

Budget Lightweight Backpacking for Scouts



Doug Johnson

Former Staff at BackpackingLight.com

Assistant Scoutmaster- Troop 312, 681

Pacific Crest Trail Thruhiker- 2023

Amy Johnson

Scoutmaster- Troop 681

25 years of backpacking experience

DOUG JOHNSON

- Extensive experience backpacking, mountaineering, canoeing, and cycling- ultralight for 20+ years
- Pacific Crest Trail thruhiker-2023
- Writer, Editor, and Gear Reviewer at [BackpackingLight](https://www.backpackinglight.com/) from 2003-2022
- I love ultralight because it levels the playing field for younger Scouts and makes backpacking so much more fun!

<https://www.youtube.com/@quakingleaf>



AMY JOHNSON

- Scoutmaster of Troop 681 for female and non-binary Scouts
- 25 years of backpacking across North America
- Led 3 Scout 50 Milers
- I love ultralight because it allows me to enjoy my trips more and I can go faster and further without getting hurt.



WHY ULTRALIGHT?

- More comfortable
- Less dangerous (fewer injuries)
- You can go further, hike faster, and climb higher
- Greater connection with the surroundings
- Younger scouts can keep up with older scouts (and adults can keep up with older Scouts!)
- It's more fun!



ULTRALIGHT BACKPACKING MYTHS

- 1) Ultralight backpacking is for experts only.
- 2) Ultralight backpacking is uncomfortable.
- 3) Ultralight backpacking is expensive.
- 4) Ultralight backpacking is unsafe.

None of these are true!

Scouting Magazing

<https://scoutingmagazine.org/2016/08/shed-pounds-pack-using-ultralight-backpacking-strategies/>





TRADITIONAL
BACKPACKER



ULTRALIGHT
BACKPACKER

SCOUTS IN ACTION!

<https://www.youtube.com/watch?v=0biPoZePm-o&t=2s>

- **Section J of the Pacific Crest Trail: Snoqualmie to Stevens: 7 days, 51 miles, 8900 ft. of elevation gain (exceeds the most challenging “Super Strenuous” 7 day route at Philmont)**
- **Notice: 12 year old girl keeping up with 14-16 year old boys**
- **All Scouts used lightweight packs**
- **“Truddy” system was used (2 male/1 female), prior to it being removed by Scouts BSA**









CATEGORIES of PACK WEIGHT

EXPEDITION:



65
pounds
or
ABOVE

TRADITIONAL:



35
pounds
or
ABOVE

You Now?

LIGHT-
WEIGHT:



20
pounds
or
BELOW

ULTRA-
LIGHT:



10
pounds
or
BELOW

Future you!

SUB-
ULTRA-
LIGHT

AKA
Psycho
Lite



5
pounds
or
BELOW

Scout goal:
Lightweight
<20 lb base
weight:

Pack weight
before
food,
water, and
fuel

TRADI

Lightweight (the Scouting SWEET SPOT!)

MS

Traditi-

- Hea
- Int
- pac
- (pa
- Boo
- sup
- Tre
- bal
- 35+

- < 20 pound base weight (all gear minus food, water, fuel)
- Less stuff, more shared gear, lighter gear (without breaking the bank)
- Lightweight pack with internal frame that is more forgiving (pack 3-4 pounds)
- Trail running shoes can be used
- Trekking poles optional

ss stuff
due to
ack 1-2
oes can be
or speed
eight

LET'S CHECK OUT THE PACKS!

All include 2 days of food (3lbs) and 1L of water (2.2 lb)

Traditional: 35lbs base weight + 5lb food/water = 40 lbs (18kg)

Lightweight: 20lbs base weight + 5lb food/water = 25 lbs (11kg)

Ultralight (my PCT kit): 10 lbs base weight + 5lb = 15 lbs
(7kg)

Break: 10 minutes to check out packs

HOW TO LIGHTEN YOUR GEAR - RYAN JORDAN, BACKPACKINGLIGHT

1) Weigh all your stuff

- Buy a scale! [\\$15 at Amazon](#)
- Put your gear on a [spreadsheet](#) so you know what you're carrying

2) Reduce the Big 3 (shelter, sleep system, pack) to < 9 pounds

3) Limit your contingencies with good planning

- Only prepare for likely disasters/issues

4) Consider function first- lightest item for the job

5) Simplify!

- Fewer items are easier to keep track of and weigh less
- Use multi-function items (hiking/tent poles, clothing with sleeping bag)

6) Replace gear with skills

The Gear

What's in the packs?

GEAR LISTS AND FOCUS ON THE BIG 3

Good general backpacking gear list: <https://www.backpacker.com/skills/ultralight-gear-checklist>

Gear list for new scouts: https://backpackinglight.com/boy_scout_gear_list/

Boy scout ultralight gear list: <https://boyslife.org/outdoors/outdoorarticles/18671/ultralight-backpacking-sample-gear-list/>

Lightweight System	Big 3 Weight (pack, shelter, sleep system) = 8 lb)	
Pack <ul style="list-style-type: none">- backpack- Waterproof liner- Pack cover- Stuff sacks	3.5 lb total <ul style="list-style-type: none">- 40 oz (2.5lb)- 2 oz. (\$1)- 4 oz- 10 oz	50-55 liter Internal frame pack (like REI Flash 55) Trash compactor bag Silnylon - correct size Waterproof stuff sacks
Shelter <ul style="list-style-type: none">- Single wall tent- shared- Stakes-shared	1.5 lb total <ul style="list-style-type: none">- 24 oz (1.5 lb)- 2 oz	Shared (3lb), 2-person (like Tarpent Double Rainbow) Shared (8oz)
Sleeping <ul style="list-style-type: none">- sleeping bag or quilt- Sleeping pad	3.0 lb total <ul style="list-style-type: none">- 48 oz (2.5lb)- 10 oz	Down is best, spend your \$ here Foam, short- Zrest or RidgeRest

BIG 3: SLEEP SYSTEM- PAD



Goal: 3 pounds: sleeping bag + pad

Foam pads are easy, light, warm, and never leak!

Get a short and use your pack for your feet

[Cascade Designs RidgeRest Classic](#) Regular- 14oz,
\$32

[Nemo Equipment Switchback](#)- Regular - 10.5 oz, \$45

Air pads are comfy but you better make sure it's insulated or you'll be cold! Warm air pads are not cheap (but can make a much nicer experience for adults!)

BIG 3: SLEEP SYSTEM- SLEEPING BAG

Goal: 3 pounds- bag/quilt + sleeping pad

- Synthetic- bulky, heavy, cheaper, insulates slightly better when wet
- Down- smaller, lighter, longer lasting (use waterproof stuff sack)
- 20 degree is a good overall rating. Push into winter with warm clothing

Budget down bags:

TOP PICK: [Kelty Cosmic 20](#)- 2.7 lb \$160 - excellent for the \$
[Paria Outdoor Products Thermodown 15](#) 2.75lb \$160

Also check out Chinese brands such as AegisMax, NatureHike, and 3F for great deals on backpacking gear

Want to go lighter? Quilts keep you warm without wasting insulation under your body.

great deal: [Hammock Gear Economy Burrow](#) 1.5 lb \$245

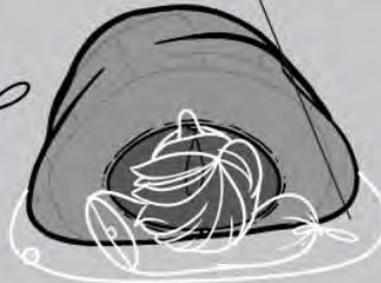
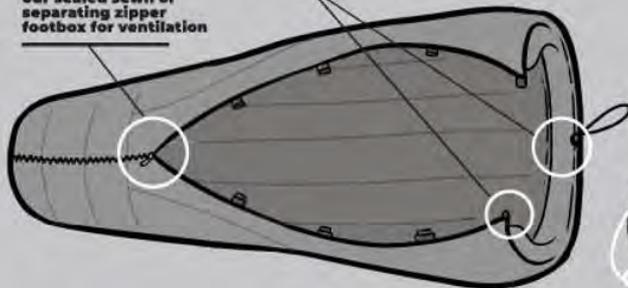
BIG 3:

TOP QUILT

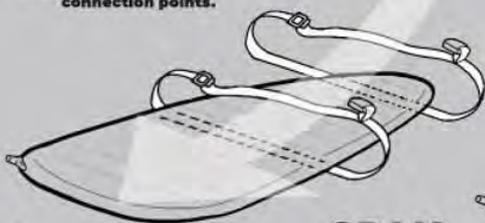
Choose between our sealed sewn or separating zipper footbox for ventilation

Snap and cinch the head end to close around shoulders and trap heat

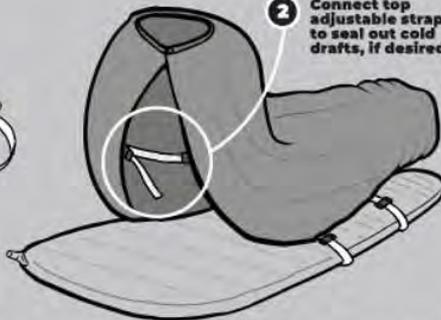
All fabric should be on top of pad



1 Install closed loops on sleeping pad to align with The Burrow's lower connection points.

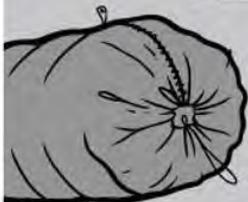


2 Connect top adjustable strap to seal out cold drafts, if desired



GPAK
Ground pad attachment kit

Perfect for ground sleeping



ZIPPER FOOTBOX



SEWN FOOTBOX



r and no hood
ur own hat or
a)
ation under you-
pad insulation

width
attach to
pad
rafty- not as
active sleepers

BIG 3: BACKPACK

Goal: Around 3-4 pounds, 50 liter pack, internal frame

NEEDS TO FIT (adjustable torso packs will adjust for your growing Scout)

Go to REI to measure the torso first <https://www.rei.com/learn/expert-advice/backpacks-adjusting-fit.html>

- [Osprey Ace 50](#)- 3lbs, \$190
- [Granite Gear Crown2 60](#) - 2.5 lbs, \$100 SALE- small torso
- [Alps Mountaineering Baja 60](#) 3.1 lbs \$107 SALE!

Trash compactor bag for internal waterproofing, having an external raincover in addition is a good plan in Washington Waterproof [stuff sacks](#)- 1 for clothing, 1 for sleeping bag, large ziplock for ditty bag (small items)

Expert Advice: Can you go lighter? YES! But a larger capacity pack and an internal frame are much more forgiving than a smaller, frameless pack. Once your kit is ultralight, the final thing is a lighter pack.



BIG 3: SHELTER

Goal: Less than 2 pounds per person

Less expensive option? Think Chinese. Great article re: tents from NatureHike, Mier (aka 3f) -

<https://momgoescamping.com/cheap-ultralight-tents/>

High quality option: Tarptent Double Rainbow- TOUGH, easy to set up, 2.5lb, \$300

<https://www.tarptent.com/product/double-rainbow/>

Buying troop shelters? [Tarptent Rainshadow 3](#) fits actual humans, is very durable, and is under 3 lbs

Trekking poles for hiking and shelter use- [carbon trekking poles](#) \$50

Need a groundsheet? (only for gravel or rock) Tyvek or 3M Polycro window insulation cut to size



ADDITIONAL ESSENTIALS

- Clothing system
- Cooking
- Hydration
- Illumination
- Navigation
- First aid / emergencies / fire / repair

CLOTHING SYSTEM- FOOTWEAR

Use trail running shoes!



- 1984 study done by the U.S. Army Research Institute showed that 1 pound on your feet equals 5 pounds on your back due to increased energy expenditure of lifting and swinging the weight.
- Many great options such as Topo Athletics Traverse (above), Altra, Hoka, and many more.
- Choose shoes that will dry quickly. Skip the waterproof shoes- they dry much more slowly and get too hot
- Fit is KEY. Get one size larger with space in the toes for swelling and wool socks

CLOTHING SYSTEM- RAIN GEAR AND INSULATION

Layers and NO COTTON

Good rain gear required: discount store

- [Frogg Toggs \(DriDucks\)](#)- 5oz jacket, 5oz pants \$22
- Marmot PreCip [jacket](#) and [pants](#) - \$120 and heavier

Insulation layers- puffy jacket with fleece jacket and pants

- [Amazon Essential puffer jacket](#) \$54
- 100 weight fleece jacket- any discount store- Old Navy too!

Synthetic base layer (long johns) top and bottoms

Synthetic t-shirt

Fleece hat

Fleece gloves

Wool socks

Look at REI Garage, Sierra Trading Post, eBay for deals

HYDRATION



Water bottle- skip the Nalgene (too heavy!) - save 10 oz by switching to two disposable 1L pop-top bottles instead, such as Smartwater or Life WTR. They last for thousands of miles!



Water purification- traditional filters are heavy, complicated, expensive, and slow. Instead, I recommend:

- [Sawyer Squeeze filter](#) \$30, 3oz Just collect water and drink!
- Best camp filter- a gravity filter with 3L of capacity. Use the Sawyer Squeeze with a [Sawyer Coupler](#) \$3 and a [CNOC Vecto 3L bag](#) \$25



COOKING SYSTEM- STOVES



- Alcohol- uses denatured alcohol
 - cheap fuel, ultralight, slower than butane
 - **NOT ALLOWED IN SCOUTS BSA** (fuel can spill)
 - Trail Designs Caldera Cone with Kojin stove is the BEST \$35, 2.5oz
- Esbit- uses solid fuel tablets
 - cheap, ultralight, slower than butane, leaves messy residue on pot
 - Esbit Pocket Stove \$11, 4oz
- **Butane canister stoves (recommended)**
 - fast, simple to use, heavy fuel canisters
 - **LIGHTEST- on top of canister- BRS 3000T stove- \$17, .8oz (great for solo pots)**
 - Best for Group Cooking: MSR Pocket Rocket Deluxe \$70
 - Tough, excellent Stove for patrols: Soto Amicus : \$54
 - (Skip the Jetboil- too heavy and expensive)
 - Winter stove- remote canister for liquid feed- important below freezing- Fire Maple FMS-118 \$40, 5oz

COOKING SYSTEM- FOOD PREP

Cookware: ONE pot, ONE spork, ONE cup (add ONE bowl for groups)

- ONE pot for boiling water and cooking
 - [Walmart Grease Pot](#) 3.7 oz, \$8.50! and [Coghlans Pot Grabber](#) 1.3 oz, \$6.00!
 - Tougher: [Toaks Titanium 650](#) \$37, 2.8 oz- great size for solo use
 - Great for groups: [Lixada 1100 titanium](#), 5.4 oz, \$32
- One utensil such as [UCO Spork](#) (mine lasted the whole PCT!) or [long handle titanium spoon](#) for eating from freeze dried meals.
- Cup? Your pot works great! Add a used Starbucks cup or small plastic cup.
- Cotton bandana for cleaning (and many other things!), a small piece of sponge, or a couple pinecones

LIGHTING

Get an LED headlamp for hands-free.

- At least 200 lumen
- Two choices: battery or rechargeable
 - battery: Uses standard AAA or AA batteries (skip the lithium coin battery lights)
 - Rechargeable: great way to go! Add a powerbank to charge the headlamp and your phone!
- My current favorite: [Nitecore NU 25 UL](#) - 400 lumen, \$37



NAVIGATION



GAIA GPS

All Scouts need a compass. Phone GPS is great, but compass backup is essential

Silva, Suunto, and Brunton are the best ones to get

- [Suunto A-10](#) is a good one \$18, 1.6 oz
- [Silva 1-2-3](#) is also good \$15, .9 oz

BUT GPS navigation is also essential! [Gaia GPS](#) is great for planning routes (free version). With Gaia Premium (\$3/month) you can download maps to your phone and print maps as well.

For the PCT, the [FarOut Guide](#) is amazing.

EMERGENCY COMMUNICATION

We always carry Satellite Communication on backcountry trips- especially Scout trips.

We use the [Garmin InReach Mini](#) for emergency communication as well as staying in touch with families at home. \$300 + subscription

The iPhone 14 and 15 also have emergency satellite communication (although no satellite messaging with families).

Other devices: Spot, Zoleo, Bivy Stick, Motorola Defy.



FIRST AID / EMERGENCIES / REPAIR / FIRE

Small first aid kits are fine for Scouts (adults carry larger kits). Wilderness First Aid training is EXCELLENT.



Have: whistle, some dental floss/thread, and a small amount of duct tape for repairs (+patch kit if you use an air pad).

Add emergency firestarter such as a second lighter, waterproof matches, or small striker (flint/steel) and a small ziplock with cotton balls in petroleum jelly

Knife- keep it simple! Opinel knives are great, such as the 3.4" blade [No. 8](#) \$18.50, 1.7 oz. I used the [Victorinox Classic SD](#) on the PCT and didn't need more.

LUXURY ITEMS

Now that you have the essentials, don't fill that space with stuff you don't really need.

- Bring 1-2 luxury items that will ADD to the experience such as a wide air pad or an ultralight chair (my favorite 1lb chair)
- Choose lightweight luxury items
- Your real luxury is the joy of freedom in the backcountry!



PACK BASED ON THE TRIP, AND HIKE YOUR OWN HIKE!

What is your trip like? Pack based on that!

- Ultralight thru-hiking vs. winter hot tent backpacking
- 50 Miler vs. 1 night
- 5 mile day vs. 20 mile day

Hike your own hike!

- Be intentional, but carry what you want to! There are lots of ways to enjoy backpacking!

GEAR Q AND A

10 minute break after Q and A- feel free to check out the gear!

NATIONAL OUTDOOR AWARDS

[The National Outdoor Award program](#)

can motivate Scouts to get into the backcountry! Check it out and promote these!

Many Scouts in our troops are earning these awards. Many have multiple 50 Milers and they want to keep going!

The goal: great backcountry experiences will lead to lifelong interest in the outdoors



ADVICE- TRIP PLANNING AND PREPARATION

Conduct pack checks before trips to ensure safe packing and avoid overpacking.

Use a hanging scale to weigh packs. We use a [fish scale \\$20](#). Weight food bags, too!

Have maximum weights for Scouts and Adults for longer trips/50 Milers. We use 30 pound base weight maximum and 1.5-2 lbs of food per day.

Have full pack shakedown before longer trips such as 50 Milers. Last minute packing is always heavier!

Heavy packs can really affect a trip (adults too!) Remind the adults to save extra capacity to help Scouts in need.

RECOMMENDATIONS: TROOP GEAR

Adjustable torso backpacks (can adjust for diff age scouts)

Cook sets (small pot + stove)

Lightweight Foam pads (durable, light)

Tents (2 or 3 person single wall) everything included (poles, stakes)

CONSIDERATIONS FOR YOUNGER/SMALLER SCOUTS

Consider the strength and experience of Scouts in the group. Bigger, stronger Scouts carry more weight.

Remind Scouts of weight relative to body weight. REI:

When determining your pack weight, follow these very general guidelines: A loaded backpacking pack should not weigh more than about 20 percent of your body weight. (If you weigh 150 pounds, your pack should not exceed 30 pounds for backpacking.)

The goal: Type 1 and Type 2 fun. NOT Type 3- especially for younger Scouts!

CONSIDERATIONS FOR FEMALE SCOUTS

Peeing in the woods and other considerations for female scouts

pStyle: <https://www.thepstyle.com/>

Kula Pee Cloth: <https://kulacloth.com/pages/faqs>

Diva Cup: <https://shopdiva.com/pages/learn-about-menstrual-cups>

Period underwear: <https://www.thinx.com>, <https://www.knix.com>

Address the challenges directly and matter of fact, even with male scouts present.

Extra wipes, garbage bags, ziplocks, underwear, tampons

HOW LIGHTWEIGHT CAN CHANGE A SCOUT'S EXPERIENCE

Logan- renewed interest in Scouting

Mike- father/son experience

Younger Scouts- Lily, Q, Hazel



ULTRALIGHT SCOUTING RESOURCES- VIDEOS

Scouting Lighter: Ultralight Makeover with Grant Sible, Gossamer Gear
[Part 1](#), [Part 2](#)

[Scouting Lighter: Philip Werner, Section Hiker](#)

Scouting Videos by Ryan Jordan, Founder- BackpackingLight, and former Scoutmaster:

- [Boys in the Wild](#)
- [Montana High Adventure](#)
- [Camp Parsons High Adventure](#)

ULTRALIGHT SCOUTING RESOURCES

[Scouting Magazine- ultralight gear on a budget](#)

[BackpackingLight 3 season Scout Gear List](#)

[Best budget gear for Philmont](#)

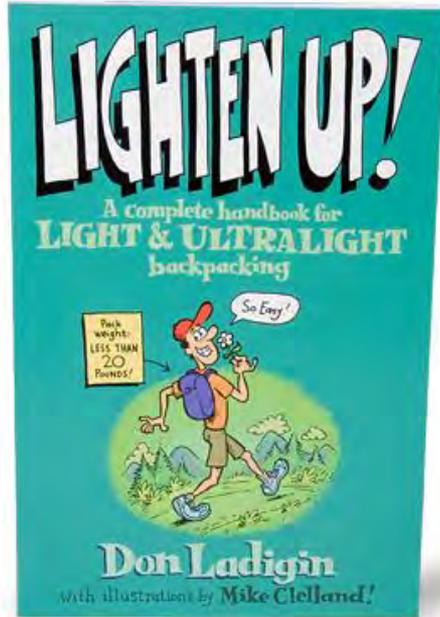
[Boys Life Ultralight Gear list](#)

[Scouting Magazine- Montana Venture 1 Crew](#)

[Lightweight Scouting group gear](#)

[Outdoor Gear Lab Budget Ultralight](#)

ULTRALIGHT BACKPACKING COMPANIES AND RESOURCES



The first book to get: [Lighten Up! BackpackingLight](#)
[Adventure Alan](#)
[3F Ultralight](#)- good, cheap, Chinese
[Gossamer Gear](#)
[Zpacks](#)
[Mountain Laurel Designs](#)
[AntiGravityGear](#) - great prices
[Trail Designs](#)
[Equinox Gear](#)
[Bearpaw Wilderness Designs](#)
[Tarptent](#)
[Oware](#)
[Hammock Gear](#)
[Dutchware Gear](#)

HERE'S TO GREAT
ADVENTURES!

