. Expedition Report - Central Rockies Traverse, Canada

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1 Summary

The Central Rockies Traverse is a 70km route that forms the middle part of the larger Great Divide Traverse, which itself was first completed in 1967. It is a remote and committing trip, with no easy escape routes. It follows glacial terrain for the whole journey, and the scenery is truly magnificent.

An Eagle Ski Club team of five successfully completed this traverse over 10 days in May 2014, from a helicopter drop on Cummins Glacier across to the Columbia Icefield and down to the Columbia Parkway, without intermediate caches or support.

This report describes the planning and execution of the trip, and includes a great deal of practical information to help other teams who may wish to repeat the trip. We strongly recommend this journey.

The trip organisers would like to acknowledge the generosity of the Eagle Ski Club for supporting the trip with an Adventure Fund Award. Access to the Central Rockies Traverse is via helicopter and the Award was used to defray the cost of this.

2 Contents

3 Planning the trip

Introduction & Objectives

In the first section of this report, we briefly describe the geography of the route, and explain how we made our more detailed working plan for the traverse. We include links and references to useful sources of information.

The fundamental objective of this trip was to complete the Central Rockies traverse, the central section of the larger Great Divide traverse, and to climb as many notable peaks as we could on the way. Also, we had some subsidiary objectives:

a) **Explore an area that no previous Eagle trip had visited**, (as far as we were aware) and help pave the way for other Eagles who might be interested in visiting the area.

b) **Ensure that the trip was accessible to "normal" members,** with commitments to jobs and families, by making it a short trip (just over two weeks in duration).

c) **Provide an introduction to ski trips to remote areas**, by actively encouraging the participation of Eagles who have not undertaken this kind of trip before.

d) **Minimise our impact on the environment**, both locally and globally.

The Central Rockies Traverse

The Canadian Rockies extend south-east for about 1600 km from northern British Columbia, bounded on the east by the central plains, and on the west by the Columbia River and the Rocky Mountain Trench. This separates the Rockies from the older Columbia Mountains, and the characteristically steep and picturesque younger Rockies do not look like natural ski touring terrain.

In fact, there is a line of nine high icefields that can be connected into one beautiful ski traverse through the highest 200km of the range. It was first skied in 1967, taking 21 days, and is still a serious undertaking. The Central Rockies Traverse, from the Clemenceau Icefield to the Columbia Icefield, is the central part of the entire Great Divide Traverse, and is considered to be the highlight of it. To quote Chic Scott:

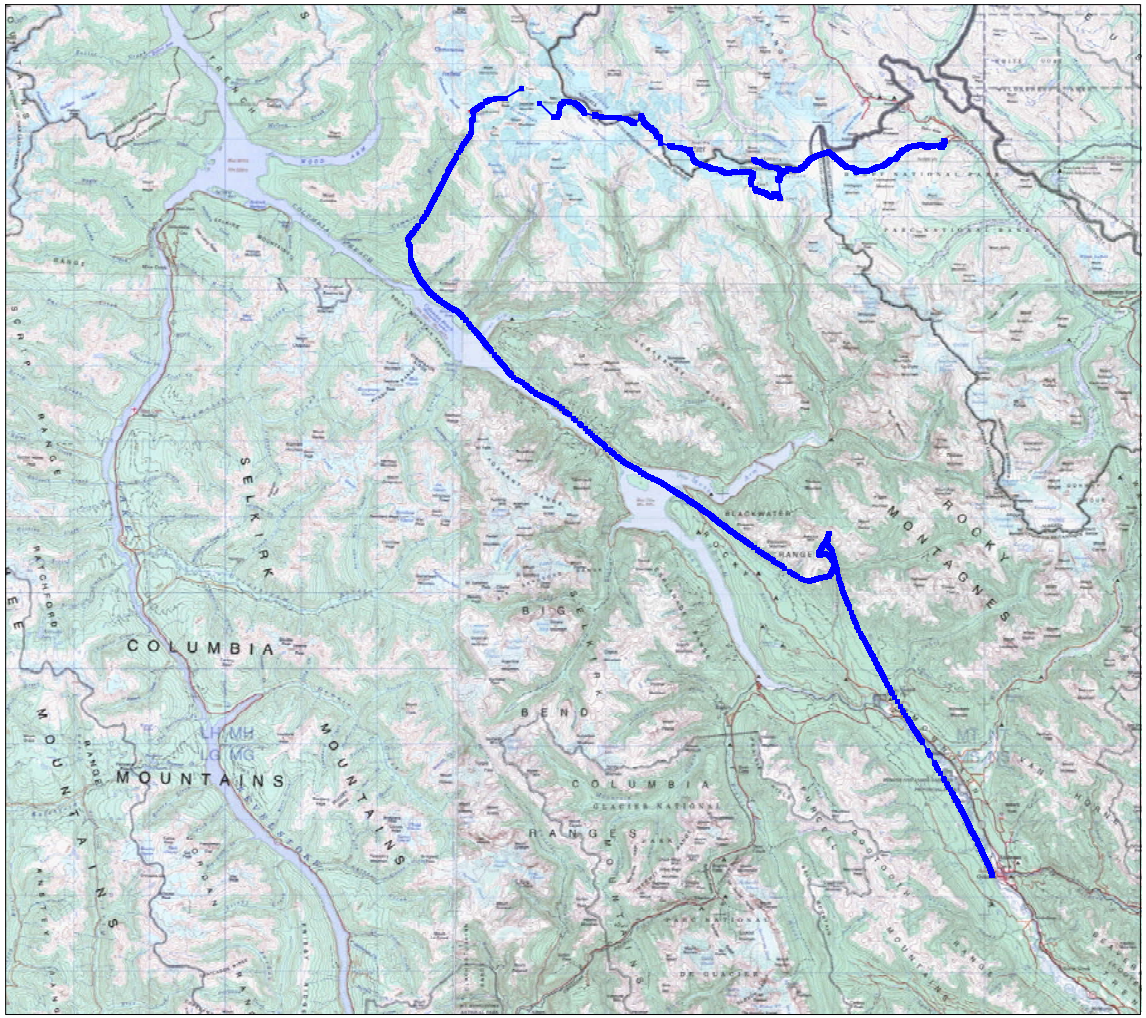
> "On glaciers for virtually the entire way, the route travels through huge mountain scenery. These peaks are as big as it gets, and the faces of Clemenceau, Tusk and Columbia are outstanding."

The route starts at the Cummins Glacier, travelling across the Clemenceau Glacier, Apex Col, Eden Col, Chaba Col, Snowy Pass, Triad Col, King Edward Glaciers and Columbia Icefield, before finally exiting down to the Icefields Parkway, usually on the Athabasca Glacier. The route is remote and highly committing. There are escape routes, though these are all around 50km long.

Traversing in to the start of the traverse, either to the Cummins Glacier or from the east side, would be long and arduous, and would significantly increase the time needed for the trip, defeating our objective b). We chose to use a helicopter, both for access and with a plan to drop a cache at mid-traverse. More details on the planned route are given below.

Map 1: Overview of the Clemenceau - Columbia Traverse

Helicopter flight from Golden & traverse to the Icefield Parkway



Print Scale 1 : 1 000 000

Main sources for route planning

The definitive guide book for this area is:

Summits and Icefields, 1: Alpine Ski Tours in the Canadian Rockies (2nd edition), Chic Scott and Mark Klassen, Rocky Mountain Books, 2011

Maps :

Canadian Topographic Maps, 1:50k (3rd ed)
The route itself is covered by maps 83 C/4 (Clemenceau Icefield) and 83 C/3 (Columbia Icefield), though other sheets are needed to cover the potential escape routes. All maps in this series can be downloaded free from http://ftp2.cits.rncan.gc.ca/pub/canmatrix/ in geo-referenced and print ready format. See here for the specifications. They can either be printed out or loaded into a GPS program or appropriate device.

Other sources:

Canadian IFMGA guide, Conrad Janzen has completed the trip a number of times, and was a useful source of information and advice (http://banffmountainguides.com/ and by email). Also, he has some photos from a traverse in May 2011 on Flickr, which give a good idea of the views, and of the tricky parts.

Canadian guide Owen Day also gave us some useful information on current conditions.

Other useful links and phone numbers are collated here.

Working plan

The major planning objective was to fit the trip into two weeks (plus the odd day), so that people with "normal" jobs and commitments would not be precluded. One constraint here was the dates/times of flights from the UK. The cheapest flights to Canada from the UK were provided by Canadian Affair, Leaving Saturdays from Manchester and Sundays from Gatwick. Starting 1st May, there is a Thursday flight from Gatwick, so our chosen flights were:

- Fly out Thursday 01 May @ 0910, arriving in Calgary at 12:50
- Return Saturday 17 May @ 14:45. arriving LGW at 0635 Sunday

This can give us 15 days on the mountain, (including the fly-in and ski-out days).

The proposed plan for the total 15 days of the trip is set out below. There is sufficient space in this to accommodate bad weather, and it includes three flexible and potentially optional "peak days". As it turned out, this flexibility was necessary, and sufficient.

Day 1 (Fly in): Friday 2 May - Helicopter from Golden, Arrive above Cummins Lake (on ridge, per guidebook), late afternoon. Set up camp at drop off point.
OR: Get dropped directly on Tusk Glacier.
Day 2: Move to centre of Tusk Glacier, 4-5km, <200m climbing.
Afternoon; reconnaissance and acclimatisation on lower slopes of Mt Clemenceau.
OR: Attempt Tusk Peak.
Day 3: Attempt Mt Clemenceau, return to Tusk Glacier camp.
Day 4: Descend Tusk Glacier, cross Duplicate Glacier, ascend Clemenceau Glacier, ascend Apex Peak,

camp east of Apex Col.
Day 5: Descend Apex Glacier, cross Eden Col, camp west of Chaba.
Climb Chaba peak in afternoon, or following morning.
Day 6: Descend Chaba-Wales col, cross Triad Col, camp east of col, **at FOOD CACHE**
Day 7: Attempt Mount King Edward, return to same camp.
Day 8: Descend glacier to bottom of snow ramp up to Columbia Icefield.
Ascend snow ramp, camp at top, beneath Mt Columbia
Day 9: Ascend Mt Columbia, return to same camp.
Day 10: Padding - Bad weather, or peak day
Day 11: Padding - Bad weather, or peak day
Day 12: Padding - Bad weather, or peak day
Day 13: Padding - Bad weather, or peak day
Day 14: Padding - Bad weather, or peak day
Day 15 (ski out): Cross Columbia Icefield, exit to road via Athabasca Glacier.
Hitch back to Lake Louise

See Appendix 1 for links to more detailed maps and coordinates.

Logistics

At the outset, we were planning for a larger party (eight was our preferred number), but some of our prospective team had to pull out, for good and compelling reasons. In the event, we were a team of five:

Jerry Seager
Steve Wright (Organisers)

Dave Collier
Paul Cook
Tom Lawfield

We could use the smaller Bell 407 helicopter, and organised as a two-man and three man tent teams. All food was “just add boiling water to the bag”, with modern gas stoves with heat exchangers to heat water from snow.

Team equipment:

- Helsport Isfjell 4, spacious with 3 in (1.27kg per person)
  MSR Reactor with 2.5l pot (200g per person)
- Terra Nova Quasar (2 kg per person)
  JetBoil PCS (175 g per person)

Ropes: we took two 30m x 8mm ropes
(50m would be more convenient for the abseil)

We took one sat phone, and several GPS units, including a Garmin eTrex 30 with the 83 C/3 and C/4 maps loaded on it.

All food and gas was pre-ordered from MEC, to pick up in Calgary on the way from the airport to Lake Louise. Some items not available from MEC (cheese, dried sausage etc) could be bought in Lake Louise (the choice is adequate but not great).

Maps and navigation:

As mentioned, digital maps for Canada are available for free, and this gave us a great deal of freedom to produce "route cards" for each section, with the relevant map and other information. These were printed out double sided on waterproof plastic paper, and proved to be very tough.

Also, the digital maps are geo-referenced, and can be loaded into suitable GPS devices. We put these on a Garmin eTrex 30. Leisure devices like this are challenged by large detailed maps, and there is a trade-off between scrolling speed and resolution. We chose 120 dpi as a compromise, and this proved to be acceptable. Contact us directly for more detail on maps and mapping.

4 Account of the trip

The route is described in Chic Scott and Mark Klassen's book *Summits & Icefields 1*. The description is sufficient, but rather brief and slightly misleading in places (and plain wrong in one place). Below is a day-by-day account of the team's trip, providing additional detail where deemed useful. The account below does not repeat the route description provided in Scott and Klassen's book, rather the objective is to provide a little extra useful information. The geodetic coordinates for each overnight camp are provided in Appendix 1.

As can be seen from the account, we needed a lot of the extra days that we had included in the initial plan. We lost four days to poor weather right at the start, but had no significant bad weather days once we were on the mountain. Also, we were not able to put down the food cache for mid-traverse and, carrying large packs, we were slower than planned for the initial few days. With most of our weather margin lost before we started, we chose to pass on climbing the first peaks (Mounts Tusk and Clemenceau).

Day-by-day account of the trip:

1) **Initial four days**. The team met up at Calgary Airport and took a pre-booked taxi (minibus) to Lake Louise International Hostel. We were scheduled to fly via helicopter to the Tusk Glacier (to start the traverse) the following day, but bad weather ruled this out. Instead we made an overnight camping trip out the back of the Lake Louise towards Skoki Lodge. This provided a useful shake-out in terms of both skiing and snow camping. One other bad weather day was spent making a day tour up to the Château at Lake Louise, round the Lake and up towards the moraine, taking the time to practise crevasse rescue on the slopes of the moraine. Also, a day was spent skiing at the Lake Louise downhill resort.

2) **Day 1**: Helicopter from Golden to Cummins Glacier. The early morning weather was clear, but it deteriorated just before and during the flight. An attempt was made to approach the glacier where we had planned to make our food cache (see Useful Information below for food cache location), but cloud forced us to turnaround. Instead we proceeded towards Tusk Glacier, our intended drop-off location. The weather continued to deteriorate, but the cloud lightened up just enough to make a landing on the Cummins Glacier, just south west of the Tusk Glacier. The team was very relieved to have been able to land at all, despite the fact that we would now have to carry 10+ days of food.

   (We had planned for relatively light loads, but it didn't work out that way. The loads were high, but manageable, even for the first few days. The hardest days were when we had to climb a long way with skis on our backs – for instance the ascent up to the Columbia Icefield.)

Map 2: GPS trace of the Central Traverse

From the Clemenceau Icefield to the Icefields Parkway

Print Scale 1 : 250 000

We set off up the easy glacial ramp to Tusk Glacier (on climbers left), then followed route description across Tusk Glacier, following closely under the north face of Tusk Peak (on moraines much of the way), maintaining as much height as possible. Crossed Duplicate Glacier (straight-forward) and began ascent of Clemenceau Glacier (ascending on climbers left of obvious crevasses – once you are at the base of the glacier it becomes clear that there is no route on climbers right). Stunning views of Tusk Peak, Mt Clemenceau and ice falls from higher up the Duplicate Glacier. Camped near bottom of Clemenceau Glacier, fantastic views.

3) **Day 2**: Proceeded straight up the glacier, tracking to climber's right to avoid obvious ice fall coming off Apex Mountain. Tracked back left around 2700m to reach col. We climbed a little higher than the col itself to avoid a crevasse. Descended col to camp beneath Eden Col.

4) **Day 3**. Ascended the col in poor visibility (ascend centre of the col, no difficulties). Gentle descent down the other side. The best line up to Chaba Col gives a wide berth south of Chaba Peak itself (which we didn't fully realize was necessary and we travelled a little too high on the shoulder in poor visibility – we wouldn't expect any difficulties finding the best line in clear weather). Camped at the bottom of the climb up to the col.

5) **Day 4**. Straight-forward climbing on skis up to the col (steeper near top, but straight-forward). Head for the notch to climber's right – rock with the obvious "beak" – do not head for the lowest point on the ridge line. Best to bring several metres of tat to reinforce the belay. We had two 30m ropes and joined them to lower four of the team. Last member down-climbed after a 30m abseil. The slope is about 60 degrees at its steepest – 30m just takes you over the steepest section, but some parties may be more comfortable with two 40m ropes. Then we skied down the glacier, weaving around the obvious crevasses and mindful of the seracs and avalanche debris on skier's right. This descent may be a little tricky in poor visibility. In good weather the glacier gives a view of the glacier to be climbed on the other side of snowy pass, so it is worth taking a moment to figure out the best line. Having climbed the glacier we camped beneath Triad Col in worsening weather (snow, poor visibility).

6) **Day 5:** Headed up to what we thought was Triad Col – we were to learn subsequently that the updated guidebook has the wrong grid reference. The correct reference is given in Appendix 1. Having reached the wrong col (500-1000m north of the actual col), we looked down the other side and after a little discussion and exploration decided we didn't fancy our chances. The slope in front of us was steep, not well consolidated, and dropped 1000 metres to the Athabasca River. We retraced our steps and skied up to the correct col. A short walk (~50m) took us along the ridge and across to the glacier on the far side. We descended on ski to the low point on the glacier south west of Mount King Edward. We then made the eastwards traverse across the Mount King Edwards Glaciers - make sure you travel across to near the south-west face of Mount Columbia (as indicated by the guidebook). Though it is tempting, descending too early takes you into crevasse fields. We then skied over the moraines and into a beautiful camp among the trees.

7) **Day 6:** Cold weather overnight and clear skies in the morning meant good conditions for the snow ramp. The lower section could be unsafe in warmer conditions and the ramp should be ascended in the morning. From camp we skied across a moraine and across the glacier to the bottom of the snow ramp. The ramp was equivalent to Scottish Grade 1 in the conditions we found, though heavy packs add to the awkwardness. A rope was not necessary, and the protection would not be good anyway. Route finding was straight-forward, having assessed the route from the Mount King Edward Glaciers the previous day (on this section, it is important to have done this, from a good vantage point).
   The snow ramp levels out at 2125m, as described in the guidebook. We then headed to the alternative col access to the Columbia Icefield, with the group deciding that this would be the best and safest option (from beneath, the regular route appears to be threatened by seracs and generally quite steep). The alternative col turned out to be challenging as well, with a steep ascent in very soft afternoon snow, but probably was the safer choice. From the alternative col we descended ~300m to camp at the base of the climb onto the Columbia Icefield.

8) **Day 7:** A short day to climb up to the Columbia Icefield. Some crevasses nearer the top, but route finding fairly straight-forward.

9) **Day 8:** Day trip to climb Mount Columbia. The route is up the south east slope, which angles up to 35-40 degrees. We climbed the last 400m on foot. One of the party (Tom, a ski instructor) took his skis up and skied off the top. We took about 5 hours to make the return trip from camp.

10) **Day 9.** We broke camp, to travel across "The Trench" and to a camp well-positioned for Snow Dome, the Athabasca Glacier and the Saskatchewan Glacier. The weather deteriorated during the course of the day, so the camp left us with easy escape options.

11) **Day 10.** The weather improved somewhat overnight, so Jerry and Tom decided to ski up Snow Dome, while the rest of the team opted to exit to the Icefields Parkway down the Saskatchewan Glacier. We had heard reports of difficulties negotiating the crevasses on the Athabasca Glacier this year, and hence choice to pursue the safe, if much longer, option of the Saskatchewan Glacier. The glacier can be skied out to the end with minimal poling. Unfortunately there was no snow beyond the toe of the glacier, and the hiking across the gravel flats is cumbersome (muddy gravel, undulations, streams to cross). Eventually we regained some snow for the final stretch into the forest and through the forest. Jerry and Tom returned to camp from Snow Dome and broke camp to follow the rest of the team's

tracks down the Saskatchewan Glacier. On arrival at the Icefields Parkway the team hitched (in separate groups) back to Lake Louise.

We had successfully completed the traverse, with a day to spare, though we had only climbed one significant peak on the way (Mount Columbia).

Environmental Impact

One of our subsidiary objectives was to minimise our impact on the environment, both locally and globally.

On the traverse, we saw almost no signs of other humans. There was one marker flag for a helicopter landing on Tusk Glacier, and an approach and ascent track to Mt Columbia, from a team that had ascended from the Saskatchewan Glacier a few days previously. This inspired us in our desire to leave no trace of our journey for future visitors. We carried out all that we brought in – gas canisters, packaging from food etc. All human waste was buried deeply in glacial sites.

Managing our carbon footprint

The organizers were keen to engage the team in measuring and managing the trip's carbon footprint.

The total footprint for the trip was 12.3 tonnes of carbon dioxide equivalent. The bulk of these emissions (10.4 tonnes) came from our flights to Calgary – four flights from the UK and one from Washington, DC. The trip also involved a helicopter, adding 1.5 tonnes to the emissions profile of the trip. The emissions associated with ground transportation to and from airports, and hostel night stays, were minor compared with the flights needed for the trip. The full footprint is given in Appendix 2.

On a trip of this nature it is not possible to significantly reduce emissions. The team used mainly public transport to travel to airports. The emissions associated with a night's stay at a youth hostel are lower than if we had stayed at a hotel, but the hostel was cheaper anyway so the decision to stay in the hostel was already made. We hitch-hiked from the end of the ski traverse back to Lake Louise, but again the emissions savings is negligible in relation to the emissions from the flights.

The big "luxury" of this particular trip was the helicopter flight into the start of the ski traverse. The objective of the trip was to do the central part of the Rockies traverse, which does mean starting at or around the Tusk Glacier. The walk-in to this Glacier is in excess of 50km. Walking in (with sufficient food to complete the trip) would make the trip intolerably arduous. As such, doing the traverse without a helicopter is not an attractive option.

Given the limited ability to reduce the emissions associated with the trip, the organizers were keen to compensate for the unavoidable emissions by purchasing carbon credits. This was discussed with the team early in the trip planning process, on one of the Skype calls held in planning stages. The organizers presented the trip's footprint and discuss our interest in compensating for our emissions.

Jerry brought descriptions of five carbon credit projects on the trip. The team had a chance to read these during a restful afternoon in tents. A lively debate of the merits of the various projects, and about the nature of carbon offsetting itself, ensued. The team chose three projects from which to purchase credit.

- A biomass project in Puerto Montt, Chile, appealed to the team due to proximity to Patagonia.

- A clean cook stoves project in Zambia appealed for all the additional benefits (such as improved health and reduced time spent collecting fuelwood) associated with the activity.
- A reforestation project in Tanzania appealed in part for the obvious connection between forests and the health of our planet.

5 Appendices

Appendix 1: Geodetic Coordinates

The coordinates for some significant points on the trip, including all overnight camps are given below. These are UTM coordinates, referenced to a WGS84 ellipsoid, and in Zone 11U, and have just been taken raw from the GPS device we used (Garmin eTrex30). To compare them to coordinates in Scott's book, his figures are written thus: *4***692***00 57***767***00* (11U), rounded to the nearest 100m. There are some significant differences with Scott and Klassen's positions, especially for Triad Col.

Note that the camps do not necessarily represent the best sites – rather they are where the team found itself at the suitable time each day (and for example, on a couple of occasions we stopped early due to poor weather/visibility). In general most of the terrain provides suitable camping spots, so pre-planning of locations is not necessary.

		East	North	Altitude (m)
Landing point	Cummins Glacier	432610	5783861	1971
Camp 1	Clemenceau Glacier	439007	5786880	2038
Apex Col		444189	5784786	2995
Camp 2	Apex Glacier	447397	5783675	2833
Eden Col		448672	5783284	2963
Camp 3	Chaba Icefield	453995	5782242	2734
Chaba-Wales Col		454890	5783188	2870
Abseil anchor	Chaba Wales	454873	5783319	2870
Snowy Pass		457443	5779719	2149
Camp 4	South fork, Wales Glacier	461102	5778705	2792
Triad Col	true location	461500	5778221	2841
Camp 5		469484	5774208	2000
+lower col		472700	5772500	2530
Snow Ramp	entry to Icefield	469906	5773724	1850
Ridge above col	Ascent route to cross col	472524	5773084	2692
Camp 6		473281	5772398	2284
Camp 7	Columbia Icefield	473624	5775827	2926
Mt Columbia		469790	5777540	3723
Icefield Parkway	Saskatchewan Glacier	494982	5780040	1690

Files of these coordinates in gpx format, and also the complete tracks for the trip can be made available on request.

Appendix 2: Carbon Footprint

The detailed carbon footprint of the trip is given below.

Ground Transportation	**Km**	**Emission Factor**	**Total**
Team member 1: Taxi, Home-Airport Rtn	22	0.000133	0.0029
Team member 2: Train, Home-Airport Rtn	576	0.00005818	0.0335
Team member 3: Train, Home-Airport Rtn	200	0.00005818	0.0116
Team member 4: Car, Home-Airport Rtn	96	0.000133	0.0128
Team member 4: Train, Home-Airport Rtn	704	0.00005818	0.0410
Team member 5: Car, Home-Airport Rtn	448	0.000133	0.0596
Team member 5: Train, Home-Airport Rtn	788	0.00005818	0.0458
Group: Calgary Airport-Lake Louise-Golden-Rtn	280	0.11	0.110
Flights	**Qty**	**Tonnes/rtn flight**	**Total**
UK-Calgary Rtn	4	2.33	9.320
DC - Calgary Rtn	1	1.16	1.160
Helicopter	**Litres**	**Emission Factor**	**Total**
Bell 407	576	0.002536051	1.461
Hostel Nights	**Qty**	**Tonnes/night**	**Total**
Lake Louise	25	0.0009	0.023
TOTAL			**12.28**

References -

Carbon calculator (Flights, ground transportation):
http://www.carbonfootprint.com/calculator.aspx

Helicopter conversion factor (9.6 C02/gallon jet fuel):
http://www.eia.gov/environment/emissions/co2_vol_mass.cfm

Fuel Use for Helicopter:
http://www.alpinehelicopter.com/bell-407

Hostel night/stay emissions:
http://www3.yha.com.au/about/sustainability/

Appendix 3: Useful information

Lake Louise International Hostel –

a. Bookings can be made on-line (advance booking recommended) http://www.hihostels.ca/westerncanada/359/HI-Lake_Louise_Alpine_Centre.hostel

b. The hostel is very comfortable and friendly. Ski lockers available for leaving equipment while on traverse (bring padlock, or purchase at front side for $5). Restaurant serves good food. Free wifi. Laundry facilities. Small supermarket (think Tesco's Express) and Visitor Centre 10 mins walk away.

c. Lake Louise is 85km from Golden (where Alpine Helicopters flies from) but is nonetheless the right place to be based. There is more to do if the weather is bad (see day-to-day account of trip above) and Lake Louise is on the way back from the trip finish to Calgary (so is the logical place to leave bags), whereas Golden is out of the way.

Alpine Helicopters –

a. Contact details: www.alpinehelicopters.com; email - golden@alpinehelicopters.com; phone - +1 250 344-7444

b. At the time of writing, Alpine Helicopters is the only operator in the area.

c. We made our booking six months in advance, though this is not necessarily needed. In general Saturday's are busy days, since they ferry clients to and from ski lodges. However, May is a fairly quiet time since it is the end of the ski season.

d. It is best to arrange the booking over the phone. They know the area well and can advise on good landing spots.

e. Flight time is charged per 6 minutes (one tenth of an hour) for the single journey (not the return leg). If a food cache is made, time sitting on the ground is not charge. Our flight from Golden to Cummins Glacier cost CAD 2,580.

f. Deposit is not required – they take credit card details and charge after the journey depending on the trip time. Flight time is flexible – if the weather is not good you can just wait until the following day.

g. They have a number of different helicopters. The 407 takes five people plus kit. The larger 212 will take up to 9 or 10 plus kit. Trip organisers will want to think about their team sizes accordingly – eg, a team of six becomes an expensive proposition.

h. A word of caution – pilots may be overly-keen to fly in bad weather. Our pilot seemed very optimistic about being able to fly in what looked like rather cloudy weather (to make both food cache and final drop). In hindsight we should have more carefully questioned the pilot's read on the weather, and perhaps delayed the flight until the weather improved. At the end of the day, the pilot gets paid either way and may set off from base without a good guarantee that he will be able to land successfully at the destination. The helicopters use "visual flight rules", which means there need to be able to see the ground at all times (no radar or other instruments).

If there are clouds preventing sight of ground, they may have to turn around and return to base. The client is charged for the flight time regardless.

Food cache –

a. The King Edward Glaciers are a logical place to make a food cache, being about halfway across the traverse and in a relatively good location to wait out bad weather before attempting the snow ramp up to the Columbia Icefield (the ramp needs good weather). We had planned to make our cache about 2-3 km south-west of Mt King Edward at UTM *4***692***00 57***767***00* (11U)

b. Good weather is required to make the food cache at this location – even high cloud will mean flat light and the helicopter will not be able to land on the glacier. There are no nearby trees for the pilot to use as a visual reference. The trees and moraines at the bottom of the snow ramp (where we made camp 5) might provide a possible landing location (would need to discuss with pilot).

Taxi companies –

a. We took a minibus from Calgary Airport to Lake Louise. Allied Limousines , phone (+1) 403 299-9555. The cost was CAD 563, including the detour via MEC in downtown Calgary. The cost would have been CAD 90 less if we travelled from the airport directly to Lake Louise.

b. From Lake Louise to Golden we used Mountain Park Transportation, phone (+1) 403 522 2525. The cost was CAD 168, plus tip (CAD 20). They would probably provide a cheaper pick up from Calgary Airport than Allied Limousines, but we were not able to reach them on the phone ahead of the trip.

Best time to go.

We made the trip in the first two weeks of May. The weather was warm, and on occasion rather hot. It would seem that making the trip two weeks earlier would be fine. Much earlier than this could start to mean cold temperatures. As to when the weather is most settled, discussions with the helicopter pilot suggested the weather does not become settled until June (though this would be too late for the ski traverse).

Appendix 4: Article from ESC Yearbook

The Central Rockies Traverse

2nd May- 17th May 2014

By Tom Lawfield

The central section of the Rockies traverse spans a distance of some 70km from Tusk Glacier in the west to the Icefields Parkway road in the east. It forms the middle third of a longer traverse described in *Alpine Ski Tours in the Canadian Rockies*, by Chic Scott and Mark Klassen, and was our objective over ten days in May 2014.

After four days waiting in Lake Louise for a weather window, doing crevasse rescue practise and completing an overnight trip to check our equipment, we took a helicopter from Golden up onto the ice:

> *The helicopter rotors spun faster overhead, the snow stinging our faces as we lay on the equipment to hold it down. It lifted off, the roar of the rotors quickly dying away to leave the roar of the glacial wind in our ears. We looked at each other and the amphitheatre of mountains beyond and realised we were all alone. Our Rockies traverse had begun.*

The drop off had nearly been aborted due to poor weather on the approach. *Fortunately*, the Alpine Helicopters pilot had been able to take advantage of reasonable light to drop us on the Cummins Glacier. *Unfortunately*, the visibility had been too bad to lay a food cache half way along the route, which meant our packs were heavier than expected.

Shouldering these heavy packs, we made excellent headway in windy but bright conditions, traversing below Mt Clemenceau and Mt Tusk in the early afternoon. By late afternoon we had crossed Duplicate Glacier, which held some truly impressive seracs in its upper reaches, to make camp on the Clemenceau Glacier under a scorching sun.

The following day involved a long, 7km pull up the Clemenceau Glacier, under perfect blue skies. A complex area of heavily crevassed ground forced us on a line to the south, adding to an already long day. Marking time, I ticked off features as we gained height:

> *The deep blue of an old ice cave stands out against the brilliant white of the world around it. Exposed by serac fall, the crevasse opens out half way down a cliff like an open wound. A dot on a page. It's dark recesses can be guessed at – a receding blackness whose depths allow a way in to the glaciers secrets. Wiping sweat from my brows, I drop my eyes back to the tips of my skis, and take another step.*

Eventually, we reached Apex Col, but abandoned plans to climb the small peak above it in favour of pushing on to the Apex Glacier beyond. Avoiding a cornice, Paul led us on to this glacier, and the first couple of turns of the trip. Camp was made in the late afternoon.

The weather at this point took a turn for the worse, with low visibility and light snowfall while going over Eden Col and crossing the border into Alberta. The weather remained mixed all day, and after failing to see a way around a crevasse on steep ground, we opted to camp. No sooner had we set up camp than the sun reappeared, and it was easy to see the crevassed section could be easily bypassed.

The abseil on the Chaba Col went as smoothly as is possible with large packs and mixed ground, with Paul rigging a lower on an Italian hitch. I wrote:

> *The yellow and black of the abseil tat is striking against the greys of the rock. It is also too short. I pull the ends around the block, trying to work the short ends of the static cord into a double fisherman's. Paul adds his strength, giving me an extra few cms to tie it off.*

After we were all lowered off, Paul then down climbed rotten snow up to 55° – no easy task with a large pack.

The Wales Glacier beyond proved an interesting ski descent, with incredible hanging seracs including some that had fallen to the glacier floor. After lunch on Snowy Pass, a long pull up in deteriorating visibility and warm conditions brought us to camp below Triad Col.

Or rather, what we *thought* was Triad Col. In the morning, after a stiff climb:

> *I rounded the top of the col. An unusual, huge windlip had formed below the ridge. Below, the ground looked steep and very committing, and seemed completely out of proportion to the overall seriousness of the route. Protecting it seemed impossible, and a slide would have ended in a cliff band that dropped away below.*

Given this, the decision to try another col further along the ridge made perfect sense, and we were quickly crossing this easily.[1] We descended onto the western end of the Columbia Icefield below Mount King Edward (where our food cache *would* have been), and pressed on for excellent turns descending to the only vegetation of the trip - trees at the edge of the moraine. Here we camped and had a wash in the snow, listening to the thunderous artillery fire of serac fall off the lower slopes of Mt Columbia. Looking on the bright side, Jerry pointed out that from this point on we were carrying the same weight as if we had laid a food cache.

The crux of the trip, a snow ramp leading up and on to the Columbia Icefield proper, proved engaging, with short sections of snow equivalent to Scottish Winter Grade I. Ultimately, the complex terrain of the main ramp was avoided by going around via a longer, more circuitous route to the east, which avoided some of the difficulties but required some steep skinning on sun affected snow.

From a camp on the Columbia Icefield, we made an ascent of Mt Columbia (3747m), a snow plod up to 40° made more interesting by a breakable freeze thaw crust on windslab. The second highest peak in the Canadian Rockies, Mt Columbia dominates the Icefield and allowed us great views west of the route we had taken over the last week.

The next day, we skied across the 'Trench' - a depression in the Icefield - and camped at the head of the Athcabasca Glacier, which put us in position for both Snow Dome (3451m) and exiting to the road. Using the remaining weather, two members made an ascent of Snow Dome, a rounded peak to the North. From its summit, water flows to the Atlantic, Pacific and Arctic oceans, although visibility was so low that nothing could be seen in any direction until return to the tent. Tired after the quick ski back down, we burst back into the tent to melt some snow. Beside the stove, Steve had tucked a packet of Sharkies ('the organic energy chews') as a present to boost our energy for descent. Then the 17km exit to the road began, using the Saskatchewan Glacier, finishing on some of the best snow

1This other crossing turned out to be the correct Triad Col – the guidebook had given the wrong Grid Ref. It could be speculated that the guidebook writers took the Grid Ref retrospectively from the wrong col on the map. For reference, the correct GR for Triad Col is: UTM 4**614**00E 57**782**00N. See Scott, C; Klassen, M; Alpine Ski Tours in the Canadian Rockies. *Summits & Icefields 1*; Rocky Mountain Books, Canada; 2011 (reprinted 2013), pp. 301-2.

of the trip in the final few turns to the glacier toe. Soon we were walking out, wading through the glacial mud and lower down, skiing under coniferous trees, to the Icefields Parkway, from where we hitched back to Lake Louise, beers and hot showers.

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Team: Jerry Seager & Steve Wright (Leaders), Paul Cook, Dave Collier, Tom Lawfield