Water



- Meals and snacks
- ★ Pack at least 2,000 to 3,000 calories per day for all-day hikes.
- Bear canister (only required in bear country)
- Two water bottles or a reservoir
- Water filter
- Mug
- Eating utensil
- Stove
- Pot
- Fuel
- Lighter

WATER

If your wilderness adventure goes awry, staying hydrated will quickly become one of your primary concerns





Case Study:

IF YOU'RE A FAN OF 4X4 OFF-ROADING, a vehicular recreation area near massive red rock formations is the stuff of dreams. Neat trails, narrow gaps, rocky drop-offs – the terrain is pretty much built for wheeled adventure and sightseeing. You've realised this. You realised it the minute you and your partner set out in an old Jeep this morning, rumbling along washboard roads and rocky steppes until the noise and chaos of the nearby town were just faint memories.

But now the sun has climbed well above the horizon. Maybe it's the heat or a glare flashing across the smudged windscreen, but for a moment your attention lapses and you hear the sickening squeal of a tyre slipping off the edge of a slickrock bench. You start to tip. Everything after that seems to happen in slow motion: The Jeep rolls, clattering through a storm of rock and dust, until the car finally comes to rest, roof side down and the two of you are left hanging suspended by your seat belts.

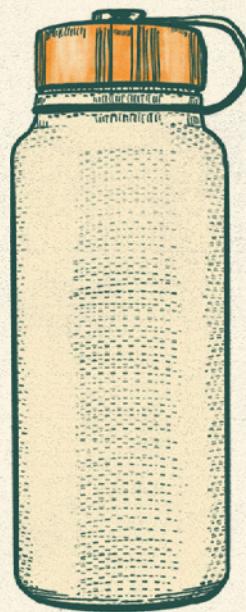
Thankfully, the Jeep's roll cage has done its job, and you manage to calm your partner enough to disengage your seat belts and climb out of the wreckage. It's only then that you realise: You've driven 20 miles into the desert to get here. You check your phone. No mobile service. And your water bottles are nearly empty.

You consult the map and notice there's a road just across the river, which isn't far. But when you reach the bank, you realise the wide stretch of water is impassable. You know this area isn't a heavy metal risk, and you don't see dead animals along the river. Still, the water is a gross shade of green. It's also murky and putrid.

What do you do?

- (A) Filter the water through your cleanest item of clothing, then drink as much as you can.**
- (B) Hike out without drinking; getting sick will make this situation worse.**
- (C) Don't drink the water, but soak your clothes to reduce sweating on the hike out.**
- (D) Um, a 20-mile hike? Are you kidding? Start swimming for the far shore.**

Answer: (A) Filter the water through your cleanest item of clothing, then drink as much as you can. Your odds of successfully hiking 20 miles are better if you start hydrated. Rescue is just a day's walk away, and, as Jessie taught you, there's usually a weeklong window for waterborne stomach bugs like giardia. That means you've got time. Drink up!



Water 101

On average, the human body can go 30 days without food but only three days without water – fewer if you’re exposed to hot, dry weather. Follow these tips to conserve your most precious survival resource

Ration your sweat, not your water.

If your canteen is running low, take note, but don’t stop drinking. Instead, Jessie recommends minimising your sweating. Make slow, deliberate movements, rest in deep shade during the hottest parts of the day and avoid eating until you find a new water source (food requires a lot of water to digest in your stomach).

Know the symptoms.

Signs of moderate dehydration include thirst, lethargy and muscle cramps. Add nausea, dizziness or delirium, and you could be looking at a severe case. One of the easiest ways to self-monitor, Jessie says, is by keeping tabs on your urine output. ‘It should be fairly clear, and there

should be plenty of urine,’ she explains. If you notice your pee is getting dark, drink whatever you’ve got.

Filter – if you can.

Backcountry water sources, even in the high alpine, can contain viruses, bacteria and/or heavy metals that can leave you sick. So unless your water source is new-fallen snow or freshly collected rainwater, filter it (more on filtration methods in the chart below). No filter? With pathogens like giardia or cryptosporidium, you usually have a week or two before symptoms appear. Bottom line: Dehydration is a more imminent threat than bad water.



A Quick Guide to Water Filtration

Different water purification methods are effective against different hazards. Research water issues – parasites, bacteria, viruses, heavy metals – in the area you’ll be exploring before heading out, then select the right tool for the job

	Parasites (Like giardia and cryptosporidium)	Bacteria (Like E. coli)	Viruses (Like norovirus or rotavirus)	Heavy Metals (Like lead or mercury)
Boiling	X	X	X	
Filtration	X	X		X
Iodine	X*	X	X	
Chlorine	X*	X	X	
Chlorine dioxide	X	X	X	
UV pen	X	X	X	

*Note: Iodine and chlorine are relatively effective against giardia but not cryptosporidium.



WARMTH

Nature is particularly beautiful during the winter, but cold-weather conditions can create unique survival challenges





Case Study:

IT'S EARLY NOVEMBER, and you've gone out for a weekend trip in the backcountry, not too far from home. You step out of the car and shoulder your pack. You've brought a GPS and a compass, along with fire-starting gear, food and a few extra layers. You leave your sleeping bag and tent in the car; you're planning on scouting a campsite first and will be back for the other things later.

As you hike, morning wears into afternoon, and the wind picks up. The grey sky drops until you feel like you could reach overhead and touch the bellies of the clouds. It starts snowing. By the time you find that perfect campsite, fifteen centimetres of powder have already fallen.

You can't be more than two miles from the car, but as you turn around, you have no idea which direction you should be heading to get back. The trail has vanished under the snow; the trees and shrubbery, laden with fresh powder, are bent at all angles, obscuring your route out. So you pick a direction and start walking.

As you beat your way through the branches, you slip on a patch of frozen mud and go skidding down a hidden bank, rolling into the icy water of a beaver pond. You gasp with the shock of the cold and immediately start hauling yourself out.

Now you're wet, freezing and, honestly, lost. What do you do first?

(A) Build a fire to dry your clothes.

(B) Wring out your clothes by hand.

(C) Do jumping jacks.

(D) Gather dry leaves and branches for insulation.

Answer: (D) Gather dry leaves and branches for insulation. Your first priority is to change out of those wet clothes. To do that safely, you'll need to gather an insulating layer of branches and leaves to protect your bare feet from the snow once your socks come off. (Plus, the measured movements of walking and gathering will begin to dry your clothes without wasting energy.) Once you have your insulation, stand on it, strip down and start wringing.

Three Lines of Defence

From navigational complications to hypothermia to plain discomfort, winter adds its own factors to the survival equation. A thorough understanding of outdoor self-care and sheltering can make all the difference

1. Dress for success.

Boost insulation by increasing the so-called dead-air space within your clothing. As the second law of thermodynamics teaches, heat moves from warmer bodies to colder bodies; creating a buffer slows this process down and traps hot air in pockets. You can do this either by adding puffy layers or stuffing your jacket with dry leaves or debris. Add a rain or wind shell overtop to prevent further heat loss. (Pro tip: If your toes are getting cold, wrap plastic bags around your socks or pack debris into your pant legs. The warmer the blood in your legs, the warmer your feet.)

2. Take shelter.

Still cold? Shelter is your next priority. Pitch your tent or use trees to rig a tarp (one and a half to two metres off the ground if you're planning to start a fire beneath it). You can also fill a garbage bag with debris and climb inside, sleep in a nest of tree boughs or take shelter on the leeward side of a large log or in a tree well. (Pro tip: Avoid tree wells if there's any chance of deep snow.)

3. Start a fire.

Because fires can be difficult and time-consuming to start, they're one of your last lines of defence. But if you've already got your clothing and shelter under control, go for it. Start by gathering three times as much tinder as you think you'll need. If the dead grass, wood shavings or dried moss you find is at all damp, store it in your clothing as you gather your other fuel; your body heat will dry it.

Fire and Ice

Getting a fire going in a super-cold climate can be especially tricky. But keeping your wits about you and remembering a few practical tips can make all the difference

FIRST, A CLARIFICATION: Building a fire is fickle work, especially when precipitation and freezing temperatures are involved. In those conditions, you really don't want to be sticking around to set up camp. But if your other immediate needs (e.g., dry clothing, suitable shelter) are attended to and the situation calls for it, knowing a little about making a fire in a super-cold climate can go a long way.

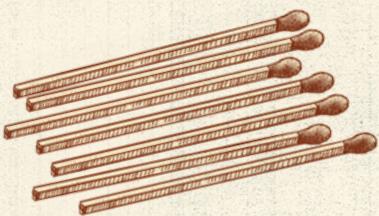
Start by putting your architect's hat on: Focus on a strong foundation. If there's snow on the ground, stomp out an area for your fire – form a square, three or four paces in each direction – and fill it with logs to create a makeshift platform. (Or stack slabs of bark dry side up.) When it's time to gather dry wood to burn, search high but not low; twigs and boughs from the dense canopy cover won't be as wet as those on the ground. Test potential

branches by breaking them in half, noting the pliability – the less give, the better – and listening for a crisp, audible *crack!* when they snap. To halve a bigger branch, set it in the fork of a sturdy tree, creating a fulcrum and push your body weight against one end of the branch.

Once you've got your fire going, resist the temptation to keep piling on the combustibles. Remember, in an emergency situation, conserving energy is important – and gathering sticks can be physically taxing. Unless you're building a signal fire, there's no need for your flames to be more than a foot or two high. Get close and warm up.

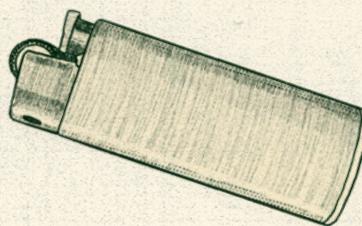
Light It Up

These three simple tools could be indispensable when it comes to keeping yourself warm in the wilderness



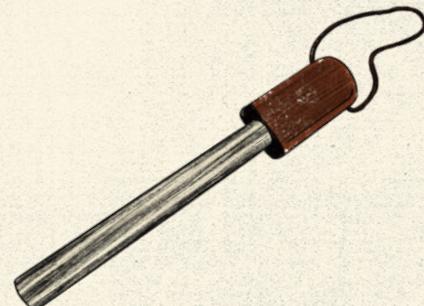
matches

Make sure you've got the strike-anywhere variety, easily identified by the patch of white phosphorus on the tip of the head. You can light one using any number of abrasive surfaces, including dry rocks – or the teeth on a zip.



Disposable lighter

Pop into any convenience store and you'll find an assortment of pre-fuelled plastic lighters. You want one with a see-through body (so you can monitor the fuel level) and no childproofing features (so you can adjust the flame).



Magnesium

Magnesium blocks (with an integrated rod and striker) are cheap and essentially waterproof. To use, grind the rod against the side of the block until you've got a small pile of powder and shavings on dry kindling. Then hit the striker. Even a weak spark should be enough to ignite your little magnesium heap.

A woman with blonde hair, wearing a dark cowboy hat, a blue denim shirt, and green pants, is sitting cross-legged on the ground next to a campfire. She is smiling and looking towards the camera. The campfire is made of logs and is burning brightly. In the background, there are several tall trees, some with green leaves and some bare. To the right of the woman, there is a pile of dry sticks and twigs. The overall atmosphere is outdoorsy and rustic.

Jessie's Tip

★ Petroleum products have big potential when it comes to starting a fire. But Jessie says that it's easy to overlook just how many common products are petroleum-based – including hard plastics. In a pinch, use a knife to scrape a disposable lighter, creating a pile of dry plastic shavings. Voilà. Tinder.

FOOD

From rationing your calories to foraging for meals, staying nourished means making smart (and sometimes surprising) choices





Case Study:

YOU'VE MANAGED TO steal away from work for a few days, and you're finally going on that epic, five-day solo backpacking loop along the coast. After planning for months, you load up the car on Friday, tell your roommate you'll be back on Tuesday and hit the road.

It's bliss. The sun is out, temperatures are mild and you've got the trail all to yourself. By the end of your third day, though, you realise you're running a little behind schedule. You keep hiking after nightfall, hoping to squeeze in a few more miles before pitching camp.

The darkness is *dark*, and you fail to notice the steep drop-off on the side of the trail. You step a little too close to the edge; the lip gives way, crumbling beneath your boot and sending you over the brink. You're skidding down a ravine, picking up speed. Before long, you're moving too fast to catch hold of anything. By the time you come to a stop, you've skinned both knees and your ankle is badly sprained. You can hobble around, but there's no going back up that slope without help.

You have only two days of food left. You know shelter and water are your first priorities, but you can't help but

wonder: What if help doesn't arrive right away? Should you ration?

- (A) Yes. Start eating as little as possible to conserve your food.
- (B) No. Eat normally; you have plenty of time to be found.
- (C) Yes. Divide your food into thirds. Eat the first two-thirds of your calories during the first half of your estimated survival period, and save the last third for the final days of your stay.
- (D) No. You can go 30 days without food; no need to worry about rationing.

Answer: (C) Divide your food into thirds. Eat the first two-thirds of your calories during the first half of your survival period, and save the last third for the final days of your stay. Smart rationing is all about smart maths. First estimate the number of days until rescue. Your roommate isn't expecting you home for two days, and a rescue will likely take two more. That's four days total. If you have 10,000 calories with you, plan to eat 6,700 in the first two days when you'll need the fuel most and your body is recovering. Then, split the remaining 3,300 calories between the last two days.

You only have two days of food left. You know shelter and water are your first priorities, but you can't help but wonder: What if help doesn't arrive right away? Should you ration?



Living Off the Land

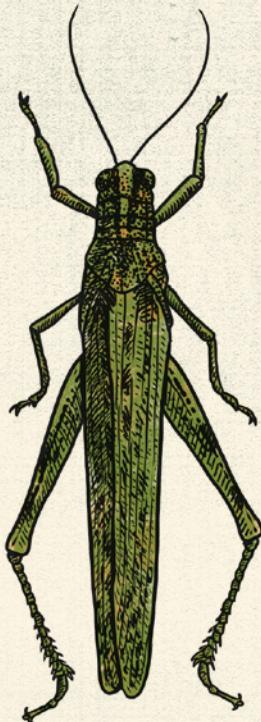
While foraging shouldn't be your first priority in a survival situation, it can help you find some extra calories if things become dire. Plus, it's a fun skill to practise (with expert guidance, of course). Here's what to look for – and what to avoid



Berries

Berries are a good source of carbohydrates, fibre and vitamins. Follow these guidelines for safe picking:

- ★ **Aggregate (those with tightly packed clusters, like raspberries and mulberries): 99 percent edible worldwide. Go for it!**
- ★ **Blue, black and purple: 90 percent edible. Consider an edibility test (see page 22).**
- ★ **Orange and red: 50 percent edible. Use an edibility test.**
- ★ **Green, white and yellow: 10 percent edible. Avoid.**



Insects

Insects contain seven times more protein than mince, and they're much easier to catch than small game. Jessie isn't shy about digging in; you shouldn't be, either. Supplement your survival diet with these critters:

- ★ **Earthworms**
- ★ **Mealworms**
- ★ **Ants (boil first; avoid fire ants)**
- ★ **Crickets**
- ★ **Grasshoppers (remove the legs and wings first)**



Greens , etc.

Many things that come from the earth are edible. Keep an eye out for what's listed here, but remember: If you can't positively identify a plant or bulb (things like garlic or tulips), use the universal edibility test (see page 22) before eating.

- ★ **Dandelion**
- ★ **Clover**
- ★ **Chicory**
- ★ **Cattail**
- ★ **Wild mustard**
- ★ **Onion (Note: Onions, like other bulbs, can sometimes be hard to identify. As a general rule, however, if it looks like an onion and tastes like an onion, it's an onion. Go ahead and eat it.)**



Taste Testing

Can't identify that plant but wondering if it's okay to snack on? The six-step universal edibility test is the gold standard for determining what's safe for humans to consume

1.

Rule out mushrooms and plants with milky sap, fine hairs, spines, umbrella-shaped flower clusters or waxy leaves (see sidebar).

2.

Take the piece of the plant you want to eat and rub it on your inner forearm or outer lip.
Wait 15 minutes.

3.

No reaction? Taste that same part of the plant.
Wait five minutes.

4.

No bitterness, soapy flavour or numbness? Take a teaspoon of that same part of the plant and chew for five minutes, spitting out extra saliva regularly. Then swallow.
Wait eight hours.

5.

No digestive issues? Eat one tablespoon of that same part of the plant.
Wait eight hours.

6.

Still no symptoms? Consider that part of the plant edible in the manner in which it was prepared.

Poisonous Plant Characteristics

Knowing what to avoid is imperative



Milky sap



Fine hairs



Umbrella-shaped flower clusters



Waxy leaves



Mushrooms



SIGNALLING

In many cases, your best way out of a survival situation is being rescued. In order to do that, you'll need to get the attention of somebody who can help





Case Study:

YOU'RE IN A FOUR-SEATER PLANE, cruising at 13,000 feet above the mountains of a small, mostly rural woodland region. It's your uncle's plane. He got his pilot's licence a few years back and offered to give you a lift up north. It sounded like an adventure, so here you are.

You've been in the air only an hour when the sky darkens and lightning flickers in the distance. Your uncle seems tense. As the turbulence catches the wings of the plane and begins to toss it this way and that, you ask him if he's okay. Turns out, he just has a basic pilot's licence; he's not certified to fly in low-visibility conditions like this.

The plane drops as your uncle tries to find clear air below the clouds where he can see. But there's dense fog beneath, and neither of you can see the treetops in front of you until they're breaking against the windscreen, snagging the wings and throwing the plane sideways as it skids through the forest.

You come to a stop. The crash is over. But the plane is hung up in the trees, just a few feet above the ground. Your

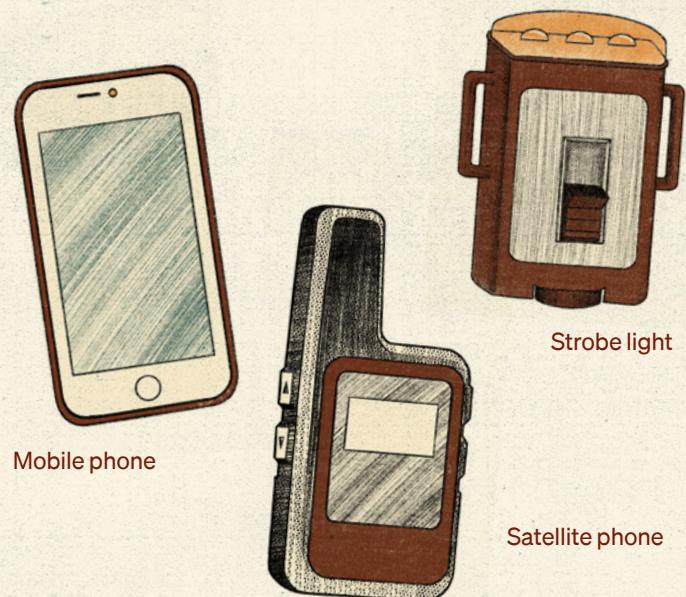
uncle is banged up, and you think you have a broken rib. He tries to turn on the plane's beacons, but the electrical system is totally off-line. Both of you manage to wriggle out of the aircraft, carefully climb down and put your feet on the ground. You look around. You're stranded.

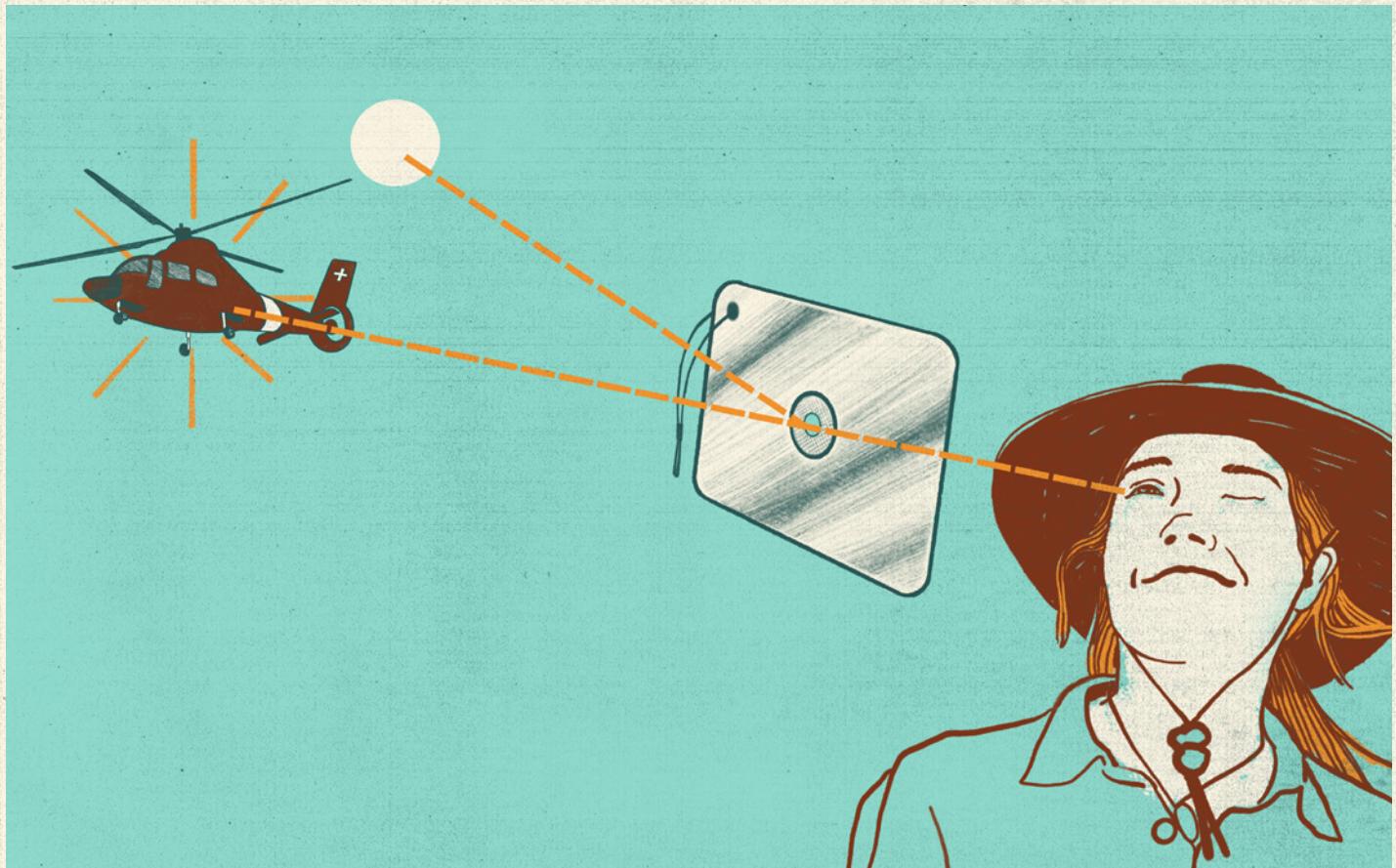
What do you do first?

- (A) Start looking for water and shelter; it could be a long night.
- (B) Check to see if you have mobile service.
- (C) Use fuel from the plane to start a fire.
- (D) Rummage through the wreckage for food and create a rationing system.

Answer: (B) Check to see if you have mobile service. Your first priority in any survival situation is making sure you can be found. Start by trying any electronic means of communication, like a mobile phone or personal locator beacon. Then move on to flares or make your location visible with ground signals.

**Your first priority
in any survival
situation is making
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be found.**





How Not to Use a Signal Mirror: Four Common Mistakes

Mirrors provide a reliable, low-tech way to catch the attention of a passing aircraft. Avoid these pitfalls for more effective signalling

1. Wearing a hat.

Ditch the brim: Any shade is going to shade the mirror.

2. Using a magnifying mirror.

Magnifying mirrors can lead to erroneous signals. Instead, use a flat surface like a watch face, a new coin or even a car mirror.

3. Slacking off on your aim.

Signalling works best if you know you're hitting your target. Hold the mirror along the outside of your eye, and extend your other hand so you can see the reflected light on your palm. That will calibrate your aim.

4. Using the signal mirror on the wrong side.

To work, the mirror has to be on the same side as the sun, even if that means using your nondominant hand. Make sure your angle allows you to both catch the sun and reflect it in a new direction.

Forget SOS

Curvy letters are tough to make and hard to see. Instead, try these other signals

★ Make a **large V or X** out of stomped-out snow, turned-over earth or charcoal. The former indicates you need assistance; the latter indicates you need medical assistance.

★ Light **three signal fires** placed in a triangle pattern.

★ Create a single large fire emitting **black smoke during the day** (burn pitchwood, plastic or petroleum products) or **white smoke at night** (burn green vegetation).

★ Draw a **large arrow** using fallen logs or high-contrast rocks.

★ Hang flags made of **fluorescent clothing** or flagging tape.

Coming in For a Landing

The second step to getting rescued? Setting yourself (and the helicopter pilot) up for success by picking a suitable landing area. It should meet the following criteria:

- ★ **Flat ground, cleared of debris**
- ★ **360 degrees of visibility**
- ★ **100-foot diameter**
- ★ **Four clearly marked corners**
- ★ **Close proximity to your signal**



I Need Assistance



I Need Medical Assistance

Sounding the Alarm: Personal Locator Beacons vs. Satellite Messengers

These handy devices are the fastest way to call for help when you're in a life-threatening emergency. Here's what you need to know

What's the Difference?

Personal locator beacons (PLBs) have a single button, which sends a distress signal. Satellite messengers have that, plus two-way messaging, location tracking and other features. Up-front costs are similar, but satellite messengers require an additional subscription fee.

How Do They Work?

Both use satellites to transmit signals to rescue authorities. PLBs communicate with government agencies, while satellite messengers rely on private companies (hence the subscription fee).

What Are Their Limitations?

PLBs can't send 'I'm okay' messages and don't confirm that a distress call was received. Satellite messengers allow more back-and-forth but cost more over time and often have less battery life.

Which One Should I Get?

Want global coverage and an inexpensive, worst-case-scenario fail-safe? Choose a PLB. Prefer to communicate with loved ones or rescuers in the event of smaller mishaps? Opt for a satellite messenger.



Knots You Should Know

There are thousands of ways to tie a knot, from rudimentary slips to wild interlacements that look like fancy latticework. But they all begin the same way: with a length of material and a goal in mind



JESSIE IS A SELF-PROCLAIMED ‘KNOT NERD’.
It’s easy to see why she’s so enthusiastic: By securely tying off a section of rope or cord (collectively known as **line**), you can fashion everything from an improvised shelter to an emergency tourniquet.

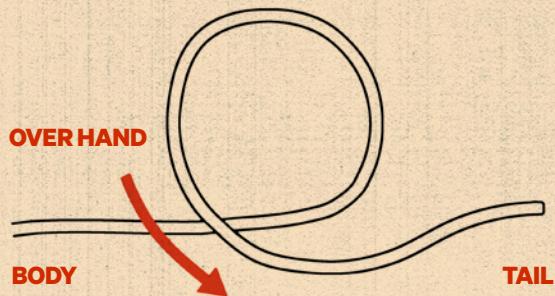
Before you start tangling with knots, it’s best to familiarise yourself with the nomenclature. A line’s loose or working end is called the **running end**; if one end is static (because you’re holding it taut, or it’s already attached to an object), that’s a **standing end**. In either case, the section of

line in between two ends is the **body**. Knots often require that you create a **bight** – bending a section of the running end so that it arches; by crossing a bight of line over itself, you can make a simple **loop**, just like doing a bunny ear with your shoelace. The running end of that loop is the **tail**. Each time you wrap the tail around an object (or back around the body) is known as a **turn**.

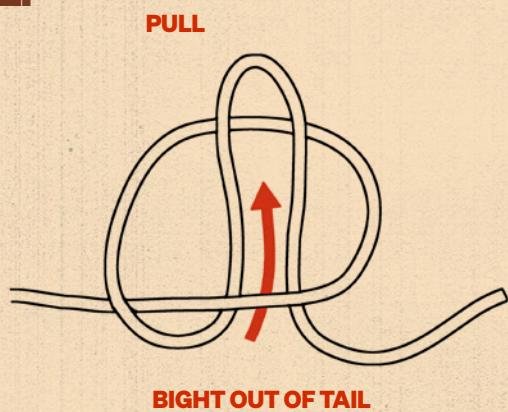
If all that sounds daunting, don’t worry. With the visual guide on the following pages (and plenty of practice), you can master a few of Jessie’s favourite go-to knots.

Slip Loop

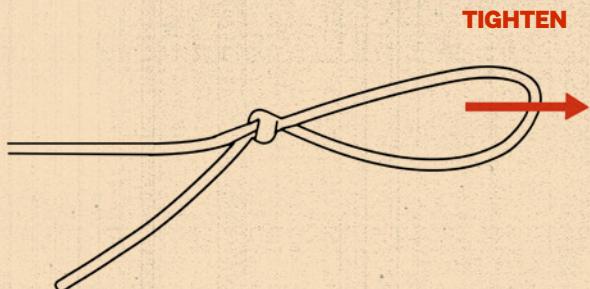
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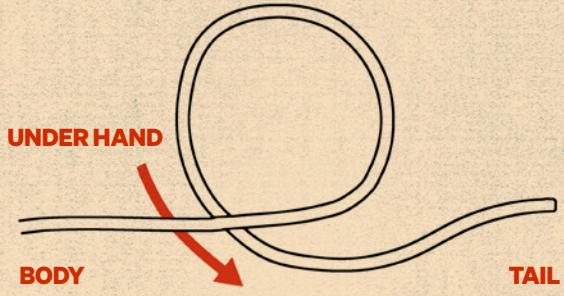


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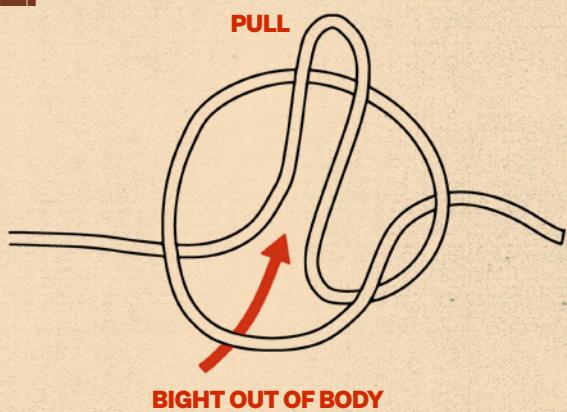


Running Loop

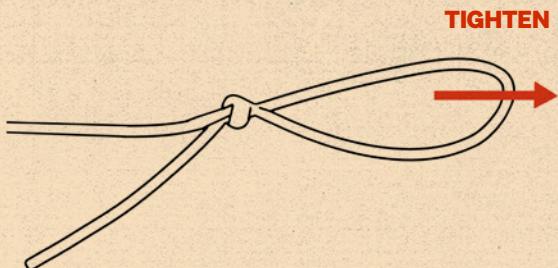
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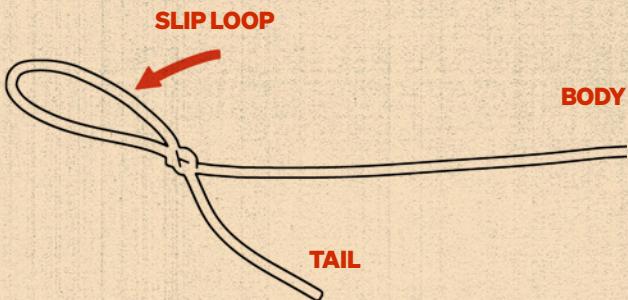


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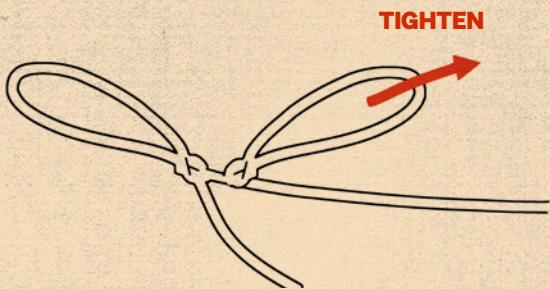


Canadian Jam

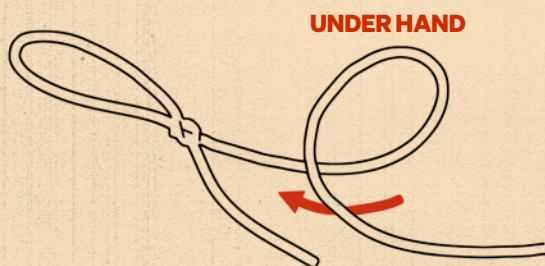
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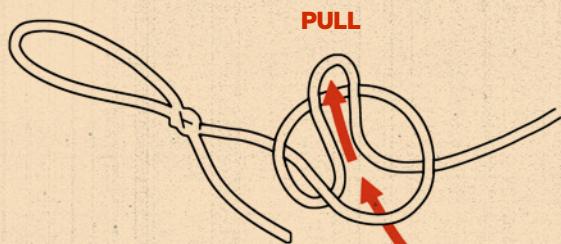
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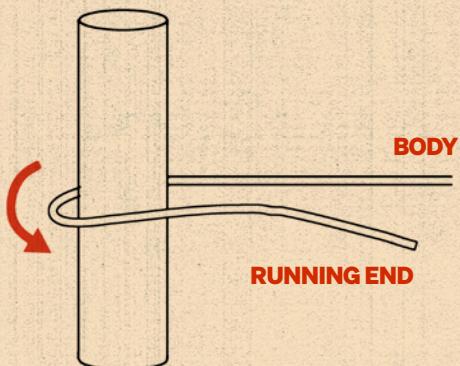


I call myself
a knot nerd.
Knots are
amazing to
me - with
just a simple
piece of line ,
there 's so
much we can
do with this
thing.

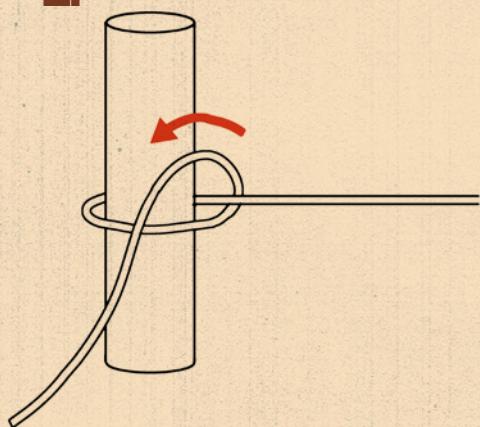


Hitch

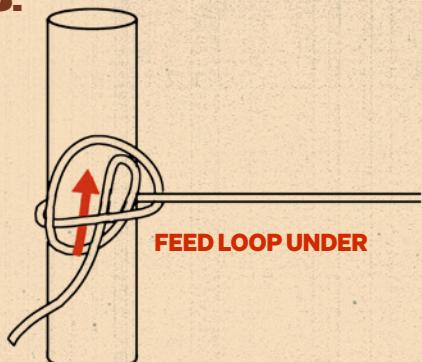
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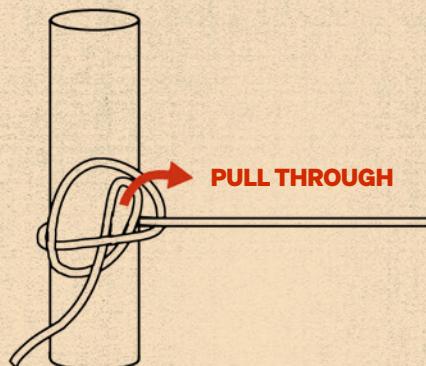
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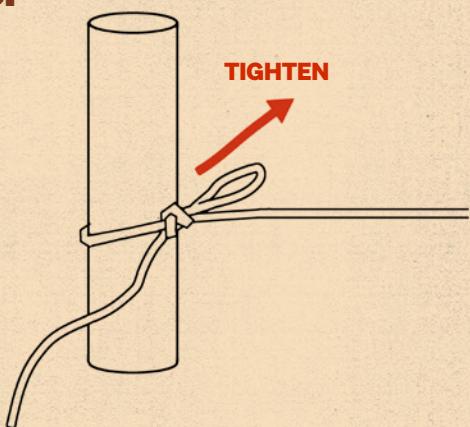
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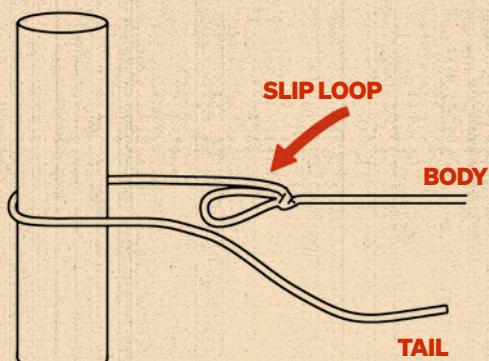


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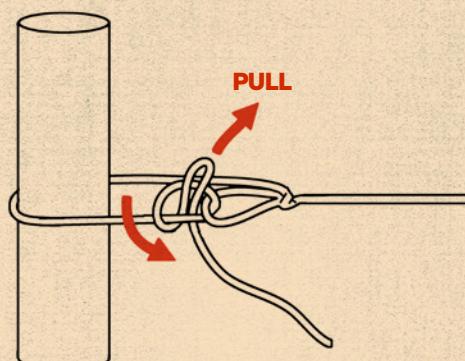


Hitch With a Three-to-One Mechanical Advantage

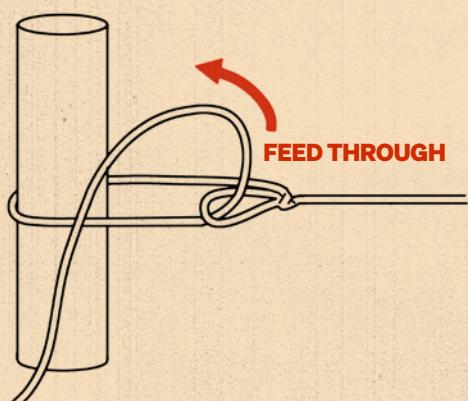
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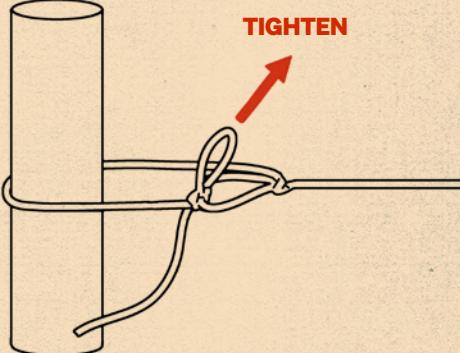
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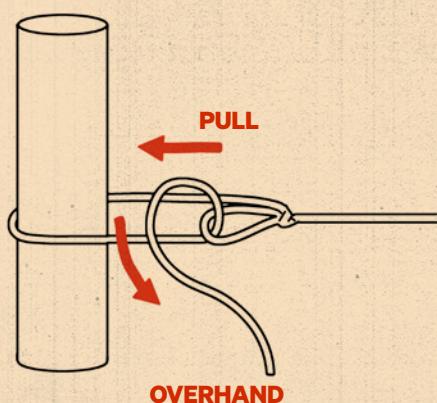
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Mastering Fear

Panic and uncertainty trigger a cascade of neurological signals. Understand how they work and you can harness fear to improve your confidence – and your odds of making it home unscathed



YOU REALISE TWO THINGS in quick succession. First, that something has gone wrong, and second, that you're miles from the nearest trailhead.

The initial kick you feel is the adrenaline. Energy floods through your body. You can actually taste it – it presents as a metallic tinge at the edges of your tongue – and feel the hot blood pumping into your arms and legs, prepping your muscles for action. Your pupils dilate. Your breathing and heart rate speed up, sweat beads under your arms; your body is getting ready to run. You feel like you could either sprint a marathon or throw up. And your mind is reeling, a cocktail of stress hormones – adrenaline and cortisol – kicking your thoughts into overdrive.

Now, just after this initial chemical surge, is your chance to act.

If you slow the spiral of worries and negative thoughts, you can short-circuit your panic response and bring it all under control, freeing your mind to make the clear, informed decisions you'll need to get home safely. If you fail to intervene, the chemical cascade will continue until your sympathetic nervous system takes over. This biological system – governed by the amygdala, hypothalamus and other tiny glands in the back of your skull – houses your fight or flight response.

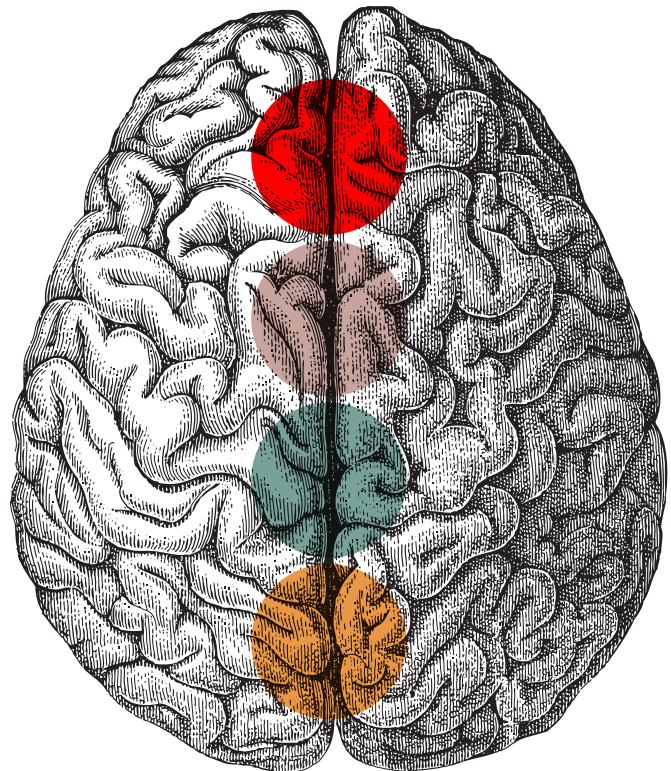
These tiny glands form the human mind's most ancient autopilot. Once engaged, they take over from your pre-frontal cortex (the large zone at the front of your brain that handles planning and rational thinking) and urge your body into fast, impulsive action.

That kind of reckless speed was useful for primitive humans; our ancestors needed to face down predators without stopping to analyse the situation. But for modern wilderness survival, a more strategic endeavour, indulging your basic reactions can spell disaster. In doing so, you willfully surrender your best asset: your brain. Plus, once your prefrontal cortex is off-line and your sympa-

thetic nervous system is in charge, it can be difficult to regain control.

The good news? There are a number of techniques you can use to quickly bring your panic response under control. And the more you practise those techniques in everyday life – say, when you're told bad news at work or run into an unexpected traffic delay – the more they'll become second nature when you need them most.

Remember: Fear is healthy. It keeps you focused and motivated. The trick to unlocking a survival mindset is learning how to harness that fear without giving in to panic. When you make the conscious choice to do so over and over – to stay calm and keep working on a solution – you're building resilience. You're building willpower.



The Zen of Survival

Use these five strategies to quickly override your panic response and keep a clear head

Sit still.

The minute you realise something's gone wrong, sit down. Drink water and eat a snack; when you're fuelled and hydrated, you're less likely to make impulsive decisions.

Rest your gaze.

Darting eyes overwhelm your brain with visual stimuli. Take a full minute to focus on looking at a single point instead.

Breathe deeply.

Your brain associates fear with fast, shallow breaths. You can trick it into calming down by doing the reverse: Breathe deeply, and focus on making your exhalations longer and slower than your inhalations.

Chin up.

Likewise, your brain signals insecurity with tense muscles, rounded shoulders and a crouched posture. Channel confidence by sitting or standing up straight, lifting your chin and relaxing your facial muscles.

Get grounded.

Notice your environment. Try to pick out three sounds, three sights and three smells. This is a calming exercise, and it improves your awareness of your surroundings. That way, when you're ready to act, you'll know where to start.

Diagnosing Fear

Learn the difference between fear and panic to unlock your survival mindset

Fear

- ★ Rational worries
- ★ Moderate stress or anxiety
- ★ Ability to focus and think critically

Both

- ★ Racing mind
- ★ Headache
- ★ Stomachache
- ★ Sweating

Panic

- ★ Irrational, worst-case-scenario thinking
- ★ Feelings of paralysis
- ★ Scattered, impulsive actions
- ★ Tunnel vision
- ★ Disorientation

Reading the Landscape

Want to take Jessie's class even further? Check out these titles to continue your wilderness education

If You Want to Connect With Nature:

1. *Braiding Sweetgrass*

by Robin Wall Kimmerer

2. *Desert Solitaire:*

A Season in the Wilderness
by Edward Abbey

3. *An Unspoken Hunger*

by Terry Tempest Williams

4. *A Sand County Almanac*

by Aldo Leopold

5. *House of Light*

by Mary Oliver

6. *Wild: From Lost to Found on the Pacific Crest Trail*

by Cheryl Strayed

If You Want to Learn More About Survival and Resilience:

1. *Into the Wild*

by Jon Krakauer

2. *Deep Survival: Who Lives,*

Who Dies, and Why

by Laurence Gonzales

3. *Dead Reckoning: Learning From Accidents in the Outdoors*

by Emma Walker

4. *Welcome to the Goddamn Ice Cube: Chasing Fear and Finding Home in the Great White North*

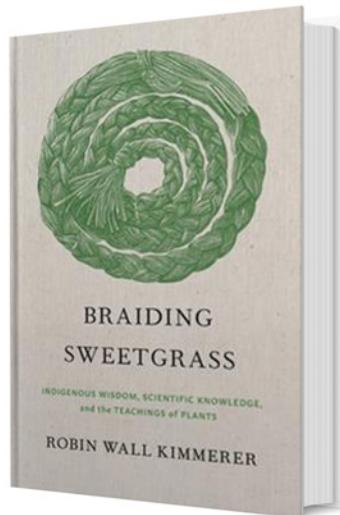
by Blair Braverman

5. *Epic Survival: Extreme Adventure, Stone Age Wisdom, and Lessons in Living From a Modern Hunter-Gatherer*

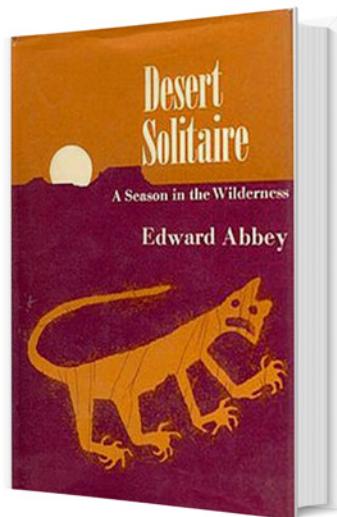
by Matt Graham and Josh Young

6. *The Stranger in the Woods: The Extraordinary Story of the Last True Hermit*

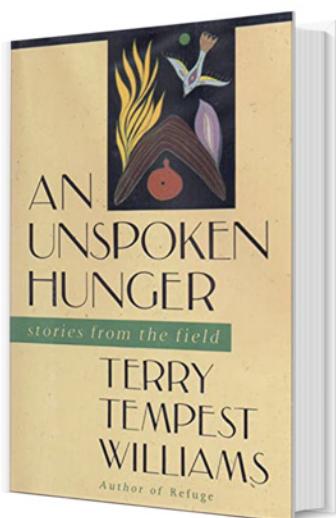
by Michael Finkel



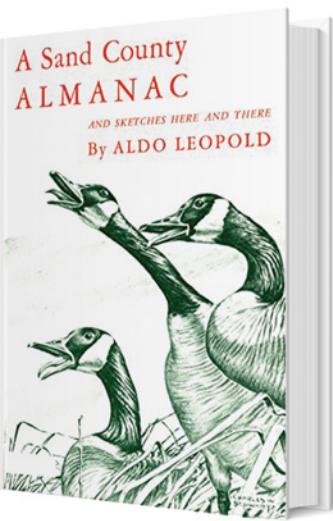
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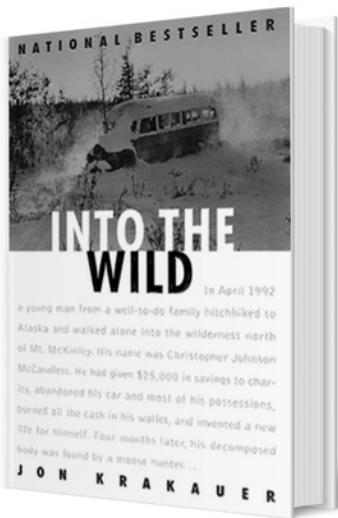
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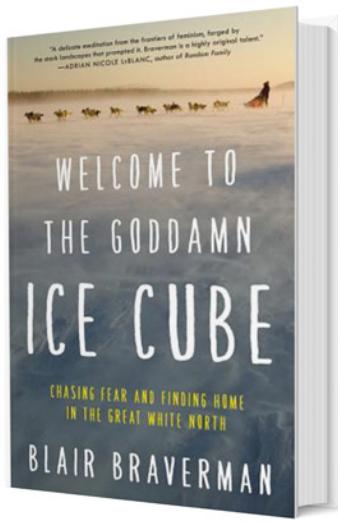
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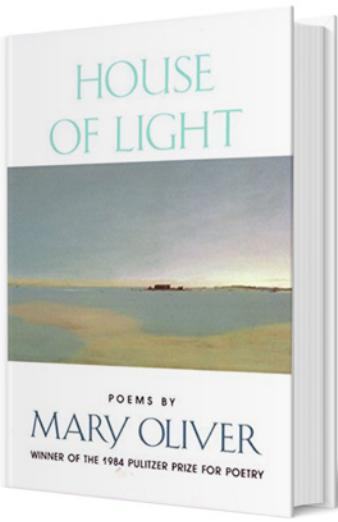
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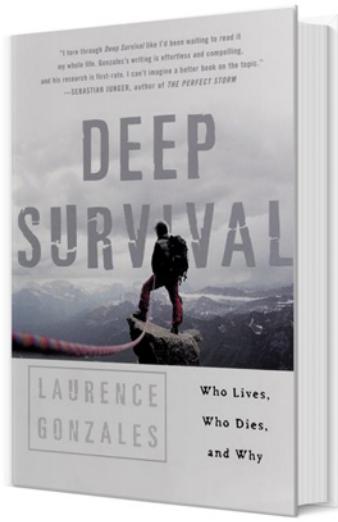
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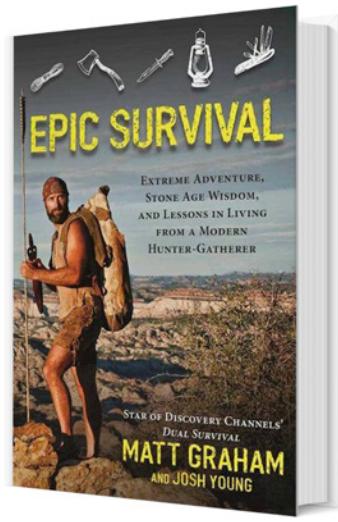
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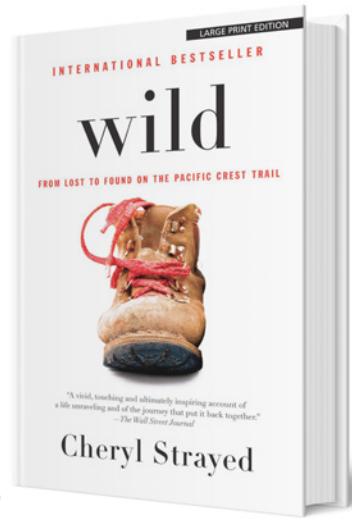
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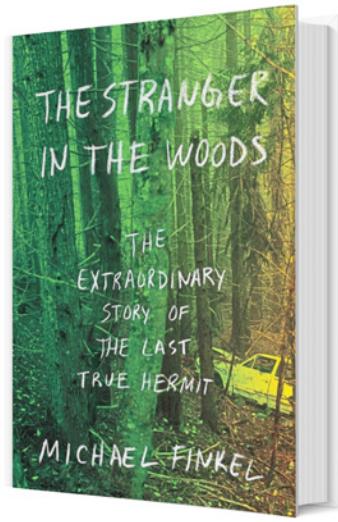
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Nature's Medicine

Survival skills matter, but most of the time, wilderness isn't a threat to our lives – it's the cure



ACROSS THE UNITED STATES, doctors are writing a prescription that can tackle everything from depression to hypertension, is eminently affordable and has no negative side effects: Spend time in nature. Indeed, a massive body of research supports the idea that green spaces can be just as effective as pharmaceutical options. In one 2019 study from Japan, for example, researchers found that being in a forest for 15 minutes could measurably lower a person's levels of the stress hormone cortisol. Another study, conducted by scientists at the University of Queensland in Australia, found that visiting a park for 30 minutes once a week was enough to get high blood pressure under control in 10 percent of participants.

From boosting the production of potential cancer-fighting cells to reducing some symptoms of cardiovascular disease, outdoor recreation can provide a host of research-backed benefits for our physical health. But the evidence is even more powerful when it comes to mental illness. Jessie can vouch for that – and not just because of her decade-long career in wilderness therapy.

'Infant and childhood sexual abuse were my oldest memories,' Jessie says. As a child, spending time in nature helped her find her identity and confidence beyond the confines of that painful past. Her experience aligns with what scientists have been observing for years: In 2018, researchers at the University of California, Berkeley noted, on average, a 29 percent decrease in post-traumatic stress disorder (PTSD) symptoms after rafting trips. Other research suggests that something as simple as a regular nature walk can be effective as part of ongoing treatment for addiction and depression.

Many researchers credit these results, at least in part, to a feeling they've defined as 'awe'. This is a sense of wonder

at the beauty of the outdoors that gives nature-goers hope and perspective on their lives. Scientists say awe can help participants break their cycles of negativity and stop their ruminating on the past.

For some people, it could facilitate critical self-analysis and, in turn, a sort of personal healing that becomes evident in the broader context of their life. As Jessie grew older, she says, wilderness trips helped her push at the raw edges of her memories and examine her fear and anger piece by piece.

'When a lot of us have trauma or pain, that can make our world very narrow,' she says. 'But each time we push that boundary and we challenge our beliefs about ourselves, our trauma, our pain, we push that boundary out a little bit farther.'

Better yet, the wilderness can provide a safe, neutral space to get in touch with emotional trauma – a space free from human threat, judgment and the all-seeing eye of social media.

'A rainstorm doesn't care if I put on my makeup this morning. It doesn't care what gender I am,' Jessie says. 'The wilderness doesn't care. Therefore, I don't have to care. I can just be.'

Nature can also be an enormous source of inspiration. Jessie points to the new growth that sprouts after forest fires, floods or even catastrophes caused by human error like the nuclear disaster at Chernobyl. Near the meltdown site, flowers and wildlife have already returned. The land has begun to heal.

'I've been hurt,' Jessie says. 'You've probably been hurt. We can go through incredible trauma and pain and come out the other side, and we can still flourish. We can live through a lot of real, terrible things. And we can still blossom. We can still come back to life.'

