

Spatsizi Wilderness: Exploring the Sacred Headwaters



Overlooking Gladys Lake from Guardian Mountain- Doug Beecroft Photography

**Proposal submitted by
Grace Brofman, Rosalind Brokaw, and Henry McKenna,
to the Ritt Kellogg Memorial Fund**



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In Short:

Name: Spatsizi Wilderness: Exploring the Sacred Headwaters

Dates: August 24, 2013 - September 5, 2013 (not including travel)

Days in Backcountry: 13 days, 12 nights

Participants: Roz Brokaw (2013), Grace Brofman (2013), Henry McKenna (2013)

Location: Spatsizi Plateau Wilderness Provincial Park, British Columbia, Canada

Activities: backpacking, exploration, eating, stargazing

Introduction

The block plan successfully cultivates a culture of adventure, and exploration of the natural world has been a central aspect of each of our experiences at Colorado College. Together we have hiked, backcountry skied, rafted, led trips, and taken classes in a wilderness setting. As we look ahead to what the coming year holds for each of us, it is fitting that we celebrate our college years together in a culminating expedition to an area of the world we have not yet ventured: northern British Columbia.

In a remote region of north-central British Columbia lies a rich wilderness area of vast mountains, cold lakes, meandering rivers, and lush valleys. This area is known to the Tahltan First Nations people as the Land of the Red Goat, one of the truly wild places remaining on earth. It encompasses the upper reaches of the Sacred Headwaters area, an alpine basin where three of Canada's most important salmon-bearing rivers originate, the Nass, Stikine, and the Skeena. It comes as no surprise that the area is regarded as sacred territory by the Tahltan people. Sometimes called the "Serengeti of North America," the Spatsizi is the heart of British Columbia's Stone Sheep range, and its meadows are home to the largest herd of Osborn caribou in BC. Moose inhabit wetland spruce areas; wolves maintain a healthy predator-prey dynamic; rivers and lakes hold copious amounts of fish; lynx and grizzly bears roam freely. It is here that we hope to travel, carrying backpacks and walking on foot into one of the few remaining untouched natural areas. Admittedly a challenging location to explore, The Spatsizi Plateau Wilderness is a challenge we are excited about and feel completely prepared to undertake.

Wilderness Character

This expedition is of remote wilderness character. We will access the park by floatplane. The park encompasses nearly 2,700 square miles, and the nearest maintained roads are a three-day walk from the park. The Spatsizi has been protected as a Wilderness Provincial Park since 1975, but has been an integral home and hunting territory for the Tahltan First Nations for ages.

Goals

- 1) Stay completely safe while immersing ourselves in the grandeur of British Columbia's wilderness.
- 2) Enjoy the company of friends, living fully in the moment before each of us embarks on the next chapter of our lives.
- 3) Respect the natural beauty of the area, keeping the area pristine by following Leave No Trace principles/ minimal impact procedures to the best of our ability.
- 4) Work together as a team, practice open communication, delegate and share leadership roles.
- 5) Expand our backcountry expedition skills.
- 6) Grow as responsible young adults capable of successful trip planning and execution, staying adventurous yet cautious, creating a wilderness experience we can draw on for the rest of our lives.

II. Participant Qualifications

List expedition members, expected date of CC graduation and Wilderness First Responder or Wilderness Emergency Medical Technician certification expiration in the table below.

| Expedition Member | Date of Graduation | WFR expiration date* |
|-------------------|--------------------|-------------------------|
| Grace Brofman | May 2013 | Jan 2015 (WMI, Jan 5-7) |
| Henry McKenna | May 2013 | Jan 2014 |
| Rosalind Brokaw | May 2013 | June 2014 |

Attach a thorough equipment list, including the detailed description of the contents of the First Aid kit.

* If WFR training is needed, list the intended training provider and course date. Funding is not released until all expedition members show proof of WFR or WEMT.

Are all proposed expedition members experienced and/or trained to meet your expedition objectives? **Yes**

Plan to Solidify Technical Skills

Given that we are only backpacking on this trip, the technical skills required beyond what we already are comfortable with are limited. However, orienteering is one facet of our expedition that we will want to practice in the coming months. The three of us plan on spending time in the backcountry practicing our orienteering skills over block breaks, spring break, and over weekends. Together we will be going on a backcountry skiing hut trip over 5th block break. Route-finding through snow and forests will be good practice for navigating in the Spatsizi. Spring break will likely involve a trip down to Utah's desert for some backpacking, where we can further work on our orienteering skills in the Canyons. Additionally, we will refresh bear safety protocols prior to our trip.

Grace is scheduled to recertify her WFR this winter (Jan 2013) through WMI. Roz is planning on taking a Swift Water Rescue course this spring, which will better prepare us in the event of river-crossings.

III. Expedition Logistics

Travel to and From the Trailhead

The group plans on driving together from Colorado Springs on August 21st, 2013. This will give us 3 full days to drive approximately 2200 miles (37 hours) to Ealue Lake, B.C., where we will spend the night before we begin our expedition. We plan on taking the shortest route possible, that being I-25 N through Wyoming then winding our way northwest through Montana, Alberta, and British Columbia. We will drive approximately 12 hours per day, or about 4 hours per person per day. All group members are comfortable driving for extended periods of time, and cannot wait to be trapped in an enclosed space with one another for hours on end.

We plan on chartering a float plane from Alpine Lakes Air into Spatsizi Plateau Wilderness Provincial Park. Local contact Wade Davis has offered to let us camp on his property at Ealue Lake prior to departing for the heart of the Spatsizi. We will be picked up at Ealue Lake, located just to the west of the park, and flown into Cold Fish Lake, where we will begin our expedition. We will be picked up at the same location 12 days later and flown back to Ealue Lake. We will start our drive back to Colorado Springs the next day the same way we came.

Itinerary

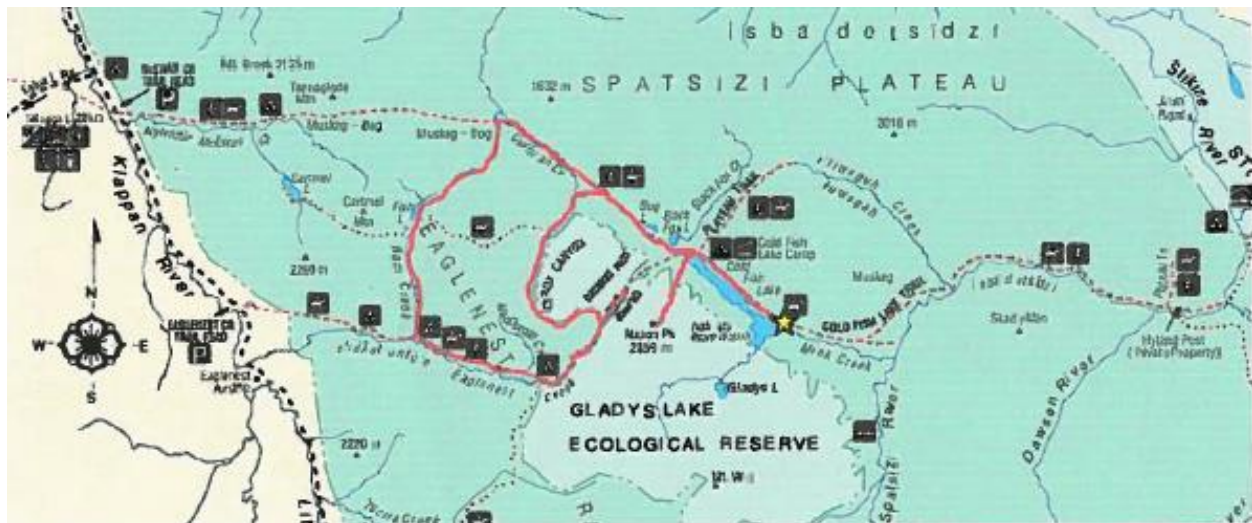
Our proposed route was not created with the goal of cramming in miles. While we do have some days that we expect to be quite challenging, most days include relatively moderate mileage. We have also included 2 layover days. Our goal is to be able to enjoy ourselves to the fullest by taking in our surroundings and not feeling pressured to reach a given destination. If at any point along

our route we feel exhausted, or for any other reason feel that we need to cut back our mileage, alternate routes can be easily determined to get us back to our pick-up/drop-off point on time. A couple alternate routes of either shorter distance or easier terrain are included in some days' itinerary.

Our current maps consist of a park map provided by Spatsizi Plateau Wilderness Provincial Park (www.env.gov.bc.ca/bcparks) and free downloadable maps, divided into 16 quadrants of the area (www.canmaps.com). While the larger park map shows trails, routes, and tent camping, it does not include topography. On the other hand, the larger-scale maps provide topography, but do not include established trails and are of poor resolution. By printing out the 16 topographic quadrants we were able to successfully transfer all features of the park map onto the topographic maps. We planned our route off of this compilation.

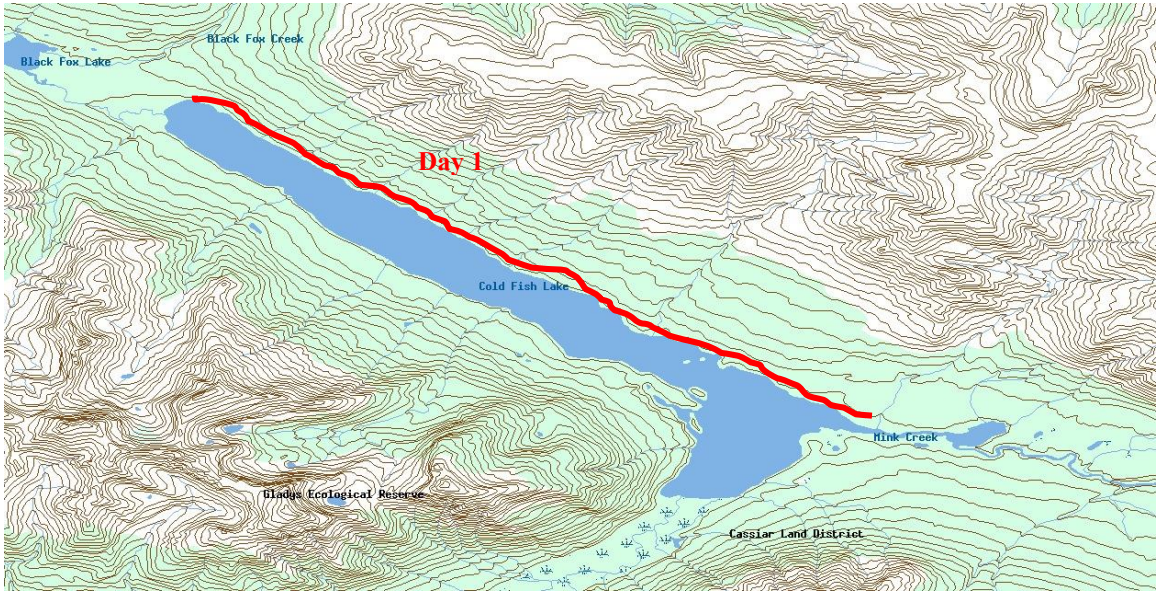
The quadrants of the topographic maps we use to plan our route correspond to the maps we will purchase for our expedition. These maps are of much better resolution and detail, at a scale of 1:50,000. Unfortunately, given the remoteness of the area we are travelling to, no high-quality maps are publicly available without purchasing. The maps we intend to use on the expedition are attached at the end of this section.

The two maps below show our complete route from start to finish (represented by the yellow star). The first map serves to show our route clearly in relation to other areas of the park, while the second map serves as a topographic reference.

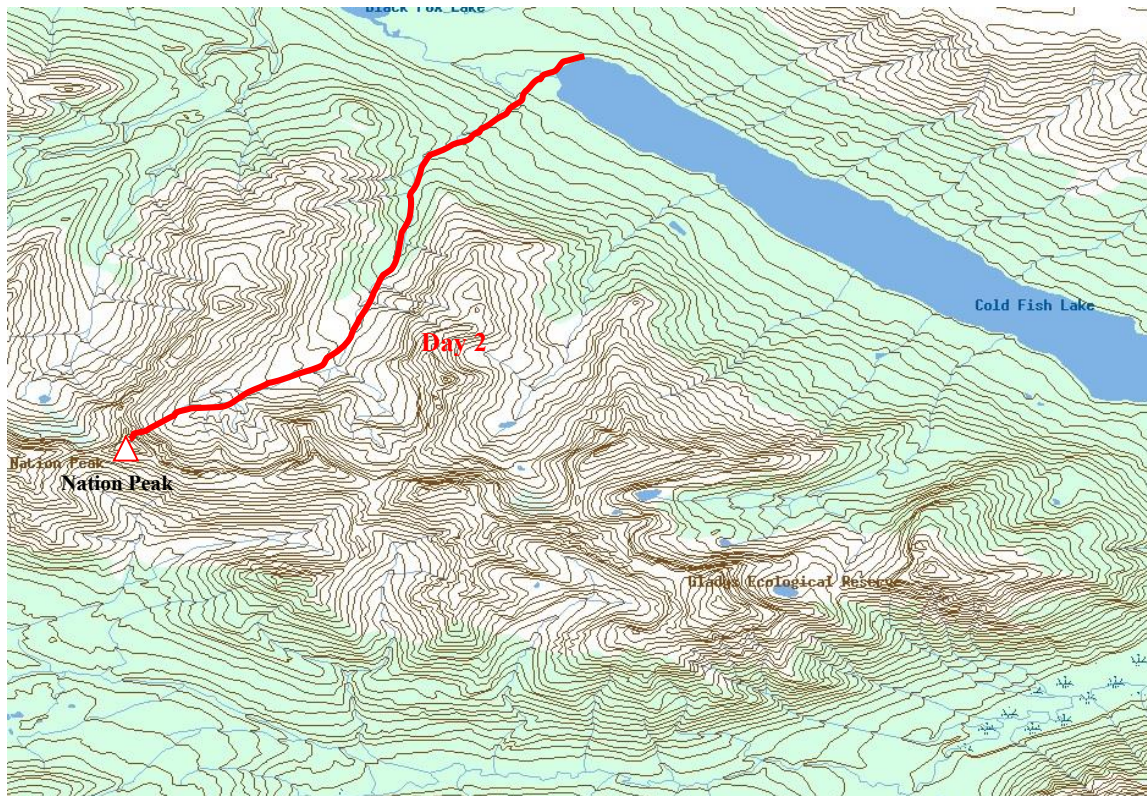




Day 1: Drop-off @ southern end of Cold Fish Lake by plane, follow CFL trail to the North end of the lake, camp at established campsite: ~ 7 miles
 map(s) needed: Cold Fish Lake
 Start elevation: 1269 m
 End elevation: 1239 m
 total loss: 30 m



Day 2: Layover, summit attempt of Nation Peak, camp at same site ~ 10-12 miles round trip
map(s) needed: Cold Fish Lake
Start: 1239 m
End: 2219 m
Total gain: 980 m



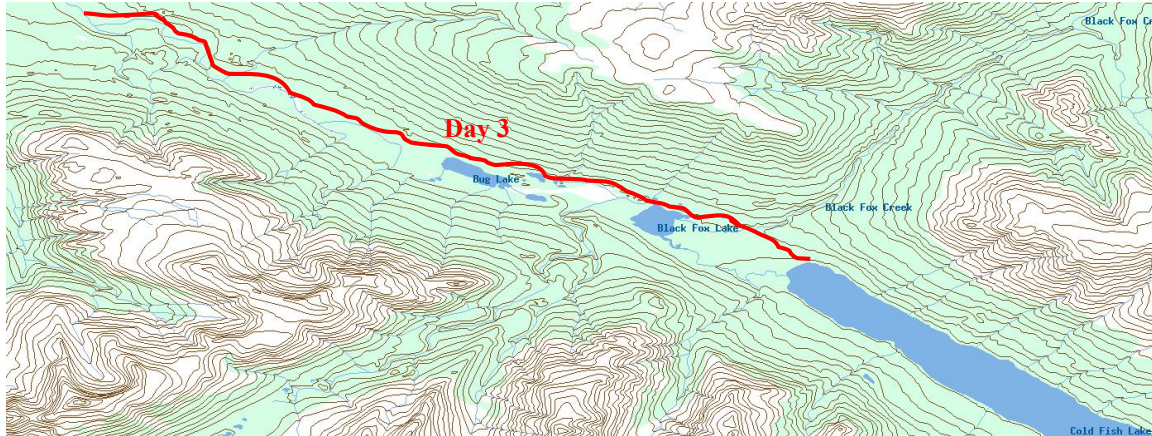
Day 3: Follow trail NW past Bug Lake, camp just past intersection of trails along Cullivan Creek: ~ 8 miles

map(s) needed: Cold Fish Lake, Cambridge Creek

Start: 1272 m

End: 1200 m

Total loss: 72 m



Day 4: Continue along Cullivan Creek until it splits from McEwan Creek Trail, camp near split: ~ 6.2 miles (Shown on next page)

map(s) needed: Cold Fish Lake, Cambridge Creek, Cullivan Creek

Start: 1188 m

End: 1209 m

Total gain: 21 m

Day 5: Head SSW (off trail) along unnamed creek (which later becomes Ram Creek) toward Fish Lake, camp along Fish Lake: ~ 9 miles (Shown on next page)

Start: 1209 m

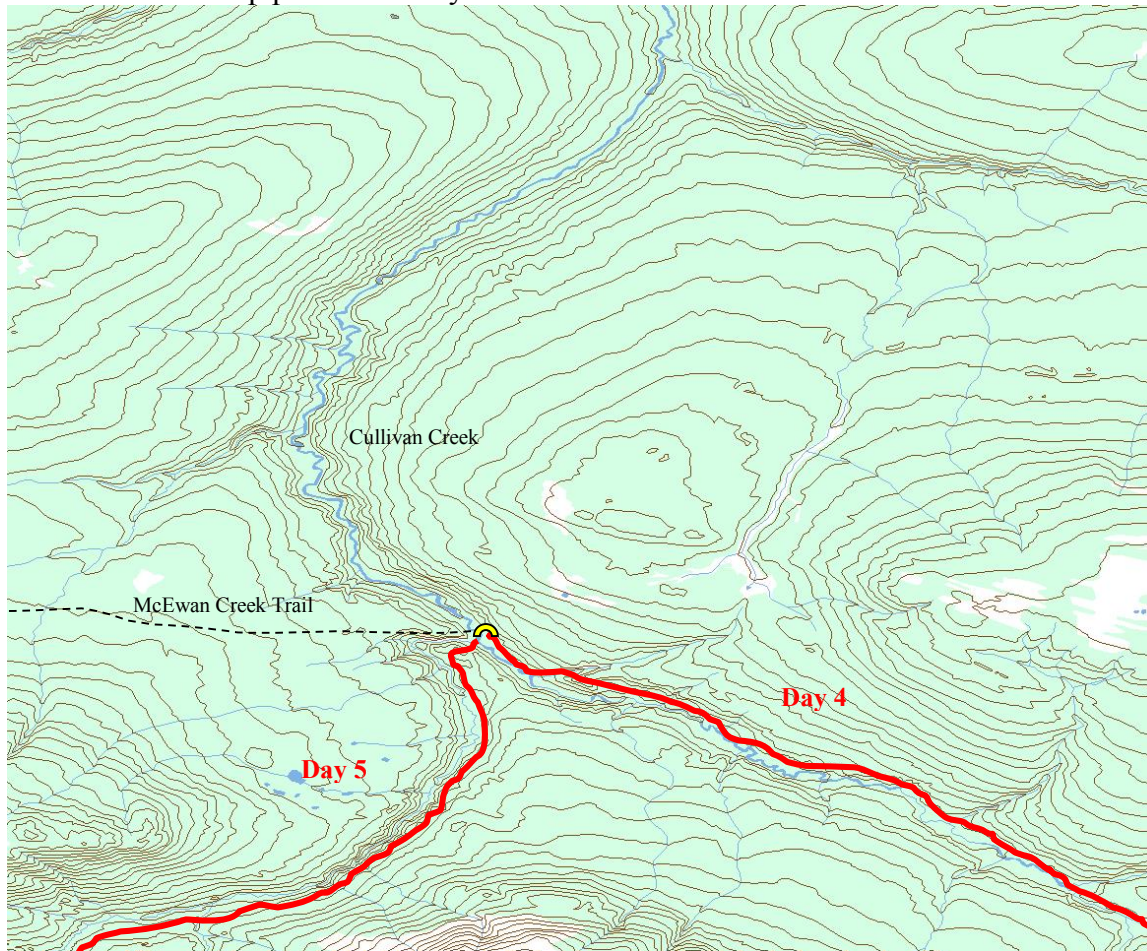
End: 1341 m (at Fish Lake)

Total gain: 132 m

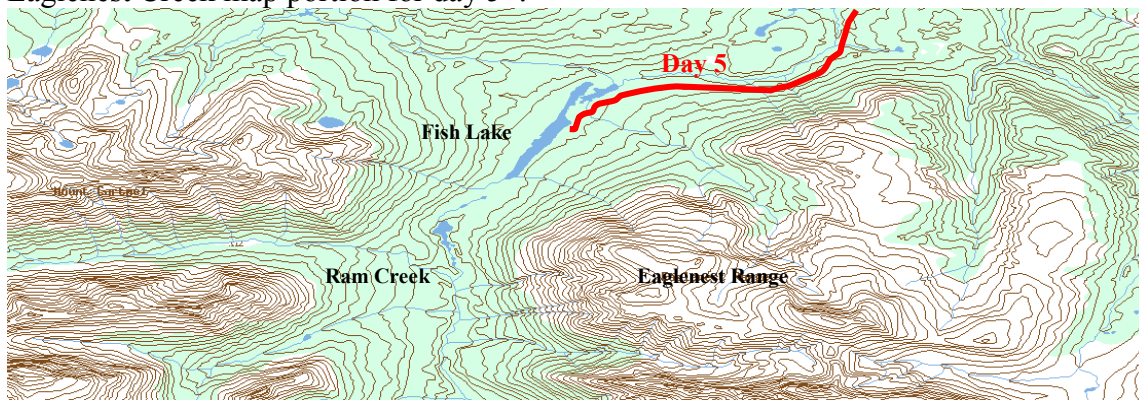
(*alternate route after day 5 to cut back mileage: from N. end of Fish Lake follow creek east along northern flanks of Eaglenest Range and connect with northern opening of Icebox Canyon. Assess further route from there, either south through Icebox Canyon or connect w/ Cullivan Creek and head southeast toward Cold Fish Lake.)

map(s) needed: Cullivan Creek, Eaglenest Creek

Cullivan Creek map portion for day 5:



Eaglenest Creek map portion for day 5*:



*These two lines do not match up because scales have been changed in order to focus on different areas.

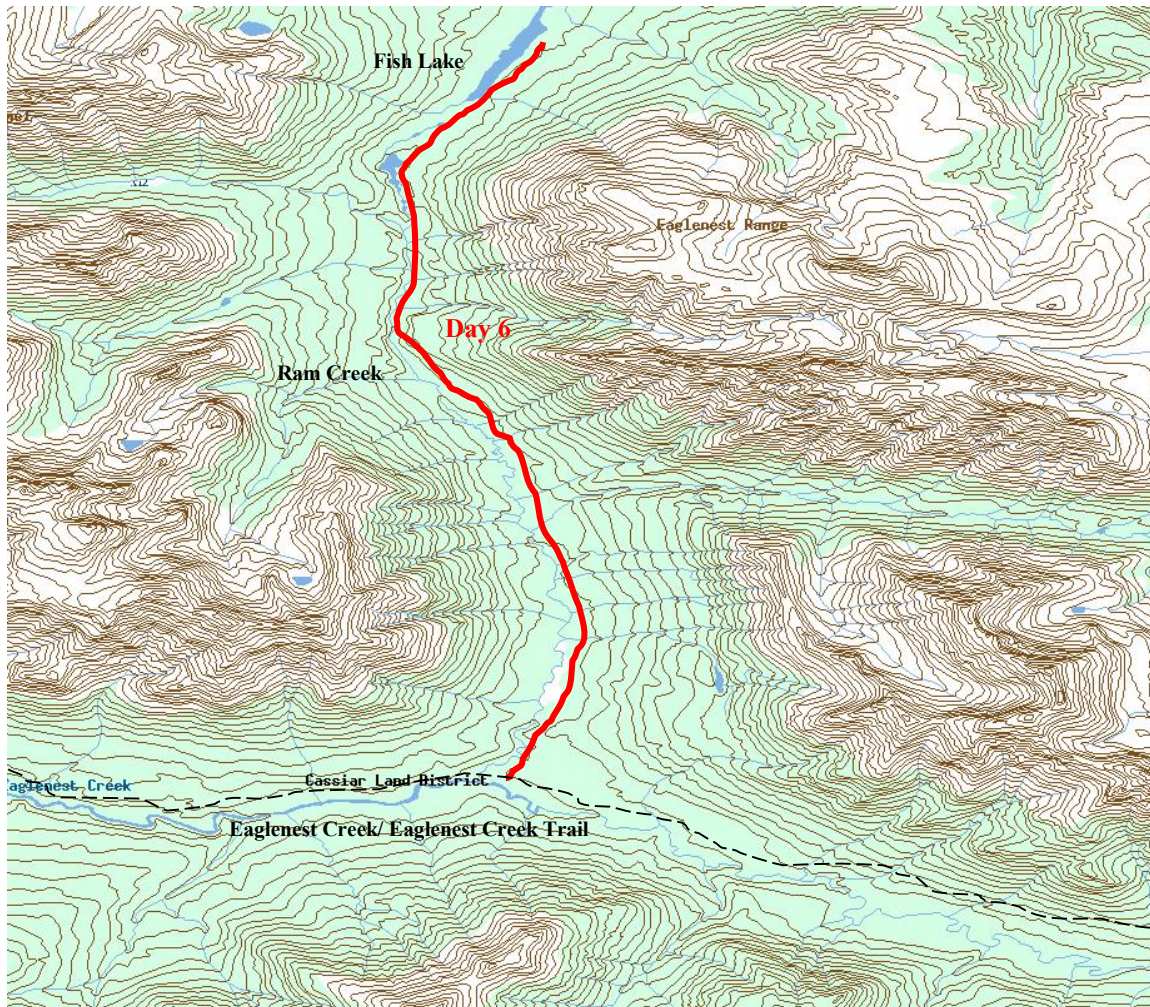
Day 6: Follow Ram Creek south to Eaglenest Creek/Eaglenest Creek Trail, camp near intersection at established campsite: ~ 4.5 miles

map(s) needed: Eaglenest Creek

start 1341 m

end: 1119 m

total loss: 222 m



Day 7: Follow Eaglenest Creek/Eaglenest Creek Trail east to MacDonald Creek, camp near intersection of MacDonald Creek and Eaglenest Creek at designated campsite: ~7.2 miles

map(s) needed: Eaglenest Creek

Start: 1119 m

End: 1254 m

Total gain: 135 m

Day 8: Continue NE along Eaglenest Creek, camp near where trail forks to Donahue Pass to the east and Icebox Canyon to the west: ~ 6 miles

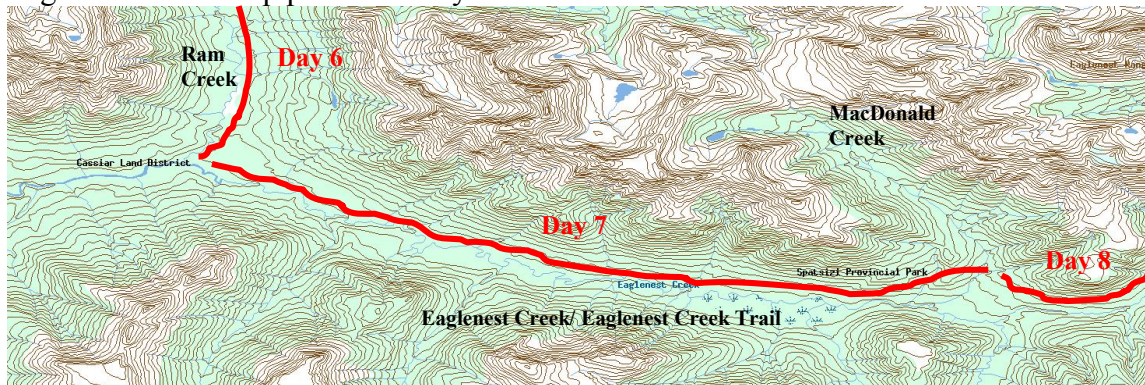
map(s) needed: Eaglenest Creek, Cold Fish Lake

Start: 1254 m

End: 1590 m

Total gain: 336 m

Eaglenest Creek map portion of day 7/8



Day 9: Layover, day hike up Donahue Pass: ~ 7 miles round trip

Start: 1590 m

Highest point: 1634 m

Low other side: 1444 m

Total gain (up and over): 323 m

Total gain (just to top): 133 m

(*alternate route after day 9 to cut back mileage: rather than going through Icebox Canyon, head east along the southern edge of Nation Peak toward Gladys Lake. From Gladys Lake head northeast to Cold Fish Lake.)

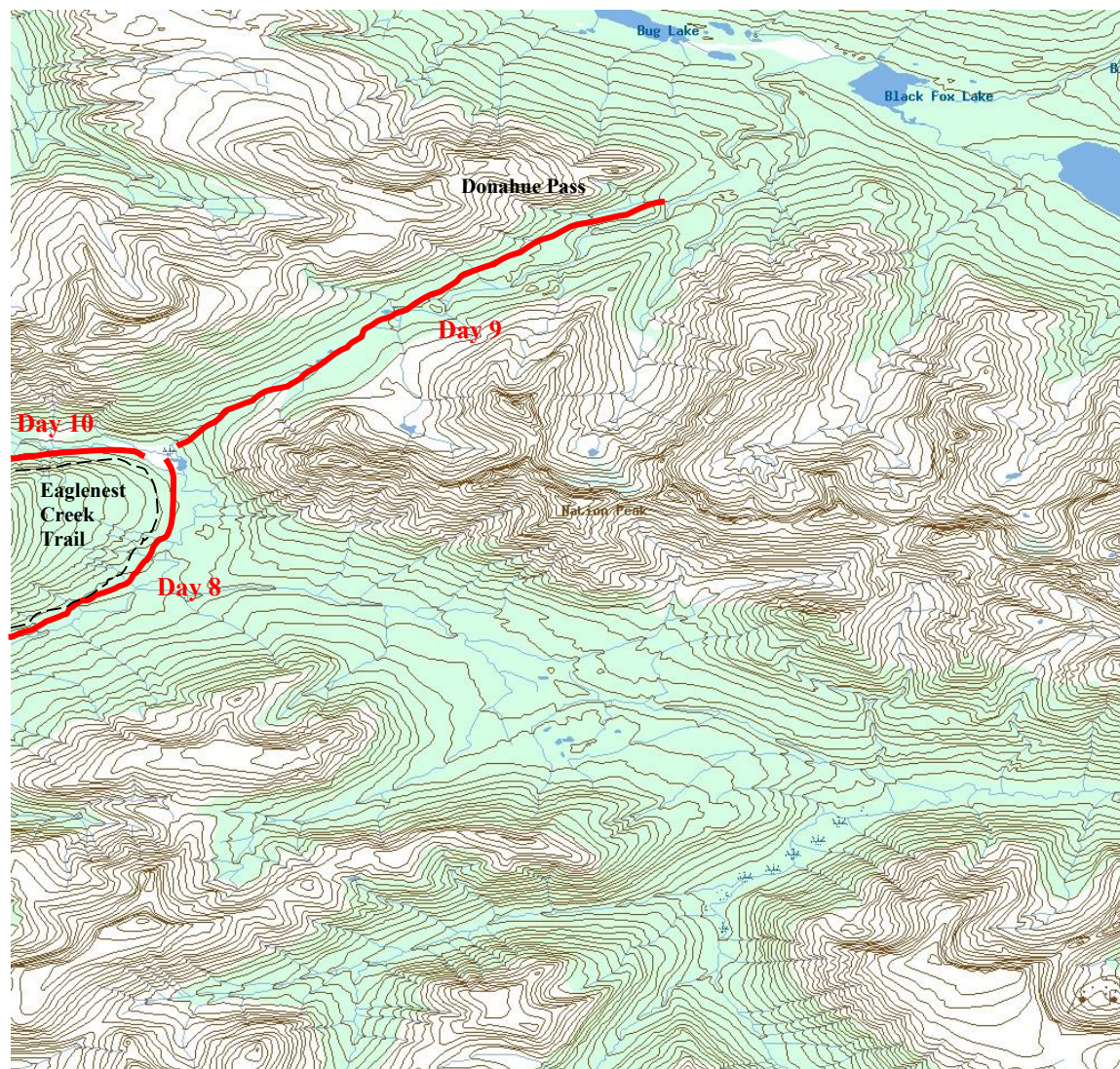
map(s) needed: Cold Fish Lake

Start (ice box): 1502 m

End (Gladys Lake): 1287 m

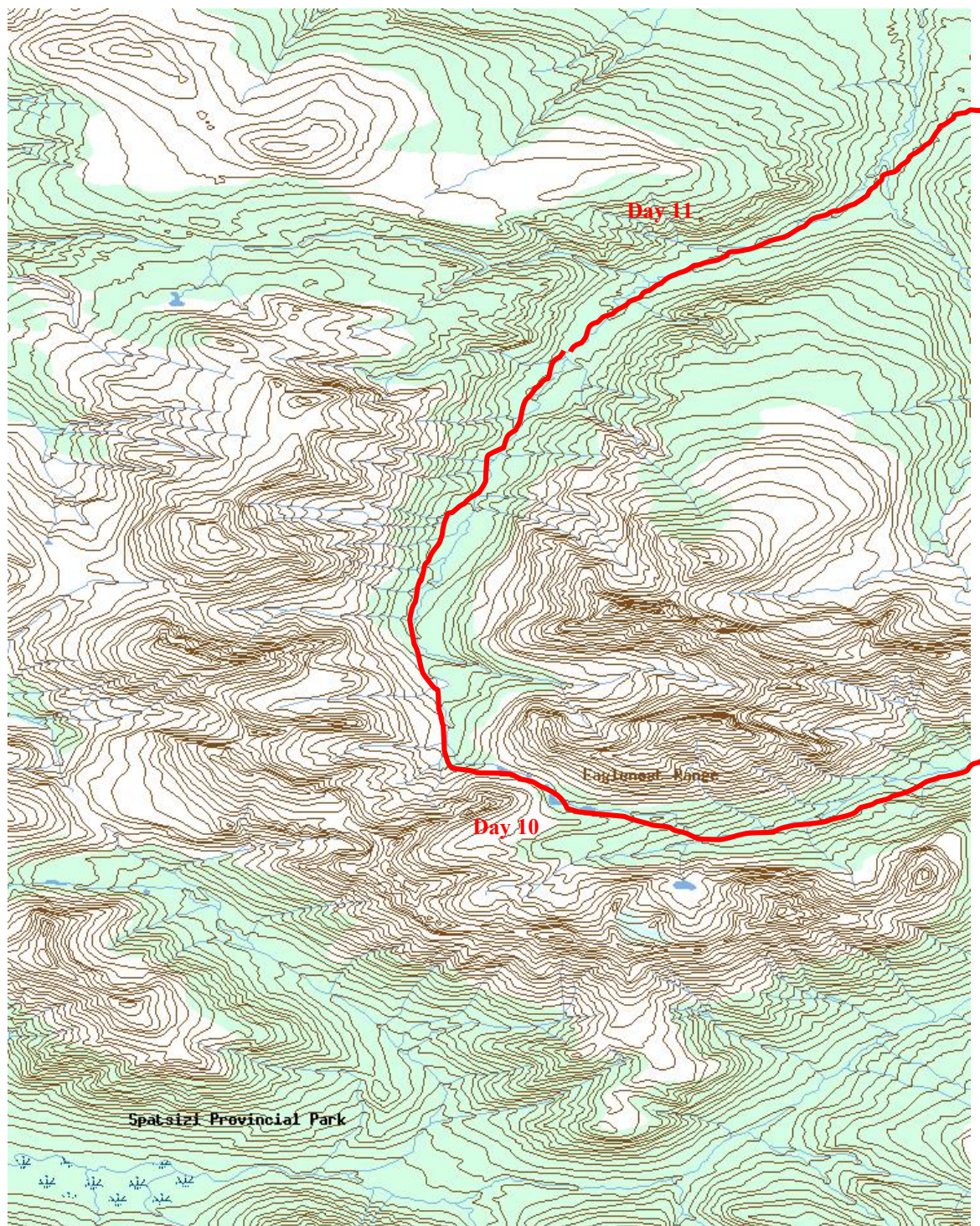
Total loss: 215 m

Cold Fish Lake map portion days 8/9/10



Day 10: Travel through Icebox Canyon, camp just @ northern end: ~ 7.5 miles
map(s) needed: Cold Fish Lake, Eaglenest Creek
Start: 1493 m
Summit: 2019 m
End: 1356 m
Total gain: 526 m
Total loss: 663 m

Eaglenest Creek map portion of day 10/11



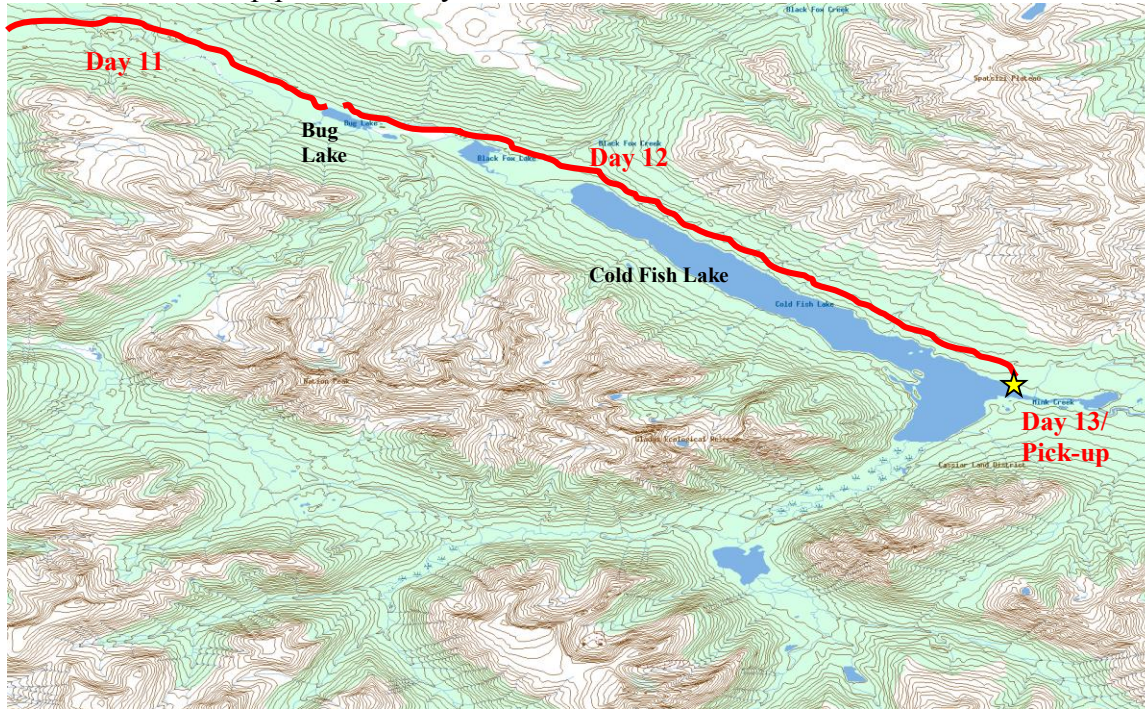
Day 11: Follow trail north along Cullivan Creek about 2 miles then head east along trail, camp at N. end of Bug Lake: ~ 6.7 miles

map(s) needed: Eaglenest Creek, Cambridge Creek, Cold Fish Lake

Start: 1356 m

End: 1328 m
Total loss: 28 m

Cold Fish Lake map portion of days 11/12/13



Day 12: Continue southeast along Cold Fish Lake Trail, camp @ southern end of Cold Fish Lake: ~ 7.6 miles

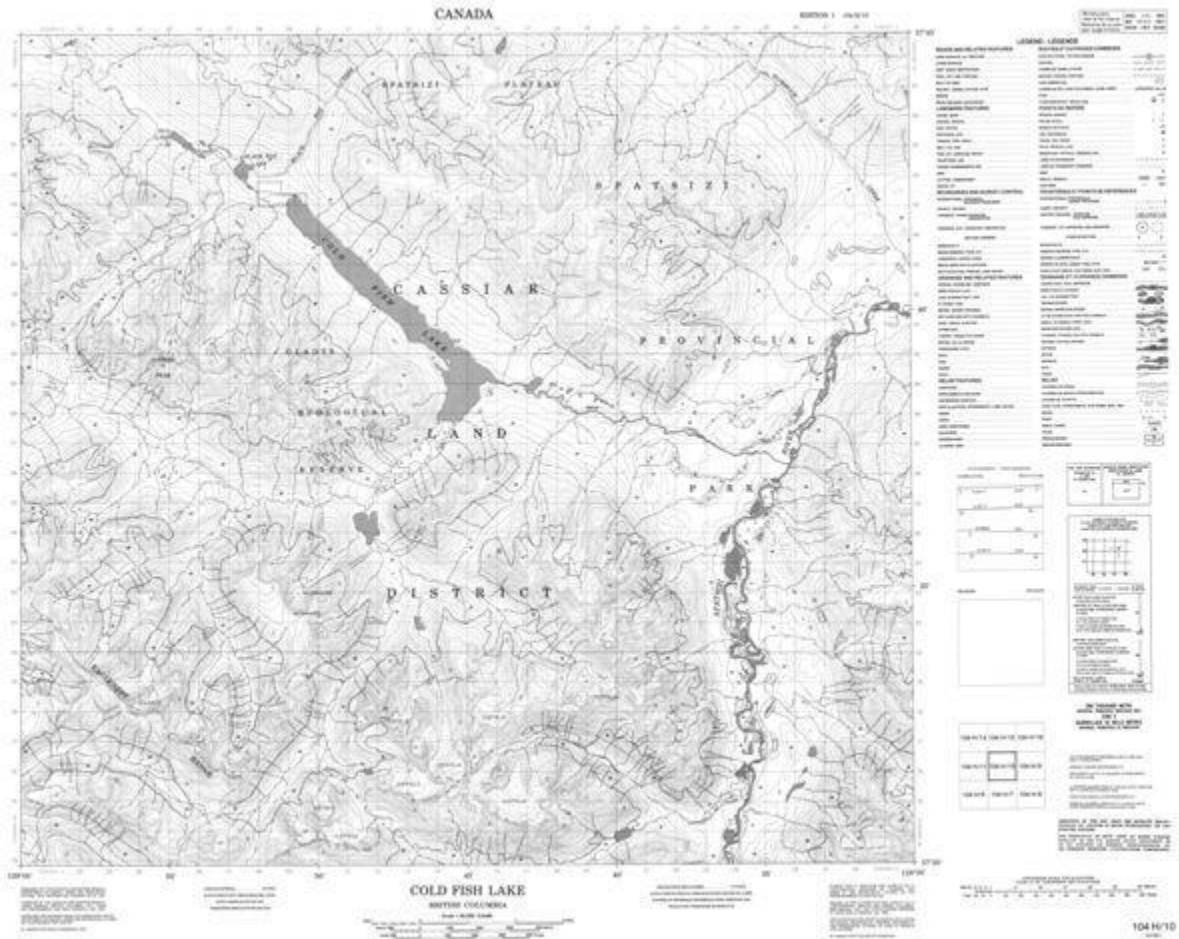
map(s) needed: Cold Fish Lake
Start: 1356 m
End: 1267 m
Total loss: 89 m

Day 13: Pack up camp, await pickup at southern end of Cold Fish Lake

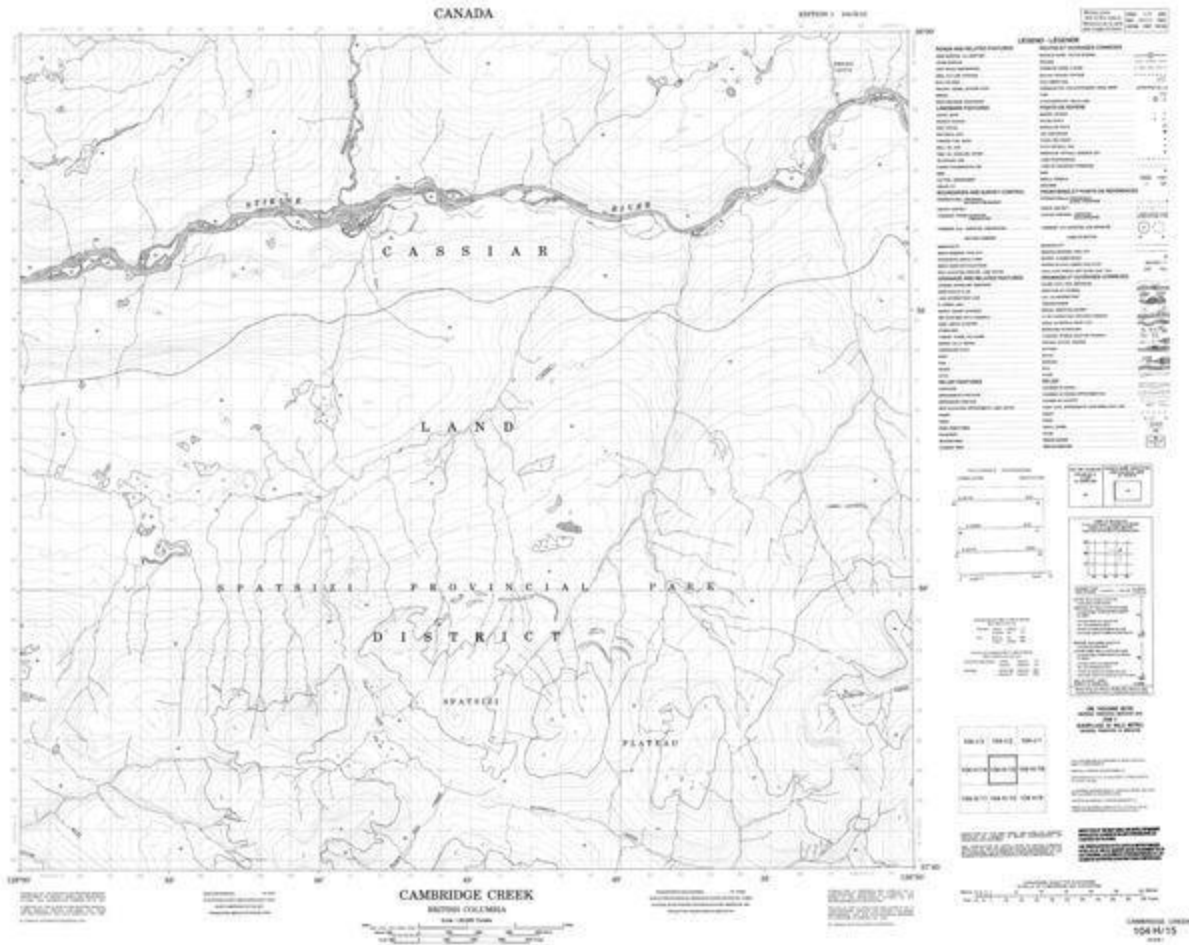
Total mileage (including day hikes): approximately 87.7 miles

*Although our planned route uses 4 maps, we intend on purchasing a total of 10. The remaining 6 maps are necessary for purposes of emergency evacuation or route change. The Ealue Lake, Kluea Lake, and No Title (this is the actual name) maps are to the west of our planned route, and show access to two trailheads (Eaglenest and McEwan Creek) that can be used incase of an evacuation by foot. These maps also show access to Ealue Road and Eaglenest Airstrip, both of which could be of use in an emergency situation. To the south and east, the Buckinghamhorse Creek, Dawson River, and Diamond Creek Maps show areas just beyond the park boundary, including a public accommodation northeast of Hyland Post which would be of use in an emergency situation. The compilation of these maps will give us a better sense of where we are at all times and will allow us to be better aware of alternative options.

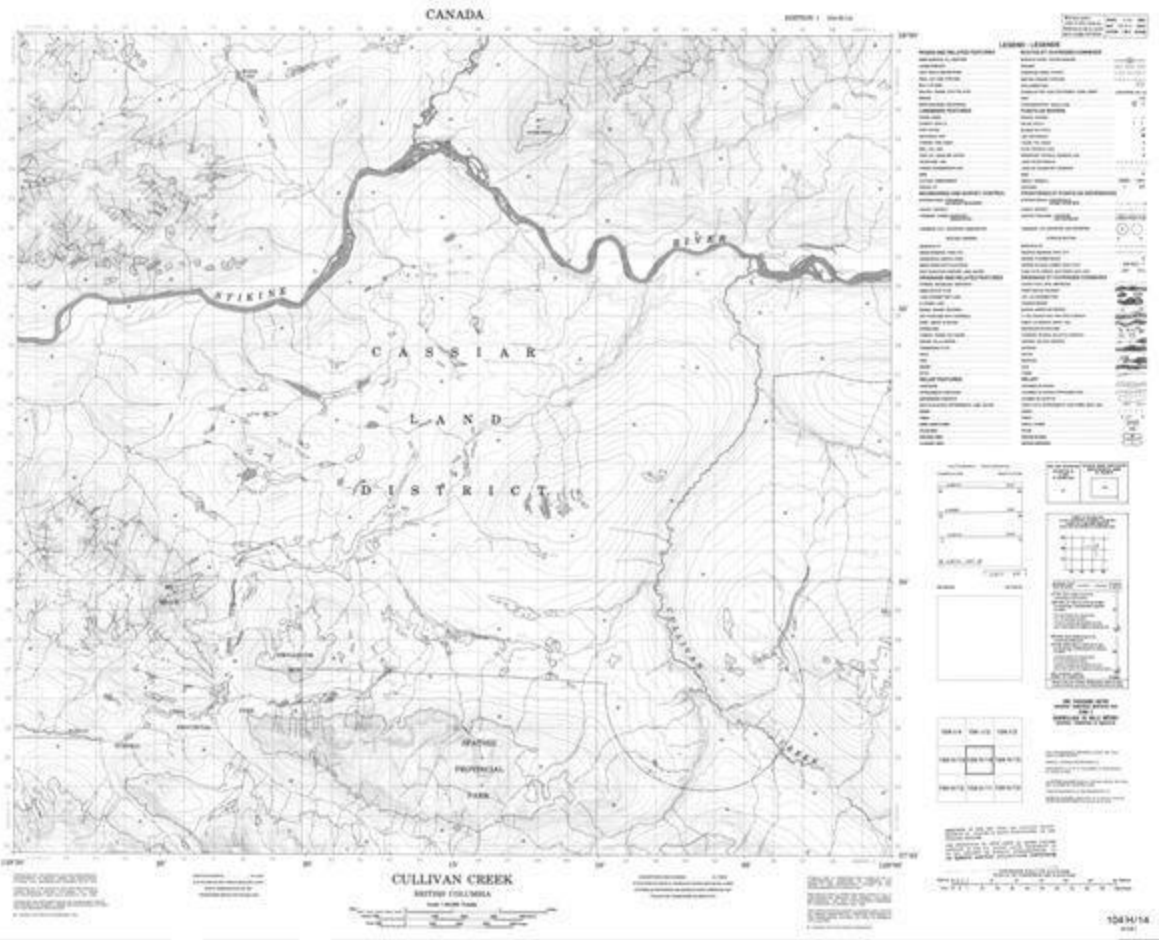
*Attached maps are shown in order of use, followed by accessory maps needed for route changing/ emergency situations.



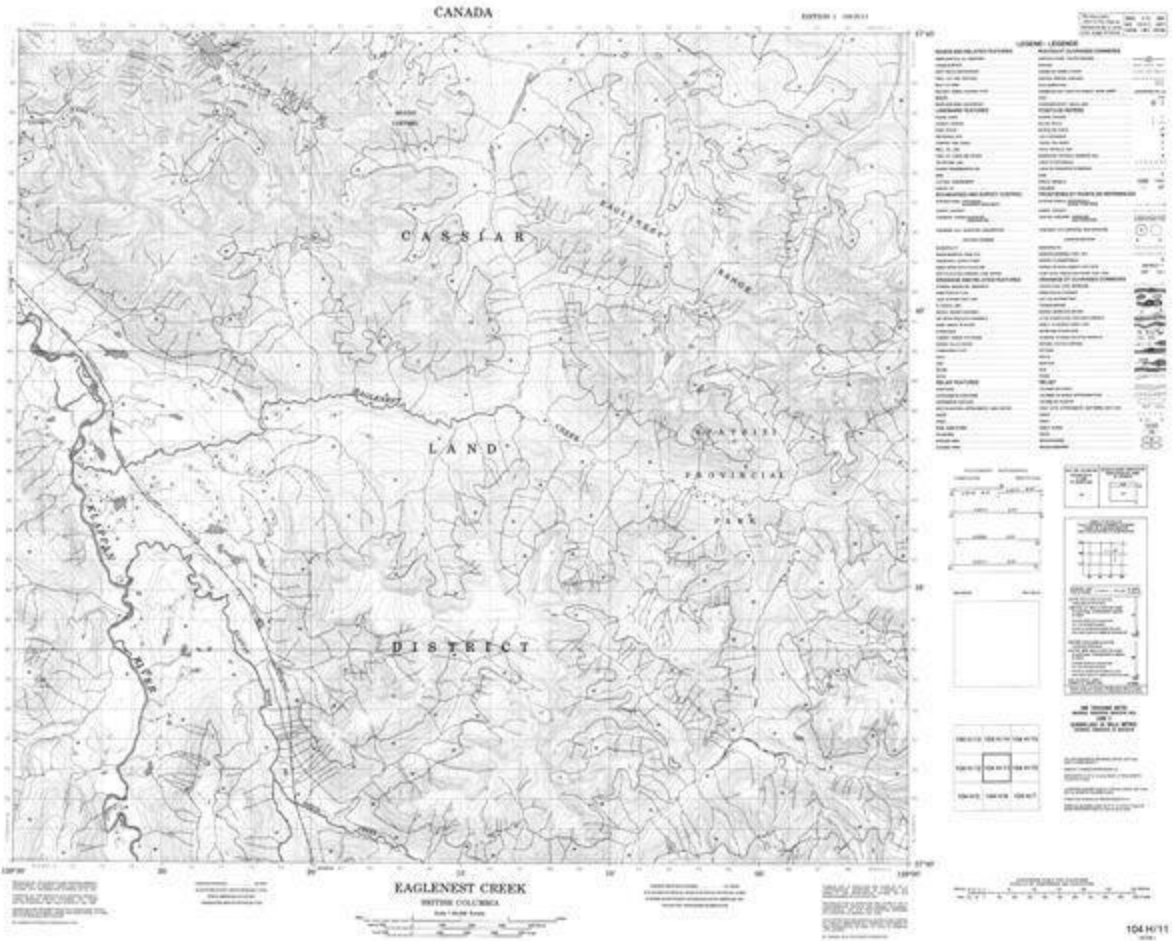
Map 104H10- Cold Fish Lake



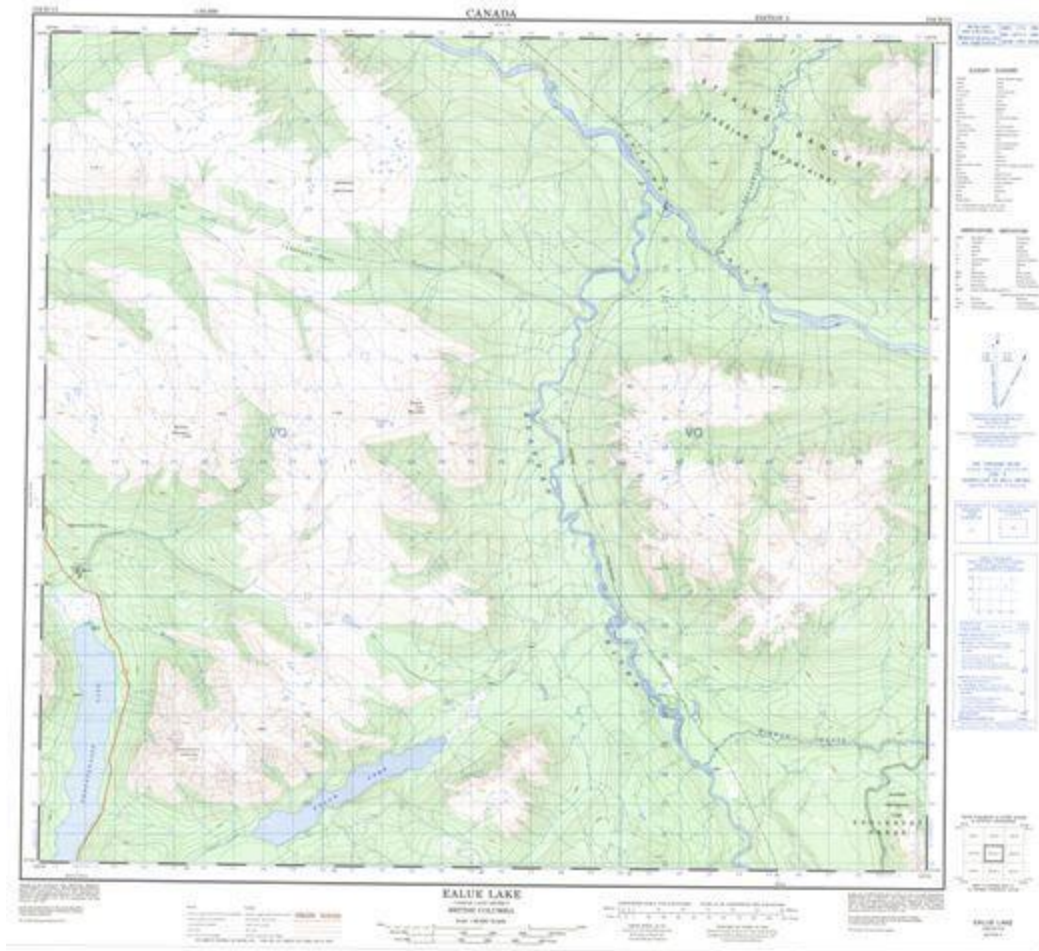
Map 104H15- Cambridge Creek



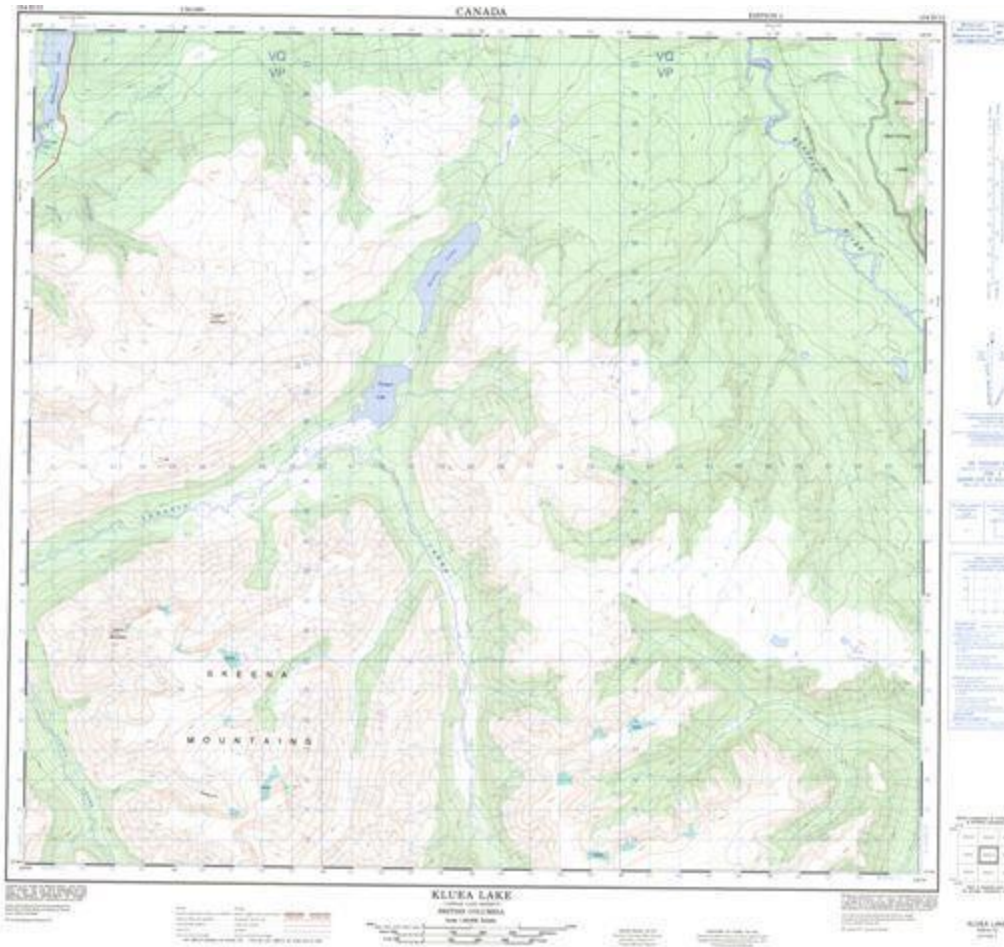
Map 104H14- Cullivan Creek



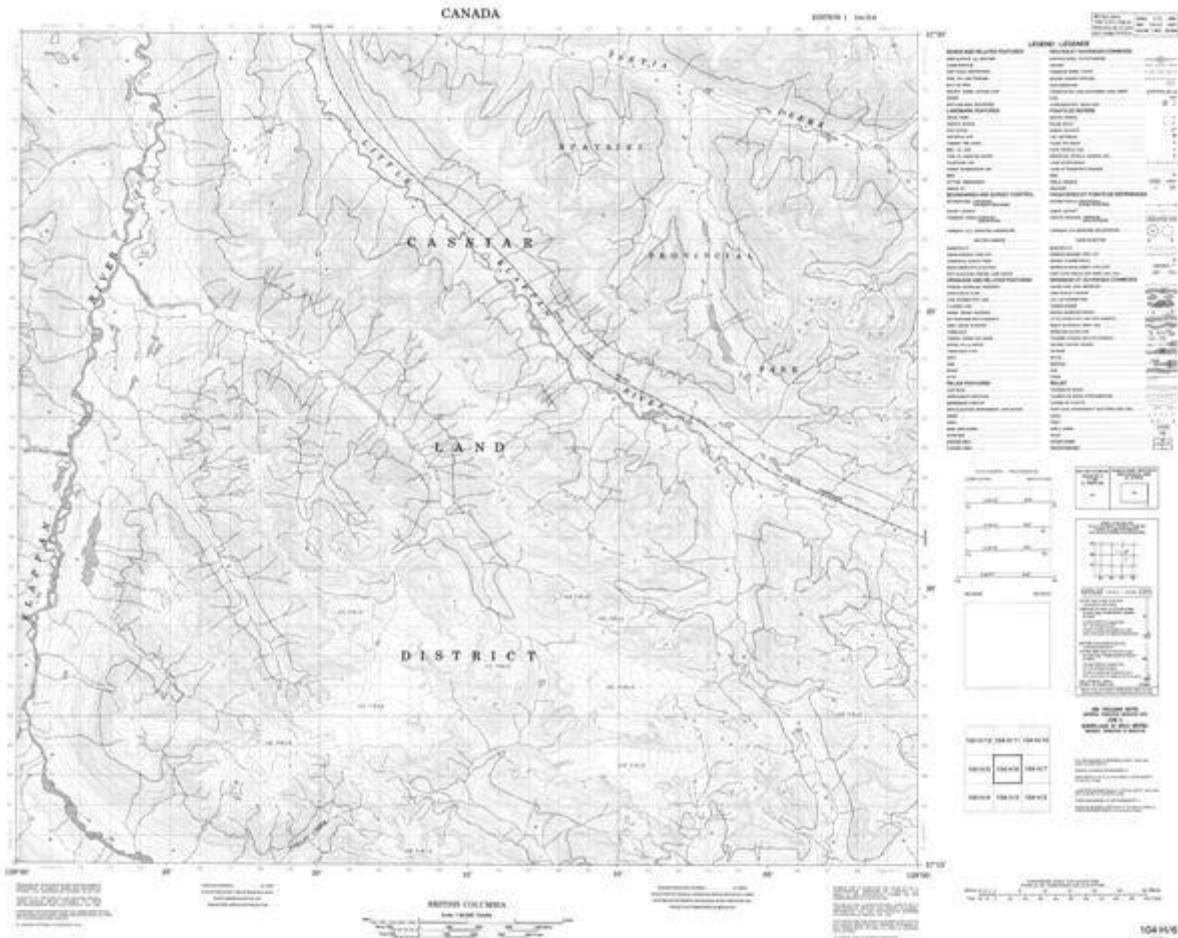
Map 104H11- Eaglenest Creek



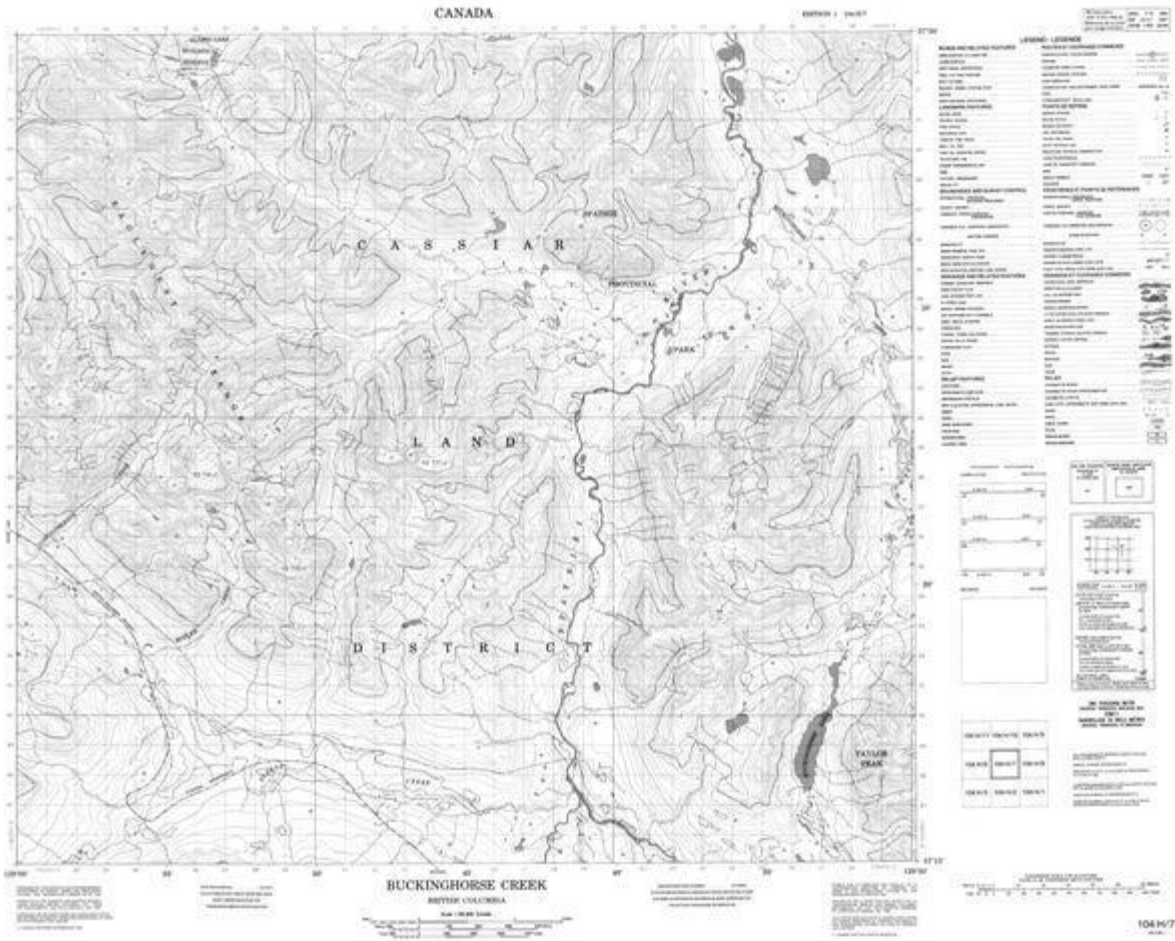
Map 104H13- Ealue Lake



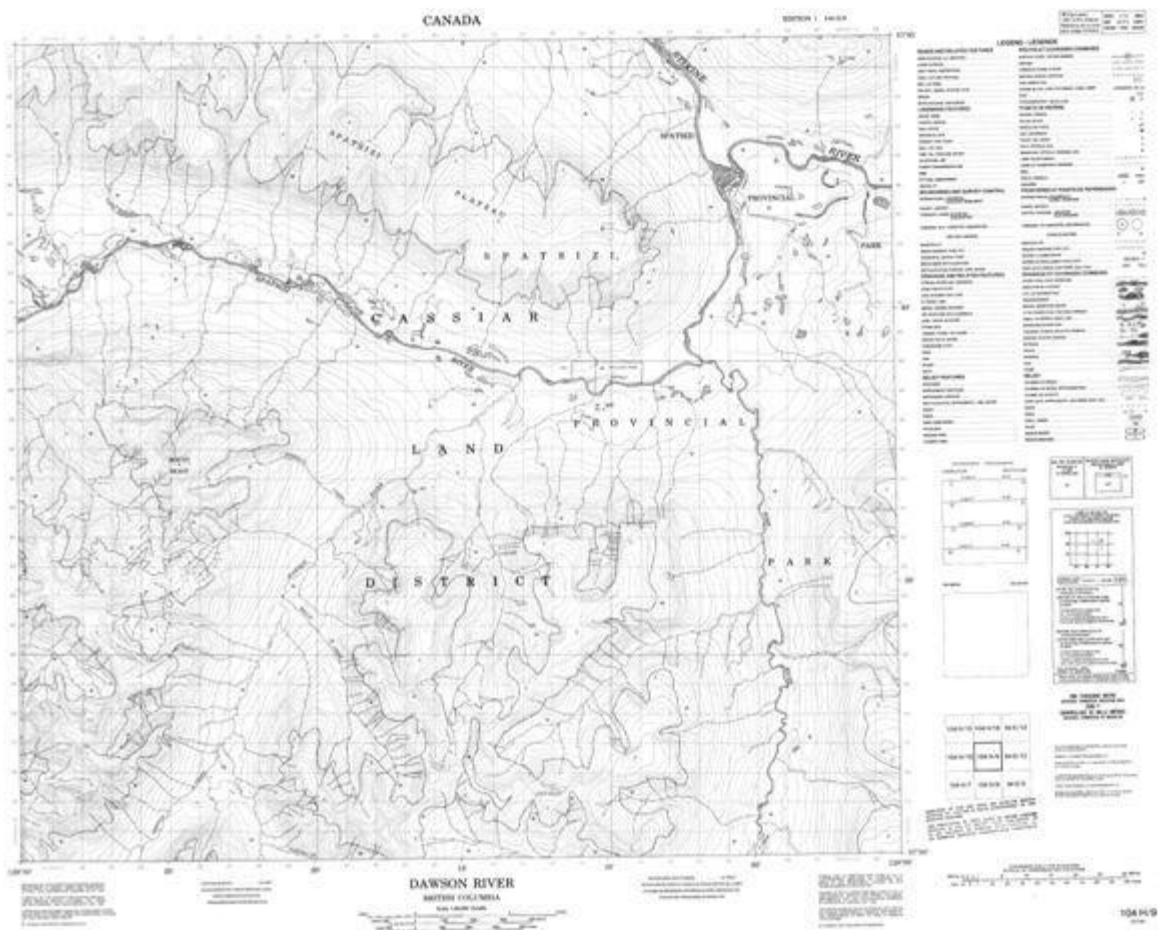
Map104H12- Kluea Lake



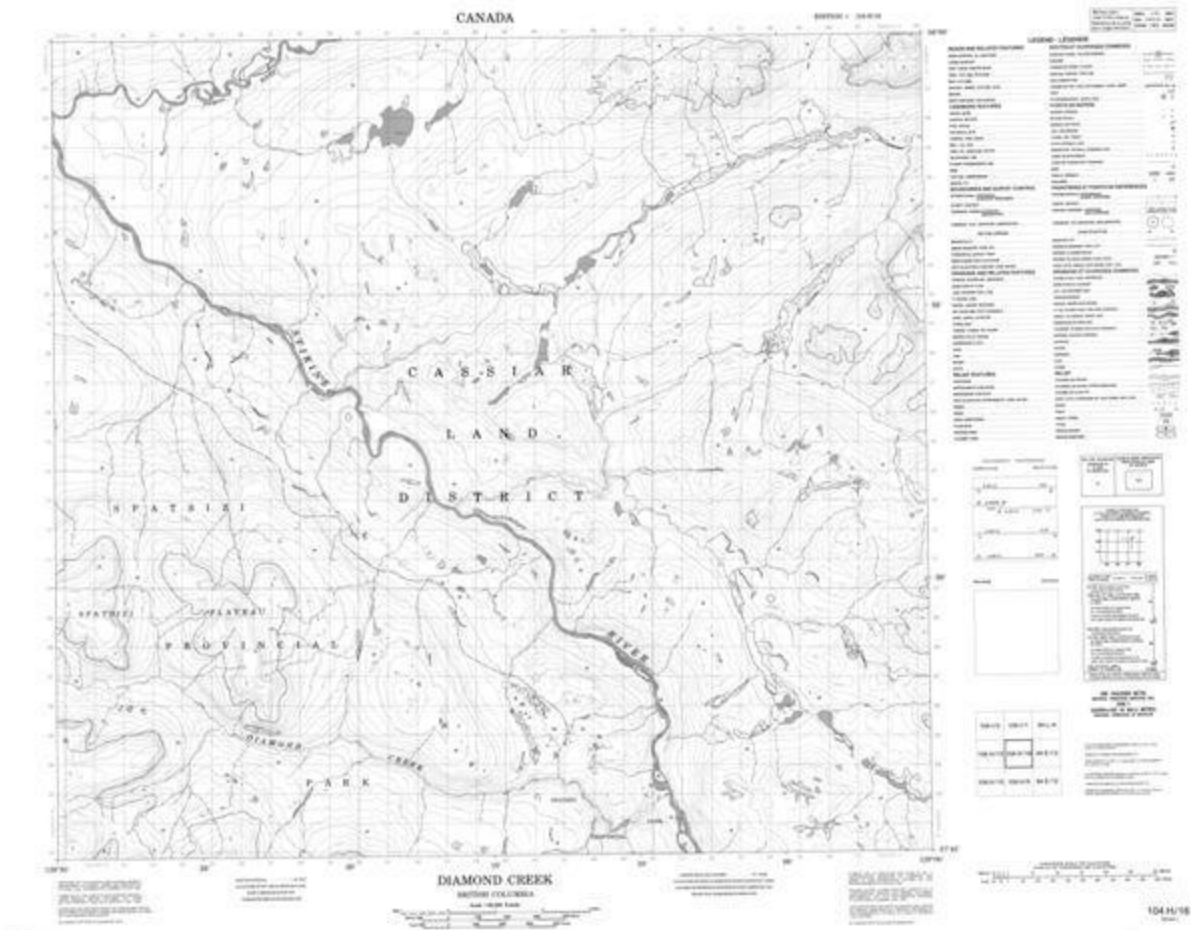
Map104H06- No Title



Map104H07- Buckinghorse Creek



Map 104H09- Dawson River



Map 104H16- Diamond Creek

IV. Food and Wildlife

Plan to prevent wildlife from getting into our food

Serious precaution will be taken to protect our food from hungry and curious wildlife in the Spatsizi. Our plan is to carry two bear-proof canisters per person (6 total). These canisters are made of slippery smooth plastic that lock shut, allowing no leverage points from which to pry them open. They are designed to weather high impact contact and thus will keep any wildlife from accessing the contents. We will store bear canisters at least 100 feet downwind of our campsite and cache them on the ground wedged between rocks or logs. Alternately, we will cache them in a depression or brush where the chances of the canister getting carried away are decreased. We will also mark the canisters with bright tape to make retrieval easier, if necessary. With additional items that may attract wildlife such as bowls, mugs, pots, pans, eating utensils, toothpaste as well as and food that doesn't fit in the canisters, we will create bear hangs from a sturdy tree away from our campsite.

Bear hang technique as described by backpacker.com:

- Select a pair of branches 20 feet apart and at least 15 feet off the ground.
- Attach one end of a 100-foot utility cord (3 mm) to a fist-sized rock that's heavy enough to drag the line through dense boughs. Tie the other end to a tree trunk or any nearby sturdy anchor.
- Throw the rock over both branches in succession.
- Tie a knotted loop (bight) in the cord midway between the branches. Attach the food bag (the stuff sack for a tent works fine) to the loop using a simple overhand or slip knot, or a carabiner.
- Pull on the unsecured end of the cord to lift the bag high enough up to be out of a bear's reach from the ground (at least 10 feet) or in either tree (4 feet). Tie off.

We will also cook downwind from our campsite so as not to attract animals to our tents.

Attach a detailed food list and show how it meets the caloric needs of the expedition.

Food purchasing and consumption: We intend to buy our food in a bulk order to reduce cost for our expenses as well as to minimize our impact on the environment by minimizing packaging and getting better quality food. We intend to place a bulk order with Mountain Mamas in Colorado Springs to be picked up in time for our departure, provided that it fits within our allotted budget. We will supplement this purchase with items from Costco. We are confident that our menu provides for us adequate calories of at least 2,500 per day, with more to spare if need be. We anticipate that we will need to eat often, as we will constantly be on the move and burning calories. For this reason, we have included a sufficient amount of quick-energy foods such as dried fruit and nuts.

Food List

A large portion of our food budget is taken up by freeze-dried Mountain House meals. We deemed these necessary as a group because they are critical to decrease bulk and, more importantly, weight. Also, since we have no plans for a food drop-off or re-ration, weight is even more of a concern.

| Item | Amount | Weight (lb) | Price (USD) |
|-----------------------------|------------------------|-------------|-------------|
| | | | |
| Breakfast (12 meals) | | | |
| Oatmeal | 10 oz per meal | 3.75 | 8.37 |
| Granola | 1 lb per meal | 4 | 15.22 |
| Pancake Mix | 2- 12 oz pkg | 1.5 | 5.25 |
| Raisins | 1- 24 oz pkg | 1.5 | 4.28 |
| Brown Sugar | 1- 16 oz pkg | 1 | 2.69 |
| | | | |
| Lunch (13 meals) | | | |
| Tortillas | 2 tortillas/person/day | 13 | 41.37 |
| Cheese | .5 lb per day | 6.5 | 30.37 |
| Almond Butter | 2 oz/person/day | 5 | 21.10 |
| Jelly | 2 lb | 2 | 3.11 |
| Summer Sausage | 3- 9 oz pkg/person | 8.5 | 52.10 |
| Tuna | 1- 11 oz pkg/person | 2.1 | 9.25 |
| | | | |

| | | | |
|--|--|--------------|--------------|
| Dinner (12 meals) | | | |
| Pasta | 1 lb per meal (3) | 3 | 3.60 |
| Dried Tom. Sauce | 6 oz per meal (2) | .75 | 1.5 |
| Dried Pesto | 6 oz per meal (1) | .3 | .75 |
| Freeze-Dried Mtn. House Meals | 2 pkg (8 oz) per meal (6 meals) | 3 | 84 |
| Quinoa | .75 lb per meal (3) | 2.25 | 5.39 |
| Onions | 3 @ 8 oz each | 1.5 | 1.94 |
| Peppers | 5 @ 6 oz each | 1.875 | 4.8 |
| Carrots | 1 lb package | 1 | 2.09 |
| Inst. Mashed Potatoes | 1- 12 oz package | .75 | 2.30 |
| | | | |
| Snacks | | | |
| Trail Mix (raisins, nuts, chocolate, etc) | 2.5 lb per person | 7.5 | 20 |
| Beef Jerky | 6.5 oz per person | 1.2 | 7.07 |
| Dried Fruit | 1 lb per person | 3 | 14.25 |
| Clif Bars | 1- 2.4 oz bar/person/day | 5.85 | 33 |
| | | | |
| Miscellaneous | | | |
| Tea | 2 bags/person/day | - | 5 |
| Hot Chocolate | .5 lb per person | 1.5 | 3.40 |

| | | | |
|----------------------|--------------------------------|------------------|--------------------------------------|
| Powdered Milk | .25 lb per person | .75 | 2.76 |
| Garlic | 1 bulb | .2 | 1 |
| Spice kit | - | - | - |
| Ramen | 5- 3 oz pkg/person | 2.8 | 5 |
| Oil | 1- 16 oz container | 1 | 3.48 |
| | | | |
| | TOTAL | 87.075 lb | 394.54 |
| | | | |
| | Day 1 weight per person | 29 lb | ~\$10.12/ person/ day |

*The majority of these prices were calculated according to the Bureau of Labor Statistics average food prices for 2012 (<http://www.bls.gov/ro3/apmw.htm>). Others that were not listed were looked up elsewhere or estimated to the best of our ability.

V. Equipment and First Aid

At Camp

group

- 1 3-Person 3-Season Tent
- 2 Lightweight ropes for bear hangs
- 1 trowel
- 1 Ground tarp
- trash bags (lining backpacks, trash etc.)

per person

- 1 Sleeping pad
- 1 Sleeping bag good to 0°F
- 1 Large backpack
- 1 small daypack or detachable piece of large backpack

Accessories

group

- 1 Iridium satellite phone
- 1 Garmin GPS
- Waterproof maps (everyone will have a set)
- 6 Bear Canisters
- Waterproof matches

per person

- Headlamp
- Batteries
- Multi-tool
- Bear spray
- Bear bangers
- 2 water bottles (1 L)
- Camelback
- Compass
- Sunglasses
- Frisbee (*optional*)
- Iodine tablets (3 50-tablet bottles per person)

Matches
2 Lighters
Camera
Notebook
Pocket knife
Watch
Writing utensils
Compass
Maps

Clothing (per person)

1-2 Set(s) of long underwear
4 Pairs of wool socks
4 Pairs of underwear
1 Pair of lightweight synthetic hiking pants
1 Pair of lightweight hiking shorts
2 Synthetic t-shirts
1 Pair of broken-in hiking boots
1 Pair of Gaiters
1 Heavy fleece
1 Waterproof shell (pants and jacket)
1 Warm hat
1 Pair of warm gloves/mittens
2 Bandanas
1 Sunhat
1 Down/Synthetic puffy jacket

Toiletries, etc. (per person)

Toothbrush
Toothpaste
Sunscreen
Bug spray
Chapstick
Dr. Bronners Soap
Hand sanitizer

Repair Supplies

Duct Tape (wrapped around Nalgene)
Sewing Kit

Tent repair kit with extra tent pole
Patch kit for sleeping pads
Extra bootlaces (1 for each teammate)
Gorilla Glue
Stove repair
Leatherman

Cooking Gear

group

2 Whisper-lite stoves
1 Large pot
1 Large pan
1 cooking spoon
6 fuel canisters
Scrubbies (for cleaning dishes)
Dr. Bronners
1 Pot grip

per person

1 Eating utensil of choice
1 Bowl
1 Mug

First Aid

2 Triangular bandages/cravats
1 Roll athletic tape
1 Ace bandage
1 Conforming bandage
10 Band aids
6 Knuckle band-aids
6 Safety pins
2 Tincture of benzoin swab
5 Triple antibiotic ointment
3 Burn cream
1 Burn relief pack
3 Sterile cotton-tipped appl.

6 Providone iodine prep pad
6 Alcohol swab
6 Antiseptic wipes
2 Steri-strips wound closures
3 Second skin sheet
1 Mole skin sheet
1 Tweezers
1 Oral thermometer
1 EMT shears
1 12cc syringe
20 Ibuprofen tablet
20 Benadryl tablet
10 Antacid tablet
10 Sudafed tablet
4 Electrolyte pack
3 Sting relief pad
5 Hydrocortisone pack
2 Combine dressing
4 Sterile gauze pad
4 Non-adherent dressing
3 Eye pads
1 Whistle
1 CPR mask
5 Pairs latex gloves
1 SAM splint
1 First aid book
1 Pencil w/ duct tape
1 Aloe vera gel
1 Space blanket
1 Resealable plastic bag
2 Patient assessment forms

* We will also carry prescription medication such as Prednisone, Epinephrine, and Ciproflaxin as a further safety measure.

VI. LNT, etc

Are all expedition members familiar with Leave No Trace principles? **Yes**

Describe how you will adapt LNT principles to meet the environment of your expedition.

All expedition members are familiar with Leave No Trace principles, as we have been practicing them as part of our many backcountry experiences. We share a mutual sense of respect for the wilderness and understand the importance of following LNT principles to maintain it for the future. We feel that we are guests in nature and intend to leave as little an impact as possible.

Plan Ahead and Prepare

From experience we understand how important a well-planned expedition is. The act of writing this grant in itself is preparing us well in advance. We are all familiar with special concerns and regulations for the area (as is discussed elsewhere). We have chosen to go to this area during a time frame where we least expect extreme weather conditions and other hazards. Our expedition dates fall just at the end of the high season and we do not expect to encounter many other visitors.

Travel and Camp on Durable Surfaces

There are few designated campsites where we plan to go, so we will be responsible for determining exactly where we camp. If we can identify any existing or previously used campsites from earlier in the season we will use those first. If those cannot be found we will try to make camp on the most durable surfaces possible, such as rock or dry grasses. We plan on camping at least 200 feet from any water source, so that we lessen any chance of interfering with wildlife. We will always cook well away from camp so that we spread out impact and reduce the chance of wildlife finding their way into camp. When breaking camp, we will attempt to leave the area with the appearance that it has not been used.

When we are in close proximity to established trails, we will use them. Where we do not have access to established trails and are finding our own way, we will take care not to disturb any vegetation by walking on rock, gravel, sand, or snow, and spreading ourselves out where necessary to reduce our impact on the land.

Dispose of Waste Properly

First, in order to minimize the amount of trash we bring into the backcountry, all of our food will be repackaged beforehand. All trash that we do bring in will be packed out. All dishwater will contain only biodegradable soap and will be strained and dispersed, with food scraps packed out. In dealing with human waste, we will dig catholes at least six inches deep and at least 200 feet away from any water source or camp and disguise holes when finished. We will also channel

our creativity in finding natural toilet paper. Since we will not be traveling in a high-traffic area, we do not feel the need to pack out our own waste.

Leave What You Find

As guests of the backcountry, we understand that anything we may find is not ours to take. This applies to anything from cultural artifacts to rocks or plants. We value our opportunity to be in these virtually untouched places and share a sense of responsibility for preserving for whoever may come next.

Minimize Campfire Impacts

At the moment we are aware of no current fire bans in the area. If this is to change over the coming months, no fires will be built, whatsoever. Fires will never be used for cooking and only occasionally for warmth. Fires will always be had in established fire rings and kept small. We will only use small enough sticks that can be broken by hand. All wood will be burned down completely to ash and scattered once put out and cool.

Respect Wildlife

Traveling in such a low-traffic area, we will inevitably encounter some of the wide array of wildlife that the Spatsizi Plateau hosts. We will always strive to maintain a safe and respectful distance from any wildlife while trying to make our presence known so as not to startle any wildlife. We will take special care not to disturb any wildlife habitat and will be sure to pack out all waste and keep all food animal-proof at camp. Although we will be bringing bear spray, we do not intend to use it except in an emergency scenario.

Be Considerate of Other Visitors

While we do not expect to encounter many other visitors during the expedition, we plan to have the utmost courtesy and respect toward any visitors that we may come across. We are hoping for a private experience and understand that other visitors are likely looking for the same. We will always camp well away from other visitors unless campground designations do not allow for it. We will keep a respectful noise level at all times, and particularly if in close proximity to other visitors. We will show courtesy for others on trail by yielding to other users and allowing them to pass if necessary.

Cultural considerations

The Spatsizi Plateau and Sacred Headwaters is home to the Tahltan First Nation people, who have inhabited the area for centuries. Central to the Tahltan way of life is a sincere respect for the land and its natural resources, which form the basis of their livelihood. In entering Tahltan territory, we will be mindful that we are visitors to a truly unique and sacred place. We have all

spent time traveling and living in foreign countries around the world and know how to be courteous visitors. We will carry this respect with us into the wilderness, honoring the Tahltan's home and hunting ground by following LNT principles. We hope to learn from the Tahltan, using their reverence for the land as a model for how to treat the places we know and love.

VII. Risk Management Plan

Anticipated Hazards and Strategies to Minimize Risks

Weather- Weather is one of the potential hazards that we will deal with on a daily basis. Weather in SPWPP is highly variable throughout the year, and cold conditions can persist into summer months. If we notice that bad weather is coming in, we will seek a safe location, avoiding peaks, ridges, and exposed areas where wind and precipitation are most severe and threat of lightning is greatest. Before departing, we will check in with local rangers to assess the anticipated weather for our intended route. All members have experience reading weather on backcountry trips, and although no weather system is identical to another, we are comfortable applying knowledge from past experiences to what we encounter in the Spatsizi Wilderness. That said, we will always err on the side of caution and safety. Roz will be taking an Atmospheric Physics & Weather course at Colorado College this winter, which will help the group anticipate and understand weather better.

Rain- The most important factor in dealing with rain is making sure group and personal equipment stays dry. This can be accomplished by lining backpacks with trash bags, using pack covers, setting up tarps, using rainflies on tents, and wearing rain jackets and pants. When setting up camp, we make sure we are on flat or slightly raised ground that will not become a marsh or large puddle when it rains.

Cold Temperatures- Even in the summer, temperatures can be quite low in the SPWPP, and cold is a factor that should not be overlooked. We will stay warm by bringing multiple wool, down, and polypropylene layers. Additionally, we will stay warm by using zero degree sleeping bags, staying dry, staying mobile, eating enough and eating often, using each other's body heat, and doing sleeping bag crunches. Our menu aims to include enough fats to keep us warm, and includes accessory items such as hot chocolate or tang that can help with cold when served hot.

Sun and Hot Temperatures- The power of the sun should never be underestimated as a potential backcountry hazard. Staying hydrated is essential to expedition health. Additionally, even on cloudy days it is important to wear sunscreen and hats to prevent sunburn. All members are familiar with medical issues that can arise from sun and heat, such as heat exhaustion and heat stroke.

Lightning- Lightning is one of the most serious threats we will face. The risk of getting struck by lightning is slim, but varies greatly with location.

Strategies to minimize risk:

- Pay close attention to the weather throughout the day to anticipate when a storm may arise.
- Note seasonal weather patterns
- Avoid high elevations in the afternoon and establish setback times to retreat from exposed areas
- Stay away from bodies of water or saturated areas in the event of a lightning storm.
- Select campsites away from exposed areas and high points
- If we do get caught in a lightning storm, we will seek out the safest area, spread out, and assume the lightning position until it passes.

Creek Crossings- The Spatsizi Wilderness abounds with snowmelt runoff, and we anticipate crossing many creeks and small rivers. Grace, Henry, and Roz all have experience with river crossings while backpacking as well as experience canoeing, kayaking, and rafting, so all expedition members are comfortable and knowledgeable about water and water safety. Safety tips to consider:

- Select the point where the river is wide, thus water level is lowest and slowest.
- Use walking sticks or cross in a train, using each other for support if necessary.
- Wade diagonally downstream, yielding to the current
- Unbuckle major straps so that in the event of a fall we can easily detach ourselves from our packs and are not weighed down in the water.
- Roz plans on taking a Swift water Rescue Course this spring (2013), which will further enhance group safety in creek/ river crossings

Illness- Hygiene and cleanliness are essential for staying healthy on extended backcountry trips. NOLS reports that 26% of all illnesses in the field are gastrointestinal—nausea, vomiting and diarrhea. Preparing meals and eating are often when illness is contracted. Washing hand frequently, particularly at meal times, will be our best strategy to prevent all types of illness in the backcountry. Additionally, purifying drinking and cooking water will be important to prevent giardia. To treat illness and other medical issues, we will use our knowledge from our respective Wilderness First Responder training. We will be carrying specific prescribed medications such as Ciproflaxin, to deal with particularly extreme cases.

Wildlife- As we mentioned, wildlife is abundant in the Spatsizi Wilderness, and it is inevitable that we will encounter some form of wildlife, large or small. While many small animals will likely want to get into our food, bears are of particular concern.

In order to lessen the chances of bears or other wildlife getting into our food and coming too close to our camp, as discussed above we plan to cook downwind from our campsite, and move our kitchen area in instances where we are camping in the same place for more than one night. We will also hang our food downwind from our campsite, forming a triangle between camp, cooking area, and bear hang/bear canisters. Finally, we are bringing both bear spray and bear bangers to use in more extreme situations. Our hope is that we will be loud enough when hiking and thorough enough when bear/wildlife-proofing our campsite and surrounding areas that these tools will not need to be used. While hiking, we will attach bells to our packs and sing and laugh our way through the wilderness to warn animals of our presence.

Canadian bear awareness website: <http://bearaware.bc.ca/bears/safety.html>

Route finding/ getting lost- Although significant portions of our expedition will be on designated trails, we will also find ourselves on suggested routes (that may or may not have a trail associated with them) or completely off-trail. In preparing for our expedition, all members will familiarize themselves with our route. Everyone will be equipped with a compass and full set of maps in case we get separated (which is not part of our plan). Our route has been carefully chosen so that we have significant reference points at all times. This includes following creeks/rivers, traveling in relation to prominent peaks, or simply following a trail and checking our position often. While we prefer to find our own way, we will be carrying a GPS as a safety measure to help us position ourselves along the way if need be, or in order to get a more accurate location in an emergency.

Hunters- Although it is unlikely that we will run into them, there are hunters in the Spatsizi in the summer. To minimize this risk, we will wear brightly colored clothing and tie colorful things to our packs. We will also be sure to make appropriate noise to alert hunters and wildlife of our presence.

Summiting peaks and difficult terrain- As we know from three and a half years of living and hiking in Colorado, summiting peaks can be risky and precautions must be taken. To minimize risks, all peak attempts will be started early in the morning to ensure we are off the mountain before potential storms come in in the afternoon. If we notice bad weather gathering, we will turn around quickly and seek a safer, protected area. We will avoid areas that require class IV and above scrambling, as the chances for rock fall are higher and chances for injury are increased. We will be particularly mindful of traversing exposed snowy areas.

Cooking- Gas stoves, fire, and hot water spills are all risks associated with camp kitchens. Burns are of particular concern. To minimize risks, we will always squat when cooking and boiling water, allowing us to move out of the way quickly in the event of a spill. We will use pot grips, and move slowly when in the camp kitchen.

Transportation- Often taken for granted, driving may be the most dangerous aspect of our trip. To minimize risks, we will change drivers often, making sure the co-pilot stays awake to entertain the driver while the third person rests. We will stop frequently to get fresh air and walk around, and locate potential camping areas early before nightfall. Additionally, we will pay close attention to the presence of wildlife on the road. Two expedition members are certified drivers at Colorado College.

Evacuation plan

Evacuations in the wilderness are time consuming, and it can take days before a patient is relocated to definitive medical care. In a backcountry emergency scenario, the most important thing is to stay calm and maintain a clear head. Rushing or panicking will only exacerbate the problem and put other expedition members in danger. As they say, “go slow to go fast.’ Additionally, evacuations can be very dangerous for search and rescue crews, and as such self-evacuations are of utmost importance unless there is threat to life or limb. We will treat each injury or emergency scenario on a case-by-case basis.

- All of us are certified Wilderness First Responders. In the event of medical emergency, we will assess the nature of the problem and do our best to treat the patient in the field to the best of our ability. If we need outside consultation, our first step will be to use our satellite phone to call John Brofman, our designated medical consultant.
- We will be carrying a GPS device and sat phone, allowing us to call communicate with outside resources (listed below) and describe our exact location in the event of an emergency. Prior to departing we will all learn how to use the GPS device and sat phone.
- For non-life threatening scenarios, we will call Alpine Lakes Air, the same service that will take us into and out of the SPWPP and arrange to be picked up at the nearest accessible lake (Days 1-2: Cold Fish Lake, Day 3: Bug Fish or Cold Fish, Day 4: Cold Fish or Fish Lake, Day 5-6: Fish Lake, Day 7-8: Fish Lake or Eaglenest airstrip, Day 9: Cold Fish, Day 10: Gladys Lake, Cold Fish, Day 11: Bug Lake, Cold Fish, Day 12-13: Cold Fish). From there we can fly to Ealue Lake where our car will be parked and drive to the Bulkley Valley District Hospital in Smithers, B.C (approximately 500 km).
- For medical scenarios requiring more immediate care, we can have Alpine Lakes Air take us to Dease Lake where the local medical clinic is located. Dease Lake is only an hour plane ride to the hospital in Smithers.
- At times we will also be hiking on flat, open terrain where a helicopter could land in the event that we could not reach a lake.
- Evacuations by foot are also possible by way of the Eaglenest trail. While we will not have a car at the trailhead, we could be met by emergency personnel at the Ealue Road. This road also accesses the Eaglenest Airstrip, which could be used for evacuation purposes.
- Emergency contact information is listed below

Emergency Resources

- Royal Canadian Mounted Police, Dease Lake – Search and Rescue Operation
250-771-4111
- Medical Clinic – Dease Lake
250-771-4444
- British Columbia Parks, Park Ranger Station – Dease Lake
Chris Price: 250-771-4591
- Pacific Western Helicopter – Search and Rescue and Medical Evacuation –Dease Lake
250-771-5911
- Alpine Lakes Air – Charter Service, Smithers, B.C. – The closest full-service hospital is located in Smithers
250-846-9488
- Bulkley Valley District Hospital – Smithers, B.C.
250-847-2611
- [REDACTED]

Describe any measures taken for expedition members with medical histories that warrant special preparedness.

Special Participant Considerations:

[REDACTED]

[REDACTED]

Emergency contact information for the Dease Lake Ranger Station, Dease Lake Search & Rescue, etc. are listed above under emergency resources.

*John Brofman is a physician and has agreed to be the group's medical consultant throughout the trip.

Emergency communication devices we will be carrying

We will be carrying both a satellite phone for absolute emergencies and a GPS to check our route.

Iridium Satellite Phone: www.satellitephone.com

Garmin eTrex GPS: www.lowergear.com

VIII. Budget

Transportation: $(\$2442 + \$814)/2 = \$1,628$

- Federal standard mileage reimbursement according to the IRS is \$0.555/mile. Our round trip mileage is approximately 4400 miles, making our budget \$2442. This would be more than enough, and takes up a huge chunk of our potential overall budget.

- We recalculate this price by assuming we get 20 miles per gallon (just below the average per gallon gotten on the car we intend to take) at \$3.70/gallon (this price is above the national average price for 2012, taking into account likely summer increases in gas prices as well as increased Canadian gas prices). Thus, $\$3.70 \times 220 \text{ gallons} = \814

→ an average of the two (done above) would provide for uncertainties such as increased gas prices in Canada, detours, decreased vehicle mileage due to varied terrain, fluid replacements, and other travel expenses.

Food: $13 \text{ days} \times \$10.12 \text{ per person} \times 3 \text{ people} = \394.54

While it is difficult to estimate food prices based on changing locations and unforeseen fluctuations, it is assumed that a budget of \$10 per day per person will be sufficient for our planned menu.

Fuel: $2 \text{ gallons white gas for Whisperlite} @ \$13 \text{ each} = \$26$

Maps/Books: $10 \text{ paper maps} @ \$12.40 \text{ each (canmaps.com)} = \124

Communication Rental: $3 \text{ week satellite phone rental sent to Colorado Springs (satellitephone.com)} = \210

GPS rental: $3 \text{ week rental} = \58.78

Permits/Fees: There are no backcountry permits or required fees of any sort for this area

Flight to Trailhead: \$1100 x 5% GST = **\$1155**

Bear Spray: 3 canisters (1 per person) @ \$45 each (rei.com) = **\$135**

Bear Bangers: 1 box of 6 (macecanada.com) = **\$29.42**

Bear Canisters: 6 canisters (2 per person) @ \$62 each (mountainsports.com) = **\$372**

Water Purification: 9 bottles (3 per person) @ \$6.75 each = **\$61**

Total Funding Requested (not to exceed \$1500 per applicant): **\$4193.74= \$1397.91 per person**

Measures to Minimize Expenses

Our largest budget minimization strategy is to drive to British Columbia rather than fly. Currently, a round trip flight from Denver to Smithers, BC, the closest airport to the Spatsizi Plateau, costs \$1,134, which would use up a huge portion of our potential budget itself at \$3,402. This price also does not take into account baggage fees or the additional cost of transportation from Smithers to Ealue Lake, where we would meet our transportation into the park. Driving instead will cost just about as much as one flight. We have also chosen a location with no permits or extra fees. We plan on doing as much food purchasing as possible in a populous city such as Calgary or even as early as Colorado Springs, since food prices will inevitably increase once we get into less populated territory. We will buy food in bulk and shop at places such as Costco when applicable.

Lastly, we are purchasing one set of maps. We plan on making copies of these maps once we get them so that each member can have a set. Furthermore, we are purchasing paper maps and plan on laminating them ourselves, saving us about \$5 per map.

By reducing our budget in these ways we are able to make room for the cost of the flight that will take us into an area we would not otherwise be able to access within our given timeframe.

We sincerely thank the Ritt Kellogg Memorial Fund for taking the time to review and consider our Spatsizi expedition proposal