



Ritt Kellogg Memorial Fund Registration

Registration No. G99P-QZ42T
Submitted Jan 3, 2016 5:29pm by Claire Vernon

Registration

Sep 1, 2015-
Aug 31

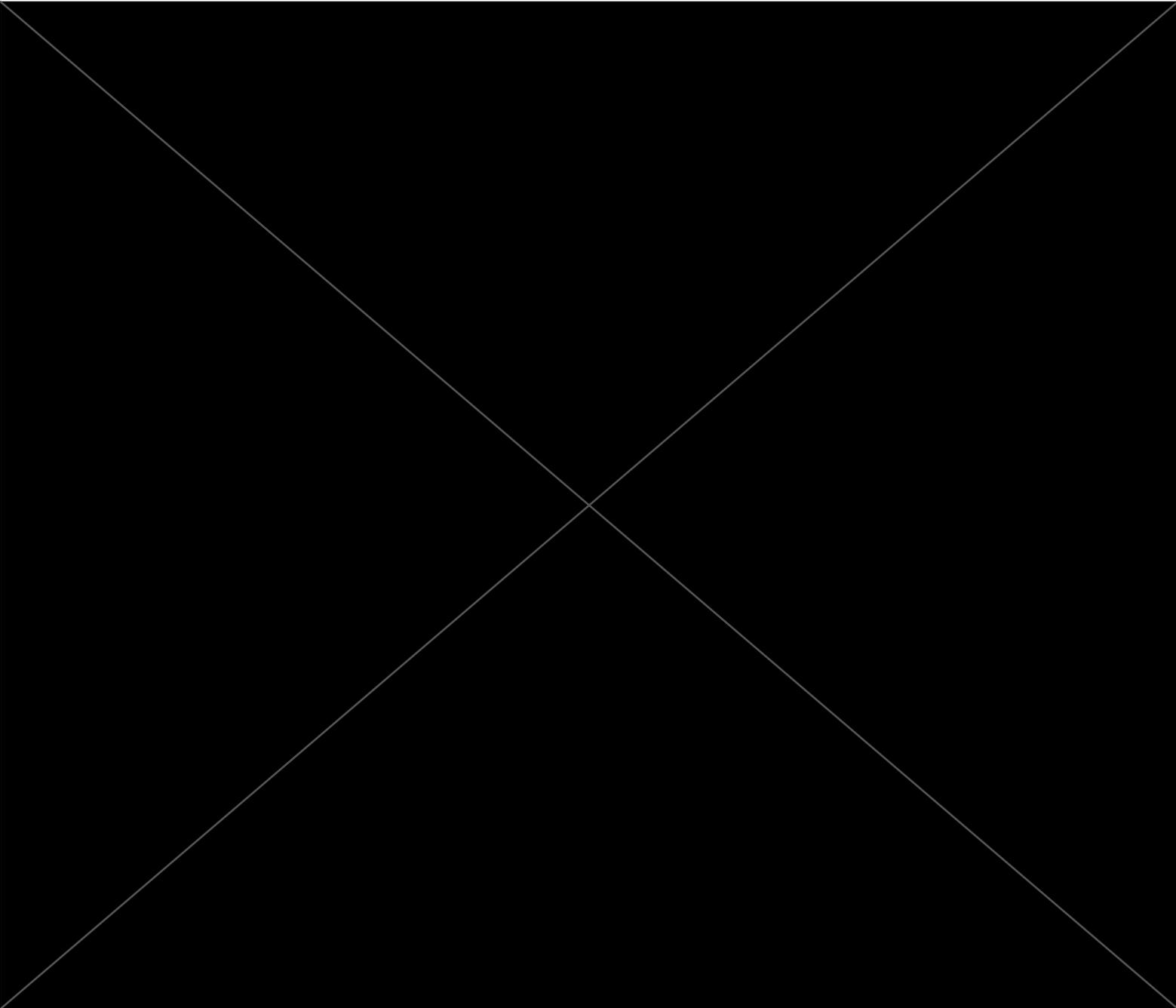
Ritt Kellogg Memorial Fund

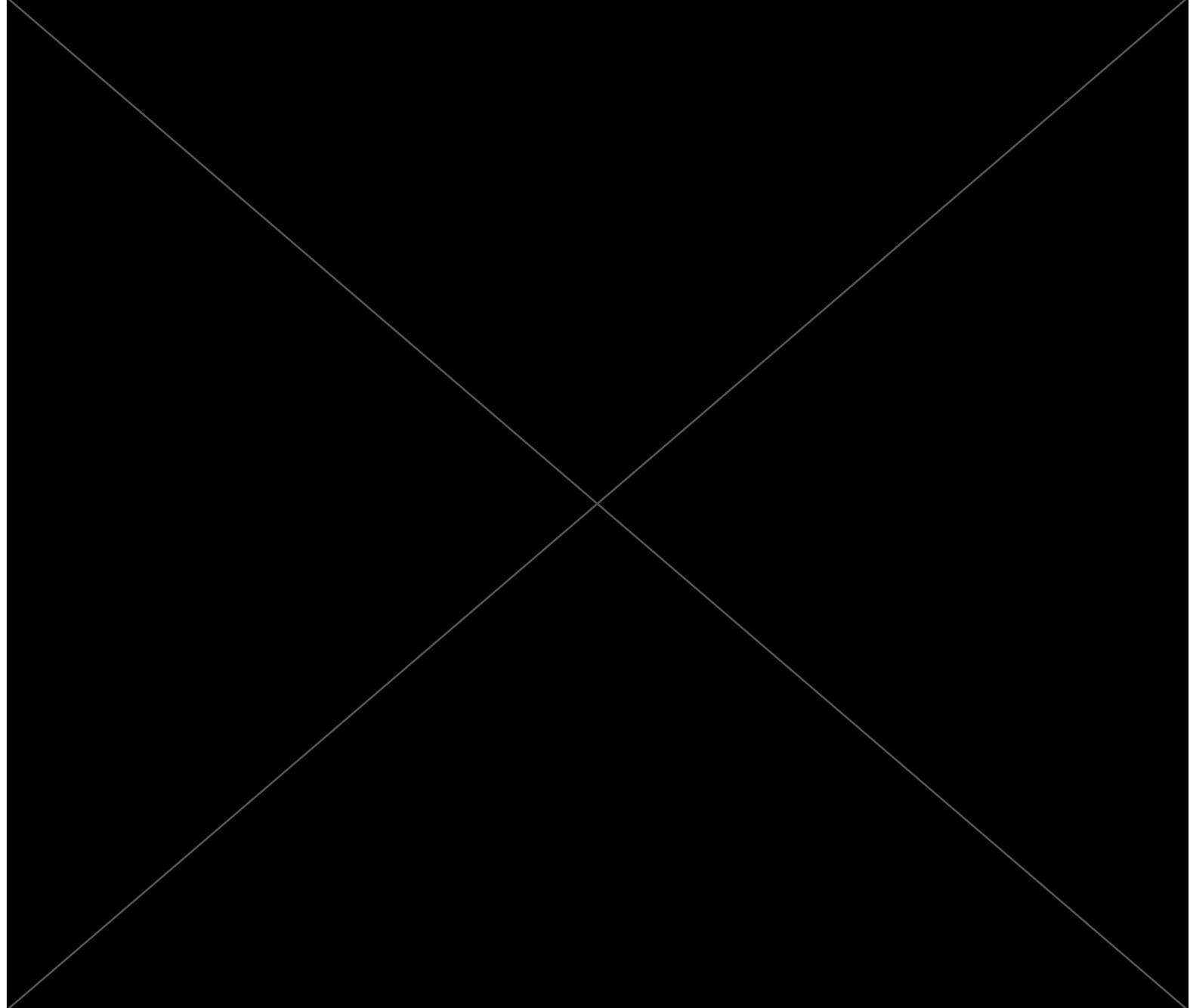
RKMF Expedition Grant 2015/2016/Group Application

This is the group application for a RKMF Expedition Grant. In this application you will be asked to provide important details concerning your expedition.

**Waiting for
Approval**

Participant





I. Expedition Summary

Expedition Name

Wrangling the Wrangell: Alaska the Last Frontier

Objectives

Our objective for this expedition is to strengthen our ability to be in the backcountry and to solidify our navigation skills without the structure of an outdoor education organization by exploring Wrangell-St. Elias National Park. Another objective of ours is to have so much fun while staying safe and appreciating our surroundings.

Location

We will be hiking the Seven Pass Route from Iceberg Lake to Bremner in Wrangell-St. Elias National Park and Preserve.

Departure Date

Jul 30, 2016

Return Date

Aug 15, 2016

Days in the Field

14

Wilderness Character

The wilderness character of the expedition is backpacking in the deep backcountry of Alaska with an emphasis on route finding and glacier travel. The expedition will be very remote and we will only be accessible by bush plane. Our expedition is entirely off trail so our expedition will test our ability to identify the best route to our end destination with safety and leave no trace principles in mind. We have allowed ourselves a few days for base camping and peak bagging so that we can fully explore the area.

II. Participant Qualifications**Participants' Graduation Date**

Claire Vernon, 2017

Madeline Lee, 2017

Naomi Sherman, 2017

Medical Certifications

Claire Vernon, 2017, intended WFR training 1/4/2016-1/13/2016 through Wilderness Medicine Institute

Madeline Lee, 2017, WFR expiration 8/20/2016

Naomi Sherman, 2017, WFR expiration 5/31/2016. Naomi is taking a recertification class 4/1/2016-4/3/2016 through Wilderness Medicine Institute

Does your group have adequate experience?

Yes

Training Plan

Since Wrangell-St. Elias is primarily off trail, it is important members of the team have updated knowledge on route finding. It's also very important for us to take a refresher course of glacial travel as we will be crossing the Tana Lobe of the Bremner Glacier. Our team will arrive in McCarthy, AK a day early and take a full day course that goes over glacier travel, river crossings, bear safety and navigation through St. Elias Alpine Guides (<http://www.steliasguides.com/>). This is a personalized course so we will be able to focus on unique elements of the area. The cost of this course is \$190 per person and we will be applying for an education grant later in the year. The course is expensive but we feel as if it is necessary for us to have a very firm grasp of the technical skills needed before we set out on our expedition. We will also be sure to exercise plenty before the start of our trip so that we are in good shape for backpacking.

III. Expedition Logistics, Gear and Food**Travel Plan**

Our team members will fly from their hometowns (Madeline- San Francisco, CA, Naomi-Portland, OR, Claire- Baltimore, MD) to Anchorage, Alaska where they will meet. Together we will take a shuttle to McCarthy with Wrangell-St. Elias tours. (<http://wrangell-steliastours.rezgo.com/details/49748/anchorage-to-mccarthy>) In early morning, we will take a bush flight with Wrangell Mountain Air (<http://www.wrangellmountainair.com/>) to Iceberg Lake airstrip landing us

at our trip's starting location. At the end of our trip, we will be picked up in the early morning by Wrangell Mountain Air at the Bremner Valley airstrip. Once we arrive back in McCarthy, we will take the same buses we took to get there to travel back to Anchorage. From there we will fly to Denver. In order to the risks of flying in a bush place we will be picked up and dropped off in the early morning. Landing in the late afternoon should be avoided since the valley picks up wind later in the day making it difficult for the plane to land on the airstrip. We have also built in extra days to our itinerary in case of bad weather.

Expedition Itinerary



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Appendix A

Re-Ration Plans

We will be receiving our re-ration in the middle of our expedition after crossing the Tana Lobe. We will take a detour to Alley's Valley where the bush pilot can safely land. Wrangell Mountain Air will provide the re-ration service. Since we will be doing all of our grocery shopping in Anchorage, we will buy our re-ration food as well. Before leaving on the expedition we will leave our re-ration food in the freezer offered by Wrangell Mountain Air. We will meet them early in the morning so that they can land without worrying about high winds.

Food Storage

The Wrangell-St. Elias National Park services provide free bear cans for rental while we are in the backcountry. We will use bear resistant food containers to store every food item and any other odor containing objects. We will use the campsite triangle, with 100 feet between our tents, our cooking area and our food storage. We will cook and store our food downwind from our tent. We will be very careful to not spill food while cooking and eating and to clean up any spilled food. We will always do our dishes right after eating. We will store our dishes, gas and food together. The food will remain in the bear containers, locked and upside down, so it is impossible for a bear to access the insides of the container.

Food List

Food FINAL 1.docx (118KB)

Uploaded Jan 3 4:46pm by Claire Vernon

Appendix B

Equipment List

Equipment List FINAL 1.docx (63KB)

Uploaded Jan 3 4:49pm by Claire Vernon

Appendix C

Are all expedition members familiar with LNT principles?

Yes

Plan for Minimizing Impacts

All members of our team are familiar with LNT principles and we will strictly adhere to them. (<https://lnt.org/learn/7-principles>)

Plan Ahead and Be Prepared

We will talk with the backcountry office at Wrangell-St. Elias and ask if there are any special concerns. We will prepare for emergencies and risks before starting our expedition. We will also take special care in packing so that we can minimize the amount of trash that we generate.

Travel and Camp on Durable Surfaces

Since growing season in Alaska is so short, zero impact principles are especially important to follow. Camping on durable surfaces is a must, so gravel and sand beds along rivers and streams are ideal camp locations. When base camping, it is important we move our tent every two days to minimize dead vegetation under the tent. Other practices we will follow include walking in different paths to cooking areas and to the tent to avoid noticeable human paths and

moving rocks back to their original location after using them for tent anchors. If we find a campsite that looks like it has been recently used, we will decide to camp somewhere else to limit the impact of the area and let the campsite recover. While hiking, especially at high alpine, as a group we should spread out and not walk in a single file line to avoid creating social paths.

Dispose of Waste Properly

When we feel the urge to go to the bathroom, we will move at least 100 yards from any source of water. We will dig a hole to bury our human waste in and make sure to cover it. We will pack out everything, including food scraps, feminine hygiene items, and any other paper products. When disposing of dish water we will make sure that it does not contain food particles and scatter it at least 200 feet from any water source.

Leave What You Find

Leaving what you find is important for not transporting species but it's also important for the enjoyment of other visitors. We will not remove anything that we find so that others may enjoy it as well. We will absolutely never take or move a cultural artifact.

Minimize Campfire Impacts

To minimize our fire impacts, we will set up our stove on a flat rock or on gravel, not directly on the tundra, which will result in scorch marks. We will only have fires in lower elevation, higher vegetation areas with plenty of down and dead fire wood. We will disassemble the fire ring and disperse the coals so there are not visible remains of a fire. The fires will be small and controlled, primarily for warmth at night and boiling water to save fuel.

Respect Wildlife

We will observe all wildlife from a distance and make sure that they do not get any of our food so that they can remain wild. Before starting our expedition, we will check with the backcountry office to see if there are animals nesting on or near our route. If there are, we will avoid those areas. If we encounter any animals at a close distance, we will back away slowly and let them have some room.

Be Considerate of Other Visitors

We are unlikely to encounter other visitors while on our expedition but if we do we will be respectful of their space and keep our voices low enough not to disturb them. When in the front country, we will be respectful to the people living in McCarthy-Kennecott and everyone else we see. Even if we do not see other visitors, we will be considerate by cleaning up after ourselves and making sure that no one would be able to tell that we were there.

Cultural Concerns

Wrangell- St. Elias is home to many Athabascan artifacts and mining artifacts. We recognize that archaeology can only be meaningful and understood through the context and location of items. For this reason if we encounter cultural artifacts we will leave them as they were. We will absolutely never remove an artifact from its original location.

Land Management

Wrangell-St. Elias National Park is managed under the National Park Service. The park is open 24/7/365 and they do not require permits to enter the backcountry.

IV. Risk Management

Objective Hazards

Glacier Crossing:

In order to travel on glacier it is imperative that one understands the differences between different sections of glacier: The accumulation area and the ablation area. On this trip we will not by any circumstance travel in the accumulation area, as we will not have the equipment nor the technical skills to mitigate the risks of this area. Consequently, the route we have planned only requires travel in ablation areas. However, one must be extremely attentive while traveling in the ablation area to avoid travelling too close to the accumulation area, as the middle ground can be difficult to identify.

While the accumulation area is characterized by snow cover, the ablation area is characterized by its lack of snow. The ablation area will instead have many small streams of runoff snowmelt water. The two areas are not entirely distinct, as between the two there will be small sections of snow and aerated ice. In order to ensure safe travel, we will avoid any and all snow or snow-like sections in favor of ice-only sections, or dry glacier. The benefit of travelling only on dry glacier is that all crevasses are exposed. This way, we can only cross crevasses we can see are easy for all members of the group to step across comfortably.

Additionally, to remain safe on dry glacier we will be cognisant of three main risks: icefall and warm weather avalanches, slippery areas of wet ice, and the challenges of route-finding through dry glacier. We will mitigate the risks of icefall and warm weather avalanches by keeping our distance from any high grade slopes or seracs, which are easy to see and therefore avoid. Slippery, wet ice merely requires the use of crampons, which we will use for all travel on ice. Lastly, we will carefully plan the Tahona Lobe crossing while above the glacier in order to find the best route for avoiding crevasses. As we cross the glacier, we will also mark our route with rock flour, fine-grain particles of rock generated by grinding of rock by the glacier, so that we can retrace our steps if we need to backtrack and find a better route. <http://www.wilderness-survival.net/movement-snow-ice/glacial-walking/>

River Crossing:

Scout the river by throwing rocks to find shallow points, look for bubbly water and wider sections of the river (usually more shallow).

Unclip backpacks (chest and waist), stand in line with strongest/biggest person in front, smallest person in the middle, and another larger person in back. In line, hold each other's backpacks and push downward to keep partner grounded in the water, choose a person to call "step" or "right/left" in order to walk in sync.

<http://alaskacenters.gov/upload/River-Crossings-in-the-Backcountry-7-11.pdf>

Route-Finding:

Getting lost can be a potentially very dangerous thing in the backcountry. To avoid this, we will always stay together and we will make sure that we are staying true to our route. We will prepare and refresh our route finding skills by practicing before we leave. We will also take a course with St. Elias Alpine Guides before the start of our expedition so that we are knowledgeable in finding our route. We will use laminated maps and compasses as well as looking for recognizable landmarks to make sure we are staying on course. We will also carry a GPS for emergencies so that we will have our definite coordinates.

Steep Scree:

We will mitigate this risk by carefully picking our travel route. We will find the least steep section to ascend or descend. When ascending, we will space out horizontally to avoid putting each other in dangerous rock fall zones. When descending, we will walk straight down the hill with our heels dug in. If a rock does fall, we will yell "Rock!" so that other members are aware of it and can move out of the way.

(<http://www.wilderness-survival.net/mountain-walking-techniques/techniques/>)

GLOFs (Glacial Lake Outburst Flood):

GLOFs can occur when glaciers calve causing the river to rise and create a flash flood. To avoid this hazard, we will monitor the water levels when camping near a river. If the river begins to rise, we will quickly hike to higher land if possible. If hiking out is not a possibility, we will quickly dig a trench around our campsite to divert the water so our campsite will not be flooded.

Wildlife:

Wrangell-St. Elias has an abundance of wildlife that can be dangerous if we are not aware of our presence in their habitat. We will always follow bear safety protocol. (<http://www.backcountry.com/explore/sol-encountering-a-bear-in-the-backcountry>) We will make loud noises when hiking in high brush and we will leave an area immediately if a bear or any other potentially dangerous wildlife is spotted. We will always stay together as a group so that we will be less vulnerable. We will each have a form of bear protection, either a horn, flare or bear spray. These tools will only be used if our lives are in danger but we will keep them easily accessible on the outside of our packs. Poisonous plants are also a concern but we will have the St. Elias Guide identify poisonous plants in the area during our backcountry seminar.

Camping:

We will always purify our water before drinking or cooking to prevent any unnecessary sickness. The purification devices we have are a water pump, iodine and boiling the water on the stove. We will use caution when choosing campsites to avoid any rock erosion areas or places with potential flash flooding. We will keep a clean campsite as to avoid attracting wildlife.

Subjective Hazards

Madeline and Claire both have experience with glacier travel but not as much as Nomi, who has taken a course through NOLS. This may be a hazard for us but we are mitigating it by taking a glacier travel course before we start our expedition so that we are prepared.

Hazard Mitigation

We are experienced with being in the backcountry so we are familiar with how to travel and camp as safely as possible. We will always use our best judgement whenever we encounter any hazards and we will take our time when we need to.

Special Preparedness

Claire sprained her ankle last summer and will wear an ace bandage if it starts to hurt.

Emergency Preparedness

Although we plan to take every step to avoid all injuries, large and small, we understand that there is the opportunity for accidents that is outside of our control. Since the location of our expedition is extremely remote, backpacking within a park the size of Switzerland, we will need to rely heavily on our own knowledge in case of an emergency.

Regardless of the size of the injury, the uninjured members of the expedition will utilize their WFR medical training to assess the severity of the injury. The following self-evacuation plans are based on the assessed severity of the injury as well as our location in the park.

If an injury is minor like cuts, blisters and abrasions, we will use our WFR training to treat the injury and continue on our expedition. If an injury is more severe and requires an evacuation, we will follow similar procedures as the Colorado College Ahlberg Leadership Institute handbook describes.

If the injury is a non-life threatening injury, the patient can still walk but requires medical attention from a doctor, such as a broken bone, we will assess and treat the injury as best as we can with the resources available to us. If we are located closer to the start of the expedition, we will hike back to our drop off location and call Wrangell Mountain Air on

the SAT phone to pick us up as soon as possible. If the injury occurs closer to the re-ration location, about midway through our expedition, we can hike back to the re-ration landing location and call Wrangell Mountain Air on the SAT phone for a pick up. If the injury occurs near the end of our expedition, we will complete the expedition and receive a pick up from Wrangell Mountain Air as soon as possible, contacting them on the SAT phone. If the injury occurs in a location that is not within a day's hike of these pick up locations and there is no possible way to spend the night with the injury without the injury becoming life threatening, then we would call the Wrangell-St. Elias Park service on the SAT phone. The Wrangell-St. Elias Park service would then have a helicopter fly from Denali National Park to the coordinates of our location.

If an injury is more serious and poses a potential threat to life or limb if untreated, or if the patient is unable to walk, and we are not located at any of the three possible plane landing locations, then we would call Wrangell-St. Elias park service on the SAT phone and follow the same protocol as a less severe injury. Since the helicopter will be flying from Denali National Park, it could take at least a couple of hours to be evacuated and then at least one more hour to be brought to the nearest hospital in Valdez. Since the potentially life threatening evacuation plan will take a few hours before receiving help, the members of our team will use their WFR knowledge to sustain the injury, to take the patient's vitals and write a SOAP note so the hospital is ready to assist the injury when the patient reaches the hospital.

Emergency Resources

In the case of emergency, we will decide who is most appropriate to call depending on the level of evacuation necessary and use our satellite phone to talk with them.

Valdez Community Hospital (907) 835-2249

Wrangell Park Headquarters (907)-822-5234

Kennicott Visitor Center- Backcountry office (907)-554-4417

Chitina Ranger Station (907)-823-2205

Wrangell Mountain Air (907) 554-4411

Emergency 911

V. Budget

Budget

[Budget Ritt GrantFINAL .x....pdf](#) (67KB)

Uploaded Jan 2 6:30pm by Claire Vernon

Appendix D

Transportation

3436.00

Food and Fuel

366.14

Maps and Books

20.00

Communication Device Rental

286.30

Permits/Fees

0

Gear Rentals

90.00 for rentals 106.95 for purchases

Total Funding Request

4,305.00

Cost Minimization Measures

We will minimize our food expenses by buying in bulk whenever possible. We will purchase all of our groceries for the expedition when we arrive in Anchorage, the largest city in Alaska. Therefore, we will not be paying small town food costs. We will bring spices from home as to minimize our food cost. We will book cheap flights to Anchorage, a large city rather than a small town, in advance so they are not too expensive. We will also be taking a shuttle from Anchorage to McCarthy rather than a small plane which will minimize costs by over \$1,000. We will minimize gear expenses by using gear we already own and borrowing from friends or the Gear House instead of purchasing new. If we cannot borrow the gear we need, we will buy used gear that is in good condition. Since crampons are a significant expense, we will individually be responsible for either buying or renting our own crampons to minimize the total expedition cost.

VI. Expedition Agreement

Expedition Agreement

[rittgroupwaiver.pdf](#) (47KB)

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Appendix E

Appendix A

Total Distance: 27-32 miles depending on glacier and river crossings.

Total elevation gain: 6,722 feet

Total elevation loss: 7,386 feet

Day 1: We will all take flights from our hometowns and arrive in Anchorage in the early morning. Here, we will do our shopping and stay the night in a campground or in a hostel.

Day 2: We will shuttle to McCarthy, AK at 8 am. Once we have arrived we will meet with Wrangell Mountain Air to discuss and finalize our plans for being dropped off and picked up, as well as our reration.

Day 3: We will take the glacier travel and route finding course.

Day 4:

Miles: 1

We will arrive at Iceberg Lake airstrip at noon. Then we will hike a short distance to group of small ponds NE of landing strip and base camp to get bearings on location.

Day 4:

Miles: 1

Travel in same direction of the stream that empties into Iceberg Lake, heading up the valley towards Bremner Glacier. Camp near location of the base of Bremner Glacier.

Day 5:

Miles: 7

Hike due North on Bremner Glacier to saddle (127). Once off glacier, there are two options, hiking through the valley along the stream or hiking at higher elevation above the valley. It is highly recommended to hike in the valley along the stream, but hiking along the ridge is an option if the weather permits. We will plan on hiking in the valley but upon arrival we will hike above if the valley is too wet to avoid quick mud. We will camp in the saddle.

Day 6:

Miles: 2

Descend to the Tana Lobe of the Bremner Glacier. We will not follow the outlet stream all the way down the glacier because we will not be in position for the glacier crossing. We will follow the outlet stream for 4,000 feet, then we will turn due west and make for the small promontory (a high land that juts out onto a large body of water) at 4,115 feet. We will continue westerly from the high point WP 128, where we will find the edge of the steep downward slope. We will camp at the top of the gully that we will descend the following day. We will take time to scout the best route for our glacier crossing the next day.

Day 7:

Miles: 2

Crossing Tana Lobe section of the Bremner Glacier. We will begin the sixth day by descending from our previous campsite to the base on the Tana Lobe glacier. After

descending, we will cross the moraine and travel north along the edge of the glacier, looking for a good spot to climb up. Most of the edge of the glacier will be too tall and steep to ascend so we will need to look extensively for the easiest spot to ascend. Once atop the glacier, we will hike due north across the Tana Lobe. Our sources say the glacier travel here is particularly easy if well-scouted above. We will use the lip of the moraine as a waypoint to navigate effectively. We will plan to camp on western side of the moraine on the opposite side of the lobe. We will carefully scout our travel off glacier, onto moraine, to find the easiest and safest descent. Glacier travel can be very time intensive so we will try to get an early start. However, if we fall behind schedule, we can bivy on glacier for the night.

Day 8:

Miles: 2

We will hike to Alley's Valley's airstrip. From our campsite we will follow the Tana river and hike northwest over a pass and into the valley. We will camp in the valley that night.

Day 9:

Miles: 0

In the early morning, we will meet our reration plane at the small lake in the far west of the valley. We will spend the rest of the day exploring the valley and resting and camp at the same site.

Day 10:

Miles: 2

For our tenth day, we will hike out of the valley and back to our route. We will backtrack where we have hiked before because it involves crossing less moraine. Once we are back on the route, we have two options of travel: a high route and a low route. The high route is preferred; while trickier than the low route, it avoids the very difficult bush-whacking required by the low route option. From our position on the ice we will head north toward the slope we will ascend. Scouting the series of open patches between the brush, we will piece together a route up the slope that minimized bush whacking,angling up and to the left, just below the steep rocky slope and above the diagonal line of brush. We will pass through a narrow band of brush, to an opening and hike down to get to a stream junction. If the high route proves too difficult we will take the low route, following the stream that begins 0.4 miles west of WP 129 and continues upstream to the stream junction. We will camp at the stream junction at the large eroded gravel bank.

Day 11:

Miles: 3

We will scout our stream crossing at the large eroded gravel bank, using rocks to assess water depth and looking for the widest point of the river. Once across the stream we will begin gaining elevation, moving away from the stream and up the slope to get away from the low brush of the valley. Once above the valley, we will

proceed to the WP-130 pass. The pass is not too difficult, and will open up to a view of several lakes. We will camp there.

Day 12:

Miles: 4

We will descend past the lakes to the Monahan creek stream junction. The descent from the lake will be a relatively difficult scramble down a boulder field. Below the rocks, there will be a big, somewhat marshy area. We will travel through this area toward Monahan creek, crossing at the earliest opportunity. We will then travel along western gravel river bank to the next stream junction and camp on the river bed.

Day 13:

Miles: 0

Rest and exploration day.

Day 14:

Miles: 2

From the creek junction, we will head north on the west side of the valley at about 4,200 ft to stay above the brush. We will then turn west up the pass toward WP-48. The ascent of the pass involves some scree slopes, so we will take our time to scout out our safest travel option. This will be our biggest section of elevation gain. At the center of the pass there is a high point from which we will go right to the less steep slope that involves some to cross on the way down. Once at the top of the pass we will find our way to the lake at 4,900 ft. WP 131 marks the top of a rounded hill that overlooks a small lake and the southern side of the valley encompasses huge cliffs. We will camp here.

Day 15:

Miles: 2

The final leg of our journey from the lake to the Bremner air strip, WP 132, is short and easy. From the lake we will stay high to stay clear of the Morraine to the left, then we will descend near the stream. We plan to maintain our elevation, traverse around the slope to the right, and stay on the bench to be above the brush. The Bremner valley will open up and we will be able to see the air strip. We need to find the road/trail, located in the valley, that will lead us to the airstrip. We will camp on the road.

Day 16:

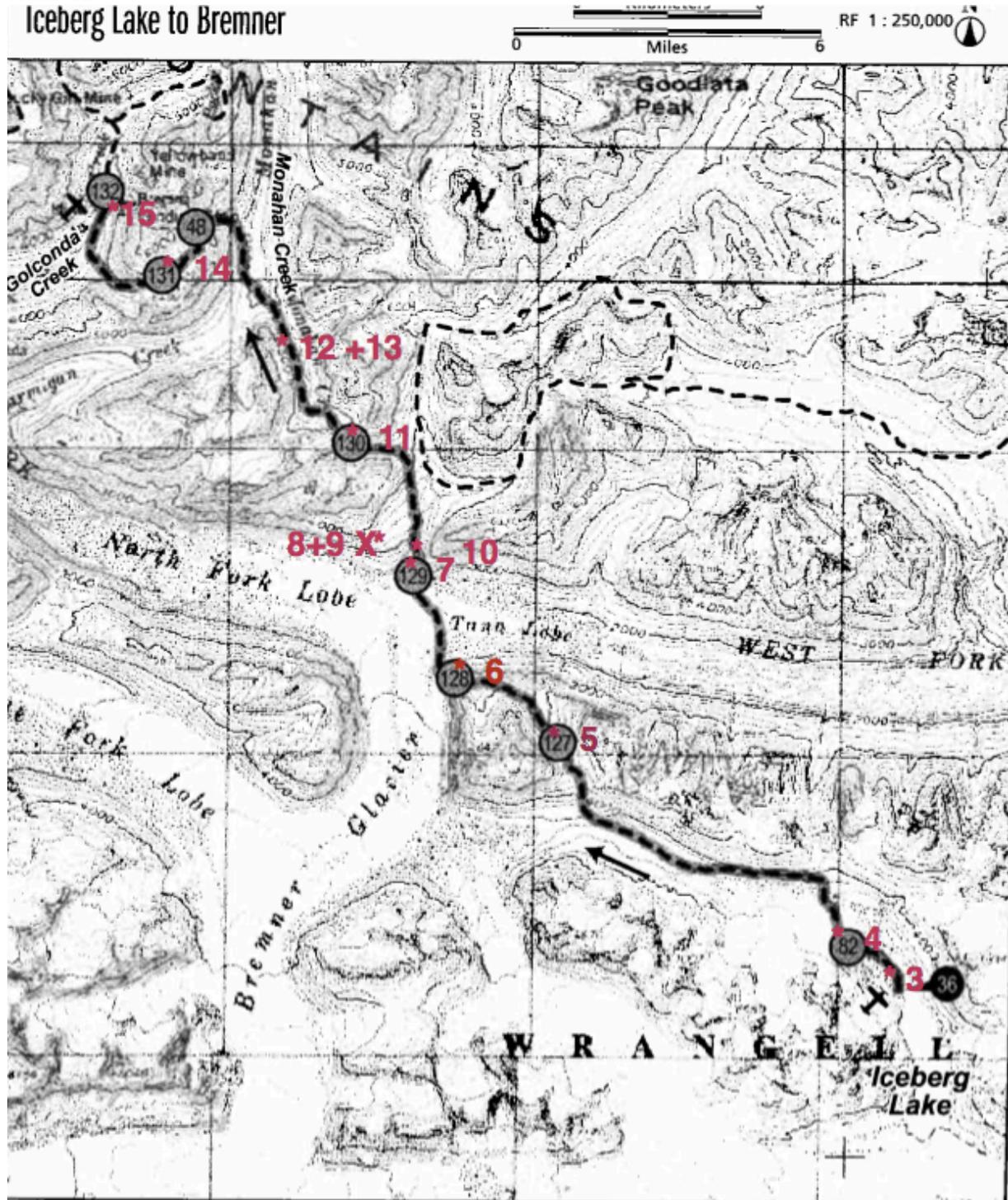
Miles: 0

We will be picked up by Wrangell Mountain Air in the early morning.

Day 17:

We will shuttle back to Anchorage and take a late flight back to Denver.

This map is from the book *Hiking Alaska's Wrangell-St. Elias National Park and Preserve* by Greg Fensterman. This map shows the seven passes and our route of travel. The points we reference in our itinerary refer to the points on this map. Our campsites are marked with "*" We have marked the reroute detour to Alley's Valley with "X".



For our expedition we will order sections AK Bering Glacier D-6, D-7, and A-6 from the USGS store.

D-6

[https://store.usgs.gov/b2c_usgs/catalog/setCurrentItem/\(isQuery=yes&xcm=r3standardpitrex_prd&citemprod=000000000000037294&query=*ak+bering+glacier+d-6*&layout=6_1_61_58&citemarea=0000000375&uiarea=2&ctype=areaDetails&next=seeItem&carearea=%24ROOT&citem=00000003750000000264\)/.do](https://store.usgs.gov/b2c_usgs/catalog/setCurrentItem/(isQuery=yes&xcm=r3standardpitrex_prd&citemprod=000000000000037294&query=*ak+bering+glacier+d-6*&layout=6_1_61_58&citemarea=0000000375&uiarea=2&ctype=areaDetails&next=seeItem&carearea=%24ROOT&citem=00000003750000000264)/.do)

D-7

[https://store.usgs.gov/b2c_usgs/catalog/setCurrentItem/\(isQuery=yes&xcm=r3standardpitrex_prd&citemprod=000000000000037294&query=*ak+bering+glacier+d-7*&layout=6_1_61_58&citemarea=0000000375&uiarea=2&ctype=areaDetails&next=seeItem&carearea=%24ROOT&citem=00000003750000000266\)/.do](https://store.usgs.gov/b2c_usgs/catalog/setCurrentItem/(isQuery=yes&xcm=r3standardpitrex_prd&citemprod=000000000000037294&query=*ak+bering+glacier+d-7*&layout=6_1_61_58&citemarea=0000000375&uiarea=2&ctype=areaDetails&next=seeItem&carearea=%24ROOT&citem=00000003750000000266)/.do)

A-6

[https://store.usgs.gov/b2c_usgs/catalog/query/\(xcm=r3standardpitrex_prd&citemprod=000000000000037294&citemarea=0000000375&layout=6_1_61_55_2&uiarea=2&ctype=areaDetails&carearea=%24ROOT&citem=00000003750000000266\)/.do?lastVisited=areaDetails&query=*ak+bering+glacier+a-6*&_ncforminfo=_0yB8PPDP9qgCbY9uSk1PenMcS9iUm8OLF7DJ70mqr5czjI9jX3zaYkQ6FzqqPzjfwTJboQj4bpAUmWbWhL7Xi4CKSxjp584jhJ6f8X9iPc%3D](https://store.usgs.gov/b2c_usgs/catalog/query/(xcm=r3standardpitrex_prd&citemprod=000000000000037294&citemarea=0000000375&layout=6_1_61_55_2&uiarea=2&ctype=areaDetails&carearea=%24ROOT&citem=00000003750000000266)/.do?lastVisited=areaDetails&query=*ak+bering+glacier+a-6*&_ncforminfo=_0yB8PPDP9qgCbY9uSk1PenMcS9iUm8OLF7DJ70mqr5czjI9jX3zaYkQ6FzqqPzjfwTJboQj4bpAUmWbWhL7Xi4CKSxjp584jhJ6f8X9iPc%3D)

Appendix B

We estimated our caloric needs using the guidelines in the NOLS cookery (pg. 40), which expects backpackers to burn approximately 2,500 to 4,500 calories each day. Using our weight to calculate a more specific estimate (weight x 25 = calories needed per day), we found that we will need approximately 150,000 calories total. We calculated the caloric total for our detailed food list below, and will be bringing a total of 152,862 calories.

Food Item	No. Servings	Total Calories	Cost (USD)
Oatmeal	15	2500	2.79
Flour Tortillas	24	5800	7.89
Lentils	9	1030	2.38
Rice	21	1200	4.00
Peanut Butter	3 x 40 oz	15200	10.80
Quinoa	9	1350	8.97
Trail Bars	15	3000	8.97
Bagels	6	1500	6.95
Pitas	9	2500	2.99
Beans	12	840	10.04
Apples	6	312	2.50
Pasta	9	1680	4.92
Onions	6	330	3.00
Cheese	5 pounds	9115	49.20
Summer Sausage	5 logs	2100	29.95
Lettuce	2 heads	106	2.00
Tomato	2	30	1.50
Jelly	2 containers	600	4.00
Parmesan	1 container	500	3.00
Corn Tortillas	30	1200	2.00
Chocolate	3 bars	1500	7.17
Dehydrated Pesto	2 packets	1280	1.76
Grits	6	600	1.77
Peppers	4	60	4.00
Dried Fruit and Nut Mix	32 oz	1050	21.72
Brown Sugar	200 g	800	1.00
Butter	4 stick	3200	5.29
Oil	16 oz	430	2.84
Knorr's leek soup mix	3	180	2.09
Carrots	3	90	3.00
Potatoes	2	200	2.00
Canned Chicken	750	750	5.96
Bisquick	6	750	2.64
Jumbalaya	1 box	1280	1.82

Pinto Beans	1 can	350	2.00
Stewed Tomatoes	1 can	100	2.79
Potato Pearls	3	225	3.37
Graham Crackers	1 box	1500	2.99
Marshmallows	1 bag	1500	1.00
Hot Sauce	1 bottle	n/a	1.09
Soy Sauce	1 bottle	n/a	2.37
Wheat Thins	2 packs	2080	10.08
Tuna	4	280	5.16
Mac and Cheese	3 boxes	1950	3.00
Ramen	3 packs	1200	0.81
Dehydrated eggs	3	200	3.00
Sweet GORP	32 oz	7000	
Craisins	32 oz	6500	2.99
M&ms	32 oz	5680	4.89
Pretzels	32 oz	3520	3.09
Peanuts	64 oz	10304	7.08
Banana Chips	32 oz	9400	4.30
Savory GORP	32 oz	7000	
Honey Mustard Pretzels	32 oz	4160	3.09
Cheezits	32 oz	4692	4.79
Sesame Sticks	32 oz	5000	3.09
Ranch Corn Nuts	32 oz	4160	4.99
Almonds	2 lb	5226	15.89
Cheetos	32 oz	4800	3.39

Appendix C

Gear

Three-person tent with rainfly and stakes
Tent repair kit
Paracord
Tarp
0 degree sleeping bag
Sleeping pad
80L-backpacking backpacks with rain covers
Crampons
Bear proof cans
Satellite phone
VHF radio
GPS
Bear spray, horn and flare
2 whisper lights with screens for wind protection
4.2 L white gas and fuel containers
Lighter
Waterproof matches
Rope and locking carabineers (For river crossings)
Pocketknife
Needle and thick thread (For fixing packs)
Compass
Duct tape
Iodine (Two fifty tab bottle per person)
Water purifier
Maps
Trowel
Heavy duty trash bags

Kitchen

Cutting board
Ziploc bags
Pot with lid
Skillet
Spatula
Bowl
Fork
Spoon
Mug
Hand sanitizer
Leather gloves or oven mitts

Clothing

Long sleeve thermal top x2/person
Thermal bottoms x2/person
Hiking pants (not cotton)

Fleece jacket
T-shirt (not cotton)
Hats (Beanie and baseball cap)
Sunglasses
Croakies
Bandanas
3 pairs wool socks/person
Rain jacket
Rain pants
Windbreakers
Hiking boots
Camp shoes/river crossing shoes
Watch

First Aid Kit:

Because our expedition will be so remote and outside help will not likely be an option for a long time, it's imperative that we are able to handle any situation and that we have all the equipment that could be necessary. By the time of our expedition we will all be certified Wilderness First Responders. We will keep our first aid kit in a separate and organized bag on top of the pack for quick and easy access. We will also have a pad of SOAP notes and a pencil to monitor any situation that might occur.

Wounds and blisters:

Bandages of different sizes
Antiseptic wipes
Antibiotic ointment
Two rolls of gauze
One roll of athletic tape
One irrigation syringe
Scissors
Safety pins
Lighter
Tweezers
Blister relief pads
Moleskin
Iodine tincture
Butterfly closures
Occlusive dressing
Sterile dressing pads
Salt
Latex gloves
Cotton tip swabs
Ziploc bags for trash
Hand sanitizer
Biodegradable soap

Vaseline
Superglue

Medicine:

Benadryl
Ibuprofen
Tums
Imodium
Lidocaine
Claritin
Hydrocortisone
Sunscreen and aloe vera

More serious injuries:

Suction syringe
Tampons
Ace bandage
Finger splint
Conformable roll splint
Moist burn pads
Sugar packets (for hypothermia)
Space blanket
Thermometer
WFR handbook
Maddy, Nomi, and Claire's past medical history

Appendix D

Expenses	Cost Per Item	Cost Per Day	Total Cost for Trip	Notes
Transportation				
SFO-ANC One way	\$185			
ANC-DEN (3 ppl)	\$633			
Wrangell Mt. Air: McCarthy to Trailhead (\$1,260			http://wrangell-stelaiours.rezgo.com/details/49748/anchorage-to-mccarthy
Shuttle from Anchorage to McCarthy(3 p	\$527			
Baltimore-ANC One way	\$383			
Wrangell Mt. Air: Resupply Plane	330			
Portland-ANC One way	\$118			
Transportation Subtotal			\$3,436	
Food/Fuel				*Food in Alaska is significantly more expensive than lower 48. We used prices from Target for spreadsheet
White Gas (4.2 liters)	27.92			*Based on the NOLS cookery. We are expected to use 1/3 of a liter per stove per day. Since we are in the backcountry for 14 days with two stoves we will bring 8.4 liters of white gas.
Oatmeal (15 servings)	2.79			
Flour Tortillas (24)	7.98			
Lentils (9 servings)	2.38			
Rice (21 servings)	4			
Peanut Butter (2 40 oz containers)	10.8			
Quinoa (9 servings)	12.58			
Trail bars (15 bars)	8.97			
Bagels (6 bagels)	6.95			
Pitas (9 pitas)	2.99			
Bears (12 servings)	10.04			
Apples (6)	2.5			
Pasta (9 servings)	4.92			
Onions (6)	3			
Cheese(6 blocks)	49.2			
Summer sausage (5 logs)	29.95			
Lettuce (2 heads)	2			
Tomato (2)	1.5			
Jelly (2 containers)	4			
Parmesan	3			
Corn Tortillas (30)	2			
Hummus powder	3.59			
Chocolate	7.17			
Dehydrated pesto	1.76			
Dehydrated tomato sauce	4.95			
Grits (6 servings)	1.77			
Peppers (4 peppers)	4			
Dried fruit and nut mix	21.72			
Brown Sugar	1			
Butter	5.29			
Oil	2.84			
Knorrs leek soup mix	2.09			
Carrots (3)	3			
Potatoes (2)	2			
Canned chicken (2)	5.96			
Bisquick (6 servings)	2.64			
Jumbalaya (1 box)	1.82			
Pinto beans (1 can)	2			
Stewed tomatoes (1 can)	2.79			
Potato pears (3 servings)	3.37			
Graham crackers	2.99			
Marshmallows	1			
Hot sauce	1.09			
Soy sauce	2.37			
Crackers-wheat thins	5.08			
Tuna (4 servings)	5.16			
Mac and cheese (3 boxes)	3			
Ramen (3 packs)	0.81			

