

Navigation Northwest

A Quarterly Publication of the Seattle Navigation Committee
Volume 8, Number 3 Fall 2020

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--Where is Nav student #2 and where were they doing the leapfrog technique?

Navigating While Bikepacking—Special Considerations

By Emma Agosta

Photos: A. Bilotta & B. Starlin

After a 5-year hiatus spending most of my outdoor time climbing, scrambling and back-packing in the mountains, I recently returned to mountain biking. Short rides in local parks and forests were not as satisfying anymore but getting off the beaten path for multi-day bike adventures was just right. I quickly discovered that wilderness navigating by bike resembles mountaineering trip planning.

As a wilderness navigation instructor, I'm a competent Caltopo and Gaia digital trip planner and Gaia GPS route navigator. There are, however, some special considerations that may complicate the process and call for additional resources.

Figure 1. Riding Cle Elum Ridge (XWA Route) with the Enchantments in the background.



Route planning demands research on forest road status. I found road closures, even entire forest sections locked up due to fires, snow, construction and, in one case, a fugitive manhunt! If using forest roads you should:

- learn which forest or land agency your route passes through,
- find what roads or sections of roads are open/closed and

- check frequently for updates. For example, Campbell Global, which owns a lot of forest land in the Snoqualmie Valley, requires a daily or annual permit for access.

If the trip involves travelling by bike on single-track trails, the most important thing to find out is whether the trail is open to bikes and, if so, in what times of the year. I found that recently updated Green Trails maps are a good starting point but other invaluable sources are the Evergreen Mountain Bike Alliance <https://www.evergreenmtb.org/>, TrailForks <https://www.trailforks.com/> and local Facebook groups. In many cases trip reports can be found on these sites. Social media groups may report trail conditions including downed-trees, snow, and mud.

Branch Leadership Committee recently approved Activity Standards for the club's newest activity, Bikepacking. Tacoma Mountaineer Scott Schissel and Branch Chair Curtis Stock proposed and guided the novel activity through the drafting and approval process. A Summit is proposed for February 2021 with hopes that other branches will show interest. Tacoma is working on a leader training curriculum. Find the Bikepacking standards here: [Bikepacking](#) .

I enjoy multi-day bike-packing and need to find out where it is legal to “disperse camp.” This varies by landowner’s regulations and this year the pandemic impacted forest closures times. In general, BLM land is almost always open to disperse camping as are national forests. DNR land may or may not, depending on locations.

Other considerations include water sources (to be filtered for drinking) and the challenges and hazards of stream crossings. Digital or paper maps may show streams that may not be running or are running very high at a certain point in the season.

If there are developed campgrounds on a route, knowing whether they are by reservation or first-come-first serve and whether established campgrounds they have bike/hike only sites is also very important.

Finally, it is a really good idea to always carry an emergency satellite communicator such as the Garmin In-Reach as cell phone reception is often non-existent in the backcountry. If using Gaia GPS it is also important to remember to download the maps and tracks ahead of time while still having a reliable internet connection. See this recent GAIA Bikepacking feature [GAIAbikepack](#) I always carry a back-up battery.

Overall, the experienced backpacker and mountaineer will find the transition to bike-packing a lot easier than the experienced cyclist who has the fitness and endurance but is not used to navigating and overnighing in the backcountry.

Figure 2. At Cutthroat Pass accessed by bike on the Cutthroat Trail (NOT open to bike from the PCT)



While I continued back-packing, climbing and kayaking this season, I also enjoyed some great bike-packing trips including a week-end at Ancient Lakes, a short overnight on the Wenatchee River, a 5-day trip from Seattle to Wenatchee on the Cross-Washington route, the Olympic Adventure Trail, and an overnight at Cutthroat Pass -- a challenging trail to climb by mountain bike but opens up incredible alpine views at the top.

--Emma and her husband, Brian Starlin, are Seattle Navigation Committee stalwarts. Contact Emma at <mailto:emagosta@gmail.com>

--And further gnarly Bikepacking is possible in Iceland [IcelandBikepack](#)

Compare: Staying Found & Introduction to Map & Compass

By Peter Hendrickson

Foothills “Staying Found” and Seattle’s “Introduction to Map & Compass” have each gone digital in response to the pandemic realities – no large groups in classrooms or on trips. The cooperating but independent navigation committees have taken different paths to maintain and improve instruction.

Foothills hiking co-chair Cheryl Talbert designed the original Staying Found course several years ago to first meet the needs of hike leaders. Students spent a morning with an open air lecture and parking lot bearing practice at the Tiger Mountain Tradition Plateau Interpretive shelter. They then followed one of four, problem embedded routes on the lower flank of West Tiger in small groups for the field trip experience. At that time Foothills did not offer the Wilderness Navigation course.

Seattle past navigation chair Lynn Graf designed and implemented a two-hour evening class for students not quite ready for or not interested in the Wilderness Navigation course. Fundamental map and compass work was provided in pairs or small groups guided by a slide deck. There was often a short outdoors quarter hour to practice compass bearing techniques on nearby features.

Then came Covid 19. Group instruction – sorry. In person instruction – out of the question for many veteran instructors. Large field trips – not allowed. Demand – still high for the many who wished to lead hikes, prepare for the more rigorous Wilderness Navigation now offered in both branches, or simply become more skilled and confident on trail.

Foothills was determined to provide a full day of instruction, including the field trip, but replacing the morning lecture with Google Classroom instruction. Groups shrank in size to 4 students, 1 instructor and starting times at W Tiger were staggered to provide another layer of physical distancing. Cheryl redesigned both components with colleagues Susan Conbere, Michele Ritala, and Patti Kieval. Target audience remains hike and backpack leaders.

Seattle was faced with backed up demand for providing Wilderness Navigation Field Trips to over 225 students whose spring trips were cancelled. And there was yet demand for full instruction by fresh cohorts of climbers, scramblers and others in the year ahead. Adding a field trip worked by reducing enrollment to from 20+ to 10. Otto Greule took on the fresh design as a Google Slides project. Target audience is those wishing basic concepts and skills Table 1 provides a side-by-side features comparison.

Table 1. Staying Found and Introduction to Map & Compass feature comparison.

Features	Staying Found	Intro to Map & Compass
Audience	Hike, backpack leaders & participants	Basic map and compass concepts, skills seekers
Length	2 hrs online, ½ day WTiger FT	3 hrs online, ½ day UW Urban Horticulture FT, Lk Washington
Cost* *Course Fee scholarships available	\$60 members (discount to B3 students), \$70 guests; Wilderness Navigation Text \$16.95, Adjustable Declination Compass ~\$50, Green Trails map #204S \$14, Gaia (1 yr free to Mountaineers)	\$40 members, \$55 guests
Capacity	33 per session	10 per session
Frequency	4? per year	6 per year
Instructor Student ratio	1: 4	1:4
Situation Awareness	Repeated on FT	xx
Maps	GT Topo, read terrain features,	PDF of field area, terrain features, information density
Altimeters	Read altitude, determine position	Not required
Compass	Set declination, orient map	Loaners available; Understand declination, Measure/plot bearings on map & in field; counsel compass purchase
GPS	Determine point position	Not required, See GPS digital trip planning classes, seminars
Emergency Communicators	Not required	Not required

Thanks to Cheryl, Otto and Lynn for editorial support and their steadfast support of navigation instruction on both sides of Lake Washington.

Peter Hendrickson is a past Seattle Navigation Chair and current VP of Branches. Contact him at p.hendrickson43@gmail.com.

Thinking About A Non Mirrored Compass?

By Peter Hendrickson

As my wife and I hike/scramble/backpack well into our 70's, we're working to keep up the mileage and altitude by reducing pack weight. We have 5 mirrored baseplate compasses but the non mirrored (and cheaper) models are calling.

See Table 1 for side-by-side photo comparisons of Suunto's standard (not Global) MC-2 (mirrored) and M3 lines plus Brunton's Truarc 5. Suunto's Helsinki factory was closed for several months (Covid concerns) and the M-3 may be easier to find. Seattle Navigation has not recommended the Brunton Truarc line (made in Wyoming) due to issues with bezel drop out. Table 2 compares features and price.

Table 1. Commonly found baseplate, declination adjustable compasses.




MC-2 Pro	M-3 D Leader *1	Brunton Truarc 5
		
Mirror + Clinometer	No mirror or clinometer	No mirror or clinometer

Table 2. Suunto mirrored (MC-2) and M-3 baseplate versions compared to Brunton Truarc 5

Feature	MC-2 Pro	M-3 D Leader *1	Truarc 5 *3
Accuracy	+/- 2 degrees	+/- 2 degrees	+/- 2 degrees
Scale	1:24,000 or 1:25,000	1:24,000 or 1:25,000	
Declination Adjustment	Yes	Yes	Yes, Tool Free
Liquid Filled	Yes	Yes	Yes
Luminous Points/Bezel	Yes	Yes	Yes
Clinometer	Yes	No	No
Dimensions	3.9 x 2.5 x 0.6 in	4.72 x 2.4 x 0.55 in	4.2 x 2.9 x 0.6 in
Weight	2.65 oz	1.62 oz	1.8 oz / 45 g
REI/Amazon Prime	\$56 / \$55	\$44 / \$39 (NH *2)	\$28 / \$27

Notes: *1 A-10 looks like M-3 but declination is "fixed," not adjustable; *2 NH is balanced for northern hemisphere: *3 Global feature

No mirror?

Navigation instructors look for fluid and accurate bearings taken in the field. These four steps and practice lead to increasing speed and accuracy:

1) Move your feet to square up with your body facing the target (Figure 1 Suunto manual image)

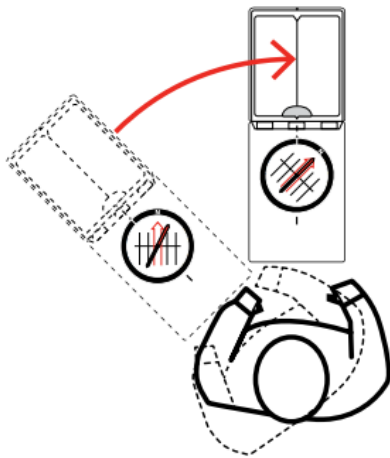


Figure 1. Moving body to square with target.

2) Drop elbows to your side, cradling the compass flat in your hands at mid-chest level

3) Turn the bezel ring to put "Red Fred in the Shed," red end of magnetized compass needle in the orienting arrow on the bottom of the housing.

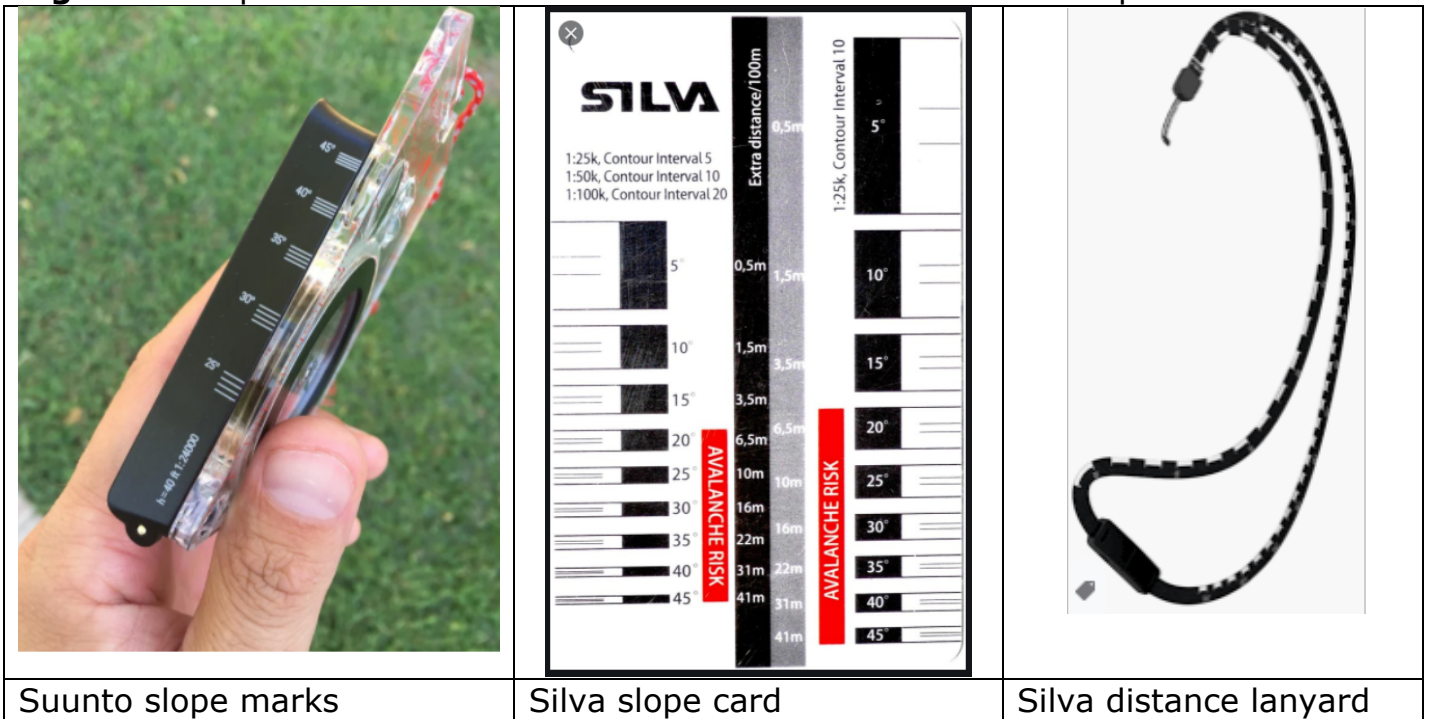
4) Read the bearing along the direction of travel line (or triangle).

If your compass is mirrored, follow 1 to 3, then extend slightly bent arms to view the target keeping the compass flat. With mirror tilted to around 45°, you could make a small adjustment, if warranted, then read the bearing.

No housing with slope hashmarks?

Students generally do not discover the purpose of the slope hashmarks on the Suunto MC-2. Simply match the hash marks to best fit the contour line spacing on your 1:24000 or 1:25000 map/compass paired scales. Some Silva models come with both a slope card and distance lanyard. See Figure 2.

Figure 2. Slope and distance tools embedded in or attached to compass.



No clinometer?

If you go with a mirrorless compass without a clinometer needle to measure slope, how might you find the angle with another tool? Even with the pandemic, water in a cylinder will find level if placed on a level surface.

1) Place your half-filled, cylindrical water on a level surface. Scribe a black line with a permanent marker at that halfway mark.

2) Measure the perimeter (distance around) and record as "P."

- 3) Set the bottle, now tilted, on the slope to measure.
- 4) Measure the distance from your black line to the lowest point the water reaches and record as height "H."
- 5) Your slope gradient "G" will be $G = (2 * \text{Pi} * H) / P$ where $\text{Pi} = 3.14$

At steeper slopes, a narrower bottle improves accuracy.

Evidence for accuracy?

The "Humble Trekker" Dave [states](#) that any mirrored compass advantage is not significant for most navigation problems. He claims +5 degrees improvement but notes that in most wooded/mountainous areas, even within 10 degrees is adequate. He notes that competing orienteers use non-mirrored compass. Repeated Google searches did not expose any evidence-based claims for superiority.

Seattle and Foothills Navigation Committee member Bob Boyd maintains that mirrors make for better accuracy and challenges navigators to take upslope bearings with a non-mirrored compass. In retirement the land surveyor consults with instrument manufacturing outfits.

--Peter is a veteran wilderness navigation instructor who loves passing along navigation skills to younger generations (including the grandchildren). Contact him at <mailto:p.hendrickson43@gmail.com>.

--Other Notes. Suunto compasses may be in short supply this fall.

Where was the front-page smartphone photo taken?

- a) University of Washington Arboretum**
- b) Center for Urban Horticulture**
- c) Heybrook Ridge, Short Landfall Problem**
- d) Lake to Lake Trail, Bellevue**



Discussion. Seattle Wilderness Navigation students learn both leapfrog (person to person bearing following) and feature to feature (tree or rock to tree or rock) techniques. Leapfrogging may be used with low visibility or an absence of cultural or natural features. For many years, Stewardship volunteers worked an October "Brushout" to prepare the Heybrook site for fall and winter field trips.

By July the power lines site was way grown over. Our California grandchildren (9, 11 and 13) completed the field trip with their grandparent instructors. Cayesh (foreground) and his brother Diran (see arrow) worked as a pair. Grandmother Nancy Temkin (4'11") worked with younger sister, Siula (4'7") – they both virtually disappeared in the fern field and heavy timber. Cayesh earned the Wilderness Navigation badge after earlier completing the online components.

Mountaineers Required Compass Features Wilderness Navigation & Other Courses

Revised October 2020

1. **Adjustable declination:** This feature simplifies map and compass work. Most compasses with adjustable declination have an adjustment screw, usually brass or copper-colored, and a small key attached to the lanyard. Some have a 'tool-less', pinch-to-adjust feature.

- All students **MUST** have a compass with adjustable declination. The presence of a declination scale does not guarantee that it can be adjusted.
- Even if you already have a compass without adjustable declination, you may not use it in this course. Experience indicates that such compasses detract from the learning experience.

2. A **transparent rectangular base plate** with a direction of travel arrow or a sighting mirror.

- Transparency allows map features to be seen underneath the compass.
- A rectangular shape provides straight edges and square angles to plot on the map.

3. A **0 to 360 bezel** (the rotating housing) marked clockwise from 0 to 360 degrees in increments of two degrees or less. Bezels should be large to allow use with gloves - the larger size also improves accuracy. Do not get one marked in 0-90 degree quadrants OR one marked in 0-6400 mils!

4. **Meridian lines:** Parallel 'meridian lines' on the bottom of the interior of the circular compass housing rotate with the bezel when it is turned. Longer lines are better. Meridian lines run parallel to the north-south axis of the bezel, however turned, for use with a topo map.

5. A **ruler and/or gradient scale** engraved on one of the straight edges, used for measuring distances. In the U.S. 1:24000 scales (rather than 1:25000) are preferred. Both are acceptable.

6. A **3 to 4-inch base plate**. A longer straight edge makes map work easier.

Additional recommendations

- A sighting mirror in the cover: May reduce error introduced when moving compass from eye-level after sighting to waist-level for reading the dial. Protects the bezel.
- A liquid-filled housing: Reduces erratic needle movement (common on better compasses). In some cases, steadying the compass needle can be difficult. Beware swinging compass – a crash could start a leak.
- An inclinometer: A gravity driven arrow that allows you to measure slope angle.

Current favorites: Suunto, Silva and Brunton are favorites. All have adjustable declination. Their quality and usability varies, so **keep any receipt**. We have unfortunately seen defective compasses in the past.

Maker	Models	Features +	Features -	Vendors	Cost
Silva of Sweden	Ranger 2.0	Slope card, Luminous No mirror, Bendable	Declination obscured Lacks clinometer	Forestry Supplies, Online Liberty Mountain, Online	~\$45
	Explorer Pro				~\$35
Suunto of Finland	MC-2 Pro	Northern Hemisphere Mirrorless 20 degree tilt margin	Lacks clinometer	REI, Online	~\$56
	M3-D Leader				~\$44
	MC-2G Navigator				~\$95
Brunton of Colorado	TruArc15*	*Global needle, mirror Fewer scales	Bezel may pop out Skinny Mirror	REI, Cabela's, Online	~\$50-60
	TruArc 7*				~\$37

Expect continuing improvements and corrections in models. Model variations and designations proliferate – insist on features 1 to 6 above. Beware cheap knock-offs. Remove plastic from Suunto mirrors and Brunton bezels before use. Small bubbles are OK but large bubbles interfere with the needle.

(Rev 30Sep2020/ph bb)

Wilderness Navigation Course Offerings—Seattle 2020*

The revised Wilderness Navigation 3.0 is focused on wilderness/backcountry travel including off trail navigation to meet requirements for Alpine Scramble, Basic Climbing, Snowshoe and BC Ski students (and others). Essential tools are maps, altimeters, compass, GPS and emergency communicators. The four components are (1) eLearning Workshop, (2) GPS online module, (3) In-Person Workshop and (4) Field Trip. Completers receive both Wilderness Navigation and GPS Navigation badges, reflecting the expanded navigation tool set. Fee.

Lead course administrator is Michael Hutchens, Seattle Co-Chair.

Dates 2020	1 - eLearning 2 - GPS Module	Date & Day	3 - Workshop 4 - Fieldtrip
TBD	Online, 2021	Oct 28, if offered	Program Center
TBD	Online, 2021	Saturday & Sunday, Nov 7 and 8	Heybrook Ridge

Introduction to GPS, Trip Planning & Work Flow Course—Seattle 2020*

Interested in learning to use your smartphone as a wilderness GPS? Maybe you've had a Garmin for years or the Gaia app on your smart phone and want to get the most out of them. This one evening course is revised. An online presentation with exercises is viewed and completed (4 to 5 hours) before the class (~2.5 hours). Applications are Gaia GPS and CalTopo. Prior completion of the Wilderness Navigation course is strongly encouraged. Note: This is not a comprehensive Trip Planning class. Fee and badge.

Course lead administrator is Steve McClure.

Dates 2020	Location
Wednesday, October 7	Online + Virtual or In person

Introduction to Map & Compass – Seattle 2020*

The Seattle Navigation Committee scheduled five 2020 Introduction to Map and Compass dates at the Seattle Program Center from 6:30 to 8:30 p.m. Instructors are drawn from the pool of Wilderness Navigation Course teachers.

This Getting Started introductory class does not satisfy the navigation requirement for Alpine Scramble, Basic Climbing, Snowshoe or Backcountry Ski. Baseplate declination adjustable compass loaners are available for the class. Fee, no badge.

Course lead administrator is Otto Greule.

Intro to Map & Compass	Location
TBD 2021	Online

Other Seattle 2020 Navigation Seminars/Clinics*

Seminars/Clinics	Dates
Instructor Training eLearning – No fee Program Center Lead seminar administrator is Nina Crampton.	Oct 20, If offered
Wilderness Navigation & GPS Equivalency – Fee Lead equivalency administrator is Dante DiTommaso	Rolling enrollment

Other Branches 2020 Navigation Courses*

Branch	Course	Dates
Everett	Basic Navigation Workshop & FT Camp Edward	Dates TBD
	Wilderness Navigation eLearning Option	Under Consideration
Foothills	Staying Found Field Trip	Oct 04
	Wilderness Navigation Field Trips	Oct 17, Oct 24
	Wilderness Navigation Instructor Training	Oct 10, Oct 13
	Digital Trip Planning & Navigation	TBD
	Navigating in Winter Terrain	Travis Prescott, TBD
	Wilderness Navigation Equivalency	Alan Davey, Contact
Kitsap	Both series have eLearning Wkshp Option	Dates TBD
	Wilderness Navigation Lectures Option	Dates TBD
	Wilderness Navigation Wkshp/Field Trip	Dates TBD
Olympia	Navigation Lectures 1 and 2 Lacey Community Center—Moving to online	Dates TBD
	Navigation Field Trips Kennedy Creek, Black Hills	Dates TBD
Tacoma	Wilderness Navigation Lectures 1 & 2; Field Trip	Uncertain
	Contact is Jerrick Linde	Uncertain

***Many courses are cancelled, postponed or moved to online during COVID-19 restrictions. Check mountaineers.org for up-to-date listings**

Mazamas (Portland, OR) 2020 Navigation Instruction*

Portland	Navigation Skill Builder Class – Videos, Wkshp, Field work	TBD
	Wilderness Navigation Smartphone GPS (Gaia)	TBD

*Northwest climbing clubs support similar goals for exploration, learning and conservation. Reciprocity is routinely granted across state lines. Mazamas lead navigation instructor is John Godino, contact johngo.pdx@gmail.com.

Contact Information Northwest & Partner Mountaineering Clubs

Organization	Web address	Notes
The American Alpine Club – Northwest Region	https://americanalpineclub.org/cascade-section	Cascade Section has a Washington & Oregon focused Facebook presence
BOEALPS, The Boeing Employees Alpine Society	http://boealps.org/about-us/	Primarily climbing; spring Basic Mountaineering Course
Bushwhacker Climbing Club	https://bwcc.clubexpress.com/content.aspx?page_id=22&club_id=172409&module_id=151320	Founded as 501(c)(3) 2003. Hike, climb, ski, socialize
Never Stop Moving	https://www.neverstopmoving.org/volunteer	Volunteer run Seattle LLC women’s rock climbing company
OSAT, One Step At A Time	http://www.osat.org/	Melds outdoor activities with recovery; 6 month glacier climbing course
WAC, Washington Alpine Club	https://washingtionalpineclub.org/	Founded 1916. Many Guye Cabin activities, Snoqualmie Pass
3 Mountain Education Alliance Partners + AMC		
American Alpine Club	https://americanalpineclub.org/ 303.384.0110 cascade@americanalpineclub.org	NW Region, Cascade Section https://aacbackyard.org/cascade-section
Appalachian Mountain Club	https://www.outdoors.org/	Founded 1876 Boston. 12 Chapters ME to VA, >40 facilities, 280,000 members
Colorado Mountain Club	https://www.cmc.org/ 303.279.3080	Founded 1912 Denver. With AMC support American Mountaineering Center & Museum in Golden
Mazamas	https://mazamas.org/ 503.337.2345	Founded 1894 Portland. Mainly a climbing club for those who have already summited a glaciated peak

Navigation Gear, Apps & Links of Interest

Your comments and suggestions are ever welcome regarding the Seattle Navigation website and links in Navigation Northwest.

The Gear...

[The new \(and much improved\) "Gaia Topo" map layer](#)

John Godino on [Alpinesavvy.com](https://www.alpinesavvy.com) summarizes the graphic improvements to Gaia's house special default map layer Gaia Topo in his recently published article.

<https://www.alpinesavvy.com/blog/the-new-and-much-improved-gaia-topo-map-layer>

"In January 2020, GaiaGPS introduced a new and vastly improved Gaia Topo map layer that has loads of great features, enough to probably serve as the only map layer needed for many people. Let's look at some of these features, and then some examples."

"I don't think there's a need for commentary on these, the images pretty much speak for themselves. Which map would you rather use?"

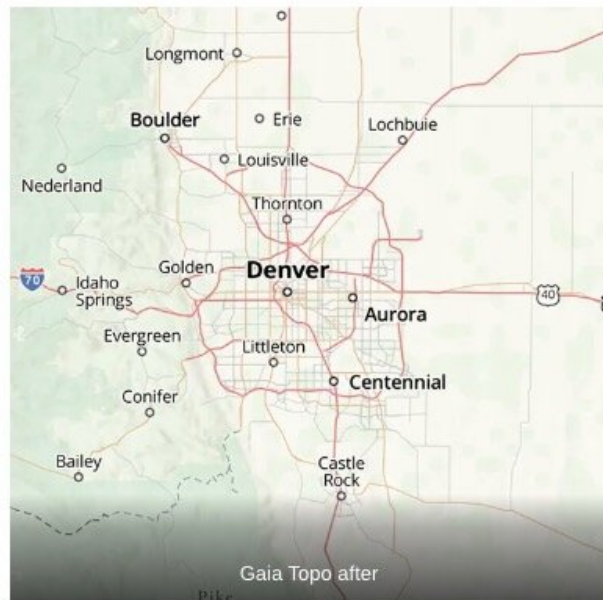
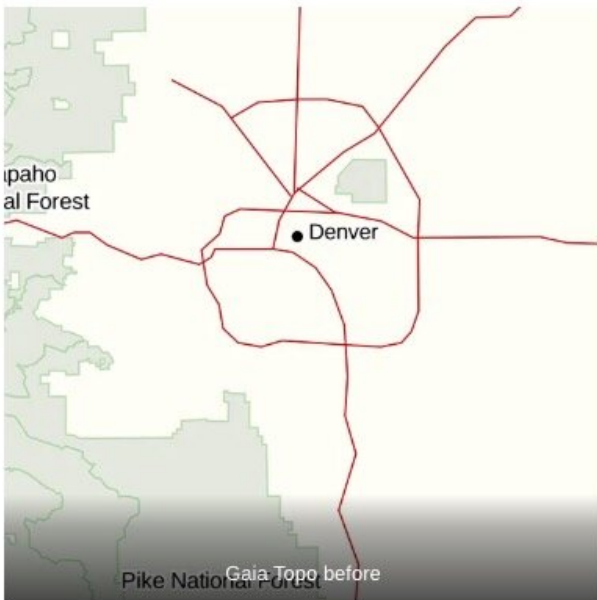


image: blog.gaiagps.com

The Apps...

- How about [Seek](#) using image recognition to field identify all things natural?

First published in the June 2017 issue...




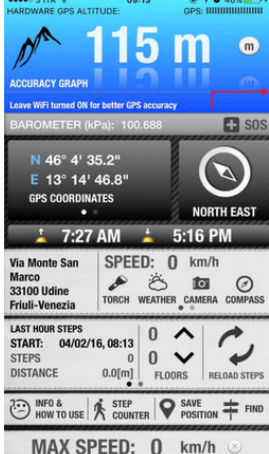
Free (or nearly) apps have been submitted by Navigation Committee chairs, veteran navigation instructors and leaders. Critical comparison criteria and field testing have provided a selection of favorites withstanding the test of time you can add to your phone for Free (or nearly).

Free (or nearly) Altimeter Apps for Smartphones

	App Name	Device	Developer	Cost
	Altimeter Pro	Android	PixelProse SARL	free \$1.99 In app
	Accurate Altimeter	Android	AR Labs	free \$1.99 In app
	Pro Altimeter	iPhone	Hunter Research and Technology	\$0.99
	Altimeter Plus	iPhone	Sichtwerk AG	\$1.99

For additional information on how to pick an altimeter, see the article in [Navigation Northwest](#) describing a systematic comparison of several Android apps.

Free (or nearly) GPS Apps for Smart Phones

Screen Shot	App Name	Device	Developer	Cost
	MyTrails	Android	FrogSparks	Free Pro €2
	GPS Essentials	Android	Schollmeyer Software Engineering	Free
	Handy GPS	iPhone	Anthony Dunk <i>[Note: Also authored Coordinate Master to convert Lat/Long to UTM]</i>	\$5.99
	Altimeter GPS	iPhone	Andrea Piani Immaginet Sri	Free Pro \$3.99

Criteria for Android and iOS GPS:

- 1) Backcountry oriented (Topo Maps rather than street maps)
- 2) Works offline, in airplane mode, with only the GPS on
- 3) Can display UTM and Lat/Long
- 4) Has at least NAD83/WGS84, but gets extra points if it has NAD27
- 5) Extra points if it's available for Android and iOS

- 6) Able to save data and send in GPX format
- 7) Able to import GPX format
- 8) Accurate (although I believe it's based on underlying GPS hardware)
- 9) Extra credit if tracks can be shared on a cloud service
- 10) Free

We used a 10-point scale with higher numbers meaning more of the above features were found. Also, there is a main point we need to make. Gaia is a serious app for backcountry use and has all the features we want. And Gaia Pro is currently free for one year to Mountaineers members. [Member Benefits](#)

Android Reviews (Brian)

GPS ESSENTIALS (mictale.com) -- 5 points
HANDY GPS (BinaryEarth) -- 2 points
MYTRAILS (FrogSparks) -- 6 points
RAMBLR (Bientus) -- 2 points

iOS Reviews (Emma)

ALL TRAILS -- 3 points, free
ALTIMETER GPS -- 4 points, free
DECLINATION -- 1 point, free
HANDY GPS -- 6 points, free
MAP TOOLS -- 3 points, \$0.99

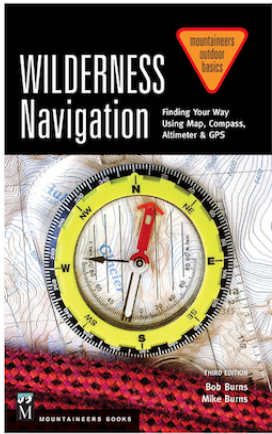
Brian and Emma's GPS app reviews in greater detail may be found here [Navigation Northwest](#)

--Brian Starlin is a past Seattle Navigation Chair and a frequent Navigation Northwest contributor. Contact him at brian.starlin@comcast.net

--Emma Agosta is a Seattle Navigation instructor and committee member. A geologist, she is fluent in land forms (and Italian). Contact her at emagosta@gmail.com

And the links ...

- How to [plan your own adventures](#)



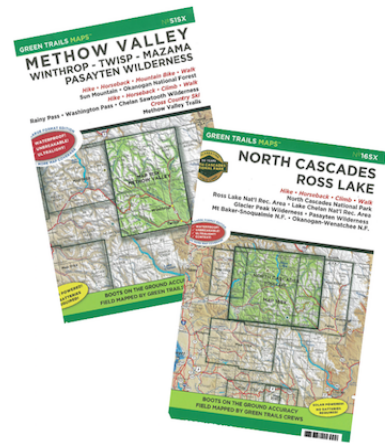
**WILDERNESS NAVIGATION, 3RD EDITION
BY MIKE BURNS & BOB BURNS**

The official navigation textbook used in outdoor education courses by thousands of students. Our updated edition includes a much-expanded GPS chapter, updated declination maps for the United States and the world, additional information on non-GPS navigational techniques, and more.

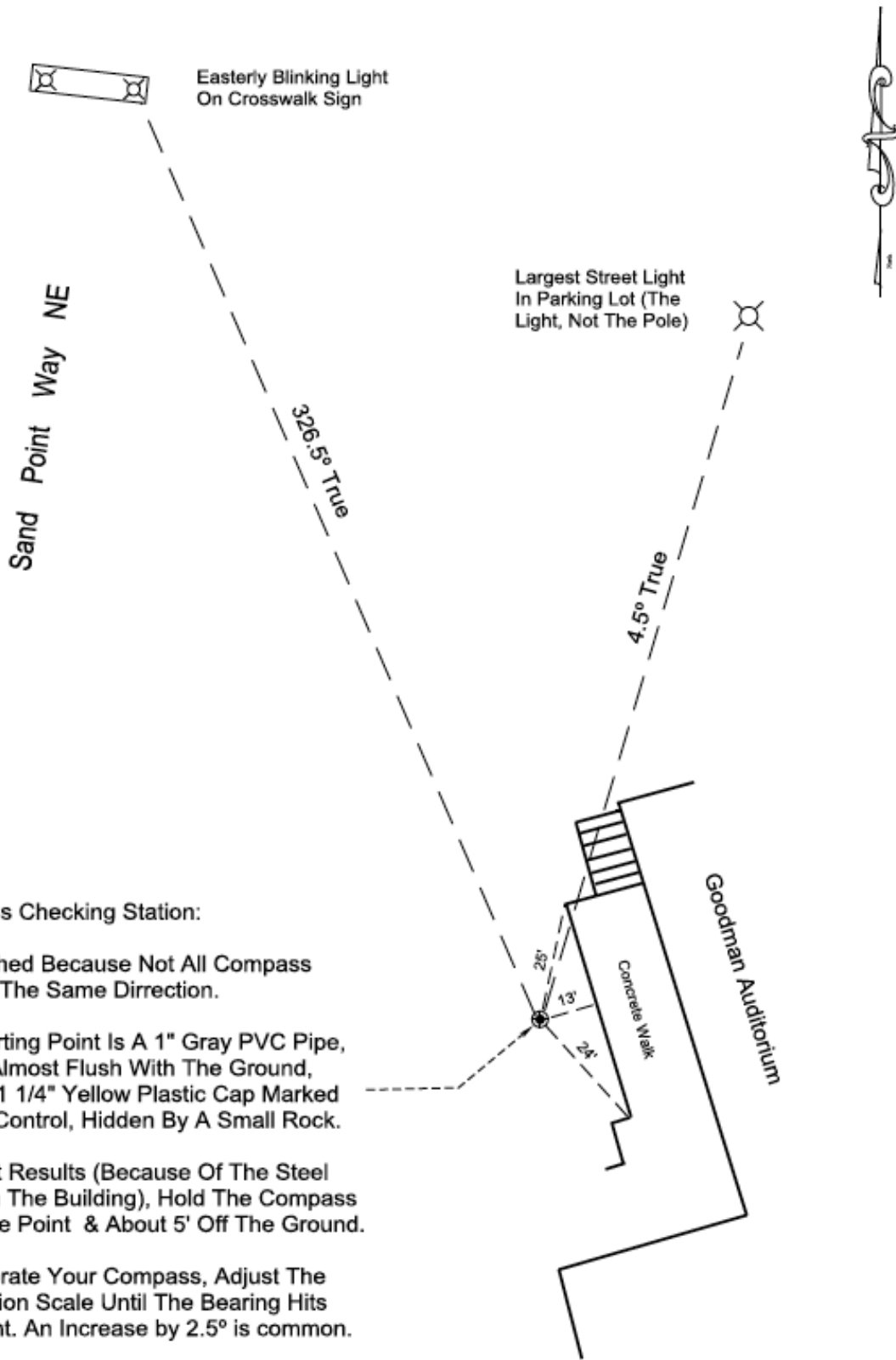
GREEN TRAILS MAPS

Green Trails Maps show the most current trail, road, and access information to national forests, national parks, state and local parks, and other public lands. Waterproof and tear-resistant.

20% OFF!
USE CODE
NAVIGATION
ON OUR WEBSITE AT CHECKOUT
VALID THROUGH 11/1/20



Mountaineers Books is an independent nonprofit publisher | www.mountaineersbooks.org



Compass Checking Station:

Established Because Not All Compass Point In The Same Dirrection.

The Starting Point Is A 1" Gray PVC Pipe, Driven Almost Flush With The Ground, With A 1 1/4" Yellow Plastic Cap Marked Survey Control, Hidden By A Small Rock.

For Best Results (Because Of The Steel Roof On The Building), Hold The Compass Over The Point & About 5' Off The Ground.

To Calibrate Your Compass, Adjust The Declination Scale Until The Bearing Hits The Light. An Increase by 2.5° is common.

Please Hide With Rock When Finished.

RWB
2/2014

Seattle Program Center Compass Calibration Station

Letters to the Editor

Hi Peter,

Saw that you are taking on the difficult yet rewarding task of VP Branches, thank you for your service! I sent this in a couple of years ago to a different VP but never heard back. Asking you to take this to your team of branch presidents and get a decision. Your team may or may not know about the various peak and hiking pins/patches that the branches give out, and the small community of avid seekers of those awards. (By the way, this is something we should advertise more to build up community.)

Anyway, the technical pins must be achieved by following the climbing code, generally meaning 3 people on the trip. Hiking usually involves 2 people. Reason for the 2nd or 3rd person is to have someone who can hike out and get help if an accident occurs or help is needed. Fast forward 20/30 years to today, when we have great electronic devices that in most cases are a better option than a person hiking out. I and most of my peers now carry either an emergency beacon or an InReach device. My wife loves my use of the InReach -- she can see where I am at any time, and can communicate by text, I let her know when I start from the trailhead and when I'm back at camp. In a real emergency, a notice can be sent out within minutes.

My ask is that an emergency communication device be recognized as an "extra person" on a trip, the device would count as one person when someone is documenting their destinations for claiming an award. Time for the Mountaineers to embrace the current technology. By the way, the 100 Peaks Around Mt Rainier got rid of this extra person requirement explicitly because of electronic devices being available.

Thanks for your consideration,

Dan Lauren
Past President
Mountaineers Board of Directors

Navigation Northwest Copy and Publish Targets 2020-21

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Gear, Apps & Links of Interest to Jeff Duffin jeffrey2k@hotmail.com

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Guidelines for contributor submissions:

- Word doc...Google doc OK but not a PDF
- 12 pt Verdana
- Standard margins
- Indicate in body of text where you would like figures/tables etc. to go
- Send figures, tables, photos as attachments or by separate email
- Refer to figures & tables by number in body of text
- No footnotes, header or footer
- Author blurb with preferred email contact address

Kindly contact editor for further information regarding topics, length, tables, figures, deadlines...

"Do not go where the path may lead, go instead where there is no path and leave a trail." --Ralph Waldo Emerson, American writer, 1803-1882

(Rev30Sep/ph)