



EXCLUSIVE CONTENT

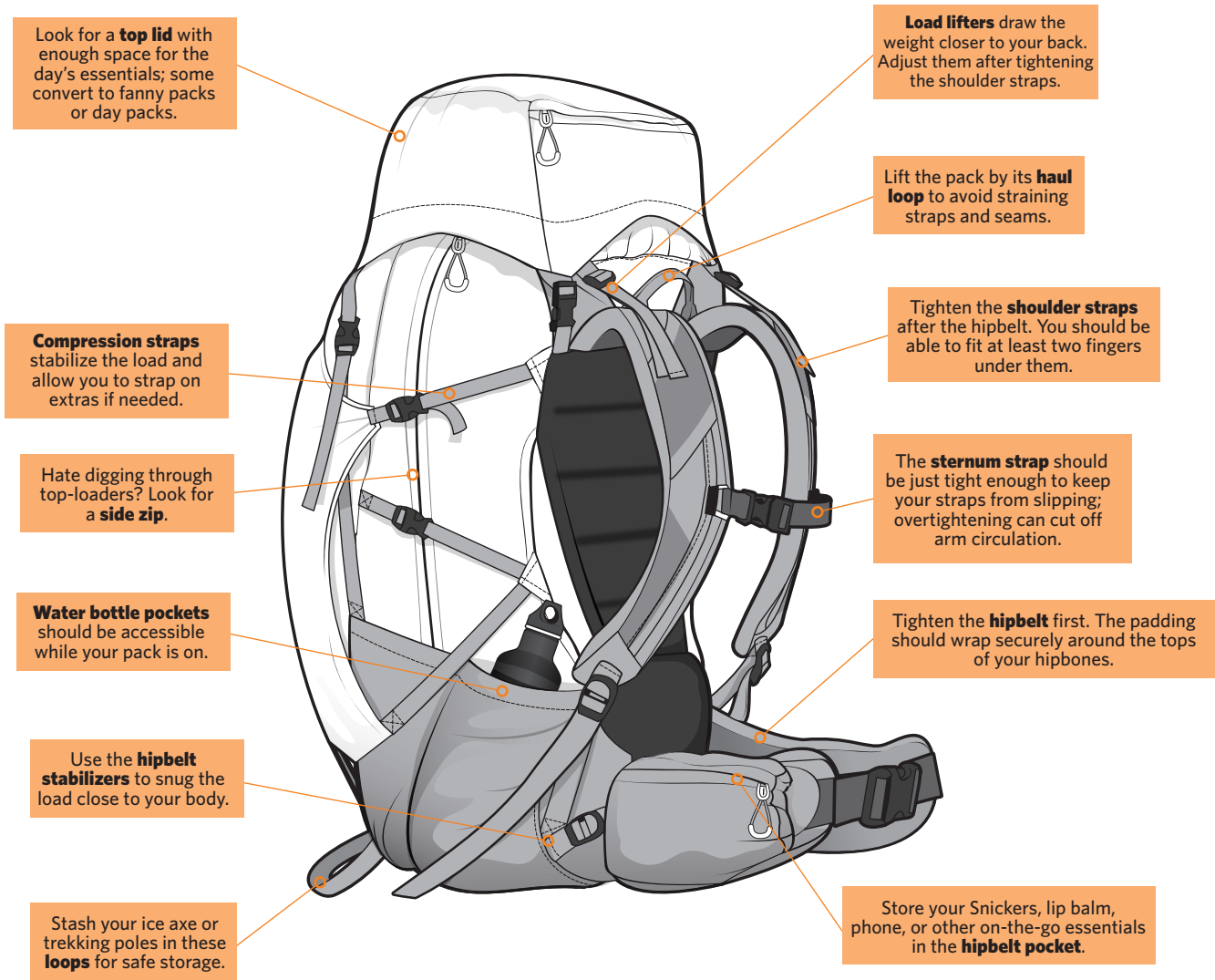
GEAR SCHOOL

HOW TO CARE FOR AND REPAIR YOUR GEAR

GEAR SCHOOL PACKS

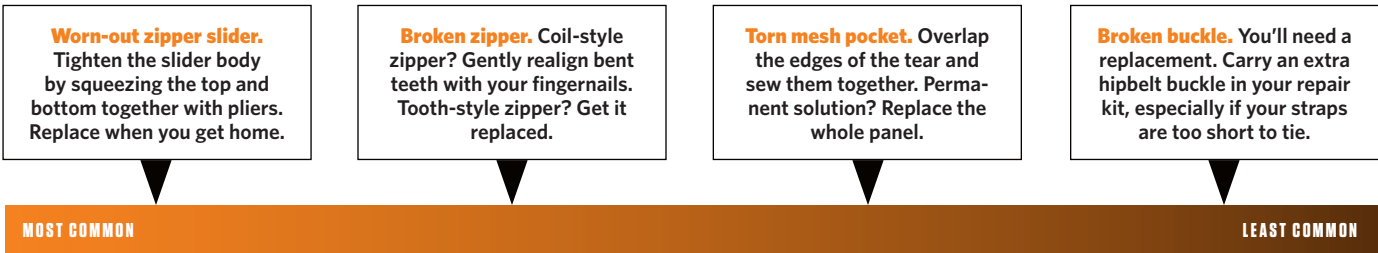
by Corey Buhay

Understanding suspension and construction is key to finding the right fit—and proper maintenance and repair will ensure your load-hauler lasts thousands of miles.



BASIC REPAIR

Boulder Mountain Repair (bouldermtnrepair.com) has seen packs busted in just about every way you can think of (and probably some you can't). BMR Product Developer Sam Goodhue shares some of the most common equipment failures and his advice for fixing them.



ILLUSTRATIONS BY PETER SUCHESKI
PHOTO BY DOUGLAS HURDLE



SHOP TALK

Kevin Rosenberg
Gear to Go Outfitters, NY

Kevin Rosenberg started peddling gear on the sidewalks of Brooklyn in 2009 and eventually grew his business, Gear to Go Outfitters, into a rental, guiding, and retail company, which is now based in Buchanan, New York. He's a self-proclaimed pack geek known to stop people on the trail to offer fit and adjustment advice.

BUYER'S GUIDE: ASK THE RIGHT QUESTIONS

- ❶ **What's my organization style?** Are you a stuffer or a neatnik? The former might prefer a big, single-compartment packbag, and the latter, pockets galore. Pick a pack layout that matches your MO or you'll forever fight your own nature.
- ❷ **What size am I?** Pack size is based on torso length, not height. Here's how to measure: Run a flexible tape measure (or a string) from the bony C7 vertebrae at the base of your neck to the point right between the tops of your hipbones, or iliac crests. When trying on packs, learn how to adjust them yourself.
- ❸ **How big of a pack do I need?** Bring your kit into the store or grab stuff off the shelf to make sure your prospective purchase can take the load. You can get away with a 45-liter pack for fair-weather weekends, but consider sizing up to 60-plus if you plan to do some winter camping or take longer trips.
- ❹ **What kind of suspension?** Opt for sturdy aluminum or sprung-steel suspension systems over ultralight or plastic-only models—unless you plan to keep your total pack weight (including food, water, and fuel) under about 25 pounds.
- ❺ **How does it compare to similar models?** Don't leave the store before you've tried on several packs. Fill each with about 20 pounds and take a few laps.

GEAR SHOP ETIQUETTE

No surprise: Your local outfitter, like many brick-and-mortar stores, is likely challenged by online competition. It's not your job to fix their business model, but don't abuse it either. If you go into a shop and spend an hour getting fitted by a pack expert, don't turn around and buy the pack on the web.

Pack Culture



1. External frame packs
2. Ultralight frameless packs

Light Done Right

"A lot of non-ultralight people go for ultralight packs," Rosenberg says. "Find something that fits well and carries well. If you just go for the lightest pack possible but you put 45 pounds in it, you're going to end up with a back injury." Whittle down your kit before you start trying to cut pounds off your pack.



OWNER'S MANUAL

PACK SMART. Store heavy stuff in the high center of your pack, near your spine. Keep snacks, raingear, and essentials handy, and avoid lashing items to the outside; they're easy to lose, and affect your balance.

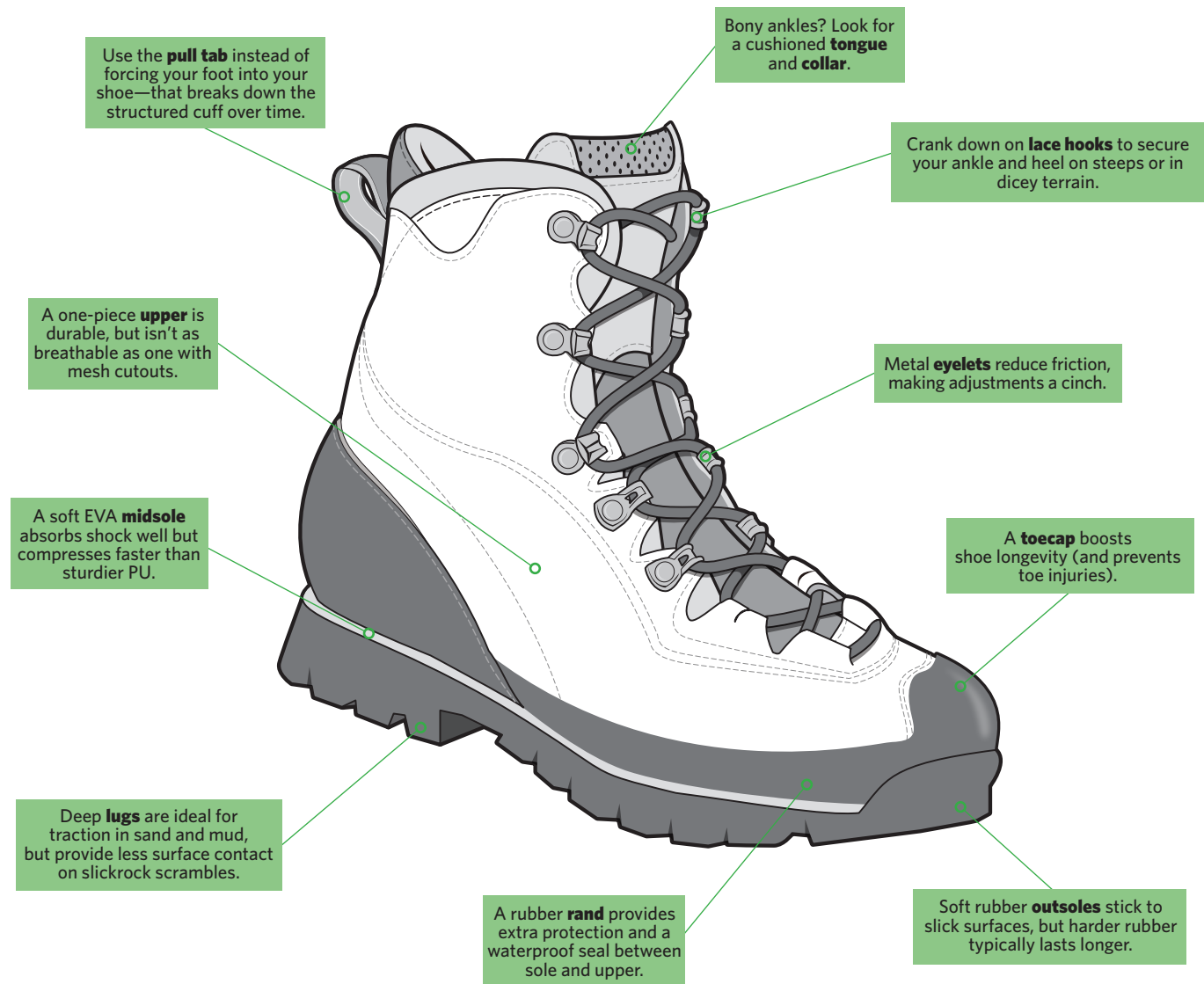
SLEEP TIGHT. Keep your pack in the tent with you (remove all smellables first) or hang it up to prevent nibbling by rodents attracted to the salt in sweaty shoulder straps.

REINFORCE WEAK SPOTS. Give your pack a once-over before a big trip. Preemptively patch fuzzy or threadbare sections.

GEAR SCHOOL FOOTWEAR

by Corey Buhay

Footwear tech is more complicated than it looks. Maximize your mileage by learning how to pick the right boots and make them last.



BASIC REPAIR

Peggy Welch, co-owner of Rocky Mountain Resole (rmresole.com), has been tending to worn-out boots at the Salida, Colorado, shop for 17 years. She talks through a few of the most common shoe failures she sees and how to fix them.

Delaminated sole. Crisis? Use duct tape. At home? Clean both interfaces where the glue failed. Apply Gear Aid Freesole to reattach.

Cracked leather. Prevent with a water-based leather treatment. Get severe cracks patched or restitched ahead of time. Too late? Duct tape.

Peeling toecap. Use shoe glue as a temporary fix, then send your boots in for new toecaps. (Learn to add your own at bit.do/toecap.)

Torn mesh panel. Use a shoe-specific patch. In the field? Patch with a square of bandana to keep out dust and debris.

MOST COMMON

LEAST COMMON

ILLUSTRATIONS BY PETER SUCHESKI
PHOTO BY FULLERTON IMAGES



SHOP TALK

Brennan Halterman

Ascent Outdoors, WA

Brennan Halterman grew up hiking in Southeast Alaska and has been fitting shoes since 2003. Now he's closing in on his tenth year at Seattle's Ascent Outdoors (his second as the shop's footwear buyer). "When you're fitting people for shoes, you have the opportunity to really interact with the customer and make a notable difference in their wellbeing," he says.



BUYER'S GUIDE: ASK THE RIGHT QUESTIONS

❶ What's my size (and shape)? Ask a fitter to measure your foot's length (including heel-to-ball length) and width on a Brannock device, and to determine your foot's volume. If a pair doesn't work, the fitter should be able to explain why—whether it's too wide, too low-volume, or because the ball is set too far forward or back. Different brands (and different models within those brands) approach those components differently.

❷ How long will these last? Full-grain leather and nubuck uppers are typically more durable than split leather, synthetics, or suede. Sturdy PU midsoles will last 1,000-plus miles, while cushier EVA ones will start to compress in about half that distance.

❸ Are they comfortable? Walk up and down an incline board to check for heel slippage and toe bang, signs of a too-big boot. Spend about 20 minutes with a loaded pack (or better yet—ask if you can take the boots home for a few days; walk around the house in them, but keep them clean). Stiffness is to be expected with beefier boots, but rubbing seams, pinching, or excess wiggle room usually indicates poor fit.

❹ Do I need a waterproof shoe? If you're expecting serious rain, snow, mud, or shallow stream crossings in cold weather, waterproof is the way to go. But hot weather and full submersions beg for quick-drying, breathable shoes.

REALITY CHECK

Bigger load, more support, right? Well, to each his or her own: We've hiked long trails in sandals, hefted 50-pound packs in trail runners, and walked the family dog in boots that would make Paul Bunyan proud. It all comes down to personal preference: Just do whatever makes your feet sing.

Judging People Based on Their Footwear



1. They're a little new-agey. 2. They have strong opinions. 3. They're hardcore. 4. They have really sweaty feet. 5. They have feet.

The Perfect Fit

Don't size up to get a wider shoe, Halterman says (it's a recipe for toe bang). Instead, find a model that runs wide, and if you know you've got funky anatomy, find a fitter who knows backpacking and knows feet—you need both.



OWNER'S MANUAL

LET 'EM BREATHE. Air out your shoes at the end of the day to inhibit bacterial growth (remove insoles for faster drying).

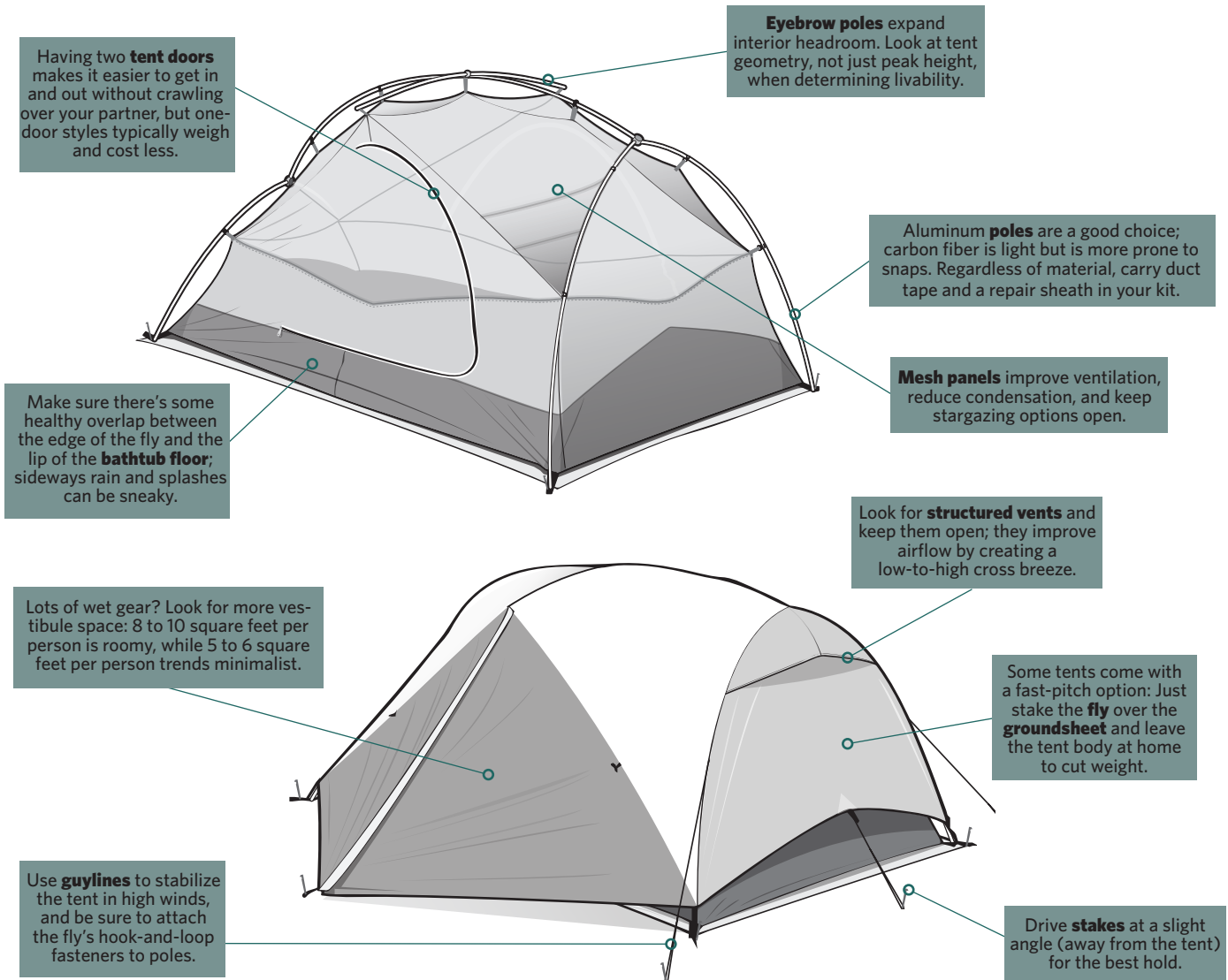
KEEP COOL. Don't leave boots too close to a fire. Delamination, melting synthetics, and shrunken leather are all symptoms of overheating.

SCRUB UP. Wash boots inside and out with a stiff brush and mild detergent as needed. Air dry. Exception: You can throw lightweight, non-waterproof, full-synthetic shoes like trail runners in with the laundry. Use a gentle cycle and dry on low heat.

GEAR SCHOOL TENTS

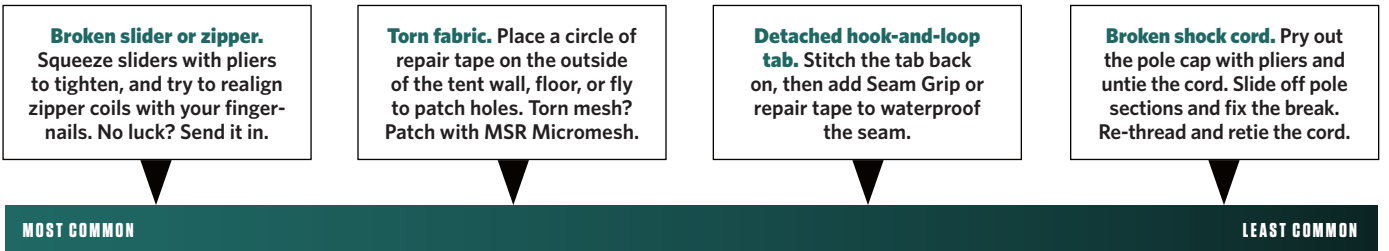
by Corey Buhay

Home is where you stake it out. Understand the ins and outs, pick the right shelter, and treat it like you would your bedroom.



BASIC REPAIR

Tent repairs are a dime a dozen at Rainy Pass Repair (rainypass.com), a Seattle-based sewing shop that's been mending shelters since 1986. General Manager Chelsea Chon explains how to fix a few of the most frequently occurring types of damage.



ILLUSTRATIONS BY PETER SUCHESKI
PHOTO BY DOUGLAS HURDLE



SHOP TALK

Emily White
Roads, Rivers, and Trails, OH

Emily White, her husband Joe, and her cousin Brian Wolf founded Roads, Rivers, and Trails together after a winter Appalachian Trail thru-hike. "I genuinely get excited about tents," she says. The store is small, but Wolf and the Whites built a whole section of shelves on wheels so they could push it all aside and set up several tents at a time.

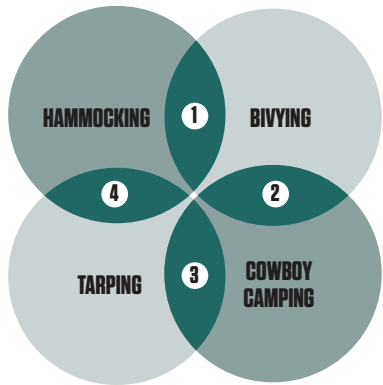
BUYER'S GUIDE: ASK THE RIGHT QUESTIONS

- How many people do I usually camp with?** If you're hiking with just your partner 80 percent of the time, stick with a two-person tent. Rent or borrow if your party grows.
- Is this tent appropriate for expected conditions?** Unlike a three-season shelter, four-season tents can withstand extreme winds and keep out driving snow. However, they're heavy. You can save weight by using a tarp shelter that gets its rigidity from taut guylines instead of poles, but they lack stability in heavy weather. Expecting to camp on rocky ground? Look at freestanding models, which are easier to pitch.
- What kind of vestibule space do I need?** In prolonged foul weather, gear storage space is invaluable. "But don't plan to absolutely fill your vestibule," White says. "It'll cut down on airflow inside the tent." A two-door setup usually means more vestibule space.
- How's the price-to-weight ratio?** As weight goes down, price tends to increase. "Is \$100 worth a pound? That's up to you," White says. Aim to carry around 2 pounds per person for three-season tents, and 3 for four-season models.
- How's livability?** Practice setting up the tent in a store. Crawl around inside to make sure the space and headroom are sufficient.

SHOP SMART

Balky about spending a few C-notes on a tent? Rent before you buy—taking a few shelters out for a test run is a good way to figure out exactly what you're looking for. Don't have a local shop that rents? Gear To Go Outfitters does online rentals (geartogoutfitters.com).

Reasons to Sleep in a Tent



1. Hard to get up to pee **2.** Getting stepped on by large animals **3.** Mud **4.** Complicated setup

The Proper Shakedown

"Never buy a tent without setting it up and getting inside it first," White says. "We had an AT thru-hiker come in, asking for a consultation on his gear. So we went through it and asked if he'd set up his tent. He said, 'No, but it's this awesome ultralight one with all these great reviews.' So we set his tent up for him, and when he got inside it, his toes and the top of his forehead were actually touching the walls. He was 6' 2" and didn't realize the tent was too short for him."



OWNER'S MANUAL

KEEP IT DRY. If you can, give condensation time to evaporate—and shake out your tent to flick off dirt and leaves—before stuffing. When you get home, hang the tent in the shade and let it dry completely before long-term storage to prevent mildew.

RESPECT YOUR POLES. Extending your pole like you're casting for fish can damage it; instead, slide pole ends into place by hand.

USE A FOOTPRINT. Protect your tent floor from rocks and sticks. Budget option: Make your own from Tyvek.

GEAR SCHOOL BAGS

by Corey Buhay

It's not just a bag. It's a lifetime's worth of beauty sleep. Learn what features you need, shop accordingly, and keep your bag in good repair, and it'll keep you sleeping soundly.



BASIC REPAIR

Chelsea Chon, general manager at Seattle's Rainy Pass Repair (rainypass.com), has seen plenty of mutilated bags during her three-year tenure, including one with the bottom burnt out by hot rocks intended for toe warming (genius). Here are a few of the more common complaints she receives.



ILLUSTRATIONS BY PETER SUCHESKI
PHOTO BY MICHAEL DEYOUNG



SHOP TALK

Christin Schoettle
Half Moon Outfitters, GA

Christin Schoettle started hiking with her mom before she could walk. She's been working at Half Moon Outfitters since 2008. "Shopping for bags can be daunting, but the minute you put them on the floor and tell people to crawl in, they start to figure out what they need," she says. "It's about having a hands-on experience."

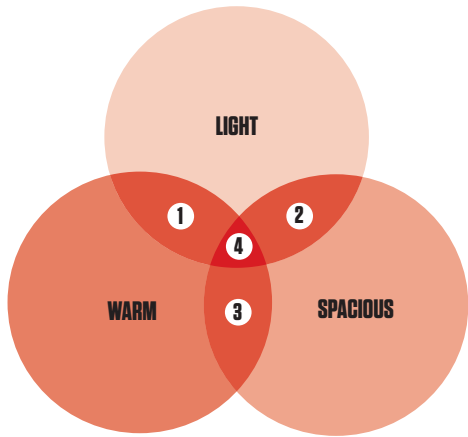
BUYER'S GUIDE: ASK THE RIGHT QUESTIONS

- 1 What shape do I need?** Mummy bags seal in heat better (and are lighter), but can feel claustrophobic. If you sleep big (or prioritize comfort over weight), find a rectangular or semi-rectangular bag.
- 2 What kind of insulation do I need?** Down is compressible and long-lasting, and synthetic is inexpensive, keeps you warm when wet, and dries fast, but that's not the whole story. Ask your sales associate how well synthetics mimic down. For example, short-staple insulation better imitates feathers in terms of compressibility, but doesn't last long. Continuous filament insulation has better longevity but worse packability.
- 3 Does the rest of my system complement this bag?** During EN testing (see top right), heat-sensing lab mannequins wear long underwear and lie on a foam sleeping pad. Your pad, bag, tent, and layers all work together to keep you warm.
- 4 How often is this bag returned?** "I have a war story about everything," Schoettle says. Ask about the bag's durability and about feedback from other customers, and you might get some anecdotes to help inform your purchase.
- 5 How does it feel?** Get into each one and test roll-around room, zipper action and accessibility, and hood cinch. Then pack each bag into its stuffsack to check compressibility.

LEARN THE LINGO

REVERSE DIFFERENTIAL
Describes a bag design in which the fabric used for the bag's interior is cut larger than the shell fabric. The result? Insulation lofts up where there's room—between your chest and arms, and between your legs—to fill in dead space and boost warmth.

Pick Your Priorities



1. Mummy bag 2. 40°F rectangular bag 3. Your dad's old flannel-lined bag 4. A space blanket

Reading the Fine Print

"People see a 20°F bag and assume they'll be warm all the way down to 20°F," Schoettle says. Brands aren't required to list the standardized EN temperature ratings in the product name, and two bags called the "20" often perform differently. Buy based on the EN comfort range printed on the bag.



OWNER'S MANUAL

DON'T PICK. Plucking feathers can widen small holes. Instead, pinch escapees back in from the inside.

SLEEP CLEAN. Wear baselayers to bed to keep body oils off your bag.

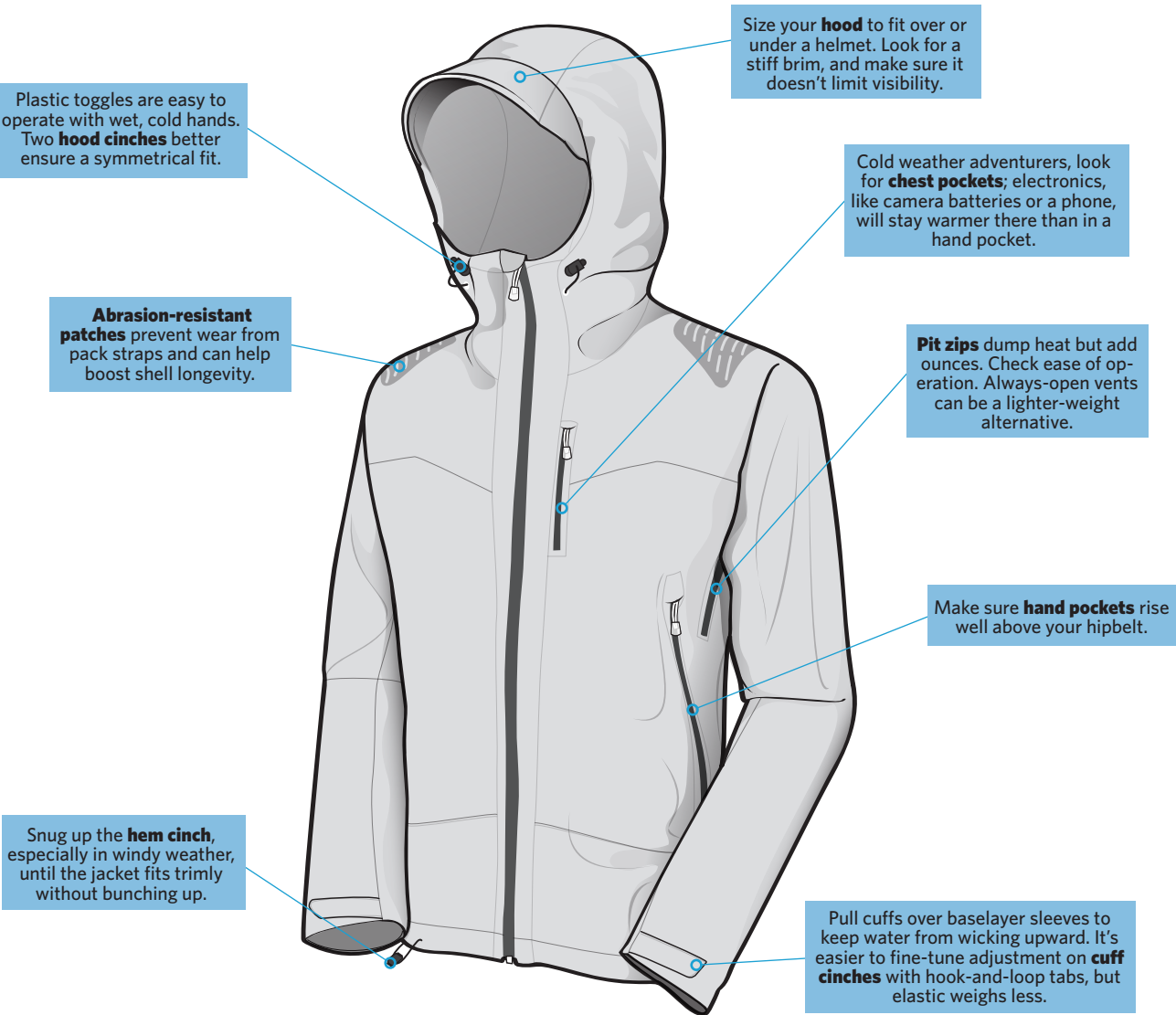
LET IT BREATHE. Hang your bedding in the sun while you make breakfast, and avoid burrowing in at night; exhaled vapor wilts insulation (plus it stinks in there). Never store your bag compressed.

KEEP YOUR DISTANCE. Don't sleep too close to fires and stoves; airborne embers can leave tiny holes in synthetic fabrics.

GEAR SCHOOL SHELLS

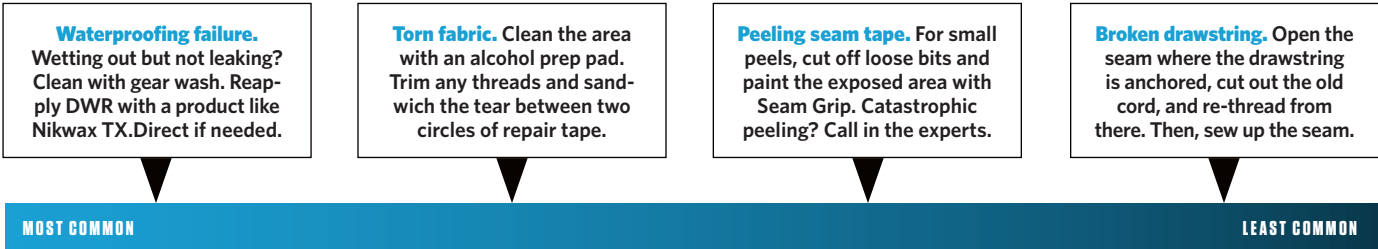
by Corey Buhay

There will be times when only a thin layer of fabric protects you from Mother Nature’s fury. Choose the right shell and take care of it.



BASIC REPAIR

Shells come out when the hiking gets hard. As such, they suffer their share of abuse. Sam Goodhue, product developer at Boulder Mountain Repair (bouldermtnrepair.com), sees about 8,000 to 10,000 damaged shells per year. Here's what tends to go wrong.



ILLUSTRATIONS BY PETER SUCHESKI
PHOTO BY LOUISA ALBANESE



SHOP TALK

Bill Leo

Ouray Mountain Sports, CO

Ouray Mountain Sports has long been a go-to for mountaineers, and that tradition continues under Bill Leo, who bought the shop 22 years ago. “The thing that’s special about us is the knowledge of our staff,” Leo says. “That’s how we’re able to cater to high-end climbers, the people who are the hub of North American alpinism.”

BUYER’S GUIDE: ASK THE RIGHT QUESTIONS

1 Does it fit? Make sure you can reach over your head and cross your arms without restriction—the work of scrambling, throwing bear bags, and pitching tents needs to be done rain or shine. Winter camping? Make sure layers (including gloves) fit under your shell. Warm or windy weather? A slimmer cut offers better breathability and less flapping.

2 How well does it vent? Most shells struggle to deliver on the “breathable” promise. The problem is exacerbated with budget shells, so look for ventilation features like pit zips and long, mesh-lined pockets.

3 How packable is it? Heavy-duty, feature-rich shells tend to take up more pack space, while water-resistant wind jackets and lighter shells often zip into their own pockets for better compressibility. Hoping to leave your shell rolled away for the majority of the trip? Make sure it packs down small.

4 How weatherproof is it? If you’re expecting the sky to fall in, make sure your jacket’s ready for it: In all-out rain, hem and hood cinch cords, waterproof zippers (as opposed to just flaps), and cinchable cuffs can prove to be invaluable lines of defense.

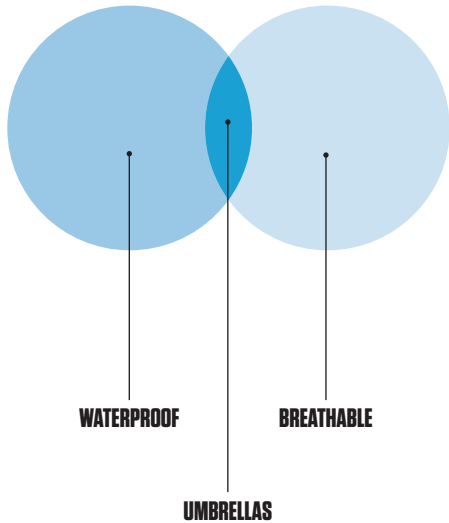
5 Is it pack-compatible? Load up, cinch the hipbelt, and bend over. Exposed skin indicates a too-short cut. Also check whether pockets are accessible with a hipbelt on and that no toggles or hardware fall under pack straps.

LEARN THE LINGO

THREE-LAYER VS. TWO LAYER

Three-layer shells sandwich the **waterproof layer** between a DWR-coated face fabric and an interior liner to protect the delicate membrane. Two-layer shells (just the face material and membrane) tend to be less expensive and more packable, but less durable.

Reality of Raingear



Rookie Mistake

“The biggest mistake I see people make is either buying a waterproof shell when they don’t need one or buying a water-resistant shell when they really need waterproof,” Leo says. Softshells are breathable and stretchy, and they’re ideal for working hard in snowy conditions or for blocking light wind. Water-resistant wind jackets are ideal for dry weather. “You only need a hardshell if you’re really going to be subjected to rain,” Leo says. But then you really need one.



OWNER’S MANUAL

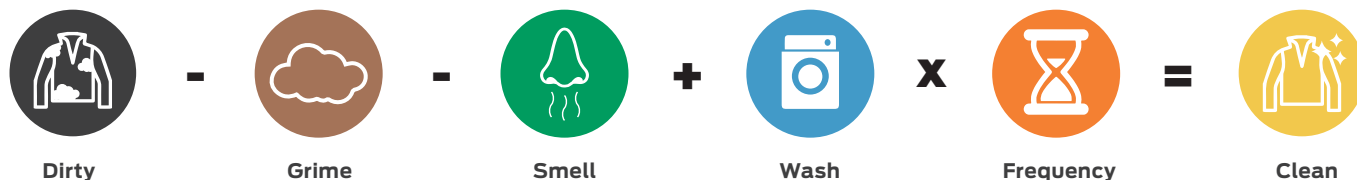
AVOID SMOKE. Smoke particles adhere to fabric and interfere with DWR. Ditch your shell before breaking out the s’mores.

WEAR LONG SLEEVES. Skin oils, sunscreens, and insect repellents can damage membranes and impair breathability. Avoid wearing your shell next-to-skin whenever possible.

STORE IT DRY. Like your tent, your raingear needs to air out between uses to avoid developing mildew, especially during long-term storage.

Maintain your layers

Getting out too much is a good problem to have. Stinky clothes from all the mileage? Not so good. We tested 16 cleaning products to find the best treatments to prolong the life of your favorite layers. BY RYAN WICHELNS



Down

GEAR AID REVIVEX DOWN CLEANER

Down loses its loft when dirty or oily, which compromises warmth. This wash was the best at returning down to its original spring, restoring one tester's 6-year-old puffy and allowing him to head into New Hampshire's White Mountains with peace of mind. It's safe for waterproof shells as well. (To re-DWR hydrophobic down, use Nikwax's Down Proof.) \$9; 12 oz.; gearaid.com



DEFUNKIFY ACTIVE ODOR EXPEDITION STRENGTH

This down-safe wash coats fibers with deodorizing molecules that resist stink, making it ideal for long trips or particularly smelly layers. After a few sweaty summer hikes, our tester's synthetic tee had none of its usual funk despite no washes in between. \$20; 7 oz.; defunkify.com



WASH
COLD
TUMBLE DRY LOW



1 - 2
TIMES PER SEASON



Waterproof/ Breathable

NIKWAX TECH WASH

Dirty shells don't breathe as well as clean ones, but normal detergent gums up their pores. Tech Wash got top marks for erasing dirt and body oils without blocking the pipes. Our tester's shell—clogged and clammy after a season of ski touring—was much more breathable after one cycle. \$10; 10 oz.; nikwax.com

NIKWAX TX.DIRECT WASH-IN

TX.Direct restored water repellency to nearly off-the-rack levels better than any other product we tried. "After one wash, my wet out-prone jacket was back to shedding precip," one tester says. Eco bonus: No harmful PFCs. \$13; 10 oz.; nikwax.com



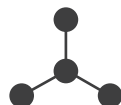
DEFUNKIFY ACTIVE ODOR EXPEDITION STRENGTH



WASH
COLD
TUMBLE DRY LOW



ONCE
PER SEASON



Synthetic

GEAR AID REVIVEX PRO CLEANER

This treatment is a one-stop shop for synthetics, and our tester used it to clean everything from underwear to sleeping bags to puffs. It beat other washes at de-funking a load of base- and midlayers that reeked after a long trip in Washington's Alpine Lakes Wilderness. Revivex Pro can also clean waterproof shells (but didn't do that as well as other washes in the test). \$9; 12 oz.; gearaid.com



DEFUNKIFY ACTIVE ODOR EXPEDITION STRENGTH



WASH
COLD
TUMBLE DRY LOW



OUTWEAR
EVERY
10 - 12
WEARS

BASELAYER
EVERY
1 - 2
WEARS



Wool

GRANGER'S MERINO WASH

Merino is delicate—normal detergents with softeners or enzymes damage its fibers. Granger's was the best out of the wool-specific washes we tested at neutralizing the smell and removing the dirt from a heap of socks that had each been worn for a week straight. (It's great for wool/synthetic blends, too.) \$9; 10 oz.; grangers-usa.com



WASH
WARM
TUMBLE DRY LOW



EVERY
1 - 2
WEARS



GEAR UPKEEP
Head to backpacker.com/gearrepair to watch videos on how to clean, fix, and maintain your gear.