

Welcome to the Basic Snowshoeing Lecture

Winter of 2023-24 Let It Snow, Let It Snow, Let It Snow! (but not too, TOO much)



Foothills MOUNTAINEERS Basic Snowshoeing Course

Overview

***** About the Snowshoe Programs ***** Conditioning *** Gear Winter safety Trip Planning Snow Travel Skills * Field Trip *** Post-graduation





The Mountaineers

* Started in 1906

- Seven branches across Western Washington with over 15,000 members; Foothills is the newest branch
- Foothills Branch (I-90 & 405 corridor) over 1,000 members; in addition to winter sports and backpacking/hiking, we offer a full range of courses and classes (scrambling, climbing, trailrunning, navigation, first aid, stewardship).
- * Each branch has different committees & programs but reciprocity is the rule and activities are open to all who are qualified regardless of branch affiliation
- \$3,000 volunteers club-wide



Foothills Snowshoe Program

Run entirely by volunteers
Experienced trip leaders and instructors
Opportunities to instruct, lead, and snowshoe!



Why take this course?

To experience days like this...



Benefits of the Basic Course

* Develop a winter alternative to hiking * Acquire winter **gear** know-how ***** Gain **experience** touring on snowshoes Travel safely (hazards, weather, avalanches) ***** Learn skills necessary for **Basic** Snowshoe trips ***** Earn a Basic Snowshoe Badge!! * Earn an Avalanche Awareness Badge!!



COURSE



Beginner and Basic Snowshoe Trips

"Beginner" Trips

Require no badge.

✤ Gentle terrain with no

avalanche danger.

1,500 ft gain, 8 mi RT max.

"Basic" Trips

* Require Basic Snowshoe badge.

No ice ax required. Minimal avalanche danger.

* No distance or gain limits.

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Our Expectations of You

Wiew the Avalanche Awareness seminar video and pass the content test in order to receive your badge

Prepare for the field trip:

Obtain necessary gear (and make adjustments ahead of time)
 Have moderate conditioning level

Be prepared to provide your own transportation to the filed trip, if necessary.



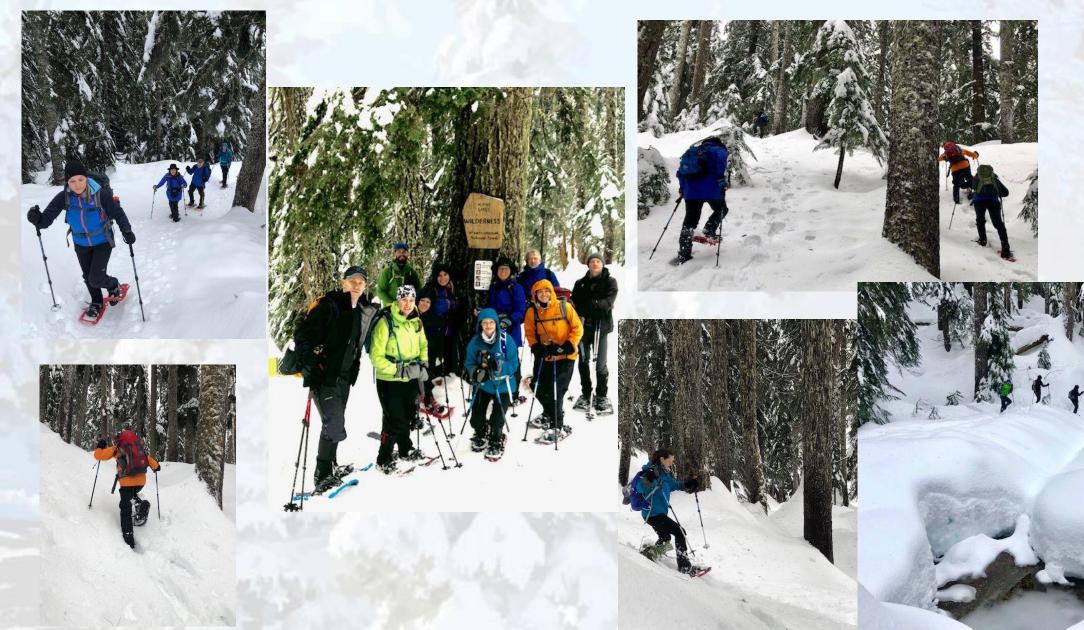
Our Commitment to You

Prepare you for Basic snowshoe trips and for non-club snowshoeing.

Support, explain, point-out and demonstrate.
Encourage further winter sports education.
Answer questions not covered in materials.
Be Covid-19 safe.

A (field trip) day at Commonwealth Basin





Conditioning



***** Snowshoeing is more strenuous than hiking!

* Even simple terrain is more challenging (i.e. breaking trail, staying in balance, etc.)

***** Harder to stay hydrated and fed

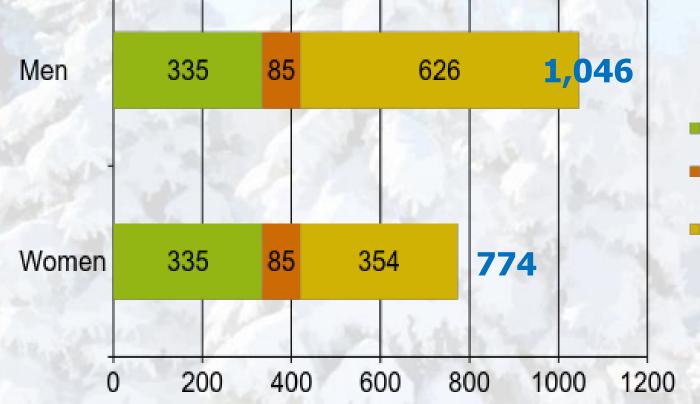
* Sheer weight of all the extra gear

Hourly Energy Expenditure (without pack!)

Calories per hour



Note: We won't ever be going 2.9 MPH on the field trip



Walking, 3.0 mph Snowshoe, 2.4 mph, packed snow, flat Snowshoe, 2.9 mph, powder snow, hilly

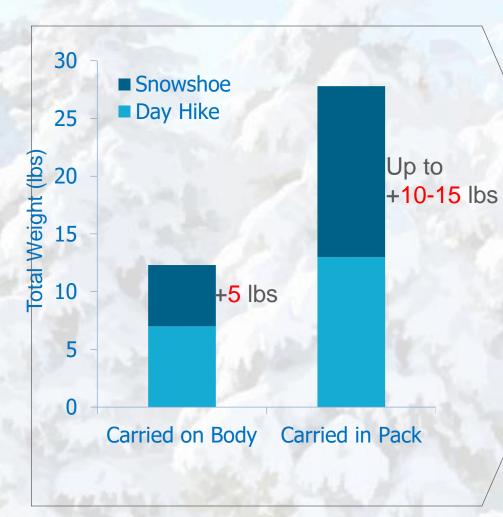
Conditioning



Our Northwest snow conditions can vary from icy crust...to firm packed snow...to deep powder...



Winter Gear Adds Up...



What weighs 20 lbs???

Four Chihuahuas



Or just one Flemish Giant Rabbit



Weight includes 2L water + food

Conditioning

***** Estimate that you can do about half the distance and gain as your summer hiking in the same amount of time. ***** Elliptical machines can be a great way to condition for snowshoeing because the motions are similar.



Discussion Tonight

* There will be time to <u>ask questions</u> **Main topics: *** Clothing and Winter Layering Systems Footwear (boots, gaiters, snowshoes) Winter Gear (pack, poles, hydration, etc...) **Winter Safety Considerations & Snow Travel**



#1 Rule for Clothing



It seems soft and comfortable, but...

#1 Rule for Clothing



Cotton (jeans/pants, shirts and tees, socks, underwear) is a poor choice in cold, wet conditions
Loses its insulating qualities when wet
Absorbs many times its weight in water
Generally takes a long time to dry

#1 Rule for Clothing



Material	Water Absorbed as % of Weight after soaking
Cotton	40%
Nylon	10%
Polyester	0.9%

DO NOT WEAR COTTON to the field trip, or on club snowshoe trips. The leader may-will send you home.

Clothing in *Layers* – A WICK, INSULATE, AND PROTECT SYSTEM





Base

Primary Job: wicks away perspiration from skin, keeping it dry **Materials**: synthetic (Capilene) or natural (silk/wool). Various weights. *Consider bringing an extra base layer* to change out if needed.



Clothing in Layers

Base + Insulating Layer(s)



Primary Job: Trap warm air next to the body **Materials**: Fleece, Wool, Softshell, lofting material (Primaloft or down)



Primary Job: Protection from wind & rain/snow (top & bottom) **Materials**: Waterproof/Breathable fabrics (i.e. GoreTex), Nylon



Mix & match depending on conditions! Key is to regulate your body temp and not get too hot or too cold (easier said than done)!

Mittens and/or Gloves



 * waterproof, insulating
 * spares for snow/cold/wet wind protection
 * different gloves have different strengths/weaknesses.



Head Gear

One of the easiest and
fastest ways to regulate
your body temperature
(10-15% of body heat)



Boots

Insulated winter boots are recommended depending on how cold your feet get. How well will your regular boots serve you if it is 10-20 degrees and your boots are in the snow for hours?

- Regardless, at a minimum full-Leather waterproof hiking boots are essential but should have fresh waterproofing. But hiking boots do not have insulation.
- Stiffer boots resist the snowshoe binding cutting off circulation in your foot. Mountaineering boots can be useful, but are heavy.
- ✤ "Fashion" snow boots do not work well.



Boots

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Gaiters

best

Required for the field trip. Gaiters essential winter gear. Will keep snow out of your boots in deep snow * Act as an extra insulating layer on your lower legs * "Full" height, to just below the knees, are Or

SNOWSHOES





Traction is key!

*Our snow is frequently hard and icy (slippery)

*Up-, down- and side-hill travel requires good traction *and some form of side traction rails.*

Right length for PNW conditions; shorter length is often better.

Good traction features (e.g. traction rails) are required for field trip – can rent from us or at REI and other places.



Snowshoes – Traction Features







Pretty Weak

Pretty Good

Pretty Great

Snowshoes – Bindings









Snowshoes – *any* MSR model: Ascent, **Explore, or Trail Series** Some Tubbs, TSL, Atlas models Prices range from \$150-\$350 a pair





MSR EVO (good) or **REVO (VERY GOOD)!!**

MSR Lightening GREAT!!!

MSR "Shift" for kids or small adults; 19 inch, 125 pound rating

No side rails - not

good if any hills

A couple of newer, less expensive models



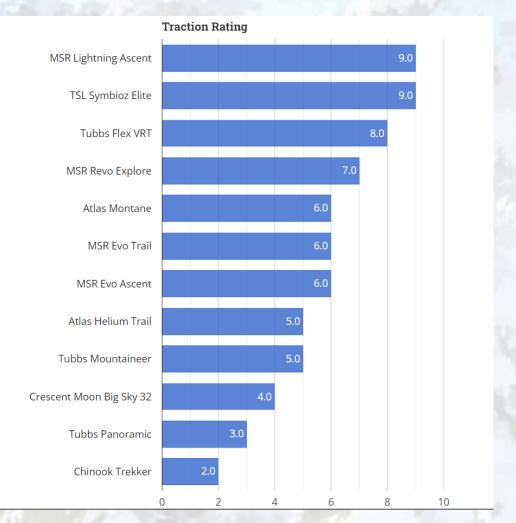
Atlas Montaine

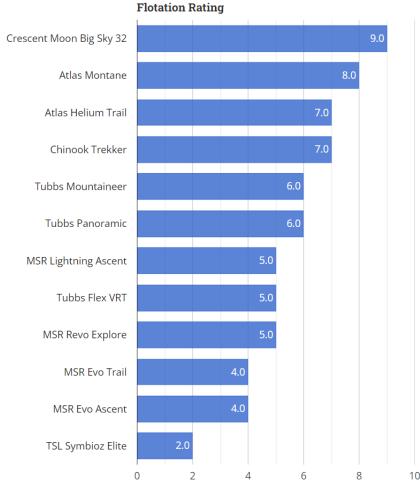
Tubbs Flex VRT





Traction vs. Flotation Trade-Off





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Snowshoe



Heel lifts are a very nice feature to have if you regularly go on inclined terrain.

Current cost difference is about \$40-\$60.

Reduces fatigue on the calves during sustained uphill travel.

Poles and Baskets



Snow Baskets Snow Construction Snow Baskets Safety & Safety & Safety & Summer need to putting of Sasket! Safety & Safety & Safety & Summer Summer Summer Summer Summer Summer Summer Summer Sasket!

Trekking Poles

add traction, balance and power
safety & survival aid
most poles come with a "summer basket" on them. You need to remove these before putting on the winter snow basket!

For an extra measure of safety, "tape in" your baskets with thin strips of duct tape

Pack

 Ideal pack size 30-40L.
 Larger packs fine. Can typically be cinched down if needed.

Generally not a good idea to hang items off pack as you can lose them in the snow.



Marmo



Gear: The 10 Essentials

Essential	Key Items
Navigation	Map, compass, GPS
Hydration	Extra water
Nutrition	Extra food
Sun Protection	Sunglasses, sunscreen
Insulation	Extra clothing
Repair Kit	Zip ties, duct tape, multi-tool
Illumination	Headlamp and fresh set of batteries
Emergency Shelter	Tent, bivvy sack, garbage bag
First-Aid	Varies
Combustion	Waterproof matches, light, flint, tinder

Eye Protection

Ski Goggles







Sunglasses





Hydration

Nalgene w/ insulated sleeve

G nalgene



Hydration bladder hose w/ insulating sleeve





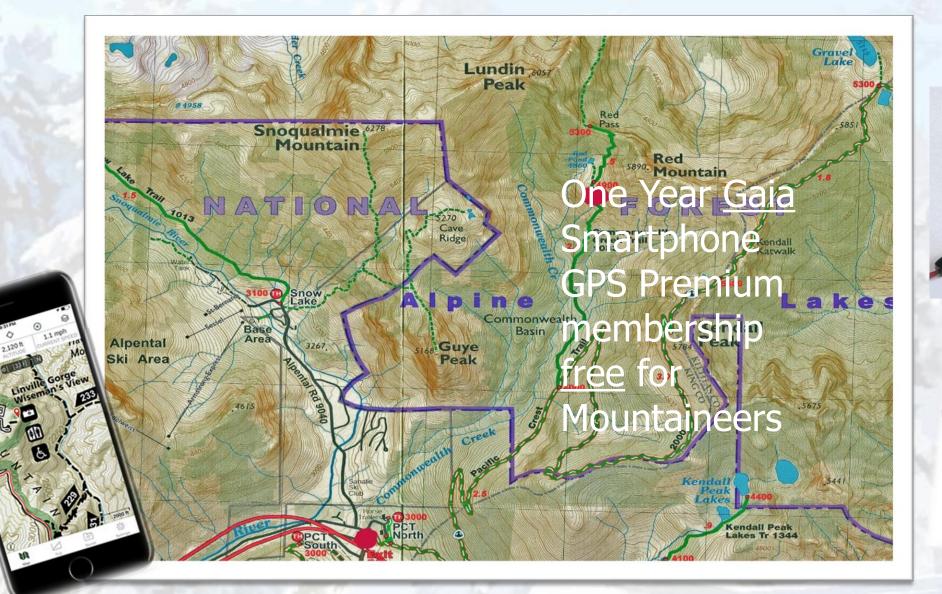
Navigation







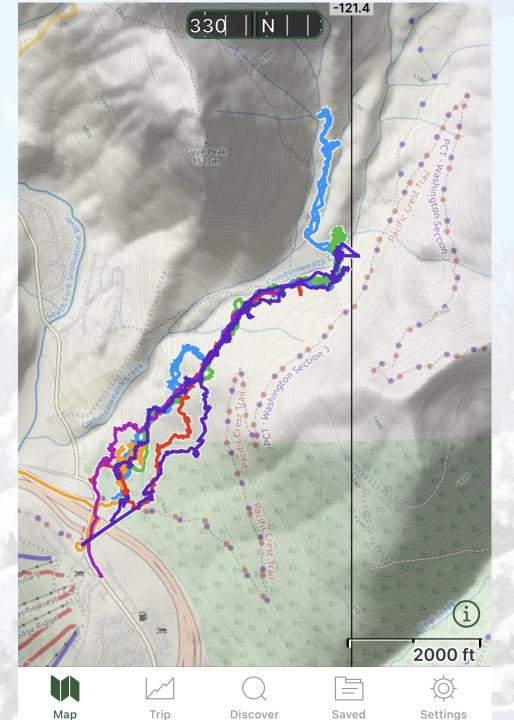
Navigation Tools





Various Gaia GPS Snowshoe Tracks at Commonwealth Basin

Club's member benefits include one year <u>free</u> GAIA PREMIUM membership (\$40 value!!)





Water and Food







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A typical lunchtime....





First Aid Kit





add chemical hand/body/foot warmers to your usual kit



Repair Kit & Tools







Illumination







Emergency Shelter













A recommendation...and some advanced gear....





"PARTY SEPARATION"



GET EXCITED BECAUSE ITS ALMOST PARTY TIME!

10-minute break



It's party time. P. A. R. T. Why?

BECAUSE I GOUTA



How to Get	Pro	Con
now to det		
Borrow	Low cost	 Questionable fit and suitability



How to Get	Pro	Con
Borrow	Low cost	Questionable fit and suitability
Rent at gear shops	Less expensive than buyingTry new gear before you buy	Possible poor fitTime to pick up and return gear



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Buy Retail (at discount, if possible)	It's yoursProper fitting	 Usually most expensive Taking a chance on it meeting your needs 				



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Discount Websites (Steepandcheap, eBay, Sierra Trading Post, Backcountry.com, REI Outlet)	Usually cheaper than retail	 Ship cost and time No opportunity to try before you buy



Snowshoe and Winter Gear Rental

Snowshoe and Winter Equipment Rental – Updated For 2022-23
REI – Seattle - Alderwood, Bellevue, Issaquah, Tacoma *check with store first* (\$18-\$22)
REI Snoqualmie Rental Outpost (exit 54, route WA-906) – Fri-Sun 8-4:30 - \$20-\$30
Ascent Outdoors (\$30) – Seattle (Ballard)
Mountain to Sound Outfitters (\$30) - Seattle

* THE FOOTHILLS BRANCH (for field trips) - \$20

Safety

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Hypothermia





Keeping Warm – Thermoregulation

*** How one loses heat: Conduction** – contact with something colder **Convection** – moving air or water, damp clothing **Radiation** – heat rising off the body **Evaporation** – by perspiring **Respiration** – through breathing **Urination** – body works harder with a full bladder * So what can we do to stay warm ?



Hypothermia: What is it?

When the body loses more heat than it gains, core temperature decreases.

Mild Hypothermia

- Core temp 90-95 degrees
- ✤ shivering
- ✤ pale/cool skin
- lethargy but alert
- motor skill impairment
- ✤ vital signs OK

Moderate/Severe Hypothermia

- Core temp 82-90 degrees or lower
- * limited ability to rewarm
- * "umbles" (mumble, grumble, stumble)
- ✤ slurred speech
- # decreased vital signs
- possible lack of shivering
- reduced "level of consciousness"

Wind and Low Temperatures Produce Wind Chill

	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40
4mph	45	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40
5mph	43	37	32	27	22	16	11	6	0	-5	-10	-15	-21	-26	-31	-36	-42	-47
10mph	34	28	22	16	10	3	-3	-9	-15	-22	-27	-34	-40	-46	-52	-58	-64	-71
15mph	29	23	16	9	2	-5	-11	-18	-25	-31	-38	-45	-51	-58	-65	-72	-78	-85
20mph	26	19	12	4	-3	-10	-17	-24	-31	-39	-46	-53	-60	-67	-74	-81	-88	-95
25mph	23	16	8	1	-7	-15	-22	-29	-36	-44	-51	-59	-66	-74	-81	-88	-96	-103
30mph	21	13	6	-2	-10	-18	-25	-33	-41	-49	-56	-64	-71	-79	-86	-93	-101	-109
35mph	20	12	4	-4	-12	-20	-27	-35	-43	-52	-58	-67	-74	-82	-89	-97	-105	-113
40mph	19	11	3	-5	-13	-21	-29	-37	-45	-53	-60	-69	-76	-84	-92	-100	-107	-115
45mph	18	10	2	-6	-14	-22	-30	-38	-45	-54	-62	-70	-78	-85	-93	-102	-109	-117
Unpleasant Frostbite likely. Exposed flesh will freeze																		



Frostbite likely. Outdoor activity dangerous. Exposed flesh will freeze within half a minute for the average person.

Preventing Hypothermia and Frostbite



- Avoid body heat loss. Adjust clothing to keep warm and dry. Put on a warmer hat and extra gloves. Take shelter from wind.
- * Avoid perspiration. If you get too warm, remove a layer of clothing. If a base layer gets soaked, consider changing into a dry one
- Don't over-tighten your snowshoes (or laces). Avoid cutting off circulation to the toes. Sturdy boots help.
- * Drink and eat often. Consume lots of calories.
- Recognize and treat early signs: disorientation, lack of coordination.
- **WATCH OUT FOR EACH OTHER !!**



Treating Mild Hypothermia

***** End exposure to the elements ***** Get the patient out of the wind and wet ***** Substitute dry clothing for wet * Create shelter, and insulate from the ground; "hypo-wrap" patient * Rewarm from the core out; heat to neck, groin, sides of chest cavity Give warm, sweet liquids if the patient can drink by themselves; high-cal food if self-administered **Rewarm with hot water bottles, heat packs *** Mild exercise if patient has had calories



Treating Severe Hypothermia

* Similar treatment as for mild hypothermia, but... **Gentle rewarming is necessary** Prevent further heat loss * Move the patient as little as possible; no exercise, sitting or standing; cut clothes off if necessary - no shock of cold blood back to heart *** Monitor vitals** * Immediate evacuation is necessary; *send for help!*

Frostbite



* Most susceptible: appendages, ears, nose, cheeks
* Must protect from re-freezing!

- Superficial: white, pale yellow skin; numbress; still soft to touch
 - Treatment gently rewarm; skin-to-skin, blow warm air, do not rub; NSAIDS, separate digits
- **Full Thickness:** white, grey, black patches; numbness; hard to the touch, swelling/blisters, immobility
 Treatment same as partial but also evacuate



Trip Planning

A successful, enjoyable snowshoe trip is the result of an ongoing series of good micro-decisions before and during a trip.

BEFORE A TRIP

Proper gear & clothingForecasts & route review

*** DURING A TRIP**

* Good travel techniques

- Collective decision-making
- ***** Effective incident responses



Winter Driving Preparation



- Check tire pressure during cold weather
- Make sure chains or snow socks fit before first storm (*Mt. Rainier* requirement; if not 4/AWD, may need on any highway)
- Get a vehicle winter maintenance check-up. Have battery, belts, hoses, radiator, lights, brakes, heater/defroster and wipers checked.
- * Keep your fuel tank full don't let it fall below half a tank on winter trips

Tires & Chains

Traction tires

The following qualify as traction tires when required on Washington roadways:

- Approved traction tires 🗹 including an eighth of an inch tread and a M&S or All Season label with a Mountain/Snowflake symbol.
- Installing chains makes any tire a traction tire. Approved tire chains 🗹



TRACTION TIRES REQUIRED

Traction tires required - Passenger vehicles must use approved traction tires

TIRE CHAINS REQUIRED

Tire chains required - Vehicles must install chains to continue traveling on the roadway. 4WD/AWD vehicles do not need to install chains at this point, but still must carry a set inside their vehicle in case conditions worsen and use approved traction tires.* See WAC 204-24-050



Chains required on ALL vehicles, even 4WD/AWD. This is the last step before a pass is closed.





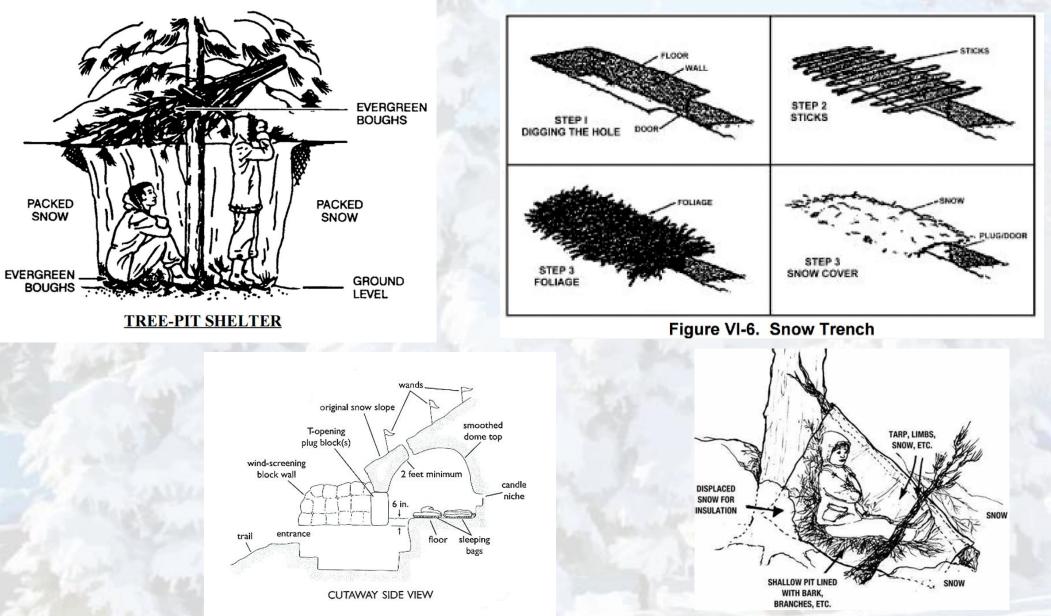








Emergency Winter bivouac-sheltering







Get Information – FORECASTS!

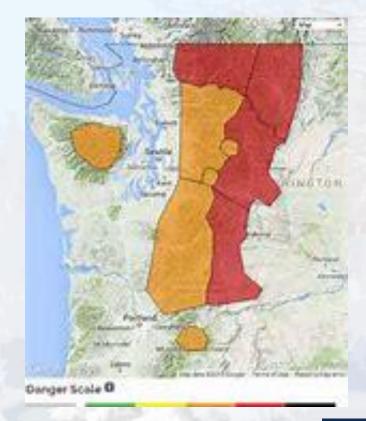
- National Weather Service: <u>WWW.Weather.gov</u>
 Northwest Avalanche Center: <u>WWW.NWaC.US</u>
 If you have a mobile device, download the Avalanche Forecast app for easy access. (Available on a variety of mobile platforms.)
- Call the ranger station in the area where you will be; for highway reports in 5 state area: dial 511



Avalanche Forecasting







Northwest Avalanche Center www.nwac.us





Avalanche Forecasting

North American Public Avalanche Danger Scale Avalanche danger is determined by the likelihood, size and distribution of avalanches.

Danger Level		Travel Advice	Likelihood of Avalanches	Avalanche Size and Distribution
5 Extreme	4 ★	Avoid all avalanche terrain.	Natural and human- triggered avalanches certain.	Large to very large avalanches in many areas.
4 High	4 5 7 7 7	Very dangerous avalanche conditions. Travel in avalanche terrain <u>not</u> recommended.	Natural avalanches likely; human- triggered avalanches very likely.	Large avalanches in many areas; or very large avalanches in specific areas.
3 Considerable	3	Dangerous avalanche conditions. Careful snowpack evaluation, cautious route-finding and conservative decision-making essential.	Natural avalanches possible; human- triggered avalanches likely.	Small avalanches in many areas; or large avalanches in specific areas; or very large avalanches in isolated areas.
2 Moderate	2	Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify features of concern.	Natural avalanches unlikely; human- triggered avalanches possible.	Small avalanches in specific areas; or large avalanches in isolated areas.
1 Low		Generally safe avalanche conditions. Watch for unstable snow on isolated terrain features.	Natural and human- triggered avalanches unlikely.	Small avalanches in isolated areas or extreme terrain.
Safe backcountry travel requires training and experience. You control your own risk by choosing where, when and how you travel.				

www.nwac.us



How to stay safe and enjoy the trip!

Check the weather and snow conditions
Avoid problematic terrain
Stay warm and dry – be strategic; lots of adjustments
Be knowledgeable about medical problems: hypothermia and frostbite

***** Have an emergency SOS device

Notify Someone!

Leave an itinerary with someone who will know you are overdue.

Where you are going

When you expect to be back

Who is on the trip (phone numbers)

What your vehicle looks like (License number)



Safe Trip Strategy

- Check the avalanche and weather forecasts!
 Know before you go!
- No idea about the snow conditions before starting?
 - Just say no!
- Snowing heavily? (>1"/hr) **# Just don't go!**
- Tracks leading you off your trail?
 Don't blindly follow
- * Start off slowly
 - * Take the time to warm up muscles
 - Find a sustainable pace





Safe Route Finding



Safe Route Finding



Stay on lowland trails and roads; they are safe under most conditions.

Traverse the top of a slope rather than the base.

Avoid areas where the snow is cracked or where there may be debris from previous slides.

Learn what makes slopes stable - and unstable.

Snow bridges ...



Bombs Away?



Tree Wells

* typically more
dangerous for skiers
than for snowshoers
* But still need to be
careful and observant

What is a tree well?

A tree well is the hole that forms around the base of a tree when low branches prevent snow from filling in and becoming snowpack around the trunk. The hole can fill with unstable snow, creating a hazardous trap.

Fir trees that have their lower branches touching the snow surface are particularly hazardous because the branches form a canopy and can hold a lot of snow.

Snowpack

Snowpack

Tree well area

When in doubt...



Avalanche Danger Low & Moderate – Basic avy training
Considerable – Advanced avy training
High and Extreme – Don't go!
Snow falling at rate of more than 1 inch/hr
Loss of visibility due to fog or whiteouts
That being said, there is always *some* safe place to snowshoe.



Common Decision-making Pitfalls

*** Familiarity**

* "I've done this many times before."
* Commitment/Consistency
* "We said we were going all the way..."
* "We already made our decision."

*** Expert Halo**

* "My leader is experienced so (s)he must be right."

*** Social Facilitation**

* "I don't want to disrupt the group's good time."

SPEAK UP!



- * Each and every person is responsible for their own safety and the safety of others.
- Our volunteer trip leaders are experienced but also human and fallible.
- If you think there is a safety issue, be sure to speak up and ask about it. "Why is this safe?"
- If you feel that unsafe decisions were made, please do contact the Snowshoe committee. Safety is very important to us, and we need to know.





Commonwealth Basin Field Trip

3.5-5 miles
700-800 feet elevation gain
slower pace and numerous teaching stops *can be easy to get cold!*Most of the time we will be in rather dense conifer forest

Field Trip - Goals





Practice snow travel skills
Observe weather and terrain
Meet other snowshoers
Have fun!



Field Trip - What to Bring

* 10 essentials
* Day pack
* Snowshoes with rails
* Warm boots
* Rain jacket and pants
* Gaiters

Trekking poles with snow baskets
Hat
Gloves
Lunch
Water
See handout for more detailed list



Field Trip - Topics Covered

Walking in balance; turning
Breaking trail
Traversing slopes
Uphill travel
Downhill travel
Falling & getting back up
Terrain awareness

* Navigation and very basic map work
* Gear usage
* Clothing adjustments
* Emergency shelters
* Managing body temperature

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Field Trip - Final Points

* You must sign up for a Field Trip date! (just one)
* Review the field trip materials (map, directions, gear list)
* Prepare your vehicle
* Don't make plans in the evening unless you're prepared to miss them

Questions? Email Steve LeBrun at <u>stevelebrun@comcast.net</u>



BASI

Basic Snowshoe Graduation

***** Attend: ✤ course lecture * avalanche awareness seminar **I state of the second * Low Impact Recreation video** * You will be awarded a Basic Snowshoe Badge, allowing you to sign up for Beginner and Basic snowshoe trips...

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Avalanche Awareness



Required to graduate from the course.

An online video course, just for course enrollees, is available...to complete at your convenience
You can also take an Avy seminar through the club or directly from NWAC



• Courses,

& Seminars

Awareness

• Avalanche

Avalanche Safety

Course Materials

eLearning Access

• Find Courses, Clinics

Avy Awareness....Success !!





Signing Up for Trips

Club website: <u>www.mountaineers.org</u>
Activities > Find Activities > I want to go... Snowshoeing
Scroll down and there are checkboxes to filter for Beginner and Basic trips.

* Also, sign up for new trip alerts from your profile.



Where Can I Snowshoe?

Beginner and Basic snowshoeing trips * Logging roads * Lowland trails Sno-Parks (Sno-Park pass) and National Forest (Northwest) Forest or National Parks pass) parking areas * Winter sports resorts everywhere have trails (including Nordic **Centers**) * *Etiquette*: Don't snowshoe in groomed XC ski trails

Some Beginner and Basic Routes in Washington

Mount Tahoma Trails Association (MTTA) near Ashford (Mt. Rainier) Commonwealth Basin (Snoqualmie) Sold Creek Basin (Snoqualmie) **Grace Lakes (Stevens Pass) * Summit and Stevens Pass Nordic Centers * Longmire and Paradise MRNP WA Sno-parks *** Mountaineers Meany Lodge trips **Snoqualmie Pass Guided Ranger trips**



I graduated Basic... now what?

Wilderness Navigation Course
Foothills Winter Navigation Seminar
Wilderness First Aid Course
Intermediate Snowshoeing Course
AIARE1 Avalanche Training
Winter Camping Course

Resources

Snowshoeing: From Novice to Master, 5th Edition **Snowshoe Routes: Washington** ✤ Ten additional titles on snowshoeing in the NW, Rockies, and more SnowshoeMag.com



See you at the Field Trip !!