



Ritt Kellogg Memorial Fund Registration

Registration No. 698W-9PG5Q

Submitted Feb 2, 2022 8:47pm by Graham Webb

Approved Feb 9, 2022 3:48pm by Kate Macklin

Registration

Jul 1, 2021-Jan
26, 2022

Ritt Kellogg Memorial Fund

Registered

RKMF Expedition Grant Group Application 2021-22

This is the group application for a Ritt Kellogg Memorial Fund Expedition Grant. In this application you will be asked to provide important details concerning your expedition. In addition to this Group Application, each team member must submit an Individual Application. All Group Applications and Individual Applications must be received by Wednesday, January 26th at noon. For more information, example applications, proposal writing tips, and further guidance, please visit <https://www.coloradocollege.edu/other/rittkelloggfund/grants/expedition-grants/overview.html>
 Note: For the 2020-2021 application year, the following additional parameters have been established due to the COVID-19 pandemic: - 2021 RKMF grants are limited to travel in the contiguous United States only (no Alaska, no Hawaii, no Canada). 2021 RKMF grants are limited to travel by personal vehicles only (no airplanes, buses or other forms of public transportation) - An additional COVID-19 preparedness section has been added to the Group Application - Expedition teams which receive funding must submit an updated COVID-19 preparedness form 3 weeks prior to their expedition If you have any questions please email Kate Macklin, Outdoor Education and Ritt Kellogg Memorial Fund Coordinator, at kmacklin@coloradocollege.edu

Participant



Graham Webb



Expedition Summary

Expedition Name

Alpine Rock Climbing in the Bugaboos, Andrew Pinkham and Graham Webb

Alternate Expedition Name

BugaWho? The BugaDudes: Andrew and Graham's Bearded Adventure in the Canadian Rockies

Objectives

We are very excited to spend 14 days in the beautiful Purcell mountains, enjoying amazing views, incomparable granite rock, and time away from "the real world." Making safety and risk management our strict priority, we expect to have a trip of a lifetime, alpine climbing several classic rock routes in Canada's infamous Bugaboo Provincial Park.

Pigeon Spire, West Ridge, IV 5.4, 1500ft

Bugaboo Spire, NE Ridge, IV 5.7, 1500ft

Snowpatch Spire, Surfs Up, III 5.9, 500ft

Crescent Spire, McTech Arete, III 5.10-, 500ft

Snowpatch Spire, Super Direct, IV 5.10+, 900ft

Location

"The Bugaboos" of the Bugaboo Provincial Park, Purcell Mountains, British Columbia, Canada.

The "Bugs" have been recommended to us by many alumni and fellow climbers. The park offers us a unique chance to undertake challenging yet safe alpine climbing objectives for the advancement of our climbing experience. The routes are

known for being spectacular in both rock quality and overall climbing quality. The overarching park is notorious for its beauty and breathtaking scenic views. We are excited by the once-in-a-lifetime opportunity to travel to a region that holds such a plethora of potential adventure and self discovery. It is the perfect place for us to apply our honed partnership and climbing experiences while also finding solitude within the indescribable natural landscape.

Departure Date

Jul 27, 2022

Return Date

Aug 13, 2022

Days in the Field

14

Wilderness Experience

The Bugaboos are an extremely dramatic and grand range of unique rock spires and glacier systems that reside within the subregion of the Purcell mountain range colloquially referred to as the "Columbia Wet Belt." The granodiorite batholiths, or rock spires, are composed of hard granite crystalline structures. The excellent rock and eye-catching "splitter" cracks are main factors in the international popularity of this destination. We strive to follow in the footsteps of legendary alpinists Conrad Kain, Fred Becky and Yvon Choinard who were like us inspired by mountain adventures in beautiful remote locations.

The area is geologically active with glaciation continually reshaping the valleys and peaks. Though the spires are dramatic and impressive in size and terrain, they reach no taller than 3500m with the tallest, Howser Spire, resting at 3412m.

For over a century the Bugaboos have been a fascination of alpinists and expeditionists. A late 1800s exhibition of surveyors inspired a wave of miner expeditions throughout the 1890s that were ultimately unsuccessful, inspiring the name "Bugaboo" in reference to the dead-ended mining prospects. Alpine climbers, most notably Conrad Kain, began exploring the range and establishing pioneer ascents of many of the spires in the early 1900s. Logging of the 1950s led to the construction of the road that visitors use today and an influx of international climbers including the Beckey and Chouinard who were instrumental in establishing many of the more difficult rock routes in the park. To accommodate the growing popularity, the Alpine Club of Canada built the Kain hut in 1972 which to date acts to reduce environmental impact in the fragile alpine meadows that lie below the spires. Recently, the bugaboos have seen some impressive first ascents including the Eastern Face of Snowpatch Spire by Matt Segal and Will Stanhope with the proposed grade of 5.14.

The Bugaboos exist as a pure alpine environment, though are made accessible and less-committing than other alpine regions by a 3.5mi trail from the road to the main Bugaboo Spire. Though the road was originally developed for logging, it has been maintained for ensuring quicker responses to backcountry emergencies. This road makes access to the bugaboos fairly unchallenging, however a wilderness experience is still guaranteed due to dramatic rock features, true alpine environment, and conservation efforts. While the road may exist only a few miles from the spires, inclement weather and other alpine environment characteristics can minimize any attempt to "tame" these mountains. The Kain hut exists as a conservation effort to reduce environmental and visual impacts on the region. It was not created to act as a way to reduce the wilderness experience of the region. Though man made shelters and developments seem to detract from a traditional wilderness experience, the existence of the Kain hut and the Applebea campground act in the opposite way. By reducing impact on the most vulnerable areas in the park, more of a wilderness experience is maintained and conserved for future generations. The permitting system for the Bugaboos Provincial Park ensures a limited number of backcountry travelers at one given time, additionally allowing for individuals to find solitude within the mountains.

Participant Qualifications

Expedition Team Member Graduation Dates



Medical Certification Dates

Andrew Pinkham - Wilderness First Responder certified on 1/19/22
Graham Webb - Wilderness First Responder certified on 1/19/22

Does your group have adequate experience?

Yes

Training Plan

Both members of our expedition have the experience necessary, combined with our training plan, to make this expedition safe and successful. We acknowledge that there is training that we both need in order to specialize our experience and preparedness for a venue like the Bugaboos. We feel that our strong rock climbing backgrounds, previous backcountry experience and outdoor safety training demonstrate a strong base which will be enhanced by point-specific additional training.

Both members of the expedition are very comfortable on technical rock terrain, multi-pitch climbing, and leading trad, which is outlined more in our personal resumes. Graham has taken an SPI course (May 2020 with Ryan Hammes) and plans to complete his exam before the expedition begins. Andrew has been trained by David Crye as a Ritt Kellogg Climbing Instructor for Colorado College Outdoor Education. He has experience teaching many of the climbing skills clinics including: Trad Leading, Intro to Trad (placements and anchors), Multi-pitch climbing, Intro to Anchors, Cleaning and Repelling, as well as others. Both Andrew and Graham have extensive knowledge and experience utilizing climbing systems in ways that maximize safety and manage risk.

Andrew and Graham have individually taken personal trips to climbing locations in the US west such as Smith Rock, Yosemite Valley, Indian Creek, Tuolumne, and Joshua Tree. We have spent at least 30 climbing days together as climbing partners. We've spent those days at crags around Colorado, on trips to the desert, or on larger local objectives such as Arching Jams III 5.10+ and Wunsch's Dihedral III 5.11+. We work well together as equally skilled climbing partners and when negotiating problems or risks that occur when climbing.

Glacier travel and crevasse rescue is the category where we most need additional training in order to do this expedition safely. Graham's last experience navigating glacier, leading a rope team, building snow anchors, and practicing crevasse rescue systems was with NOLS on a 30-day mountaineering expedition in the North Cascades over the summer of 2018. Because of that time elapsed, these skills need to be refreshed and tested. Andrew has some minimal experience traveling over snow in addition to significant peak bagging experience in the high Sierra Nevadas. Andrew is also taking an AIARE 1 Avalanche course over block 7. We recognize that we need additional training to safely navigate the glaciers in the Bugaboos.

To address this gap in experience and training, both of us will take a Crevasse Rescue and Glacier Travel course together through the Pike's Peak Alpine School. We have already contacted the Pike's Peak Alpine School about taking this course. The timing depends on conditions, but we will likely take the course in April, by the PPAS's own recommendation. If there aren't good enough conditions on Pike's Peak to do the course, we have confirmed that we can do it at Hoosier's Pass. We will be applying for funding for this course through the Ritt Education grant, and that proposal will be submitted at the same time as this proposal. We discuss our plan to manage the risks of glacier travel more in the Risk Management section of this proposal.

Additionally, we plan to receive training in Multi-Pitch Self Rescue skills. This is something that we would like to coordinate with Ryan Hammes at CC, but we may also consider taking an additional course with the Pike's Peak Alpine School on these skills. This will give us the additional confidence on long routes that we have the skills and knowledge to respond to an emergency.

In summary, before the trip begins, both Andrew and Graham will have taken a Crevasse Rescue and Glacier Travel course, received training in Multi-Pitch Self Rescue skills, and will be certified Wilderness First Responders. Andrew will have taken an AIARE 1 avalanche course and Graham will have taken his SPI exam.

In addition to technical training and certifications, our training plan includes continuing to climb long rock routes together in the local area and around the west. Some climbs that we would like to do together before the expedition begins are as follows, but subject to change:

Spring Break:

Yosemite Valley, California:

- Steck-Salathe, 15 pitches, IV 5.10-
- Astroman, 10 pitches, IV 5.11c
- Freeblast, 10 pitches, IV 5.11c

Summer Break:

Rocky Mountain NP:

- Casual Route, The Diamond, 7 Pitches, IV 5.10a
- Pervertical Sanctuary, The Diamond, 6 Pitches, IV 5.11a
- Positive Vibrations, Incredible Hulk, 12 pitches, IV 5.11a

Expedition Logistics, Gear and Food

Travel Plan

On 7/27/22, we will pack Andrew's car and depart for Montana. We will camp near Bozeman, MT on BLM land. The following day, we will drive to the Bugaboo's parking area and camp at the free campsite. This multi day drive will be metally taxing, so we will rotate driving to stay alert. We will also mitigate this risk by stopping to stretch frequently. After the trip, we will follow the same route to return to Colorado Springs, taking two days with one night in Bozeman.

Expedition Itinerary

[REVISED Appendix A - Expe....pdf](#) (21MB)

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Digital Map

<https://www.gaiagps.com/datasummary/folder/ae7b1356-177d-437a-b4c7-0b1e3d4973c5/?layer=GaiaTopoRasterFeet>

Re-Ration Plans

We plan on packing in all our food for the entire expedition. This will require two full trips from the car to the campsite. We plan on doing this all in one day. The distance from the car to the campsite is roughly 3.5 miles, allowing two trips to be an acceptable distance for one day, considering half of the distance traveled will be without weight.

Food Storage

To safely store our food and protect it against wildlife, we will use 4 BV500s and 1 BV450. This will allow us to back food for upto 16 days. Once packed into camp, we will leave these bear vaults sealed at our campsite. During meal times and when we are needing to access our food, we will be sure to take food out and quickly seal the vault. We will be sure to keep all food and smelly items within arms reach to protect against rodents. This includes trash, which we will packout during our climbing days and store in the bear vaults. We will utilize MRE bags as trash bags for small food scraps and smelly trash items. At the end of the trip we will back out all of our extra food and trash. To avoid break-ins into our car we will not leave any food items inside during the trip and will protect our wheels from porcupines with chicken wire and wooden posts.

Food List

[REVISED Appendix B.pdf](#) (98KB)

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Equipment List

[REVISED Appendix C.pdf](#) (48KB)

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First Aid Kit List

[REVISED Appendix D .pdf](#) (18KB)

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Impact

For all of our years of backcountry trips and experiences, we have both meticulously followed and been aware of Leave No Trace principles. We are both passionate about minimizing our impact in alpine environments and actively encourage our peers with less backcountry experience to follow LNT guidelines and do important research about the impact that hikers and backpackers, skiers, and climbers have in the backcountry. Andrew has gained much of his LNT knowledge and experience from backcountry leadership courses with the Boy Scouts of America, In similar fashion, Graham has received much training from NOLS courses. It is very important to consider specific LNT guidelines for the region one is traveling in. For our trip, we have outlined some specifics we will follow under the seven principle LNT framework:

Plan Ahead and Prepare: We have done hours of preparation for this trip and much of it is documented here. Additionally we have reviewed the Bugaboo Provincial Park website and their backcountry camping guidelines as well as the Strathcona Wilderness institute LNT wilderness ethics document for all British Columbia parks.

Travel and Camp on Durable Surfaces: While in the park we will be hiking on established trails, snow, and glaciers only. We will set our basecamp at the established Applebee campground and will likely pitch our tent on rock or snow. These efforts will minimize our impact on fragile alpine soil.

Dispose of Waste Properly: For the duration of the trip, we will keep track of all our trash, storing it in backcountry waste bags that we will pack in. We will additionally utilize consumed MRE bags as food waste storage as they are airtight and convenient. For our human waste, we will use WAG bags all the time unless we are well below alpine zone for any reason. Our waste water will not be disposed of within 200ft of water sources.

Leave What You Find: We do not plan on taking anything home from the trip.

Minimize Campfire Impacts: Campfires are prohibited in the park. We do not plan on having any campfires on this trip.

Respect Wildlife: We will not interact with any wildlife and will keep our distance if we do happen to see any. The Applebee campground holds stationary bear vaults that we will store our food in in order to keep our food away from wildlife.

Be Considerate of Other Visitors: We plan on being friendly, but courteous with other Bugaboos visitors. We will plan on keeping our distance to ensure we do not negatively impact the experience of other visitors.

The Purcell Mountain Range is traditionally part of the territory of the Ktunaxa indigenous nation and we must respect the fact that we are traveling on their land. We must also be aware of the fact that the Bugaboos is an international destination for climbers from all over the world. When interacting with climbers of different backgrounds at the campground, we must respect cultural differences.

The Land of the Bugaboos Provincial Park is managed by the British Columbia Parks organization as well as the Alpine Club of Canada. The Applebee campground is open for use May 1st through November 16th. The park restricts trips longer than 14 days and those of parties greater than 8 people. Camping is open on a first come first serve basis and a \$10/person per night fee will be collected at the site. According to the BC Parks site, the Bugaboos alpine areas are fragile and require strict LNT camping and climbing practices. In addition to the LNT guidelines outlined in the above section, we recognize it is crucial for us to be no trace climbers. This requires leaving no trash on the wall, avoiding damaging the rock with gear and or our bodies, and collecting all protection used, with the exception of an emergency situation. The site also encourages avoidance of alpine meadows to aid in a restoration process. Streams and lakes can be used as fresh water sources, so it is important to avoid using any form of soap and disposing of grey water at least 30 meters from water sources. Like mentioned above, human waste should be disposed of in either WAG bags, in non-alpine soil regions buried at least 6 inches deep, or in designated restrooms. We will obtain backcountry permits from the site within 14 days of our first day.

Our round trip mileage for this expedition is 2567.2mi. To offset this total of 1.9 metric tons of CO2e, we will use Colorado Colleges carbon offsetting program. We will contribute \$9.50 to the fund to offset our carbon emissions.

Risk Management

Objective Hazards

Glacier Travel:

Glacier travel is required to approach the majority of the rock climbing routes in the Bugaboos. It is important for the two of us to be well versed and very confident in our glacier travel and crevasse rescue skills, especially as a mountaineering team of two. By the time of the expedition, we will have taken a course on glacier travel and crevasse rescue together with the Pike's Peak Alpine School. We will have practiced knot craft and rope management, building snow and ice anchors, self arresting, and using haul systems for crevasse rescue. Through our training with the PPAS, we will learn how to function and rescue as a mountaineering team of two. These are skills that we will practice thoroughly together after our training and before the trip so that either one of us can act intuitively in the case of a crevasse fall.

We do not underestimate the inherent danger of traveling on any exposed glacier, but we are confident that with professional training and focused practice of the necessary skills, we will be prepared to manage the risks of glacier travel when we arrive in the Park.

If we are unfortunate enough to find ourselves in a glacier rescue situation, we will quickly go into rescue mode, utilizing our training and techniques for reducing such a situation. The exact procedure for this rescue will be determined and studied during our PPAS rescue course and will review the plan before every section of glacier travel we encounter. After such a rescue, we will likely need to evacuate or return to camp in which we will follow our evacuation procedures outlined below.

Snow, Ice, and Avalanche:

Avalanches are very unlikely in the Bugaboos in late July/early August, but nonetheless we will assess steep snow slopes for avalanche hazards. By the time of the course, Andrew will have an AIARE 1 certification, and he will take a lead role on assessing snow conditions. Wet slides are the main hazard we have to account for in the late summer. We will always plan to cross steep snow slopes in the early morning when they are most firm, before they have been exposed to sun. We will avoid any steep snowy or icy terrain that we deem too risky to travel across. We will always use appropriate axe and crampon technique on steep ice and snow terrain.

In the unfortunate case where we encounter an Avalanche while traveling and one of us becomes injured, the other will once safe, travel to the injured climber. From there, a full patient assessment, which we are both well versed in through our WFR

training, will begin. Once the severity of injury has been determined, we will determine if an evacuation is necessary and in what fashion that would need to occur. If we choose to evacuate, we will follow the evacuation plan outlined below.

Rockfall and Icefall:

Rock and icefall are two hazards that we will watch diligently for, both on approaches/descents and while climbing.

We can assess our approaches for rockfall or icefall hazards by visually checking them out beforehand, and potentially by talking with other climbers at the Applebee campground about conditions. Before arriving at the Park, we will utilize online resources, such as the Association of Canadian Mountain Guides, to check for any reports on glacier and trail conditions in the Bugaboo Provincial Park.

One area that we know for sure will present challenges with loose debris is the Bugaboo-Snowpatch Couloir. For a while now this particular couloir has been very messy, and frequently casts rock and debris down while climbers are going up or down it. For this reason we will be careful while moving across this terrain, especially if there are other climbers below us. If there is a party above us on the Bugaboo Snowpatch Couloir, then we will assess the risk of following them. We may choose to wait for the party to clear the terrain before we follow, to take an alternative route to our objective, or choose a whole different objective for the day. It is best to ascend the Bugaboo-Snowpatch Col with cooler temperatures, in the morning, when there is firmer snow that is less likely to cast down debris. When we descend the Col in the afternoon after climbs, we will have to prepare for the softer snow and looser debris. When descending the Col, there are rappelling options on lookers left (Snowpatch side), that we can use if we deem it advisable.

While rock climbing we will control for rock fall hazards by avoiding routes with loose rock the best we can. We will place belays clear of any areas where we suspect rock could be cast down by us or other climbers. We will communicate loudly and clearly in the event that rock does come loose in order to alert each other and climbers below us.

Because we cannot eliminate the possibility of rock fall, we will always wear helmets while rock climbing and on glaciers.

In the case of a rock fall or ice fall accident where one of us is struck by debris, we will first shelter in a safe location in the event that there is more debris to follow. Once safe, the non-injured partner will undergo a full patient assessment to determine the severity of injury. Unless very minor, this will likely result in an evacuation and we will follow our evacuation plan outlined below.

Climber Fall/Climber Injury:

In alpine scenarios and on high-commitment climbs, it is irresponsible to take large climbing falls. If one of us were to get injured, especially in the backcountry and X number of pitches up on a climb, a rescue would be dangerous and difficult. While unexpected falls are a possibility and an accepted risk in rock climbing, we will do everything we can to mitigate the possibility of an injury while climbing.

We only plan to climb routes that are well within our ability, so that we can climb confidently and efficiently. We both agree that it is not worth pushing ourselves to the max on any objective in the alpine.

We are both very confident in our ability to use traditional gear to protect rock climbs, even when the gear may be finicky or unobvious. We are committed to protecting climbs in a safe and risk-adverse manner. We will make sure we bring the adequate gear to safely climb the routes on our itinerary, and if we feel unequipped upon arrival to a climb then we will back off and choose a different one.

If we are on a route and encounter a crux or difficult section that we did not anticipate, we have the skills to aid through so long as it is possible. We plan to climb all routes with two guide ATCs on our harnesses, and one GriGri for the added safety for the leader. All our anchors will be built to meet EARNEST standards.

Fatigue and mental block are two additional things that can increase the possibility of dangerous falls/injury. If either one of us feels too fatigued or mentally burnt out to complete a climb, then we will make a decision to bail off the route and return safely to camp to rest. However, we have chosen our objectives so that they are well within our abilities and therefore we do not plan to have problems with fatigue or mental block. We have collected adequate info on all the climbs on our itinerary, and know that retreating is possible for each of them.

Despite all these precautions, in the unlikely case of an injury, both of us will have practiced multi-pitch rescue skills and can feasibly retreat with a disabled partner. Rescue services are not readily available in the park, and communication with a cell phone will not be possible. The Bugaboos is a popular climbing area, and other climbers will be around. We can indicate to others what our objectives are and when we plan to return so that, in the case of an accident, a rescue will be initiated. Nonetheless, the two of us are aware of the severity of injury in this environment and are prepared to act in a self-sufficient manner.

Weather:

The weather in the Bugaboos is notoriously unpredictable. Snow, rain and hail are always a possibility, even in August. When the weather turns sour we can expect fluctuating and extreme wind, large dips in temperature, and potential lightning. We will bring extra layers for rain and warmth on any climbs, and we will watch the weather and forecasts carefully before embarking. The Kain Hut posts a weather forecast near their door that is updated daily and that we can jog down and check if need be. If the weather turns bad while we are on route, we will make the risk-management decision to bail off the route.

That said, we have chosen August as the time for our expedition because of the more consistent warm temps and less precipitation on average. Climate change has made predicting the actual weather for any month more difficult, so we will be prepared for potentially colder or warmer weather than years past. Colder conditions could mean less opportunity to climb at all. Warmer conditions could mean that glacier travel is more dangerous, involving more bare ice and more loose debris. Weather conditions will affect our choices on approaches, while climbing, and affect our comfort in camp too, so we will carefully watch and prepare for any drastic weather changes.

In the event of a lightning episode while we are at or near camp, we will shelter in our tents on an insulated mat in lightning position. This is the recommended procedure in the Bugaboos and is endorsed by the WFR curriculum. If we are far from camp, we will take shelter and lightning position in the closest area that offers some form of protection, be that an alcove, tree zone, cave, or boulder field.

In the event where we find ourselves in bad weather away from camp and experience a cold injury or hypothermia, we will follow WFR guidelines to get the injured partner to a warm and safe location. For hypothermia, we will build a hypo wrap, heat water for warm water bottles, and warm extremities with skin to skin contact. For a cold injury, we will likely thaw the affected body part based on severity and time until a possible evacuation.

Night:

We hope that we won't need to finish any of our climbs in the night, but being caught by the dark is a possibility we are prepared for either way. We expect to have around 15 hours of daylight in July/August in the Bugaboos, so by starting early in the morning we expect to have more than enough time to complete our objectives with daylight. Additionally, the routes we have chosen follow fairly obvious features like cracks, so we expect that route-finding in the dark will be manageable if it comes to it.

We are confident in our ability to make smart and safe decisions if we are caught in the dark. We will carry headlamps on all climbs in the case that we have to finish up the route, descend, or travel back to camp in the dark. Both of us have experience rock climbing, rappelling, and navigating approaches/descents in the dark.

Altitude:

Most spires in the Bugs top out at elevations less than 10,500ft. The Howser Spire tops out around 11,200ft. The Applebee Campground sits at just about 8,000ft. Both of us have experience living and exercising at these elevations. We have climbed difficult routes at elevations similar to and above what we'll be dealing with in the Bugaboos. We are trained to identify signs and symptoms of AMS, HACE, and HAPE. To mitigate our risk of getting altitude sickness, we plan to gain elevation slowly and acclimatize on the first few days. We also plan to drink plenty of water to stay hydrated which can lead to AMS.

If we find that one of us is suffering from one of these conditions then we will rapidly descend. For mild AMS, we may also take basic NSAIDS to reduce headache pain.

Water Contamination:

We will boil any water we use on the expedition, or treat it with the purification solution AquaMira to make sure we don't get sick.

If we do happen to become sick by water contamination or food contamination, we plan to judge the severity and potentially evacuate. One of the largest short term side-effects of food and waterborne illness is dehydration, so we will be sure to hydrate.

Wildlife:

The Bugaboo Provincial Park is home to a few critters that create hazards for us. When we arrive at the park we will leave our vehicle surrounded by a chicken-wire protective ring to stop porcupines from munching on our car tires. Both of us will have a canister of bear spray to manage potential encounters with Black or Grizzly bears. Additionally, we will store all of our food in bear safe canisters and keep a clean campsite with our kitchen area 100 yards away from where we sleep. At all times, food will be in wildlife safe containers, or within arms reach of us.

If we do encounter a bear in the park, we will avoid it. If we are unable to avoid it and it takes notice of us, we will begin talking calmly to identify ourselves. We will slowly wave our arms and stay calm. We can also make ourselves look as large as possible by moving to higher ground and physically opening our stance up. If the bear is stationary, we will move away slowly

and never drop our packs or food.

If we are attacked by a Grizzly Bear, we will leave our packs on, use bear spray, and play dead. We may lie with our stomachs down and our packs on, while clasping our hands behind our neck. We won't fight back unless the attack is relentless.

If attacked by a Black Bear, we will not play dead. Instead, we will try to escape to the Kain Hut or a bathroom building. If we are forced to fight the bear, we will target blows to the face and muzzle.

We have watched an informational video by the National Parks Service about how to discharge bear spray to deter an aggressive charging or attacking bear.

Evacuation Plan

Our evacuation plan is very dependent on the scenario. With our Wilderness First Responder medical knowledge and skills, we will together assess the seriousness of an emergency situation and then if warranted, begin an evacuation process.

Based on our Wilderness First Responder training, we will assess if the accident, injury, or reason for emergency will require outside assistance. If the incident is serious enough to require an evacuation but non life-threatening like a broken bone or non-critical laceration, we will hike out of the backcountry via the trails. Self evacuation situations like this can change constantly, so it is important that we continually assess the condition of the injury and reevaluate evacuation plans. In a self evacuation, the Conrad Kain hut may also offer us emergency supplies for stabilizing an injury and additional help. The Kain hut also acts as a shelter for emergency situations. In the event where we are able to get the injured body to the hut, but not down to the car, we can provide better care to the person in the hut, limiting exposure to the elements. If we continue down to the car, we will immediately drive to Brisco, the nearest town. Once we get cell phone service, we will decide if dispatching an ambulance to our location, or driving to the nearest hospital is more suitable for our situation. The nearest hospital resides in Wilmer, roughly 40 miles south of the trailhead. Due to the size, Invermere & District Hospital may provide the assistance we need, if not we will follow the guidance of their staff.

In a scenario where moving the injured person is not an option, and making it to the Kain Hut is not reasonable, we will activate the SOS feature on our Garmin InReach Mini to dispatch a rescue effort. Depending on our current distance to the Kain hut, it may make sense to stabilize the injured body, and then head to the hut to find additional people to aid in the rescue effort. In the event that a helicopter rescue is not an option due to weather, we will then be forced to perform our own evacuation or at least a push to the Kain hut. If we are able to rally help from other visitors, we will build an improvised litter using our climbing packs to transport the injured. If moving is not at all an option, or we are in an area where it is not logistically possible, we will begin efforts to stabilize the injured and prepare to wait. This process will include performing any possible first aid, gathering warm layers for the injured, constructing a shelter using rocks, climbing equipment, snow/ice etc. This process is also subject to the condition of the injured. If the injury is requiring full attention and monitoring, the healthy partner will do so unless absolutely necessary to leave for another task.

If we encounter an emergency situation while climbing on a route, we will immediately go into our practiced bail procedures which we were taught in classes and by Ryan Hammes. The easiest solution would be to repel the route and we will always bring sufficient ropes to repel any routes we attempt. If one partner is unconscious, the healthy partner will need to perform advanced rescue techniques to get in physical contact with the injured to perform first aid and eventually begin a tandem repel. Additionally, at the onset of the emergency we will assess the seriousness and potentially activate SOS mode on our Garmin InReach. Once on the ground, we will begin emergency procedures outlined above.

Special Preparedness



Emergency Resources

Closest facility: The Conrad Kain Hut — 0.5 miles away from the Applebee Campground. We will contact the Kain Hut for assistance in the case of an emergency and if an evacuation needs to be initiated.

Closest amenities: Brisco, BC — 28.5 miles away on a dirt road.

Closest hospital: Invermere & District Hospital, Invermere, BC — 56 miles away.

850 10 Ave, Invermere, BC V0A 1K0, Canada

[+1 250-342-9201](tel:+12503429201)

For emergencies we will call 9-1-1

Alpine Club of Canada: (403)678-3200, manages the Conrad Kain Hut

Closest SAR: Columbia Valley Search and Rescue
1627 Hwy 93/95, Windermere, BC V0B 2L2
250-342-0600
For emergencies we will call 9-1-1

Emergency Communication

In the event of an emergency in which we need immediate assistance, we will utilize the Garmin InReach Mini to communicate with first responders. The SOS feature will dispatch a response team and provide our exact location. In addition, the two-way messaging feature will allow us to give first responders detailed text information about our situation and location. For more minor evacuations that do not require the SOS feature, we can alert our friends and family that we are performing a self-evacuation.

COVID-19 Preparedness

What is the current COVID-19 situation in the area where you are intending to travel?

Luckily due to the remote nature of the Bugaboos, Covid is not as intense of a worry as compared to a trip in a more densely populated area. However, it is still incredibly important for us to be researched about the Covid situation in the region and to make plans on how to limit our exposure. Within the park, Covid cases are low. The BC Parks Service has a web page with up to date Covid-19 information and currently, there are few impacts to the park. Masks are required in the park. Full campsite capacity for all BC parks will resume starting in July of 2022.

The nearest sizable town to the park is Radium Hot Springs. Currently the town does not have serious Covid-19 problems, though a Mask mandate is in effect. Smaller towns that we will pass through like Brisco, Edgewater, and Dry Gulch also do not have major Covid-19 problems due to their remote nature, though masking is recommended in BC.

In addition to presenting our passports, we will have to make some special Covid-19 related preparations for when we cross the Canada-US border:

<https://travel.gc.ca/travel-covid/travel-restrictions/covid-vaccinated-travellers-entering-canada#entry-vaccinated>

Pre-entry testing: We must provide proof of a COVID-19 negative molecular test result to enter Canada OR proof of a previous positive test result taken between 15 and 180 days ago. The molecular test must be taken outside of Canada within 72 hours of our entry into Canada. We will plan to test in Colorado Springs, the day before we depart, as long as the return on tests is 24-48hrs.

We will use the ArriveCAN mobile app to enter our proof of vaccination, quarantine and travel information at least 72 hours before our arrival to Canada. At the border we will have to present our valid ArriveCAN receipts to enter.

We will bring a digital or paper copy of our proofs of vaccination to present at the border, and keep them for 14 days after entry.

We are required to have a suitable quarantine plan, which must be entered into ArriveCAN. We may be asked to explain our quarantine plan at the border. Because we are fully vaccinated, the only situation where we would be required to quarantine would be if we were selected for an arrival test that requires us to quarantine until we get a negative test result. This is an unlikely and unideal possibility. If we find ourselves in that situation, we will either camp somewhere remote or book a hotel to quarantine.

How do you intend to mitigate the risks of exposing yourself and your teammates to COVID-19 while traveling to your trailhead?

In order to mitigate our exposure to Covid-19, we plan to both take our own precautions, follow guidance from local resources, and follow guidance from Colorado College. For us this means we must be vaccinated and boosted upon our departure.

Currently we both are boosted, though will keep our vaccination status up to date with Colorado College's guidance. During our drive to the park, we will do our best to limit our time in gas stations and at populated rest stops. We plan on camping remotely for the night in between our two drive days instead of staying at a populated motel. Lastly, we will maintain social distancing with anyone we come in contact with and will wear masks for all social encounters and whenever inside.

How do you intend to mitigate the risks of exposing the residents of the area(s) where you will be traveling to COVID-19?

Radium Hot Springs is the most densely populated area we will be near. When we are passing through, we will ensure that we are socially distancing and wearing masks.

How do you intend to mitigate the risks of COVID-19 while in the field?

When in the park, we will wear masks whenever in contact with others and within closed spaces. This includes speaking with rangers and other visitors. Luckily since we will be outside for the vast majority of the trip, our Covid-19 exposure will be very

low. The two of us will act as a "family unit".

If someone on your expedition develops COVID-19 symptoms, how will you handle it?

If either of us develop Covid-19 symptoms during the trip, we will immediately begin an evacuation plan. We will both promptly begin masking and distancing in addition to planning the best course of evacuation. It is also possible that we can bring Covid-19 testing kits with us to check to see if we have Covid-19 in real time, if symptoms begin.

Budget**Budget**

[REVISED Appendix E .pdf](#) (33KB)

Uploaded 2/2/2022 8:42pm by Graham Webb

Transportation

615.55

Food and Fuel

627.06

Maps and Books

61.42

Permits/Fees

280.00

Gear Rentals

0.00

Carbon Emissions Offsetting

9.50

Total Funding Request

1593.53

Funding Per Person

796.77

Cost Minimization Measures

In order to minimize the cost for our expedition, we will be driving one of our personal vehicles to the Bugaboos instead of flying. Avoiding flying will also reduce our carbon emissions and our cost for carbon emission offsetting. For our travel, we plan on camping for free which will reduce lodging costs.

We will purchase most of our food in larger quantities from King Soopers and Costco to keep costs low. Some specialty items will need to be purchased from REI. Luckily, MREs from REI through our membership, can be purchased with a 10% discount. These meals are slightly more expensive than raw ingredients, though their speed, low weight, nutrition, and variety are worth the increase in price.

We both have all the gear we need for this trip including two Garmin InReach devices. We do not need to rent anything which will reduce our costs.

Expedition Agreement

[REDACTED]

[REDACTED]

Appendix A - Expedition Itinerary

This is our ideal itinerary for the trip. This is how we plan to travel, and how we will ideally distribute our objectives throughout the 14 days we will spend in the Bugaboo Provincial Park. The specific days where each climb takes place may change if we run into any challenges with weather, or if we find ourselves fatigued and wanting to rest more. Our GAIA map (section III C) has itemized paths for each section of our trip, including our driving route from Brisco, the hike from the parking lot to the campground, and all approaches. The 3D function of the GAIA map is a great tool for getting an overview of the climbing area. We also plan to bring highly detailed paper maps of the Park.

A note on rest days and weather: The 5 climbs we have chosen as our objectives for this expedition are spaced out fairly evenly between the 14 in-park days on our itinerary. We feel that two weeks is an appropriate amount of time to do these 5 climbs. The weather in the Bugaboos is notoriously unpredictable, and it is common to get a window of good weather that lasts 2-5 days before bad weather rolls in. It is more than likely that our climbing days occur differently than planned on the itinerary, because of weather. If we have a long forecast of good weather, we may attempt multiple climbs one day after another. We may also spend multiple days hunkered in camp due to precipitation and bad weather, waiting for the chance to climb.

We have put 1 or 2 rest days between each climb on our itinerary as a buffer for bad weather days. If we find ourselves hunkered down in camp due to weather, we will hang out in our tent playing cards, reading books, eating food, and resting.

However, if luckily we have a long forecast of good weather, we may choose to take rest days between our climbing days, like listed on the itinerary. On rest days we will spend a lot of time in camp. We will eat food, do yoga, read and relax, and socialize with other climbers. On rest days we may also choose to do the short hike (0.5mi) to the Kain Hut to check the weather forecast that is posted there. On non-climbing days we will also scout out the approaches for upcoming climbs.

Credits: We owe a lot to Steph Abegg for her very detailed beta on routes in the Bugaboos. Much of our information listed below comes from her blog stephabegg.com. We use a lot of her photos also as references. We also have taken beta from the respective mountain project pages for climbs.

Date	Day Number	Objective
7/27/22	Drive day	 -> Bozeman
7/28/22	Drive day	Bozeman -> Bugaboo-Septet Campground
7/29/22	Day #1	Hike Day and Camp Setup (Applebee Campground)

7/30/22	Day #2	Bugaboo Spire NE Ridge IV 5.8 On the descent we will be able to check out the conditions of the Bugaboo-Snowpatch Col.
7/31/22	Day #3	Rest Day - Hang out in camp, talk with other climbers, rest. Talk to other climbers and get info on the condition of the Col. The two of us will discuss the condition of the Col based on shared info and what we experienced going down it the day before.
8/1/2022	Day #4	Pigeon Spire West Ridge IV 5.4 Even though this route is much easier than the NE Ridge, we think that it should come after the NE Ridge in our itinerary. This will let us assess the conditions of the Bugaboo-Snowpatch Col before we have to ascend it to access a climb. We have the option to rappel down the Col if conditions are bad, making descending less challenging than ascending, we think.
8/2/2022	Day #5	Rest Day - Hang out in camp, talk with other climbers, rest.
8/3/2022	Day #6	Rest Day - Hang out in camp, scout out the approach to Crescent Spire. This approach is very short compared to others, so the goal will be to get to the base of the climb itself, and to look at the pitches from below.
8/4/2022	Day #7	Crescent Spire McTech Arete III 5.10-
8/5/2022	Day #8	Rest Day - Happy birthday Graham! Hang out in camp, rest.
8/6/2022	Day #9	Rest Day - Scout out the approach to Surfs Up. The goal of the day will be to hike to the Bugaboo-Snowpatch Col and visually assess the conditions from below. Time may have elapsed since we last went through the Col, so conditions may be different. The approach to the climb is simple from the top of the Col, so we will not ascend the Col on this scouting mission.
8/7/2022	Day #10	Snowpatch Spire Surfs Up III 5.9 Scout out where Super Direct begins on the way to Surfs up.
8/8/2022	Day #11	Rest Day - Hang out in camp, rest.
8/9/2022	Day #12	Rest Day - Hang out in camp, rest.

		The approach to Super Direct is almost identical to the approach for Surfs Up, so we will already be familiar with the directions and conditions of the approach.
8/10/2022	Day #13	Snowpatch Spire Super Direct IV 5.10+
8/11/2022	Day #14	Applebee Campground -> Bugaboo-Septet Campground
8/12/2022	Drive day	Bugaboo-Septet Campground -> Bozeman
8/13/2022	Drive day	Bozeman -> 

Route Planning: Descriptions of Routes, Approaches, Descents

A general note on bailing off routes: For a few of the routes on our itinerary, and for many alpine routes in general, bailing is very complicated and risky. Bailing is something we will only resort to when continuing climbing presents a significant danger to us - meaning one of us is hurt, the weather has become dangerous, etc.

On routes such as the Northeast Ridge of Bugaboo Spire, the West Ridge of Pigeon Spire, and Surfs Up on Snowpatch Spire, bailing will mean the gear we have with us, maybe all of it, to construct anchors in order to rappel down to the ground. On our gear list we have included extra gear that can be used for bailing that we will have in our climbing bags for every climb. This includes rappel rings, 50ft of webbing, and extra protection like nuts that can be left behind. In some cases there may be fixed gear that we can use to rappel from, however we will always assess the quality and safety of gear that we did not place ourselves before trusting it. Additionally, if we can safely use natural features like horns to make sling anchors, we will prefer that in order to conserve gear.

There are some newer routes in the Bugaboos that have bolted anchors equipped with rap gear at every belay, making retreating very simple and non-committal. One route like this is McTech Arete, which is on our itinerary. Despite this deluxe treatment, we will still climb with our extra bailing gear in the extreme case we need to use it.

We have a specific plan for bailing off of each route, which is described underneath each route description in this appendix. For some routes, detailed information on bailing does not exist, as is the nature of alpine climbing. In those cases we will resort to our best judgment and decision making skills to decide the best way to make it safely to the ground. Both of us are confident that we have the skills and knowledge to safely bail off of any climb in our itinerary in those emergency situations.

Bugaboo Spire, Northeast Ridge, 5.8, IV 1500ft

Approach (1.2 miles, 1.5 hrs): We will have to wake up very early to be, ideally, the first party on the route. We will choose our departure time based on how many people are at the campground, but we will most likely need to leave camp by 4:00am. We will pack a backpack that will carry all of our supplies for the day. Because the descent off of the Bugaboo Spire spits us out far from the approach, we will plan to carry our axes, crampons and shoes in our bag. Hike on the north side of Crescent Glacier, then climb 4th class terrain to get to the Bugaboo-Crescent Col (see Image 1). Head west on the saddle towards the NE ridge of the Bugaboo Spire.

Route:

P1: Rope up on a terrace, on the left of a small pinnacle. This pitch stays on the left side of the ridge crest. Trend straight up a 5.8 fingers section, then step right towards the left side of the pinnacle. Head up this crack before stepping left to a large dike where there's an anchor with fixed gear.

P2: Trend up and left following 5.6 flakes to a natural belay ledge.

P3: Climb a few feet down, step left, and then start moving up following a right-trending rail. Then traverse right for a long way, 5.7 face. Cross over the ridge crest near the end of this pitch to access another natural belay ledge.

P4-5: Head straight up a 5.6 corner to a ledge with a piece of fixed gear, staying on the right side of the ridge crest for 60m. Link this into the next very short pitch, maybe 5m, heading straight up to another large ledge with a piece of fixed gear.

P6-9: Straight above you at this point is a low 5th class chimney that continues for 180m up the right side of the ridge crest. Follow this for 3 pitches, stopping at natural ledges that appear on the right of the chimney every 60 or so meters. Pitch 9 is short, spitting you out at the top of the chimney where you make a belay on the left side of a ledge.

P10: Follow easy but wandering terrain up the ridge crest. Search for the path of least resistance, and cross over two dikes before finding a ledge to make a belay. 5.7

P11-12: Follow very easy terrain directly up the ridge crest. This takes you to the rappel station where you can begin the summit traverse, or you can continue for another easy pitch to the North Summit.

Route overlay: Image 2

Bail plan: From the top of P3, it is possible to bail back to the start of the climb in 3 60m rappels. The anchor at the top of P3 is said to be two slung pitons, so, unless those are missing, we can use those to rappel without leaving gear. For the second rappel, it is possible to sling a horn. The anchor at the top of P1 is said to be two slung pitons also, so again we might be able

to use those as the anchor for the last rappel. These 3 60m rappels can also be done in two double-rope rappels. We have the option to use our lead line and tagline together as a double-rope rappel.

Between P3 and P9 we may be able to bail by rappelling the route's pitches. We did not find info about bailing in this section. This would be a situation where the two of us use our best judgment and skills to make it back to the top of P3, and then the ground. This may involve leaving gear. This will also likely mean rappelling down over other climbing parties.

From the top of P9, we can bail by rappelling down the route 'Pretty Vacant', which trends straight down the North face of Bugaboo Spire for 9 pitches. Again, this is a situation where we will have to use our best judgment and we will leave gear. Pretty Vacant begins at an approach ledge that we can traverse climbers-right to get to the base of the Northeast Ridge, and then reverse the approach. We may also choose to continue rappelling down to the glacier from the base of Pretty Vacant.

Descent: From the North Summit, find a rappel station toward the east that takes you to the summit traverse. Traverse from the North Summit to the South Summit, making one more rappel down a notch on the way (Image 3). From the South Summit, take 6 rappels down the Kain Route (Image 4). Scramble down the Bugaboo-Snowpatch Col. Hike down the south side of the Crescent glacier back to camp.

Image 1

**APPROACH TO NE RIDGE OF BUGABOO SPIRE
VIA BUGABOO-CRESCENT COL**

Photos and Route Overlays by
www.StephAbegg.com, July 2016.

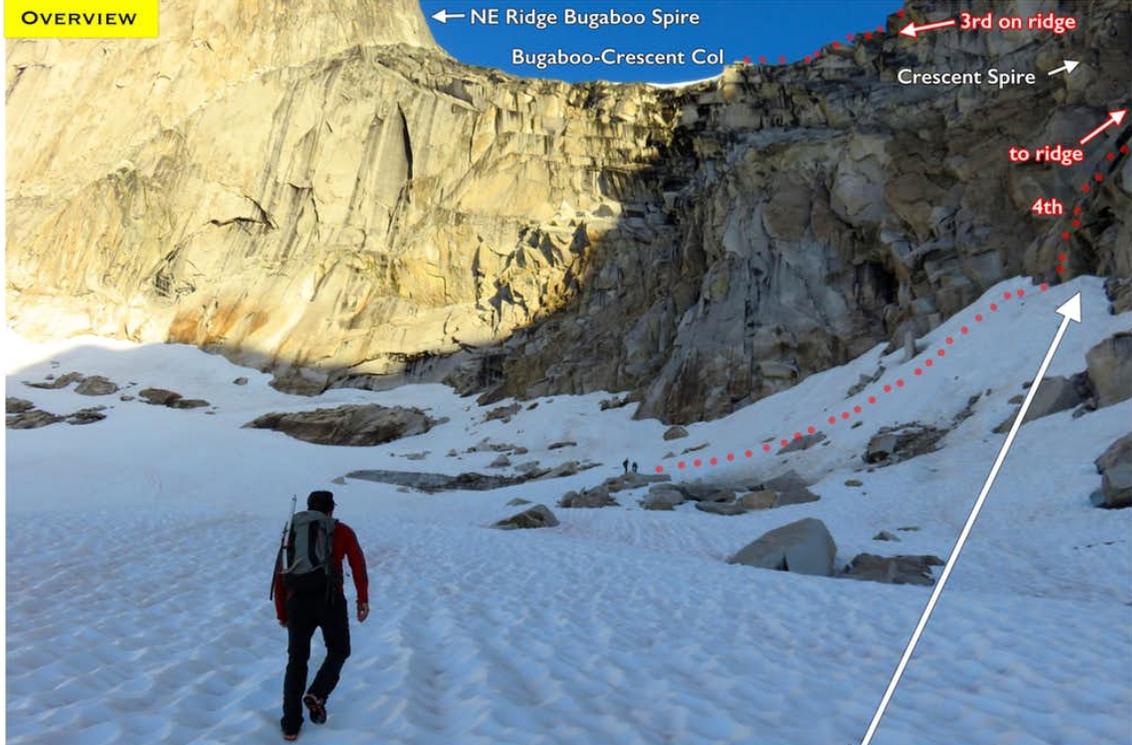


Image 2

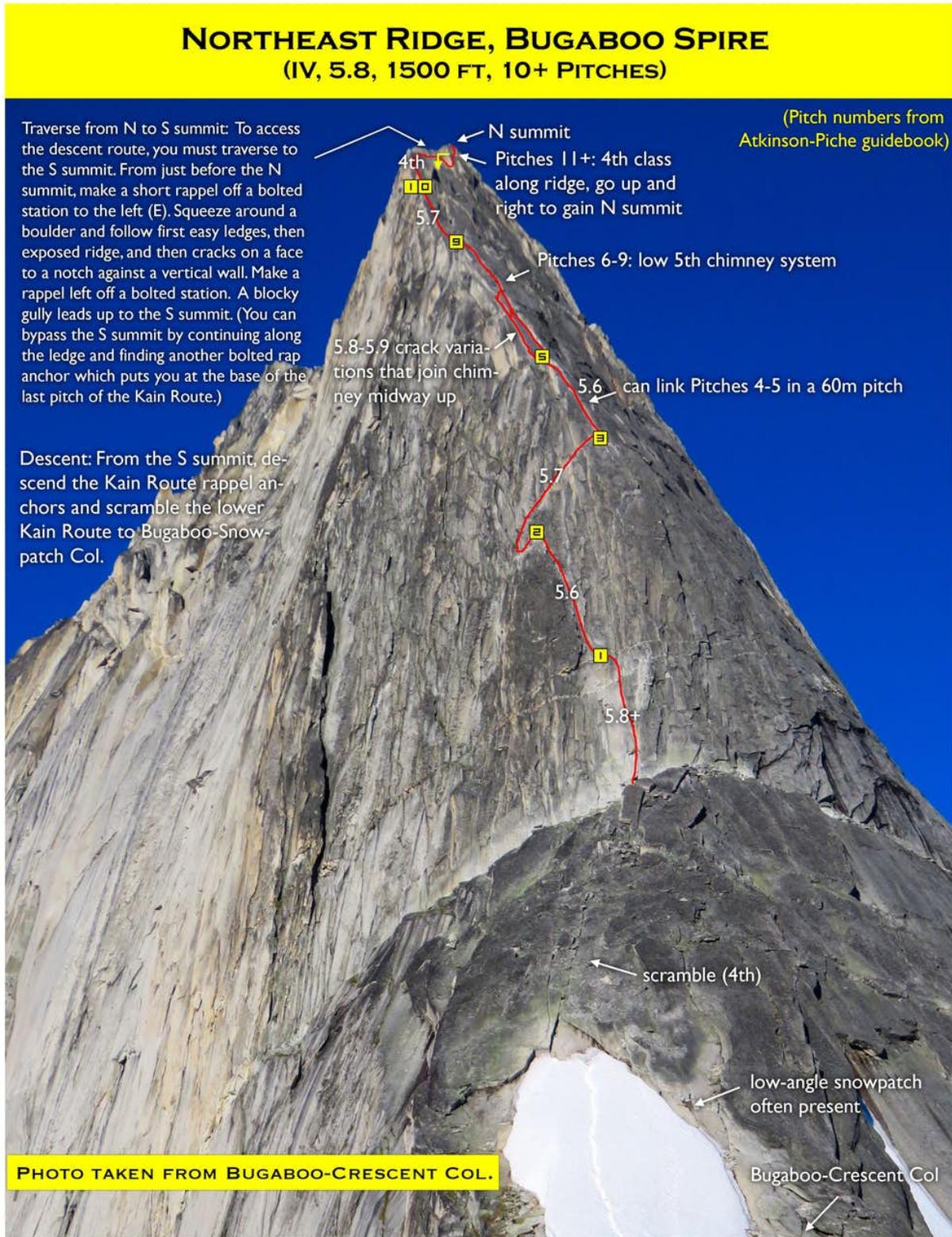


Image 3

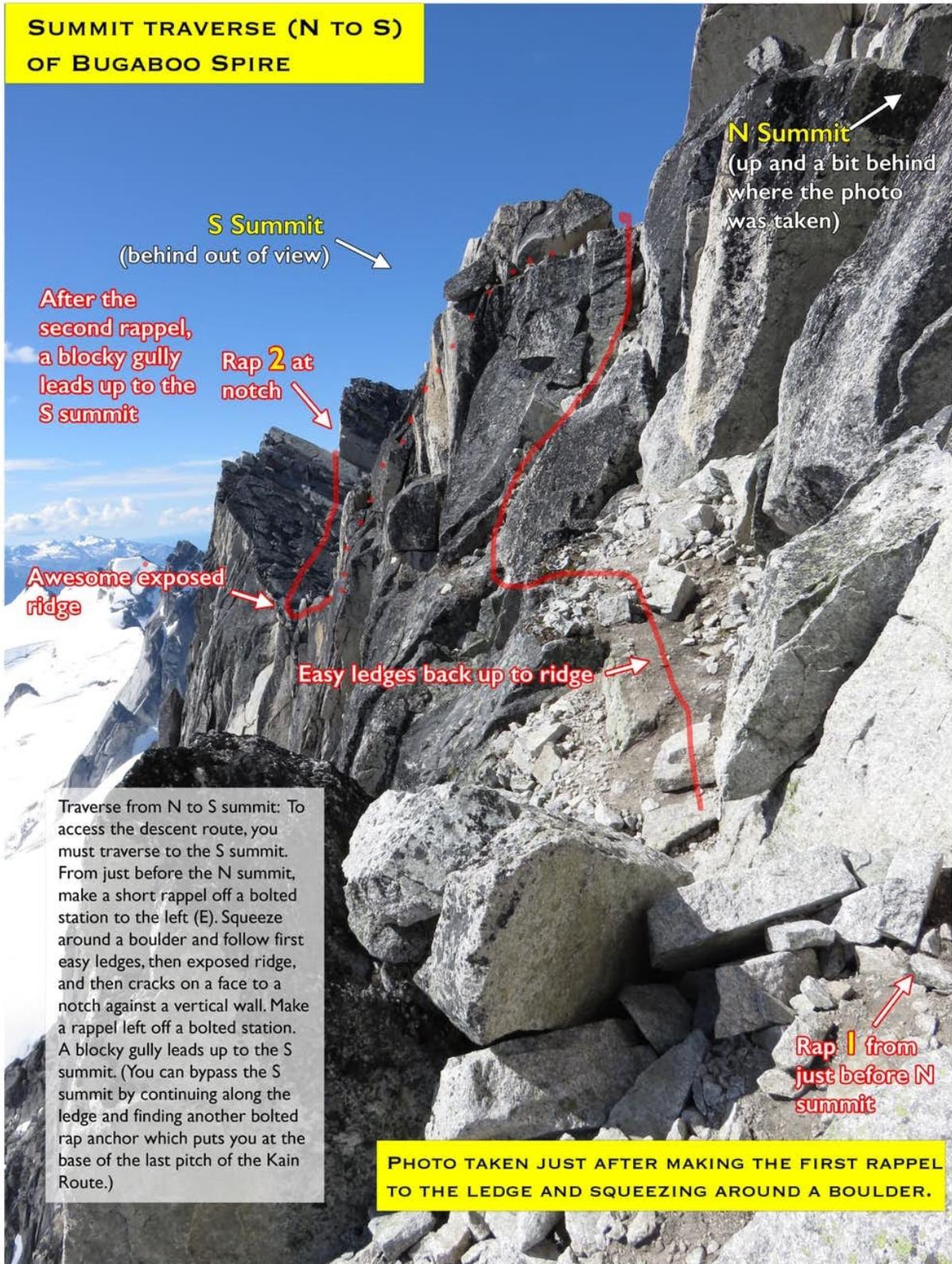


Photo and Route Overlay by www.StephAbegg.com, July 2016.

Image 4



Photo and Route Overlay by www.StephAbegg.com, July 2016.

Pigeon Spire, West Ridge, III 5.4, 1500 ft

Approach (2.0 miles, up to 3 hrs): The approach to the Pigeon Spire is our longest at about 2 miles. We will leave camp by 4:00am. Hike west and across the Crescent glacier towards the Bugaboo-Snowpatch Col. Carefully ascend the Col and cross over to the Upper Vowel Glacier. Hike west toward Pigeon Spire, passing it on the north side towards the Pigeon-Howser Col (Image 5). Scramble south to the crest of the West Ridge. There's an outhouse near the ridge with signs leading to it, so we'll be looking out for those signs. On the route we will carry a small pack with food, water, layers, and emergency gear. We will leave our crampons and extra gear at the base of the climb because we will descend the same way we go up.

Route:

A note on pitches: This is a style of alpine route where there are no official pitches because the route is able to be split up in any number of ways. Andrew and I will follow the description of the route we have put below, but we will split the route up into pitches based on our own judgment. We will likely climb full rope lengths, placing anchors when we find good locations like large ledges, when we are running out of gear, or when we are experiencing unideal rope drag.

The route is mostly 4th class terrain with some pitches of 5th class climbing. The route follows the ridge over two intermediate summits before reaching the true summit of Pigeon Spire. The route begins by scrambling east to the first summit staying near the ridge-crest, sometimes to the south, sometimes to the north but never more than a few yards away. At the top of the first summit follow slabs down to a saddle and then continue up the ridge toward the second summit. Again stay near the crest until you get to a steep section that is avoided by following a ledge to a corner on the north side of the ridge. The corner will lead you up to the second summit from which some easy fifth-class down climbing to the north will end at a col between the second and main summits. From the col, move left beneath the summit following icy ramps till you get to the bottom of slab angling up to the right. Climb up the slab continuing up a chimney to a loose gully on the left. Climb up the gully until you get to a 10"-wide left-angling crack. Step right to a large flake and chimney and then back left to a 5.4 handrail. Follow the handrail for about 12' and make a reachy move up and right to easier ground that leads to the summit. We will be roped up for all of this climb, and take extra caution if we find ice on the route.

Bail plan: The descent for this climb is to go back down the ridge, reversing the way you came. If we need to bail, then we will bail down the ridge as long as we are physically able to. The route is very low angle and technically easy, so we may choose to down-lead and belay each other down the route. We will leave gear and rappel if the terrain allows it and if we feel it is urgent.

If we have to bail in a more severe emergency, meaning both of us are not physically able to bail down the ridge, then we will rappel down the south face of Pigeon Spire, using our best judgment and leaving gear.

Descent: Make two single-rope rappels off the summit back down to the icy ramps. From there follow the same route back down the ridge. We will be doing the route backwards, roping up for the areas where it feels appropriate. Once down, start the hike back to camp the same way we came.

Image 5



stephabegg.com

Snowpatch Spire, Super Direct, IV 5.10+, 7 pitches

Approach (1 mi, up to 2 hr): For this climb we may consider leaving camp later than normal. The route stays in the shade until around noon, and can be very cold until the sun hits it. Super Direct is also a less popular climb so we don't expect to encounter crowds like on the super classic routes. Head out of camp towards the Bugaboo-Snowpatch Col. Head up the Col, and then hike south with the west face of Snowpatch Spire on the left. Super Direct ascends a line on the west face of Snowpatch, between the north and south summits. The route begins at an obvious right facing corner that arches slightly to the right for 75m. On the route, we will carry a small pack with food, water, layers, and other emergency gear. We will leave our shoes, crampons, and axes at the base of the route because we will descend back down to where we began.

Route:

P1: 20m 5.9 corner to gear belay where crack divides. You can see the final rap station to climber's right across from you, under a small roof-- pins and slings.

P2: 55m 10c lieback with good feet and lots of gear. Gear belay atop a corner where things ease off.

P3: 20m 5.8 Go up about 8m, go right past one 5.8 move, and up to a bolted belay (rap station) which is about 5m left of the corner.

P4: 5.6 ~45m Go up the broken gully past another rap station until you find a steeper block that looks like it could be liebacked. Belay under this on gear.

P5: 5.8 50m Pass the lieback block, and fire up the stembox in a long pitch until you get to a sling belay off a horn at the base of the huge white wall. Very cool pitch.

P6: 5.10c 50m Traverse the finger-ledge slightly up and right in superb position past a rap station (clip for pro), clip an old bolt, then fire right, up the arete/crack and back left to another rap station where you belay.

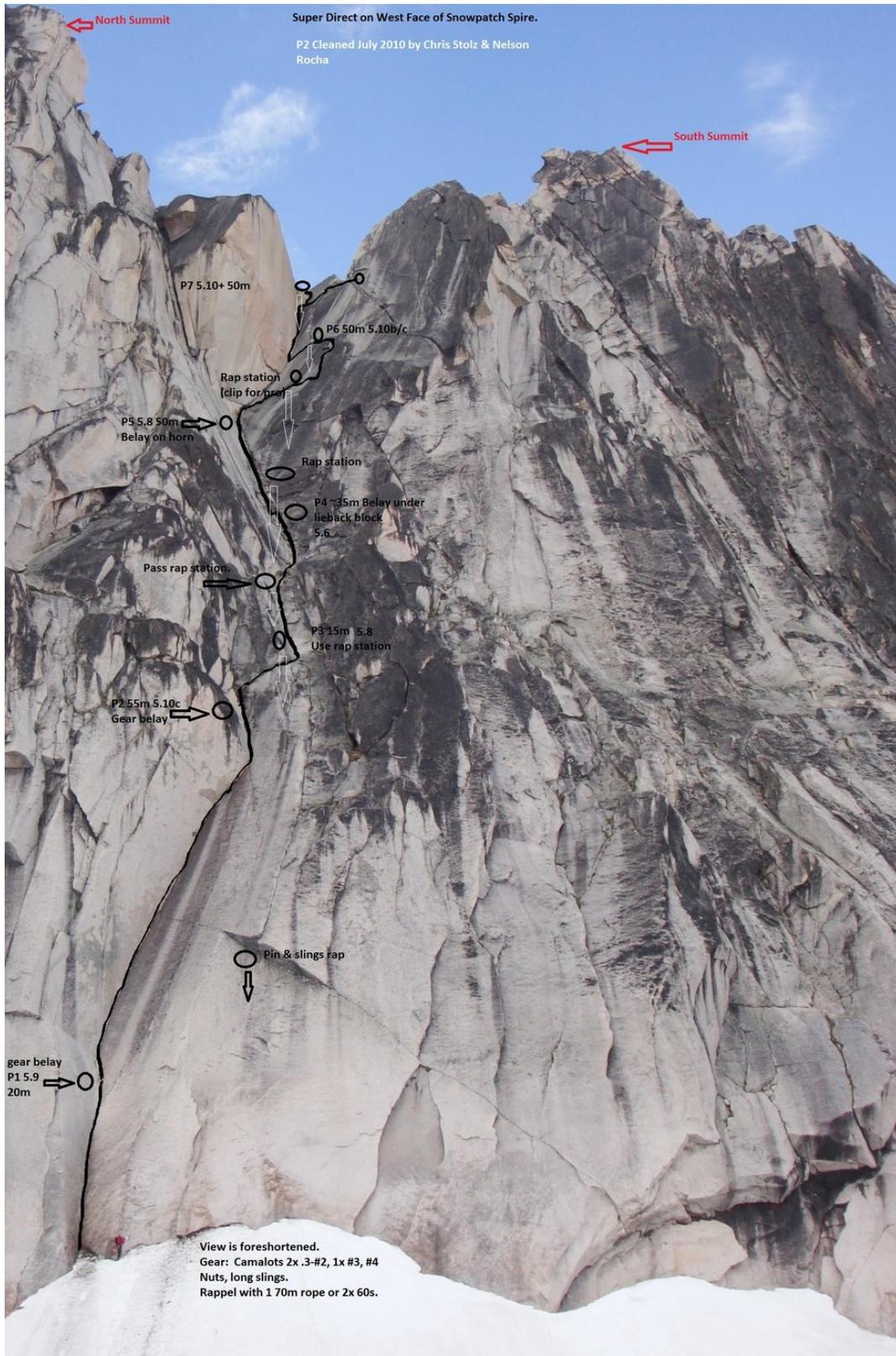
P7: 5.10+ 50m Traverse down 10m left, then head up the awesome right-facing corner, liebacking, stemming and body-jamming, exiting either up and left or up and right to fixed belays. Many long slings. This takes tons of good gear in all sizes.

Route overlay: Image 6

Bail plan: This route has a fully established rappe route for the descent. We will pass many rap stations at different points along the climb, so bailing is fairly simple. The anchor for P3 is a rap station, and from there it is only 2 70m rappels to the ground. On pitches 3 and 4 and 5 we pass rap stations also. At any of these points along the climb we can choose to stop at a rappel station and bail.

Descent: This route has dedicated rappel stations, as already mentioned, so these will be used to descend. From the top of P7, it takes 6 70m rappels to reach the ground. Many of the rappel stations are passed during pitches and not used as anchors to belay from, so we will make a point to spot them on the way up. From the rap station that is used as the anchor for P3, the next rappel station is straight down underneath a small roof. This rap station is just some pins and slings. One rappel from here to the ground. See route overlay for precise positions of rappel stations (Image 6).

Image 6



Crescent Spire, McTech Arete, III 5.10-, 6 Pitches

Approach (.7 mi, less than an hr): We will leave camp at 5:00am. From the Applebee campground walk toward the east side of camp and look for a trail that climbs north onto the moraine. Follow the trail around the west side of the first lake you come to and around the east side of the second lake. Then straight north up the Crescent Glacier to Crescent Spire. The base of the climb is recognized by a leaning flake under a 20 foot roof. On the route, we will carry a small bag with food, water, layers, and other emergency gear. We will leave our shoes, crampons, and axes at the base of the route because we will descend back down to where we began.

Route:

P1: Climb up flakes to a small corner roof, step left to another crack and continue up a short chimney to a belay on top of a pillar. (5.9) (Or just jam straight up the roof with perfect hands at 5.10)

P2: This pitch is classic. Follow a finger and hand crack out left from above the belay to an alcove. Climb up through the alcove jamming the outstanding crack up a steep face to a ledge and belay at a chain anchor. (5.10-) (the first two pitches can be combined)

P3: Climb some corners and easy ground up and to the right to another anchor. (5.4)

P4: Step right from the anchor behind a flake and climb up a nice corner to a roof. Traverse out right under the roof to another corner and pull a second roof to a belay ledge on the left with chains. (5.9)

P5: Climb some cracks on the face to the right and gain a corner which leads to another ledge with chains. (5.8)

P6: Climb up a steep corner and then scramble left around the arete. Continue up a face to the ridge crest and belay. (5.7)

Route overlay: Image 8

Bail plan: Rappel the route. From the rap station at the top of P2, move onto the face to climber's-left instead of following the climbing route back down the obvious corner to climber's right. Rappel to a station on the face almost straight down and slightly climber's left. From here make two more rappels to the ground.

Descent: Descend the rappel route (Image 8) with one 70m rope. Walk back to camp.

Image 8

McTECH ARETE, CRESCENT SPIRE (III, 5.10-, 500', 6P)

Descent:

- (1) Walk off via Crescent Spire-Crescent Tower Col, descend broad sandy gully, and traverse back to base of route.
- (2) Rappel route between Westside Story and McTech Arete (7 raps with a single 60m rope).

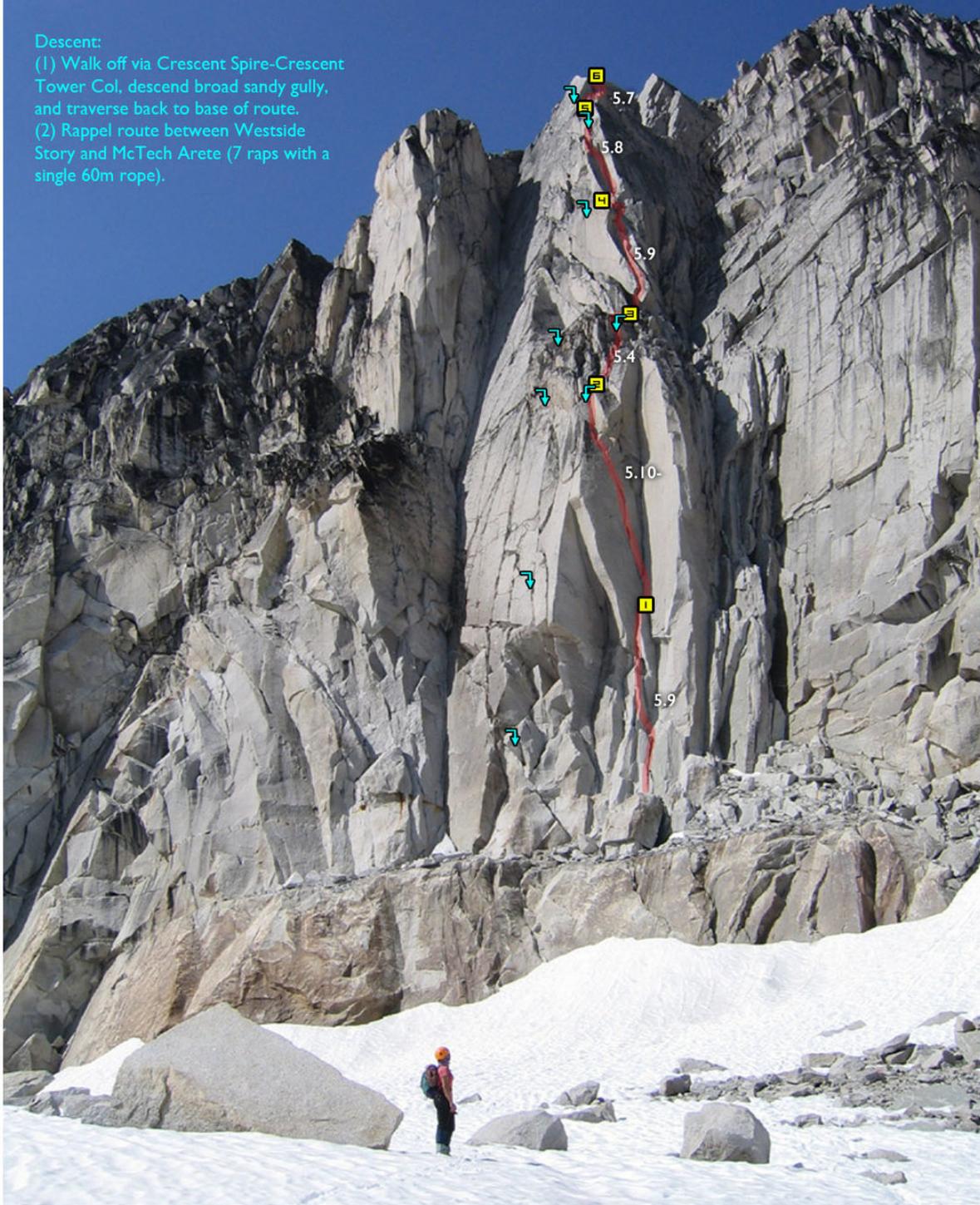


Photo: www.ericandlucie.com, July 2003. Overlay: www.StephAbegg.com, 2016.

Snowpatch Spire, Surfs Up, III 5.9, 500ft

Approach (1 mi, up to 2 hrs): Leave camp at 5:00am and head out of camp towards the Bugaboo-Snowpatch Col. The approach to Surfs Up is very similar to the approach for Super Direct. Head up the Col, and then hike south with the west face of Snowpatch Spire on the left. Surfs Up begins on the right-most (south) side of Snowpatch Spire when looking at it from the west (Image 9). This climb can be very cold in the shade of the morning. On the route, we will carry a small bag with food, water, layers, and other emergency gear. We will also carry our shoes and glacier gear with us because the descent does not put us back down where the route begins.

Route:

P1: Head up and left past a 5.8 bulge to a horn used for the belay.

P2: Trend up and right past a 5.8 move to another horn wrapped in slings, used for the belay. Beware loose flakes.

P3: Continue up the corner of flakes to an alcove belay, 5.9.

P4: Up for 10m, step right, and then down to a large ledge (Surfs Up Ledge). Belay at the end of the ledge, 5.7.

Route overlay for P1-4: Image 10

P5: Go up a 5.9 crack off the right side of Surfs Up Ledge. From this point on the route the route-finding eases off and follows mostly obvious cracks.

P6-7: Go up a 5.8 handcrack, eventually linking with P7 which leads to the ridge crest.

From the top of Pitch 7 is ~150m of climbing along the ridge, which is 3rd with some 5th class steps.

Bail plan: This is another route where bailing would mean using our best judgment and likely leaving gear. From the top of P3 we can bail, leaving a small amount of gear and utilizing the horns wrapped in slings as anchors. Bailing is also possible from above this point, and we would likely leave gear and rappel following the same pitches we climbed.

Descent: Descend down the Kraus-McCarthy rappel route. This is a very good descent route – ledges at every rappel station, minimal loose rock, single-rope (30m) raps from chain anchors. It takes 8-9 single raps with a 70m rope. The second rappel (or first if doing double raps) is a notorious rope eater. Typically it will get stuck near the station and not be too hard to fix. Head east to the Bugaboo-Snowpatch Col, carefully descend, and head back across the Crescent glacier to camp.

Image 9



Photo and Route Overlay by www.StephAbegg.com, July 2016.

Image 10

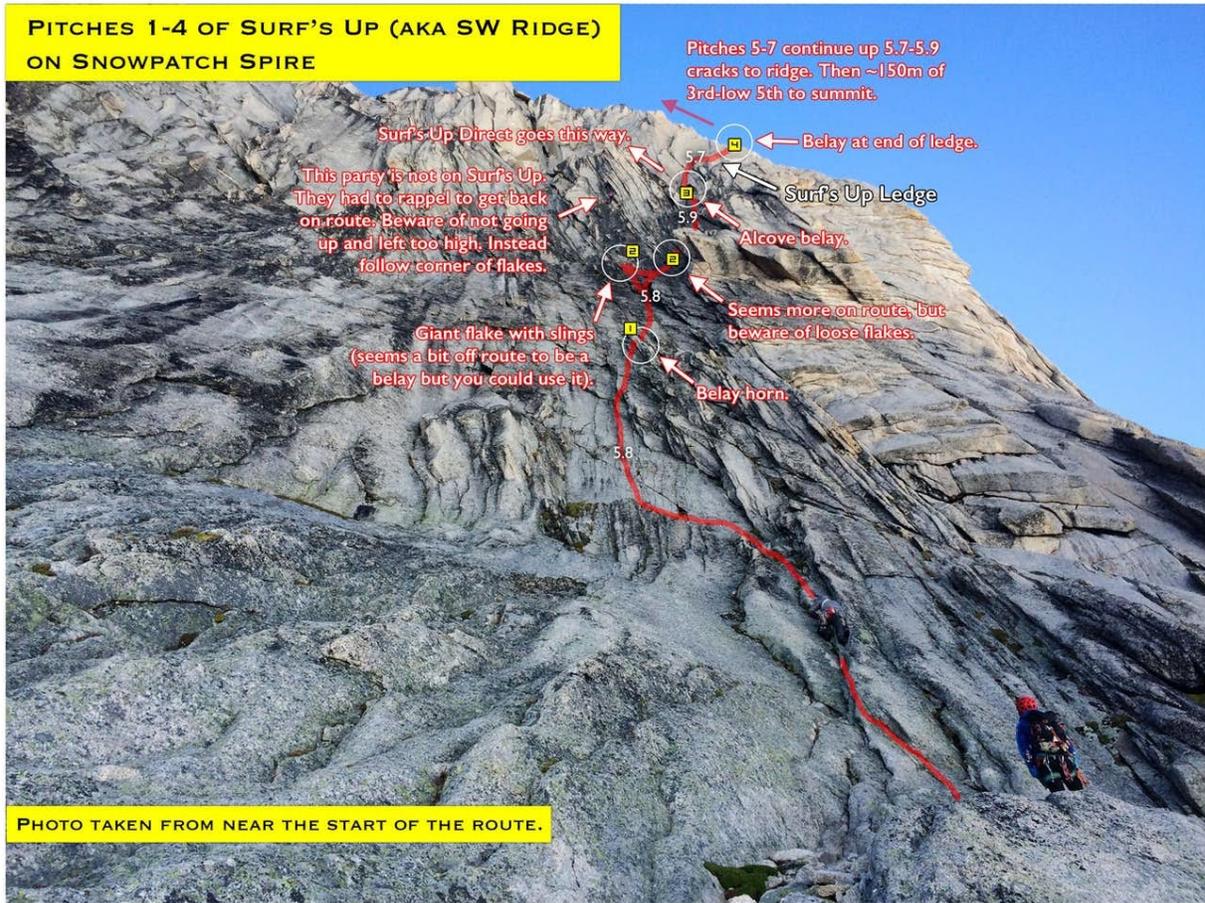


Photo by Stewart Matthiesen and Route Overlay by www.StephAbegg.com, July 2016.

Appendix B

Overview

Number of People	Days in Field	Food Days	PPPPD	Total Weight
2	18	36	1.86	67.00

* Avg Food Prices from REI, Walmart, King Soopers, and Target

Category Breakdown

Category	Cost (\$)	Amount (lb)	% weight of Total
Breakfast	\$41.58	14.98	22.36%
Dinner	\$199.63	22.97	34.28%
Trail Food	\$153.65	22.95	34.25%
Drinks	\$53.17	2.35	3.51%
Dessert	\$32.68	3.75	5.60%
Total	\$480.71	67.00	

Cost Breakdown

Cost Categories	Cost (\$)
Food	\$480.71
Fuel	\$65.70
Total	\$546.41
Total Per Person	\$273.20
Total Per Person Per Day	\$15.18

Breakfast

Breakfast Food	Cost per unit	Amount (lb)	Total
Coconut Milk Powder	\$2.99/5.25oz	0.33	\$2.99
Instant Oatmeal	\$1.55/lb	3.00	\$4.65
Granola	\$4.99/lb	2.00	\$9.98
Bagles	\$5.99/dozen (2)	7.40	\$11.98
Kodiak Cakes	\$4.99/20oz	1.25	\$4.99
Cream Cheese	\$6.99/16oz (1)	1.00	\$6.99
Breakfast Total		14.98	\$41.58

Trail Food

Trail Food (Lunch)	Cost per unit	Amount (lb)	Total
Kroger Simply Classic Trail mix	\$6.99/36oz	2.25	\$6.99
Kroger Peanut Butter Trail mix	\$6.99/30oz	1.88	\$6.99
Kroger Fruit and Nut Trail mix	\$6.99/34oz	2.13	\$6.99
Dried Mango	\$13.99/16oz	1.00	\$13.99
Peanut Butter	\$2.49/16oz	1.00	\$2.49
Jelly	\$3.49/20z	1.25	\$3.49
Tortillas	\$3.19/20ct 23oz	1.44	\$3.19
Cliff Bars	\$5.99/6ct 14oz (6)	5.26	\$35.94
Parm	5.99/8oz (2)	1.00	\$11.98
Gouda	\$6.25/8oz (2)	1.00	\$12.50
Gruyere	\$6.58/6oz (2)	0.75	\$13.16
Zoe's Uncured Meat Sticks	\$5.99/8oz (6)	4.00	\$35.94
Trail Food Total		22.95	\$153.65

Dinner

Dinner Food	Cost per unit	Amount (lb)	Total
AlpineAire Foods Ready Meal Kit (14 dinner MREs)	\$84.95 (1)	6.00	\$76.46
AlpineAire Forever Young Mac n Cheese MRE	\$6.5 (6)	3.12	\$35.10
Backpackers Pantry Chana Masala MRE	\$6.95 (6)	3.30	\$37.53
AlpineAire Cheese Enchilada Ranchero MRE	\$6.5 (6)	3.30	\$35.10
Idahoan Mashed Potatoes	\$3.13/26oz (2)	3.25	\$6.26
Black Beans	\$1.50/16oz (2)	2.00	\$3.00
Couscous	\$3.09/16oz (2)	2.00	\$6.18
Dinner Total		22.97	\$199.63

*10% off deal for MREs on REI

Dessert

Dessert Food	Cost per unit	Amount (lb)	Total
Chocolate Brownie Mix	\$1.39/18oz (2)	2.25	\$2.78
Chocolate Bars	\$2.99 (10)	1.50	\$29.90
Dessert Total		3.75	\$32.68

Drinks

Drinks & Electrolights	Cost per unit	Amount (lb)	Total
Nuun Hydration Tablets	\$7.00/2oz package (3)	0.38	\$21.00
Clif Shotblocks	\$2.50/2oz package (5)	0.63	\$12.50
Hot chocolate powder	\$6.99/8oz package	0.50	\$6.99
Tea	\$4.19/package of 16	0.10	\$4.19
Coffee	\$8.49/12oz package	0.75	\$8.49
Drinks Total		2.35	\$53.17

Fuel

Stove	Fuel Cost per Unit	Amount	Total
MRS Whisperlite	\$14.95/quart	3	\$44.85
Pocket Rocket	\$10.95/16oz	3	\$20.85
			\$65.70

* Avg Fuel Consumption from MSR's Website

Appendix C

Group Gear	Group Climbing Gear	Individual Climbing Gear	Individual Gear	Individual Clothing
1x two person tent	1x Dry Lead Rope 70m 9.1mm	1x Helmet	1x Sleeping Bag 0-20 degrees	1x Warm Hat
2x MSR Stoves	1x tag line 70m 7mm	1x Harness	1x Sleeping Bag Liner if 20 degree bag	1x Sun Hat
10x 8oz MSR fuel canisters	2x Set of Stoppers	2x Climbing Shoes	1x Sleeping Pad with R>=2	1x Glacier Gloves
4x Trash Bags	12x Alpine Draws	6x Lockers	1x 70-75 Litter Backpacking Pack	1x Rain Layer (top and bottom)
20x Ziplock Bags (various sizes)	3x Double Length Runners 120cms	1x GriGri	1x Headlamp	1x Down Puffy
2x 1L Pots	3x Rack of Cams from BD sizes #.2-4	1x Guide ATC	4x sets of backup batteries	1x Midlayer Top & Bottom (fleece, Pile, or other)
2x Cooking Spoons/Utensils	1x #5 BD Cam	2x Prusik Cords	1x pair Sunglasses/ Glacier Goggles	1x Jacket Shell
1x Repair Kit (duct tape, needle, materials, tent pole repair, etc)	3x 20ft Cordellete 6mm	4x rolls Climbing Tape	2x 1L Nalgines	1x Base Layer top & bottom (wool, synthetic, or blend)
2x Aqua Mira	1x 50ft rescue Cordellete 6mm	1x Full Chalk Bag	1x set Toiletries	3x Pair wool socks
2x Cans Bear Spray	4x Rap rings	1x Nut tool with Knife	1x Mess kit	2-3x T-shirt or Sun Shirt
2x Topo Maps	Emergency Rescue Tarp	1x Day Pack	1x Waterproof bags or compression sacks	3x Synthetic or wool underwear
8x Wag Bags	Several Lockers/ Accessory Carabiners	Crampons	1x Sunscreen	1x Buff
1x Roll Chicken Wire	Printed Topos	Ice Axe	1x Camera	1x Gaitors
1x Tent Tarp	4x Ice Screws		1x Writing Utensils	1x Mountaineering Boots
1x 10L Dromedary			1x Leatherman w knife	1x Hiking Boots / Approach Shoes
2x Rolls TP			1-2x Book	1x Camp Shoes
2x Emergency Blankets			1x Med card, Insurance info, ID	
1x Solar Charger			1x Crazy Creek	
1x Power Bank			1x Journal	

Appendix D

First Aid Kit
20x Assorted Adhesive Bandages
4x Gauze Packages
1x Roll Tape
2x Pairs Gloves
2x Roller Gauze
1x Occulsive Dressing
1x Tweezers
1x Syringe
1x Pair Trauma Shears
1x Package of Blister Care (mole skin etc)
30x Ibuprofen 200mg
30x Acetometaphine 200mg
30x Benadryl 25mgs
5x antacids pills
1x Container of Triple Antibiotic
1x Tube of Benzoin
8x Alcohol Pads
8x Gauze Pads
2x Safety Pins
1x Sharpie
1x WFR Field Guide

Appendix E

Full Budget

Transportation	Miles	MPG	Gallons Needed	Avg PPG	Sub Total	
	2688	16	168	\$3.66	\$615.55	
	* Avg Price Per Gallon based on January US Avg in 2022				Total	\$615.55
Food	Total Pounds	PPPPD	Cost PPPD			
	67.00	1.86	\$15.18			
	* see Food List (Appendix B) for full break down					
					Total	\$546.41
Fuel	Type	Cost	Amount	Sub Total		
	Whitegas	\$14.95	3 qt	\$44.85		
	Pressurized Fuel	\$10.95	48 oz	\$20.85		
					Total	\$65.70
Maps & Books						
	Howser Creek Map	\$9.71				
	Bugaboo Creek Map	\$9.71				
	"The Bugaboos", Atkinson Piché's Guide Book	\$42.00				
					Total	\$61.42
Misc						
	Aquamira	2	\$14.95			
					Total	\$14.95
Permits & Fees		Days	Cost per Day	Sub total		
	Camping	28.00	\$10.00			
					Total	\$280.00
Carbon Emission Offsetting	Amount of Carbon	Cost				
	1.9t CO2e	9.50				
					Total	\$9.50
Total Funding Request						
					Total	\$1593.53
Funding Per Person						
					Total	\$796.77