Ultralight Backpacking & Hiking

Whether ultralight backpacking, ultralight hiking, backpacking ultralight, backpacking lightweight, fastpacking ultralight or whatever -- one thing is clear and common -- find ways to reduce backpack weight !

CARRY APPROPRIATE QUALITY GEAR

Determine the gear that YOU NEED to maintain your personal level of security and then seek out the smallest, lightest, highest-quality manifestation of that gear. The quality and functionality of a good portion of today's technical, commercial gear is excellent.

BOOTS / SHOES

"Boots vs. Shoes" is a long-standing, on-going debate with no answer. Try trail runners out for a while—with a light pack; you may feel you don't need the support of boots in most situations, and if you hike a lot, your ankles may be strong enough to withstand a lot of bashing. In many hiking situations, running shoes are supportive enough, lightweight enough, sturdy enough and comfortable enough to outperform most boots.

OUTDOOR CLOTHING—YOUR LAYERING SYSTEM

The key to being comfortable in the wilderness is an effective layering system. Layering refers to dressing in multiple relatively thin layers of clothing rather than one or two thick, heavy layers. Layering in this way provides more versatility over a wider range of temperature and activity conditions. Multiple, thinner layers also provide more warmth because there is air space between each layer which functions similar to "loft" in a sleeping bag. Air is trapped between layers, is warmed by your body heat, and, thus, provides added insulation. Also, and very important to a lightweight backpacker, is that multiple, thinner layers usually require less pack space and may even weigh less.

The Inner Layer—in the summer, this is lightweight underwear made of capilene or polypropylene which is worn next to the skin. It wicks moisture away from the skin, keeping the skin dry and warm. It dries very quickly, and insulates even when wet. In the other seasons, the thickness of your inner layer varies depending on environmental conditions and planned activities—either lightweight, midweight or expedition-weight underwear.

The Mid Layer(s)—generally speaking, this is a windproof fleece jacket with pit-zips and pack pockets. You may also choose to carry a lightweight (fleece) vest to wear under the fleece jacket as an emergency layer when weather conditions change unexpectedly. The purpose of the mid-layers is to provide insulation adequate to keep warm in whatever conditions you find yourself. Your mid-layer may consist of one, two, or even three garments, depending on thickness of garments, the range of activities you're engaged in, and the local environment you're traveling in.

The Outer Layer—its primary purpose is to protect from wind, rain, & snow. Thus, it must be waterproof and windproof. In addition to waterproof (or water resistant), and windproof requirements, these garments should also be breathable. That is, moisture which builds up under the garment has to be able to escape or else you will get soaked

from within by your own sweat. Features like pit zips, two-way front zips and venting pack pockets help a lot, but the material itself must provide breathability, as well. Remember, cotton kills! Cotton absorbs moisture, keeps it next to the skin & dries very slowly. Thus, heat loss and chills can result. In conditions where wind and cold are a factor, do not use cotton as part of your layering system—especially the inner layer! Although wool retains its insulating value when soggy wet, it is, nonetheless, soggy and wet *(and heavy)*, and takes considerable time to dry.

SHELTER / TENTS

TARPS: For most times of the year a tent may not be needed. A lightweight tarp or tarp-tent usually provides enough protection from the elements, while offering better ventilation and less possibility for condensation than a typical tent. Some of the larger tarp tents will sleep 5 or more hikers.

TENTS: If bugs are going to be a problem, you may have to use a tent. Choose wisely, as there are many available options. Many of the ultralight tents come with no poles, and you use your trekking poles to support the tent.

BIVY SACKS: A great alternative shelter when you want to travel fast and light. There are definite trade-offs, though. Typical applications or situations where bivies are frequently used are (1) emergency shelter for very long day hikes (2) emergency and/or primary shelter for alpine climbing (3) long-distance, high-daily-mileage travel, and (4) multi-day cross country travel. On the plus side, bivies are lightweight and pack small. They have a small footprint and are typically fast to deploy. On the minus side, the tight quarters can be claustrophobic and condensation is a serious concern. Your gear has to stay outside and it is difficult to change clothes inside.

HAMMOCKS: The latest hammock designs from Hennessey and Lawson provide a comfortable, insect-free shelter that weighs between 2 to 4 pounds. The hammock provides your shelter and your bedding, so no pad is needed. The real advantage, however, is that a hammock can be set up wherever there are trees—uneven or wet ground is no problem. In cooler weather a layer of thin insulating material is necessary to prevent cold spots. Although they are not for everybody, most users sleep well in them. Like bivies, you have to keep your gear outside, and it is difficult to change clothes inside a hammock.

PERMANENT SHELTERS: These are typically three-sided cabins built by the National Park Service or the State Park(s) on longer trails, such as the Appalachian Trail. Some hikers use these exclusively, choosing not to carry any type of shelter. This is generally not a good idea, as these shelters can become crowded during times of inclement weather. They also tend to be dirty and rodent-infested, although these qualities do not seem to faze most through-hikers. Scout groups should try to avoid these shelters, as they are really there for the benefit of through-hikers.

SLEEPING BAGS

To determine what's best for you, consider the following. In what conditions will you be using it? How much are you willing to invest? What comfort level are you willing to accept? How long do you want it to last? Are weight and compactness important?

For consistently wet or damp weather conditions, consider either a synthetic bag which insulates well when wet, or a goose down bag encased in gore-tex or gore-dryloft—and be careful to keep it dry—down doesn't insulate when wet.

Synthetics like Lite-loft, Primaloft, Polarguard, Hollofil, Microloft, etc. are superior for wet conditions, and are cheaper. That's about the extent of their advantages over down! However, if you are primarily outdoors in wet, damp conditions, a synthetic bag may be the best choice. Goose down is lighter, more compressible, warmer by weight, and much more durable and long-lived (like 300%). With the advent of gore-tex and its successor, dryloft, as coverings for down bags, down is a consideration even in damp environs. You can also further encase a down bag in a gore-tex bivy sack for greater waterproofing.

In the winter, some folks prefer synthetic bags for long-duration outings. The reason is that in extreme cold, your body releases moisture as you sleep, so the down bag gets wet from the inside even though well protected from the outside. One way to prevent that is to use a vapor-barrier lining which keeps the moisture away from the down. 700-800 fill-power down lasts much longer than cheaper 550 fill power. In the long-run it's probably cheaper.

SLEEPING PADS

Closed-cell foam pads, on the plus side, are ultra-light, inexpensive, waterproof, and durable. On the downside, they are bulky, inconvenient to pack, and un-conforming to your body and the terrain.

Self-Inflating mattresses are very comfortable, have adjustable air pressure, good body heat retention, compress better than closed-cell pads and, and are easy to pack. They are relatively expensive, are heavier than closed-cell pads, and are prone to puncture (optional repair kit adds even more weight to the pack). There are new non- self-inflating air mattresses that are quite lightweight and provide up to 5" of loft, for a price (typically around $100.00).

WATER & HYDRATION

Hydration is important for your physical performance and well-being. On a typical summer day, it is not uncommon for a hiker to consume four or more liters of water during the course of a 12 to 15 mile hike. Do not be tempted (as many through-hikers do) to drink untreated water from springs and streams. Water can be made safe to drink by a number of methods:

BOILING: Water-borne microorganisms cannot survive a rolling-boil. A few minutes (3 or 4) should suffice. The problem here is twofold, (1) dirty water stays dirty—albeit safe—and (2) it takes a lot of heavy fuel to boil all your drinking water—particularly a problem on longer trips or trips with large groups.

IODINE TREATMENT: This is truly a cheap, ultra-lightweight water treatment for hard-core minimalists. The problem here is threefold, (1) dirty water stays dirty—albeit safe, (2) it requires a lengthy wait while the iodine works its magic before the water is safe,

like 1/2 hour or more for cold water, and (3) it tastes terrible and may cause health problems after long-term use.

PURIFIERS: These use a combination of filtration and chemical (iodine), enabling them to deactivate viruses and other microorganisms that are too small to be trapped by filtration alone. These are good choices for foreign travel. (Viral contamination of water in the United States is rare.) On the downside, purifiers are relatively costly ($50 to $200) and heavy (1/2 to 2 lbs).

PUMP FILTERS: This method uses a hand pump to force water through a complex matrix of micropores that let water pass but trap harmful bacteria and protozoa. Filters eliminate bacteria, protozoa, as well as clarify the water. On the downside, they are relatively costly ($50 to $250), and heavy (1/2 to 2 lbs).

CHLORINE BASED TREATMENTS: These are tablets or drops that use chlorine dioxide to oxidize and kill biologicals in water the way municipal water treatment plants do. While the drops or tablets are light in weight and don't have the adverse health effects of iodine tablets, there are some disadvantages. They tend to be costly ($10 to $20 for 30 tablets, which will treat 30 quarts of water) and they can take up to four hours to neutralize protozoa.

ULTRAVIOLET LIGHT TREATMENT: The latest generation of water purifiers uses ultraviolet light to kill bacteria and protozoa. A battery-powerd "pen" is stirred through water for several minutes to kill the biologicals. While these devices are light in weight they are battery dependent, and are not as effective with turbid water (you have to stir the device for a longer time). As with other non-filtering methods, dirty water stays dirty.

FOOD

In general, when planning your "lightweight" trip, figure about 2 lbs of food per day, more or less, depending on your needs, the type of food you will carry, the weather conditions (cooler weather necessitates more food - possibly with higher fat content - to keep you warm), and the length of time you'll be out there.

Typically, for short duration outings - 6 days or less - you can get by with less food. For longer duration treks—say a week or more—like doing the AT or PCT, you may need progressively more nourishment. You may be able to get by with 1 1/4 pounds per day for awhile, but find you require 2 1/4 pounds within a couple of weeks.

Before embarking on a long backcountry expedition, experiment in your kitchen, on overnight hikes, and on multi-day hikes. For you, more strenuous hikes may require more food. It's good to understand your needs before leaving on a ten day hike.

Carry foods that require little or no cooking. It is important, however, to have at least one hot meal per day, preferably in the evening. A hot meal will help you keep warmer on cold nights, help you sleep more soundly and, in general, help maintain your psychological and physiological well-being.

For your hot meals, try to bring food that can be prepared in its own package (like many of the freeze-dried meals on the market) or remove them from their own packaging and

put into heavy-duty freezer bags which can tolerate boiling water. Also, when measuring out meals, err on the "too much" side. You'll probably get hungry enough to eat it all.

Important rules to remember: Carry extra food for emergencies, at a minimum, one good, high-fat-content meal. Also, when exhausted after a hard day's climb, make yourself eat, even though you are "too tired". Your body really needs the nourishment, no matter what your mind says.

STOVES

To determine the best stove for you, answer the following questions:

How much are you willing to spend? You could make a soda-can alcohol-burning stove at home for almost no cost or you can spend as much as $250 for an ultralight Primus titanium butane/propane stove, with a plethora of choices in-between.

How little do you want it to weigh? The Whisperlite weighs about one pound without fuel. The Primus titanium weighs 3.4 ounces without fuel. A soda-can stove weighs less than one ounce without fuel.

What temperatures will you be cooking in? In warmer weather, especially, the butane/propane stoves are convenient, efficient, effective, and lighter in weight. There is no priming or wasted fuel. Compared to white gas stoves (like the MSR Whisperlite), the butane/propane stoves offer simmering, no flare-ups, no soot, clean burning, and instant lighting. There are very few parts, so maintenance is almost nonexistent. In the cold however, these stoves typically don't perform as well because the liquid fuel doesn't vaporize well. The liquid needs to vaporize in order to burn as a gas. If a person can keep the fuel canister reasonably warm, however—by sleeping with it, covering it with insulation of some sort, or whatever—then these stoves perform a little better in the cold. Also, the butane-propane mixture performs better in cold than does butane alone. In colder temperatures, white gas (Coleman fuel) stoves typically perform better than butane and butane/propane stoves. It helps to keep the stove out of the snow, as much as possible. A section of wire mesh or lightweight wire frame placed under the stove will help it "float" and make it more stable.

What kind of food will you be cooking? The types of food you plan to prepare have an impact on the type of fuel that is best for your trek. White gas stoves like the MSR Whisperlite burn hot (after priming) and are great for boiling lots of water, but they do not simmer very well. If you need to simmer soup or fry fish, think about getting a butane-propane canister stove.

Will you be traveling outside the U.S.? For travel outside the U.S., where white gas may not be readily available, a good multi-fuel stove like the MSR Whisperlite Internationale 600 is a good alternative. It is basically the same as the Whisperlite, but is a little heavier because it has a more robust fuel intake system to accommodate kerosene and unleaded gasoline.

Alcohol stoves: These are the lightest and simplest (with no moving parts) stoves available, and can be homemade or purchased. Denatured alcohol is safer to handle than white gas and can be carried in a lightweight, recycled soda bottle. Alcohol stoves are great for solo cooking, and you can usually get a pint or so of water to boil in about 5 minutes. Most homemade designs require an additional wind screen and pot support.

Isobutane or butane-propane canister stoves: These are lightweight and do not require priming. With a concentrated heat pattern and integral pot supports, many of these stoves will boil a quart of water in 3 to 4 minutes. Most of these stoves have flame control that allows you to simmer as well. These stoves are ideal when cooking for 2 to 3 hikers. The disadvantage to these stoves is the steel canisters—they cannot be refilled and it's hard to tell how much fuel you have left in them after each time you use the stove.

Liquid fuel stoves: White gas provides the highest energy output (in BTU's) by weight than any other stove fuel. It's also the most volatile fuel, requiring careful storage and handling. Still, when you're preparing dinner for 8 hikers out of a 3-quart pot, nothing boils water like an MSR Whisperlite. The MSR Dragonfly is several ounces heavier and has a simmer valve. Some of these stoves have interchangeable orifices that allow you to use unleaded gasoline, kerosene, diesel fuel, and even jet fuel.

Solid fuel stoves: These lightweight, folding stoves use trioxane fuel tabs that burn for about 5 minutes to (almost) boil a pint of water. The tabs are lightweight and safe to carry, but can be expensive. The fuel blackens your cooking gear and has an odor while burning.

COOKWARE

Aluminum: (the uncoated variety), once the mainstay lightweight cookware for backpacking, has gone out of favor for many folks, for several reasons. One is because the aluminum oxidizes over time, and is thought to be connected to health problems.

Stainless Steel: Another reason uncoated aluminum has lost popularity is because of the advent of ultra-lightweight stainless steel cookware. Stainless steel cookware is strong and durable. It does not however, distribute heat as evenly as aluminum.

Non-stick Coated Aluminum: Non-stick, coated aluminum cookware is becoming popular. Although heavier than uncoated aluminum, it is comparable to lightweight stainless steel, is durable, and has good heat distribution.

Titanium: Can't get any lighter (or pricier) than this. It is extremely resilient and durable. Because the metal is so thin, it also does an adequate job of evenly distributing heat. It weighs about 1/2 of what the lightweight stainless steel and coated aluminum pots weigh.

A Collection of Weight-Reducing Ideas:
Switch to lithium batteries in your camera and headlamp. Lithiums cost twice as much as alkalines, but last 2 to 3 times as long and weigh half as much.

Take fewer clothes. No heavy woolen clothes and no cotton. A fleece jackets makes a great pillow.

Get a simple rain suit, not one with a bunch of zippers, bells and whistles.

An L.E.D. headlamp typically uses one or two very small batteries. If you have a headlamp that uses more than one AA battery, it's probably too big.

Use a simple, lightweight plastic ground cloth rather than something heavier. Some folks believe in no ground cloth if they're sleeping on a closed-cell pad anyway.

Carefully select snack foods. It is way too easy to carry too many of these. Be tough on yourself on these and carry barely what you'll need. Dried fruit is another heavy item. Carry only what you'll eat. Count them; 2-3 pieces of fruit per day are likely to be enough. Dried bananas and apples are truly dry and light. A big bag of nuts is also (too) heavy.

Drink lots of and lots of water when stopped and carry less. It's easier to carry in your belly than on your back.

There is NO need for an extra pair of pants. Even in the worst weather on the longest trips one pair of pants, one long john bottom and (maybe) one pair of rainpants will cover all situations. Zip-off pants give you the option of wearing shorts.

Get insect repellant in its lightest form; a plastic spray bottle, a plastic bottle with no spray, or a stick. No aerosol cans.

Use just a spoon (or spork). Lexan is light and durable, but titanium allows you to cook with your cutlery. No other tableware is needed. And use the smallest knife you can get by with.

Let your Therm-a-Rest inflate itself. If you blow in it, it will gradually pick up internal moisture and grow heavier. Also, the moisture will make it conduct cold better. What's the hurry? Just lay it out and go do something else.

Bring Crocs or some really lightweight flip-flops for camp shoes. If you really want to save weight, forget the camp shoes altogether.

Dry out things like tea bags before placing them into your trash sack.

Resist Gadgets. REI and other camp stores have dozens of clever little gadgets to add weight. Don't buy them!

Use a windscreen and a pot cover to increase your stove's efficiency and save fuel.

SHARE THE LOAD: when backpacking with a group you should be able to share: 1) Camera, 2) Binoculars, 3) Tools, 4) Stoves, 5) Tents, 6) Ground cloth, 7) Cooking pots, 8) Water filter, 9) Fishing gear, 10) you can come up with more.

A heavy duty zip lock 1-quart freezer bag makes an excellent waterproof hiker's wallet. Carry only one credit card, a medical insurance card, a driver's license, $20.00 in paper money, an emergency telephone number list, emergency telephone change, other emergency medical information and a wilderness permit. Take a single a car key to save weight. Leave the rest of the contents of your regular wallet at home and leave your other keys at home or in your car.

Reduce your body weight. Your feet will notice the difference.

Carry the lightest sleeping bag that you will need for the season. If you really need the insulation, consider spending the money for a down bag. They are expensive, but will provide the most warmth for least weight. Conserve body heat by wearing a hat to sleep. This allows you to carry a lighter sleeping bag.

If bugs aren't going to be a problem, go with a tarp rather than a tent. A lightweight hammock provides not only your shelter, but your bedding as well, so you can typically forgo the closed-cell pad, especially in the summer.