



# Imperial College Arctic Sweden Expedition

2<sup>nd</sup> – 23<sup>rd</sup> September 2018

Oliver Bright and Jemma Greenin

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# 1 Introduction

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## 1.1 Aims & Objectives

The main objective of the expedition was to hike from the northern Swedish village of Abisko along The King's Trail to Vakkotavare, then traverse Sarek National Park from Akka to Aktse. Our other aims were:

- Be self-sufficient for the duration of the trek – carrying all equipment and food, and wild camping as far as possible.
- Gain experience in remote, wilderness environments, and use as a base for future expeditions to more remote environments for longer timescales.
- Climb Sweden's highest mountain, Kebnekaise (2,098m).
- To record our journey with photography, as one team member is a keen photographer.
- Raise awareness of the Exploration Board and the opportunities available to other members of the college.

## 1.2 Background

The original idea behind the expedition was to use our existing outdoor skills and experience to undertake a longer, more challenging expedition than either had previously done. The intention was to undertake it in a remote area that isn't visited by large numbers of tourists and which would present us with plenty of challenges.

## 1.3 Motivation – Why Sweden?

When first planning the trip, several different locations were discussed. The Via Dinarica in the Balkans, the Hardangervidda plateau in Norway and the Genghama mountains in Armenia were all identified as possibilities, but the Arctic North of Sweden was chosen for several reasons. Firstly, due to being limited by time by our respective internships, we were effectively confined to Europe. On top of this, to ensure the expedition was affordable, Europe was favorable due to the cheap flights.

Arctic Sweden was identified as a good choice, as it presents a wilderness environment that is unlike that which you can experience in the UK. On top of this, neither team member has heard of any friends visiting this area of Sweden, nor have any previous Exploration Board expeditions.

Much like other Nordic countries, the allemansrätten (everyman's right) gives people the right to walk and camp on any land, with the exception of private gardens, the immediate vicinity of a dwelling house and land under cultivation. This would enable us to wild camp for the entirety of the expedition – significantly reducing the cost, whilst also potentially visiting areas that fewer people do due to the lack of other accommodation.

There are several long-distance trails in this area, including Kungsleden, Nordkalotteden and Padjelantaleden.

## 1.4 Details

Kungsleden (The King's Trail) is a 440km long trail, leading from Abisko in the North, to Hemavan in the South. During the summer months – June to September – it can be hiked, whilst the rest of the year it is a ski trail with approximately the same route. The starting point of Abisko lies 250km into the Arctic Circle, close to the border with Norway.

The trail can be split up into three sections. The north from Abisko to Kvikkjokk, the middle from Kvikkjokk to Ammarnäs and the south from Ammarnäs to Hemavan. The trail requires you to cross several lakes of varying sizes - the small lakes can be rowed across (boats are left on either side of the lake), and the larger require water taxis.

From Vakkotavare, the trail heads south, but skirts around the edge of Sarek national park, only dipping in for a short section in the south-east corner. This middle section of the trail is by far the least visited, as there are no STF huts along its 179km length.



Figure 1 - Entire Kungsleden route<sup>1</sup>

The sections of the Kungsleden we planned on hiking are displayed in Figure 2. The maps show the locations of the STF huts along the route, as well as the distances between them.

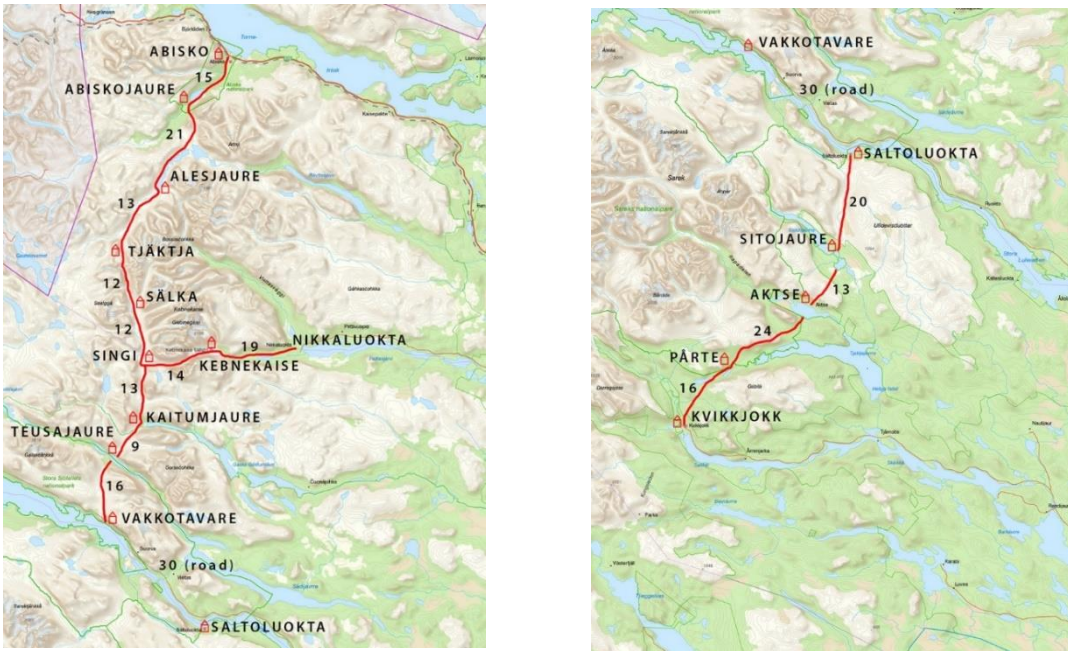


Figure 2 – Maps of the northernmost section of the Kungsleden<sup>2</sup>

Sarek national park is one of Europe’s last true wilderness areas - it contains six of Sweden’s thirteen peaks over 2000m, and over 100 glaciers. There are no marked hiking trails or manned huts in the park, so the area is visited by far fewer people compared to the King’s Trail. Sarek is also home to a variety of wildlife – brown bears, lynx, moose, wolverines and golden eagle are all found there. Despite not being at high altitude, the area is characteristic of a high alpine environment due to the tree line falling at around 500m.

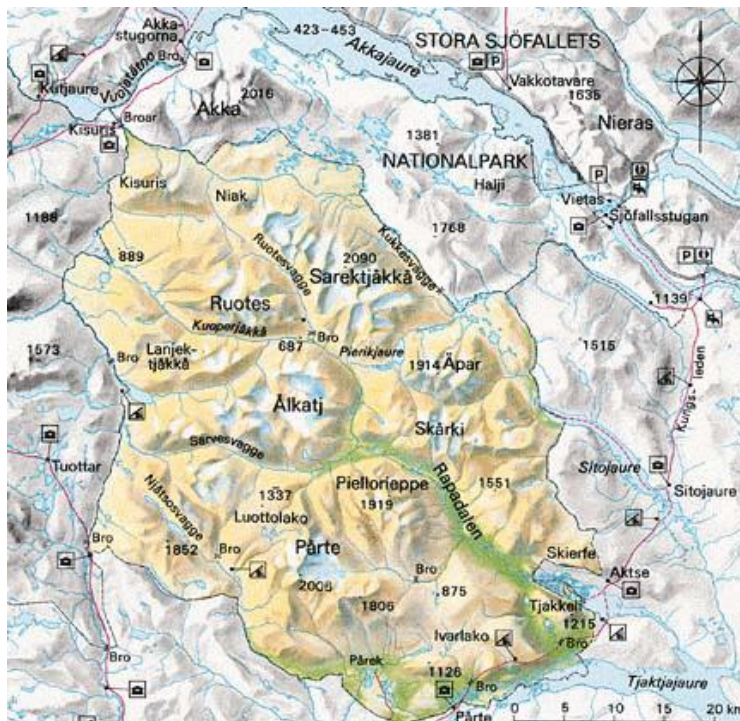


Figure 3 – Map of Sarek National Park<sup>3</sup>

## 2 Expedition Team

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The team members first met whilst undertaking a year in industry placement at the same company in 2016. Since then, we have frequently hiked and camped together in the UK. We also travelled to Ecuador together in the summer of 2017, doing several day and multi-day hikes at altitude, as well as other adventure activities.

### **Oliver Bright**

**Age:** 22

**Academic Background:** MEng Mechanical Engineering at Imperial College (2014 - Present)

#### **Bio:**

Having grown up just outside the Peak District, I have been interested in a wide variety of outdoor sports from a young age. Through Scouts, I had the opportunity to try many different activities and this also gave me a great base of knowledge in navigation and general outdoor survival skills. My main interests now are hiking, cycling and skiing. I have been involved with Fellwanderers at Imperial since my first year – I was the club Secretary for the 17-18 academic year and am now the President.

Away from outdoor sports, I have always been a keen footballer, and currently represent the 2nd XI at Imperial.

#### **Experience:**

- Extensive hiking across the UK – Snowdonia, Peak District, Lake District, Yorkshire Dales – including 2 Fellwanderers tours in the Cairngorms
- Leading hiking groups of up to 30 with Scouts and now Fellwanderers in national parks across the UK
- Day and multi-day hikes in Europe – French and Swiss Alps, West Coast of Norway, Iceland
- Backpacked Ecuador (with Jemma) and Peru (solo) during the summer of 2017 – including several day and multi-day treks up to altitudes of 5500m
- Yorkshire 3 Peaks challenge
- DofE Gold, including expedition in Scotland



**Jemma Greenin**

**Age:** 22

**Academic Background:** BSc Mathematical Sciences at University of Bath (2014-2018)

MSc Medical Statistics London School of Hygiene and Tropical Medicine (2018-present)

**Bio:**

I have been interested in the outdoors from a young age and have taken part in a variety of recreational outdoor sports, with my main interests now being hiking and swimming. As well as this, I have a passion for photography, in particular landscape photography, which has led me on frequent walks across the English countryside and other countries such as Iceland and Sweden. I am a member of the Bath University Mountaineering Club (BUMC) and have been on many weekend and day trips in various locations including Snowdonia, Exmoor and the Peak District.

**Experience:**

- Active member of the University of Bath Mountaineering Club, spending regular weekends hiking in national parks across the UK
- Backpacked Ecuador in summer 2017 – including several day and multi-day treks up to altitudes of 4000m

## 3 Planning, Preparation and Training

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### 3.1 Planned Itinerary

Our original planned itinerary is displayed in Table 1. This would have given us a maximum of 20 days on the trail.

*Table 1 - Planned itinerary*

Day	Detail
1	Fly UK – Kiruna. Bus Kiruna to Abisko. Camp Abisko.
2-5	Hike south along Kungsleden from Abisko to Singi hut, then east to Kebnekaise.
6	Climb Kebnekaise
7	Rest day
8-10	Hike Kebnekaise to Singi hut, then south along Kungsleden to Vakkotavare. Bus to Ristem. Boat to Akka.
11-18	Hike Akka to Aktse through Sarek National Park, including one rest day.
19 & 20	Hike north along Kungsleden from Aktse to Saltoluokta.
21	Contingency day/rest day
22	Bus from Saltoluokta to Gallivare. Fly Gallivare to Stockholm.
23	Fly Stockholm - UK

### 3.2 Logistical Planning

Once we knew the specific dates that we were both available, flights were booked to allow the most amount of time hiking. From here we were able to determine how many days would be needed for travelling to and from the trail and therefore how many could be used to hike.

The majority of our planning was done based on internet research. There are a lot of resources for the Kungsleden, though information about Sarek is limited. The STF were also very helpful in answering any queries that we had. Some of the resources that we used are detailed in Appendix A.

#### 3.2.1 Transport

There are multiple options for getting to and from the trail. We discussed the option of taking the sleeper train after flying in to Stockholm but ultimately decided that it was worth spending a bit more money to save time, as the flight is around an hour, compared to over 20 on the train. This also meant that we would start the hike well rested.

After arriving in Kiruna we decided to get the bus to Abisko rather than the train as this was at a more convenient time and cheaper. While on the trail, in order to cross lakes, we needed to either row, or take a motor boat. These were driven by the STF staff or the local Samis and would operate a few times a day. Due to it being towards the end of the season the prices were more expensive and trips were less frequent. This was partly due to the Samis now being more occupied with herding their deer.

#### 3.2.2 Food

Due to the nature of the trail and how remote the huts are, the cost of food was out of our budget and so we planned to take almost all of our food with us. This food was mostly bought from a general supermarket, again, to be as affordable as possible. However, weight of our bags had to be considered,



so some freeze-dried meals and Huel were bought for this reason. Due to the need to eat more calories while hiking, lots of energy bars were also bought in a variety of flavours.

In order to have all the food needed for the hike it was apparent we would need a food drop at some point along the trail. As the route is remote we first had to determine which huts allowed packages to be delivered. This narrowed it down to either Kebnekaise and Saltoluokta mountain stations, as these are the most accessible. However, in order to deliver to Kebnekaise, helicopter transport was needed and therefore ruled out, leaving Saltoluokta. We were told that to be guaranteed the delivery, it was best to use Bussgods which is a national bus service. This meant that we would have to send the parcels after landing in Sweden. Therefore, we planned to arrive in Kiruna then pack and send the parcels so that they would arrive when we eventually got to Saltoluokta, rather than sending them from the UK. Due to this extra food this meant that we had to take extra luggage that we then stored at Kiruna's tourist information to collect when we finished hiking.



### 3.2.3 Accommodation

Our aim was to wild camp as much as possible. In Kiruna, we camped at Camp Ripan the first night in order to have the best start to the hike. This allowed us to run all of our errands that needed to be done in Kiruna. Throughout the hike itself, we only camped within the bounds of one of the huts, Saltoluokta, which we then returned to at the end of the hike. This allowed us to use the hot showers and clean our clothes. Once back in Kiruna we camped again at Camp Ripan before flying to Stockholm.



### 3.2.4 Navigation

From our online research, most people recommend using the Lantmateriet 'Fjällkartan' series maps, with the BD10, BD6 and BD8 covering the areas of interest to us. These are at a 1:100,000 scale, which lack significant details. In map shops we also found Norstedts outdoorkarten which cover areas of interest at 1:75,000, and also have special Kungsleden markings. We used the following maps, as well as the Swedish Mountain Maps app:

- Abisko - Kebnekaise - Nikkaluokta Blad 1 by Norstedts Kartforlaget 1:75,000
- Nikkaluokta- Sarek- Saltoluokta Blad 2 by Norstedts Kartforlaget 1:75,000
- Fjällkartan BD10 1:100,000

### 3.3 Training Trips

On top of hiking with our respective university hiking clubs, we undertook several training trips prior to the expedition to improve our fitness and practice using equipment that we would be taking to Sweden.

#### 3.3.1 4 Inns - 24<sup>th</sup> March

In March, we entered the 4 Inns as a team. This is a 65km event in the Peak District, over some of the roughest moorland in Britain. We finished with a respectable first attempt time of just over 16 hours. The event was great navigation practice during the day and night and helped build our teamwork skills. Due to the intense nature of the event, we were able to understand each other's strengths and weaknesses, as well as how lack of energy and sleep affects us.



### 3.3.2 Fellwanderers Summer Tour – 15<sup>th</sup> – 24<sup>th</sup> June

Ollie organized the Fellwanderers summer tour to the Picos de Europa in northern Spain. Towards the end of June, a group of six from the club hiked from hut to hut in the national park for a week. The terrain was very rugged and the weather warm and humid, which made for physically challenging hiking conditions. To keep the costs down but ensure our packs weren't too heavy, we carried our own food and stayed in refuges. This was a really good chance to try out food before the expedition to see what did and didn't work, as well as to gauge quantities. It also enabled us to evaluate our current kit to see if we needed anything new or if any items were too heavy or bulky.

This trip helped a lot in planning for the expedition and gave us confidence in our plans for Sweden.



### 3.3.3 Brecon Beacons – 3<sup>rd</sup> - 5<sup>th</sup> August

Our first weekend training trip was to the Brecon Beacons, a convenient location as Ollie was working in Bristol. As we went to leave on Friday evening, we discovered Ollie's car had a completely flat tyre. After waiting for a few hours to replace the tyre, we headed over to Wales. We had to slightly change our plan and stayed at a campsite we knew in Ystradfellte, where we arrived around 10pm. We quickly set up our tents in the dark, which went surprisingly well given that we had never used the MSR tent before.

After a rude awakening from the farm's cockerel, we set off early from Ystradfellte. We joined the Beacons Way, heading up Fan LLia and along the wide, grassy ridge, then underneath Fan Fawr to the road. As we dropped down the side of the valley we saw several police cars, ambulances and a mountain rescue helicopter gathering at the main parking area for Pen y Fan.

We climbed up to Pen y Fan from the road - by this time it was very hot, and the climb was rather challenging. We eventually made it to the top of Pen y Fan, enjoying the views across the whole range. We decided to descend part of the way we had come and dropped down to a small tarn in the corrie underneath Corn Du where we had a quick swim. We set up our tent next to the lake where we spent the night. We walked 22.4km in total, climbing roughly 813m throughout the day.

We set off early the next morning – our aim was to go around rather than over the hills due to how hot it was. As we needed to be back at the car by 3pm for Jemma to catch an evening train from Bristol, this turned into a bit of a march. We covered 24km over much flatter ground, seeing far fewer people than the previous day.



### 3.3.4 Dartmoor – 10<sup>th</sup> – 12<sup>th</sup> August

Our second weekend training trip was to Dartmoor, with the aim of roughly following some of the Ten Tors routes. We set off this time without any car issues and parked in Belstone. From here, we headed a few kilometres up the valley until we ran out of light and set up the tent.

On Saturday we headed further into the moors with the weather drizzly, aiming for Hangingstone Hill. By mid-morning the fog had descended, and visibility was pretty poor – we took shelter behind army huts when we could. Drenched through, we decided to head for the forest surrounding Fernworthy reservoir to get some shelter from the wind. We spent the next few hours hiking close to the forest and around the reservoir, before finding a sheltered spot in the centre of the forest to camp.

The rain persisted through the night – when we woke up on Sunday the ground was totally saturated and rivers running high. Outside of the protection of the forest, the wind was whipping up and we weren't too keen on traipsing across the moors. Cutting a few corners, we headed back towards Hangingstone Hill with minimal visibility, then back towards the car at Belstone. Once back on the path to the car it had now turned to a river and we were both glad to get back to the car and change in to dry clothes. Despite not being the most enjoyable weekend, it was good navigation practice, across some fairly featureless terrain in low visibility. This was also a great opportunity to test our waterproofs and the durability of the tent, in unpleasant weather conditions. We walked roughly 50km over the weekend.



### 3.3.5 Dartmoor – 24<sup>th</sup> – 26<sup>th</sup> August

For our final training trip, we returned to Dartmoor, in the hope that we would have better weather than the last time. We again started from Belstone and camped a few kilometers into the valley on Friday night, but this time then headed towards the western tors.

On Saturday we set off towards Yes Tor passing a group from the army out training - the weather was much nicer this weekend. From here we walked down to High Wilhays and headed towards Lints Tor before descending into the valley to walk along the West Okement river. Just before getting to Meldon Reservoir we took the valley up to Great Nodden then on to Great Links Tor, passing a lot of wild ponies. Heading back a different (and pathless) way, we camped next to West Okement river.

The nice weather did not stay with us and the next day we were quickly surrounded by a dense fog. This meant we needed to concentrate a lot more due to visibility being so poor. From the valley we walked up to Great Kneeset to take the path to Hangingstone Hill. We bumped into a couple who appeared out

of the cloud – they couldn't understand why we were out in such foul weather. They were the only other people we saw during the day. By this point the rain had become torrential and the wind strong, so we decided to take the quickest route back to the car again.



### 3.4 First Aid

We both undertook a Level 2 ITC Outdoor First Aid training course prior to the expedition. This was run by Will4Adventure and held in Youlegrave in the Peak District. The course lasted two days and focused on rescue and emergency care in the wilderness.

We also ensured that our first aid kit was as comprehensive as necessary covering blisters, minor cuts, wounds, and burns, as well as a splint for more seriously injured limbs.

### 3.5 Risk Assessment

A comprehensive risk assessment was written before the trip and can be found in Appendix B. Several significant risks were identified through carrying out the risk assessment.

River crossings were identified as a major hazard, as we would encounter many over the course of the trek that wouldn't be bridged. This would be a particular problem in Sarek. There was also the issue that the maps of the area are at a maximum scale of 1:75000, so in comparison to the OS maps that we are used to using, they are lacking in detail. We would therefore need to be prepared to come across far more rivers than is shown. We also thoroughly researched and developed a sound river crossing technique.

Due to the remoteness of the area, we knew that there would be little chance of having phone signal. We therefore decided it was necessary to take a satellite phone with us for emergency use. We also identified emergency phones along the route, and one in the centre of Sarek.

Another major risk to us was the weather. As we would be trekking towards the end of September, and the end of the trekking season in the north, we had to be prepared for cold temperatures and potentially snow. We prepared with good equipment, adequate layers, and plans to divert or shorten our intended route in the event of prolonged bad weather.

## 4 The Expedition

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### 4.1 Changes to Original Itinerary

Our original itinerary had to be changed for several reasons. Firstly, commercial flights were no longer operating out of Gällivare, which meant we had to fly in and out of Kiruna. This meant an extra day travelling from our finish point, back north to Kiruna.

Another problem we had was that there were very few places we could send our food. We could only send the food to a mountain station, which left us with the only feasible option being STF Saltoluokta. This meant that instead of heading in to Sarek via Ritsem and Akka, we had to go via Saltoluokta. We also found out that it wouldn't be possible to send our food from the UK after contacting the STF staff. Instead, we had to post our food when we got to Kiruna, which meant we couldn't get the bus to Abisko the day that we arrived, so we lost another half a day.

There were also very few buses in the area (usually 1 per day), so we were completely tied to the schedule. For example, the bus to Gällivare was at midday, so we had to finish hiking the day before to ensure we caught it.

The updated itinerary is displayed in Table 2. We planned to be flexible with this itinerary and change it as we saw appropriate if we were hiking at a different pace, or the weather became too challenging.

*Table 2 - Updated itinerary*

<b>Day</b>	<b>Detail</b>
1	Fly Heathrow – Kiruna (via Stockholm). Camp Kiruna
2 – 6	Bus Kiruna – Abisko. Hike south along Kungsleden from Abisko to Singi hut, then east to Kebnekaise.
7	Climb Kebnekaise
8	Rest day
9 & 10	Hike Kebnekaise to Singi hut, then south along Kungsleden to Vakkotavare.
11 & 12	Bus Vakkotavare - Vietas, then boat Vietas - Saltoluokta mountain station. Hike south along Kungsleden to Aktse
13-18	Traverse Sarek National Park in a loop finishing at Saltoluokta, including one rest day. Catch bus Vietas – Gällivare on day 18.
19	Fly Kiruna – Stockholm. Spend day in Stockholm
20	Fly Stockholm – UK

## 4.2 Diary

### Day 1 - 3<sup>rd</sup> September

We met at Heathrow at 4am – our flight being one of the first out that morning. We laid out all of our food and just about managed to cram it all in to a 90-litre duffel bag, getting a few odd looks from other people in the airport. We somehow checked it in without any extra charges – it weighted 30kg and the maximum was 23kg. After a short stopover in Stockholm we arrived in Kiruna around midday. It's a tiny airport and because our bag came out almost last, we missed the only bus to the centre of town. An English couple who had also missed the bus offered to share their taxi with us (and would only take £10 from us because we were students).

We jumped out of the taxi at the bus station, where there was a Bussgods office to post our food boxes. We had guesstimated the weight of the 2 boxes and printed off the labels in England. They weighed 6kg and 5.1kg and were sent on their way to STF Saltoluokta. We then emptied everything out of our duffel bag and left it at the tourist office before buying a couple of last minute supplies at Intersport.

We'd been told that the only place we were allowed to camp was at Camp Ripan, so we headed up the hill with our very heavy bags and set up camp, with only 2 or 3 other tents. We cooked up a dinner of risotto, curry, bread and cookies in the campsite kitchen, before getting an early night after a long day travelling.

### Day 2 - 4<sup>th</sup> September

We woke up early to get the 6:50am bus to Abisko. There were plenty of other hikers, some who we recognised from the flight, as well as a large school group. The scenery along the journey was amazing - it looked so vast and the weather was great. Both of us were really excited to get going!

By 8:30am we arrived in Abisko and took the obligatory photos in front of the Kungsleden signs. We set off into Abisko National Park, heading through forest alongside a river. We had forgotten to weigh our bags, but both of us were finding the weight challenging, so it was slow going. The wide river and trees, which were turning a beautiful yellow, reminded us more of North America or Canada than Europe. At the end of a lake, we reached the first hut – STF Abiskojaure. We had a look round to see what it was like and what sort of food they stocked. We ate the fruit leathers that Jemma had made, which was easier said than done, as they were stuck to the paper.

Camping in Abisko National Park is prohibited, so we reached the border and found a spot that had clearly been used before, as it was just before a big ascent and next to a river. There was a drop toilet nearby which neither of us were brave enough to use!

Throughout the day there were lots of helicopters jetting about, either taking people or supplies out. We had cous cous, tuna and tomato and basil soup for tea, before getting an early night.

*Distance: 16km*

*Time: 6 hours*





### Day 3 - 5<sup>th</sup> September

We woke up to a really heavy frost – reminding us that we were in the Arctic Circle. Straight away we were trudging uphill, before the path levelled out and we passed some Sami huts. Shortly after we passed a herd of reindeer grazing near the path which was exciting! Large sections of the path were along wooden boardwalks, presumably to prevent damage to the ground. These were surprisingly narrow and easy to trip off if you weren't concentrating. We later noticed that lemmings would hide underneath these boardwalks and run alongside them when disturbed.

We passed more reindeer and started to see advertisements for a boat nailed to wooden fence posts. This boat would take you across Allisjavri lake to the next hut and would skip out a few kilometres of walking. It was £30 and there was even an option for you to send your bag across for half the price – this felt like cheating! Throughout the day, we got glimpses of the snow-capped Norwegian Peaks to the West. The views of the Miesakjavri, Radujavri and Alisjavri lakes were amazing – they were all a deep emerald colour.

We passed several people throughout the day, some hiking solo and others in pairs. Despite it being warm and sunny, some were dressed in down jackets, hats and gloves, obviously prepared for the weather to come! We got to STF Alesjaure, which is situated right at the end of the lake and it was really windy. The Nordkalottleden joins the Kungsleden for a short section here. We had some Huel whilst watching a helicopter land and take people from the hut, before pushing on for another 45 minutes up the valley. We found a great spot to camp with amazing views of the river and expansive valley.

*Distance: 21km*

*Time 7.5 hours*



#### **Day 4 – 6<sup>th</sup> September**

When we woke up, there was a curious reindeer right outside of our tent. We set off hiking and headed along the valley, which was fairly flat and easy going, before climbing quite steeply to Tjaktja hut. We arrived there after three and a half hours and had some Huel and chorizo by the river.

From the hut, the landscape became very barren and rocky, as we made our way to the highest point on the Kungsleden. After a short, steep section, we reached the highest point and the Tjakta pass, at 1150m. There is a small emergency hut and a couple of toilets at the top. We stopped for a quick snack, but it was chilly at the col. Despite being able to see for miles down the valley, we couldn't see STF Salka, which we were hoping to reach by the end of the day.

It was much warmer on the other side as we started to descend into the valley. The views down the Tjaktjavagge valley were amazing and was one of the pictures we'd seen numerous times when researching the route. There were also lots of waterfalls on either side, as well as the wide, winding river through the valley. The path was really muddy, probably because it was the end of the season, so the going was slow. After over an hour, we still couldn't see the next hut, which was really demoralising.

We finally arrive at the Salka hut and camped just on the other side of it at 4:30pm. We were both too warm and tired, so we bathed in the cold river, which was really refreshing. It became apparent that everyone else found that section difficult too, as hikers we had seen during the day arrived and camped much later than us.

*Distance: 28.5km*

*Time: 8 hours*



### **Day 5 – 7<sup>th</sup> September**

We knew that today was going to be a long day hiking, so we set off early, again without a cloud in the sky. We continued down the valley towards STF Singi. After a while, we came to a fork in the path that we hadn't noticed on the map, with a sign pointing to Kebnekaise and a potential shortcut. We decided not to take it, and instead carry on to the Singi hut where we would be able to check the weather forecast for the next few days. If the weather forecast looked good, we would head towards Kebnekaise, but if it was looking bad we would instead continue along the Kungsleden.

When we arrived at the hut mid-morning, we stopped for some Huel and a rest, as it was quite warm. When Jemma asked the hut warden if they knew what the weather would be like for the next few days, the man said, "Look outside at the sky – that's the weather". Not quite the answer we were hoping for – the shortcut would have been the better plan!

From the hut, we turned off the Kungsleden and climbed up and out of the valley along no obvious path. We soon met a fair bit of traffic, people making their way from Kebnekaise which is a popular place for people to start and end their trek.

The valley heading down towards Kebnekaise was very dramatic, with steep sided mountains rising either side of us. After a while, the shade from the mountains turned to clouds, and it became obvious that the rain was heading our way. We picked up the pace but couldn't outrun the rain – we got soaked for the first time.

Luckily the shower didn't last too long, and we found a hidden spot to camp about  $\frac{3}{4}$  of a mile down the valley from STF Kebnekaise. We were planning on leaving the majority of our kit in the tent the next day, so wanted a spot that was well hidden from the main path. We dried out our kit as we cooked dinner. We could see people returning from climbing Kebnekaise through the evening, so it was obvious that tomorrow would be a long day.

*Distance: 24km*

*Time: 7.5 hours*



### Day 6 – 8<sup>th</sup> September

We set off at 8am leaving most of our kit at camp, taking just a day's worth of food, warm layers, poles, first aid kit and the satellite phone. The clouds were sitting quite low, shrouding all of the summits, so we were a little apprehensive of our chances.

From our camping spot, we quickly joined the main path which headed fairly steeply up Kitteldalen valley next to the river. After around an hour of climbing, we reached a large footbridge over the river. We later read that this was only a recent addition to the path, so before then, this large, glacial river would need to be waded.

Shortly after the bridge, we entered, then climbed above the clouds and we got our first sight of Kebnekaise. The path was steep, but it was in the process of being repaired by a group of Nepalese Sherpas, which made it slightly easier. We reached a rocky col now right above the clouds in the valley below, where we had a break before the steep ascent up the first peak, Vierranvarri (1700m).

After finding some motivation (thanks to a handful of M&Ms), we started to climb the first peak. It was very steep and hard-going, with the small path made up of small and slippery rocks. At the top, there are hundreds of arty piles of rocks balancing. We then dropped down steeply around 200m to Keffedalen valley on the other side.

After a long break, we carried on steeply on the opposite side, climbing 400m across boulders to the summit, where there was a small wind shelter. The summit was snowy, with the highest point being an icy point, with sheer drops to either side. Without crampons and rope, we couldn't climb the final 10 meters, but the views we had were incredible – looking at the Norwegian peaks, and down towards Nikkaluokta and lots of lakes. The summit was busy with people who had come up via one of the glacial routes and by now the sky was completely clear.

After taking lots of pictures and enjoying the view, we started to descend the way we had come. The going was slow and the steep and slippery nature of the path made it very easy to fall - we were really thankful for having taken our poles. The sun made it warm, making us wish we'd brought a pair of zip-off trousers! By the time we were up and over Vierranvarri, there were very few people around, and the late afternoon sun made the views even better.

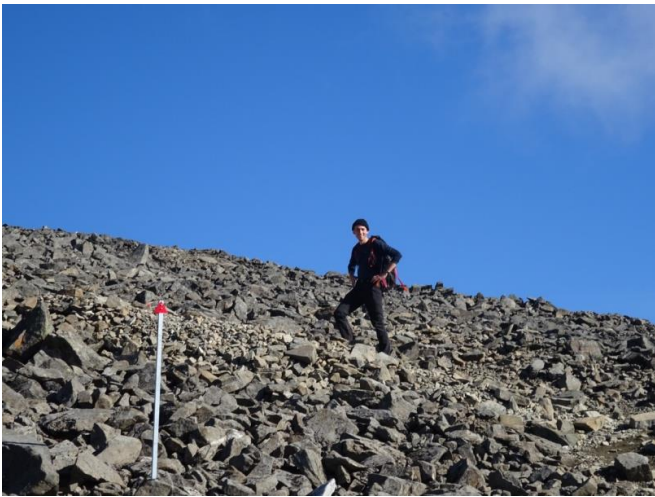
Back by the river, the walking now was easier but long. We made it to the Kebnekaise mountain hut as we deserved some treats and we needed some food for one night to come. The hut was more like a country club as it is where the most tourists were, for the guided glacier tours or just to dip into the Kungsleden. We bought a can of Coke, a Kex bar and some ramen. There were lots of tents here as well, but we were about 30 minutes away in ours as we didn't need the facilities.

As we walked back up the valley to our tent, we collected as much firewood as we could carry. Ollie took us an 'off-road' route back to the tent, and whilst Jemma sorted the sweet and sour chicken for dinner, Ollie lit a small fire.

Despite being a long and tiring day, in some respects felt like a rest, as not carrying heavy packs was much easier.

*Distance: 25km*

*Time: 9.5 hours*



## Day 7 – 9<sup>th</sup> September

We headed back up the valley we had come down 2 days before, to reach the Kungsleden. Heading up the valley, we bumped into the couple who we had shared a taxi with when we arrived in Kiruna walking the opposite way. They were heading out via Nikkaluokta - we had hiked the previous section 2 days faster than them, which gave us more confidence about the rest of the route.

We took a shortcut out of the valley that meant we joined the Kungsleden further south than we had left it. We passed a beautiful lake with dramatic views and the other side of the steep mountain that had been casting a shadow on us all morning. We came down into the Kungsleden valley on a path that was obviously less well used as the bushes were almost covering it. We joined the Kungsleden next to the large river we had been following two days ago. We could now see trees starting to appear at the end of the valley, meaning that we were going to be dropping in altitude.

The hiking was relatively flat, but the views back up the valley were epic – with the deep reds and oranges of the bushes and the massive expansive valley.

As we were starting to tire and wanted to find somewhere to camp, there was suddenly no good spots. The main river was now in a canyon a long way below us and the ground was covered in gorse. We eventually found a small spot near a river and gathered up wood for another fire which was much better than the fire the previous night! We called our parents to briefly tell them we were ok and update them on our progress.

*Distance: 23km*

*Time: 7 hours*



## Day 8 – 10<sup>th</sup> September

When we woke up, the clouds were clinging to the summits all around us. We made our way to STF Kaitumjaure, which was decorated with moose antlers. We carried on through the trees which were turning an amazing yellow colour, which looked brilliant against the blue of lake Kaitumjaure.

We reached a slightly confusing 'door' in the reindeer fence – you had to take down the branches and squeeze through sideways, which was quite difficult with such big bags! We started to climb along a path that seemingly didn't end, as dark clouds started to build ominously around the peaks nearby. Finally, we reached the top of the hill before the descent down towards Teusajaure lake, that we had to cross. We could see the other side and where we had to walk that afternoon and it looked pretty steep from where we were. The descent down to the lake was also very steep, the mud making it slippery too.

Ollie was really looking forward to rowing across the lake, but as soon as we arrived, the lady managing the hut told us that it wouldn't be possible. The wind was gusting straight across the lake, meaning that it would be extremely choppy on the other side, and there was only one rowing boat on our side, so we would have had to cross 3 times! Instead we paid to take the motorboat across the lake. As soon as we were out into the middle of the lake, we were really glad we hadn't rowed – it would've been impossible! We got soaked because of the big waves but we couldn't complain as the views of dark clouds and the bright yellow trees and red bushes from the centre of the lake were epic.

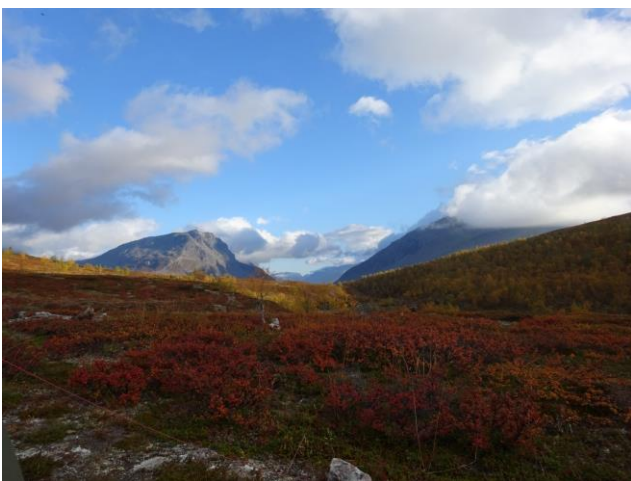
On the other side, we steadily climbed through the trees, then out on to an open plateau. The clouds were becoming more dramatic and it started to rain, as the wind built. A lady at the previous hut had warned us that it was supposed to become stormier in the next few days.

We marched along the top of the hill and went through big builder fields watching lots of sun beams break in front of us. As we passed over the plateau, we got our first glimpses of Sarek. It looked incredibly dramatic – with dark clouds and lots of glaciers visible. The last few days of hiking started to catch up with us, and both of our backs were starting to hurt (we had to eat lots of jelly babies to keep us going). We wanted to get as far as possible, so as not to miss the bus the next morning and we weren't sure what time it would leave.

We went as far as we could, and found a sheltered spot to camp, as the wind was starting to get really strong. From here, we could see the reservoir ahead of us – the road where we would need to catch the bus from ran alongside this.

*Distance: 23km*

*Time: 7.5 hours*



## Day 9 – 11<sup>th</sup> September

The wind and rain were relentless through the night, so neither of us slept well at all as it felt like the tent was going to rip or blow away. We walked down to the hut at Vakkotavare in around an hour, and it was still very windy and rainy. The path down was difficult going, steep and slippery.

By 8am we reached the hut and the couple running it invited us inside - they thought we were mad for having camped up on the plateau in the wind. The fire inside the tiny hut made it almost unbearably warm. We cooked our breakfast and waited for the bus at 11. This was the only bus of the day so late in the season, so steadily more and more people arrived.

We got on the bus that was the local bus for people from Ritsem to get to Gallivare, so it was already half full before about 30 hikers got on too. The bus passed down the valley, with the lake on the right and steep mountains on the left. There was a section of road closed from an obvious landslide. The mountains of Sarek were on the other side of the lake and they looked very dramatic with dark clouds hanging over them.

About half the hikers that got on, get off at Kebnats which is where the boat goes from to get to Saltoluokta. The rest of them were obviously going onto Gallivare to finish their trek. We reached Saltoluokta about 1pm where we stayed for the rest of the day. We set up camp and dried our kit, had a shower and cleaned any clothes that needed it. We also picked up our food packages which had arrived slightly bashed, but mainly intact.

We spent the afternoon relaxing around the hut – making the most of the sauna to sooth any aches and pains, which had an amazing of the reservoir and surrounding peaks. Even though it rained on and off throughout the evening the sunset was amazing.



## Day 10 – 12<sup>th</sup> September

We woke up early and packed up all of our kit that we had left to dry the day before. We also picked up a gas canister that had been left in the communal area as a backup for our other stove.

We made our way out from the hut, which at first was a bit of a maze, with lots of paths heading to different places through the trees. Eventually we started heading up the hill and the views behind us are



amazing. Suorvajaure reservoir looked like a mirror and from the top we could also see the valley that we planned to come back through.

Our bags were much heavier again after loading up with another 8 days worth of food. We made it to the top and the path levelled out, crossing another plateau with lots of herds of reindeer. After a few hours, we saw the lake ahead of us which we intended to row across. We were now seeing noticeably fewer people than previously, as a large number of people dropped out at Nikkaluokta and Vakkotavare/Gallivare.

When we reached Sitojaure hut, it felt like a ghost town. Eventually, the lady managing it appeared and told us they have lost one of the rowing boats, so nobody can row across the lake. The Sami family who live in a house further down the lake were searching using their motorboat. The crossing of this lake is long, 2 hours each way, as you have to follow a very specific route to avoid any shallow areas. The only other option was to pay the Sami family to take us to the other side, but this was really expensive. We spent over an hour weighing up our options, but as it was getting late, we decided that we would take the motorboat first thing in the morning, as rowing would simply take too long. Talking to the hut warden, she told us that a lot of people hiking the Kungsleden stop and turn around at this point, to avoid crossing the lake.

*Distance: 25km*

*Time: 7 hours*



### **Day 11 – 13<sup>th</sup> September**

We made our way down from our camping spot to the Sami family's house, where the lady took us across the lake. We slalomed around floats and rocks – it took around 20 minutes in the motorboat and in hindsight it would have been extremely difficult to row.

On the other side, we made our way through trees, with reindeer hiding in amongst the bushes, before steeply climbing on to the plateau. The trees were now noticeably more sparse. The views of lake Sitojaure behind us were amazing.

We decided to leave the path and head up the back way up to Skierfe. This meant that we wouldn't have to descend all the way down to STF Aktse, then up again.

After finding our way around a small peak and through some marsh, we quickly set up our tent, left the majority of our kit, and started the climb up to Skierfe, at 1179m. The ascent is steep and rocky, but once at the top, the views were awesome! The views down into the Rapa river delta were amazing – the water was turquoise blue and the trees were all shades of yellow and green. We also had a great view of the peaks in Sarek. The drop is extremely steep, so neither of us are too keen getting close to the edge. After taking lots of pictures, we headed back down the way we had come, to our tent.

The weather was turning, so we attempted to give ourselves more shelter by building a little wall out of stones behind our tent. We spent the evening looking at the map and deciding our route into Sarek. We decided that instead of trying to descend into the Rapa valley from the col next to Skierfe, we would skirt around the edge of Sarek, and enter via Rinim. We had been talking to other hikers and hut wardens about getting in to Sarek, and they had told us that the most common way to enter was to take the boat with the Sami family who had taken us across the lake the day before, up to Rinim. The fee for this was £80, which we just couldn't justify! However, we knew that if we could get to Rinim, there would be a passable way in to Sarek.

*Distance: 21km*

*Time: 8.5 hours*



## Day 12 – 14<sup>th</sup> September

When we woke up, it was very cold and rainy. It had snowed overnight, with all of the peaks surrounding us now dusted with a layer of snow. Our tent had been soaked overnight and it had found its way inside, soaking any clothes that weren't in dry bags. Whilst we were cooking our breakfast, the cloud kept rolling in and out, limiting our visibility significantly.

We set off – the ground alternated between very boggy and wet, to large boulder fields which were extremely slippery. The mist and rain continued to roll in and out. After a couple of hours following the river up the valley, we bumped into a Dutch man who we had first seen when crossing lake Teusajaure. He had been dropped off on the side of the lake and had bushwhacked all the way up – he didn't recommend going down the way he had come.

We eventually reached the end of the river, and where we were hoping to find a route down to Rinim. We contoured around, and it was still raining and foggy, though there were rainbows over lake Sitojaure below, as we got occasional glimpses. We reached a river that we thought we may be able to follow down into the valley, though it soon became too steep. We climbed up the other bank of the river and continued around. By this time, we were both very tired after hiking for 8 hours across rough terrain, so we decided to set up camp on the side of the hill.

The views down to Sitojaure lake were brilliant and due to the slope we were camping on being convex, we had an almost birds-eye view down below. This day had been one of our hardest yet. Crossing over such rough terrain was exhausting and navigating in the poor visibility required a lot of concentration. We had a warming Thai green curry and got into the tent, hoping the weather would improve tomorrow.

*Distance: 20km*

*Time: 8 hours*



## Day 13 – 15<sup>th</sup> September

The weather overnight had been wild again, with more snow falling on the peaks. It was sleeting whilst we were making breakfast, so neither of us were in a rush to get going in the morning.

The evening before we had identified a potential route down in to the valley. It was slippery and wet, but there were a lot of bushes, so we weren't too exposed. We carefully made our way down to the valley floor – happy to have made it to the bottom, but absolutely soaked through. We then had to bushwhack through thick bushes and bog before we eventually reached the reindeer fence at Rinim and joined the faint path up the valley into the centre of Sarek.

The weather persisted, and we were both very tired and getting cold, so we decided to set up our tent to warm ourselves up. From our tent we could see right into the heart of Sarek as the clouds rose, but it continued to rain. After a couple of hours, Jemma bravely dashed out to the river so that we could boil some water for a cup a soup to warm us up.

We both realised that we needed to make a decision now. A lot of our gear was soaked, and the weather was getting much colder, with more snow falling. We knew that there was an emergency shelter in the centre of Sarek, but after consulting the map, it was a good day's hiking to get to it. We were also worried that if we ventured deeper into the centre of Sarek, then we may not have enough time to get out again in time to catch the bus to Gallivare, as progress was slow due to the nature of the terrain.

We were both very tired, so we went to bed early, willing the rain to stop.

*Distance: 7.5km*

*Time: 4 hours*



## Day 14 – 16<sup>th</sup> September

Overnight, the weather hadn't subsided, and more snow had fallen. We got dressed head to toe in waterproofs and set off back through the valley having decided to take a shorter way through Sarek which would mean we wouldn't run out of dry clothes.

We crossed a large river to get to the shortcut and then followed reindeer tracks that allowed us to weave between the bushes. The ground here was scattered with reindeer antlers – Ollie considered taking some home, but we weren't too sure what airport security would think.

It eventually stopped raining but stayed windy, which dried us out really nicely. At a small lake we went over a col to the next valley and an unexpected river. Inconveniently, the national park boundaries were almost always along rivers, so the maps pretty much hide the existence of the rivers. This river was much deeper and faster flowing than the one before and so we walked along side it in order to find a place to cross. There was no path along the river and the terrain was the worst combination of bog and bush. There didn't seem to be a place that looked safe and so when we got to the lake at the head of the valley, we decided to camp on an island after crossing a slightly smaller river.

We were joined by two Germans who tried to cross the river on the other side unsuccessfully. We discussed the options with them and decided that if we couldn't find anywhere to cross tomorrow, then we would have to return to Rinim and get the boat back to the Kungsleden.

*Distance: 19km*

*Time: 7 hours*



## Day 15 – 17<sup>th</sup> September

It was another restless night, thinking about whether we would be able to cross the river or not. To give us the best chance of crossing safely, and not making rushed decisions, we woke up really early.

Overnight, everything that we'd left in the tent awning – boots, bottles, clothes – had frozen completely solid. It was very cold, but we had the most amazing views down into Sarek, with clear skies and snowy

mountain tops. After thawing things out in the sun, we set off at 8:30am to see if we could cross where the Germans hadn't been able to, hoping the river had become shallower.

Unfortunately, after crossing 3 or 4 sections of the river, there was a strong current right on the other side which would have been too strong for us. We then had to retrace our steps not only back across that river, but the one we had crossed yesterday afternoon. We then trekked up the valley along the river to where the map indicated a small gap between 2 lakes. When we got there, there was a section of river roughly 25m wide between us and a peninsula that jugged out into the lakes. We took off our trousers but kept our boots on and took the plunge. We managed to cross safely, without anything getting too wet and going in only up to our waist. This was time consuming, but we were relieved, and knew that we could make it to Saltoluokta now.

With our new motivation, we powered back along the river to where we had camped and carried on towards Slugga. We were noticeably weaker now from the extra effort from the morning, but we carried on knowing that the more we did, the less we would have to do tomorrow. The hiking was extremely tiring – the ground was undulating, and the terrain was very hard going.

We made it around Slugga, and camped by the first of the lakes that we would hike alongside tomorrow. We were feeling the extent of trekking for so long now - Jemma's foot was hurting a lot from a childhood injury and Ollie's foot was very pruned from hiking in wet boots and socks.

*Distance: 26km*

*Time: 8.5 hours*



### **Day 16 – 18<sup>th</sup> September**

We knew that this could be our final day hiking, so we woke up early, with the thought of being able to rest in the evening in our heads.

It was cold but not raining thankfully so we set off down the side of the lake. There was no path, so we had to walk through lots of thick bushes and trees. We ate lots of food and took lots of breaks to keep us

going. We sometimes walked on the stones along the edge of the lake in order to avoid the bogs and bushes. Jemma's foot was now hurting a lot and Ollie's legs were wobbly.

At the end of the lake we had our final river crossing – this one wasn't nearly as wide but was quite deep. There was a Sami village here on the shore of the lake with small, yurt-like huts that were covered in grass and vegetation. The last ascent was in sight and we knew that we were close to Saltoluokta. Wooden boardwalks made a welcome comeback on this final climb, as we powered up to the col to the most amazing view. The hut's flag was visible from here, which motivated us on the steep descent through the trees.

We reached Saltoluokta at around 3pm, meaning we'd hiked at about 4km an hour. We pitched our tent and had our first wash since last being here. The hut was almost empty, with only a handful of people milling around – a week earlier it had been really buzzy. We had a coffee and some cake, then relaxed in the sauna.

We spent the evening relaxing with a celebratory beer in the hut. We also started the hut's fire, for which one of the staff gave us some free desert - lingonberry and apple cake. We settled down for a good night's sleep, tired but content with the last two weeks of hiking.

*Distance: 23 km*

*Time: 6 hours*



### **Day 17 – 19<sup>th</sup> September**

We woke up to a very damp and depressing day, so decided to travel to Gallivare, rather than staying around the mountain station for an extra day. We cooked breakfast and packed up our gear in the service house (Jemma also got a foot massage from a friendly German lady). Just before catching the boat across the lake, we saw the two German men from several days before in Sarek, as they arrived at Saltoluokta. Before we left, we weighed our bags on the scales outside of the hut – Ollie's weighed 17kg and Jemma's 13kg. This was with no food left, so we were roughly 18-23kg at a maximum at the beginning.

We took the boat across the lake, then jumped straight on the bus to Gallivare which took around an hour and a half. By the time we arrived, we were starving and had an hour before the next bus to

Kiruna. We dashed through the pouring rain to the nearest Co-op and stocked up on rye bread, cream cheese, salami, chocolate, sweets and biscuits, which we ate in the bus waiting room.

We arrived in Kiruna around 6pm, though it felt much later as it was so dark due to the rain and thick cloud. We made our way back up to Camp Ripan and quickly put up the tent, before heading back into town to find a pizza shop which was exactly what we both craved! We stopped off to pick up pudding from Co-op, then crashed in our tent.



### **Day 18 – 20<sup>th</sup> September**

We didn't wake up until 11am – having slept for 16 hours! After breakfast (still porridge), we picked up our bag from tourist information to take back to our tent to shower and get into clean clothes. Unfortunately, all Ollie had was a clean t-shirt as we couldn't fit anything else into our hold bag.

We made our way back into town to have a coffee and cake. We wandered around the town, checking out the imposing mine that you can see from everywhere. Kiruna had a very strange feeling to it. The town is slowly being moved because of the mine, so parts are currently being demolished, whilst other parts are being built. We walked up towards the ski slope that's on the outskirts of Kiruna, intending to walk up and enjoy the view, but it was closed to go up.

We bought Kex and drinks on the way back to camp and had a massive meal, using up the remainder of our food. We sat in the main building chatting to some Germans about the trek they were planning to do along the Kungsleden. They were keen to get as much advice as possible before they left.





### Day 19 – 21<sup>st</sup> September

After a restful day the previous day, we spent the morning cleaning and drying all of our gear in the campsite service house. We headed in to town around mid-morning for a quick coffee and cake, before jumping on the bus to the airport. The flight was quick, and before we knew it we were in the centre of Stockholm. We checked in to our hostel, and went to Gamla Stan, to wander around the old town. Soon we were pretty hungry, so we went to a falafel place that we had seen recommended in Sodermalm. This was just what we'd been craving! We bought some more snacks on the long walk back to the hostel to eat whilst we decided what to do with our last day in Sweden.



### Day 20 – 22<sup>nd</sup> September

We woke up early (partly out of choice, and partly because of a very persistent alarm in the hostel room), ready to make the most of our last day in Sweden. We ate a delicious brunch, then headed to look around the Östermalm's Market Hall which unfortunately was in a temporary structure in the square. Ollie was insistent that Jemma go to the Vasa museum – an epic museum housing a huge reconstructed ship – but due to it being a Saturday, when we arrived the queue was huge, so we decided not to go in. Instead we headed to Fotografiska, a contemporary photography museum which had some really interesting (and really strange) exhibitions.



We decided to have dinner at Meatballs for the People – we shared moose and boar meatballs, which were even better than IKEA! We then jumped on the long bus to the airport and spent all of our remaining change on a few bars of Kex. We boarded the plane, absolutely exhausted, and arrived back in London at almost midnight, ready to sleep in a comfy bed!

Both of us had thoroughly enjoyed the trip. For the first week we were incredibly lucky with the weather, and despite having to change our plan, we had a great experience in and around Sarek. We were both very happy with what we achieved during the trip, trekking over 300km and completing all our original objectives, when at times these were very up in the air. This hike tested our limits and inspired us to keep challenging ourselves.

## 5 Equipment

### 5.1 Personal Kit

A breakdown of the kit that each of us took is shown in Table 3. Being lightweight was most important, as was being able to adapt to varying weather conditions. Before the expedition, we both bought a few new items that we then tested when training. Much of the kit we both already owned, and anything that we bought will be used regularly in the future.

Equipment that neither of us owned and was expensive, we borrowed. From the Board, we borrowed an MSR Hubba Hubba tent and satellite phone, and from Fellwanderers we borrowed an MSR Dragonfly stove and first aid kit which we topped up.

*Table 3 - Personal equipment*

	<b>Ollie</b>	<b>Jemma</b>
<b>Clothing</b>	Waterproof jacket (North Face Summit Series)	Waterproof jacket (Rab Xiom Jacket)
	Waterproof trousers (Rab downpour pants)	Waterproof trousers (Berghaus Paclite Gore-tex Trousers)
	Synthetic insulated jacket (Alpkit Katabatic)	Synthetic insulated jacket (Rab Strata Hoodie)
	Down jacket (Kathmandu X-Series)	Down jacket (Mountain Equipment Dewline)
	Hiking trousers x 2	Hiking trousers
	Technical t-shirt (1 LS, 1 SS)	Technical t-shirt
	Fleece x 2	Fleece x 2
	Baselayer x 2 (Merino LS, Under Armour SS)	Baselayer x 2
	Socks x 3	Socks and injinji toe socks x 3
	Sealskinz socks	Sealskinz socks
	Merino underwear x 2	Merino underwear x 3
	Hat, gloves, buff	Hat, gloves, buff
	Thermal leggings	Thermal leggings
	Marigold gloves	Marigold gloves
-	Gaiters	
<b>Footwear</b>	Meindl Bhutan MFS hiking boots	Meindl Bhutan MFS hiking boots
	Lightweight sandals	Lightweight sandals
	Mountain Equipment Helium 600 sleeping bag	Mountain Equipment Helium 600 sleeping bag
	Sea to Summit Expander sleeping bag liner	Mountain Warehouse sleeping bag liner
	Klymit V Ultralite SL Insulated sleeping mat	Therm-a-Rest Neo Air Trekker
	Black diamond trail trekking poles	Black diamond trail trekking poles
	Alpkit dry bags x 4 (various sizes)	OEX dry bags x 4 (various sizes)

<b>Equipment</b>	Osprey Exos 58l rucksack	Lowe Alpine Airzone 35:42 rucksack
	Black Diamond Spot head torch + spare batteries	Head Torch
	Spork	Spork
	LifeStraw bottle	Water bottle
	Phone + charger	Phone + charger
	Passport + EHIC	Passport + EHIC
	YHA membership + BMC insurance cards	YHA membership + BMC insurance cards
	Debit cards	Debit cards
	Power bank x 2	Power bank
	Personal toiletries and medication	Personal toiletries and medication
	Lightweight towel	-

## 5.2 Group Kit

Table 4 details the shared equipment that we took, and Table 5 the contents of our first aid kit.

*Table 4 - Group equipment*

<b>Camping</b>	MSR Hubba Hubba NX 2-person tent
	Geertop lightweight tent footprint
	Tent pegs
	McNett Tenacious tape repair kit
<b>Cooking</b>	MSR Dragonfly stove (inc. pump, fuel bottle, windscreen)
	Hi Gear Blaze spare stove (lightweight, gas cannister style)
	Alpkit MytiStax pan set
	Flint + steel
	Matches
	Collapsible bowl
	Mug
<b>Safety</b>	Huel bottle
	Survival bag
	Iridium 9575 Satellite phone
	Pen knife
	First aid kit
<b>Navigation</b>	Whistle
	Chlorine tablets
	Maps x 3
<b>Other</b>	Compasses x 3
	Waterproof map case
	Cash
	Notebook + pen
	Camera
	Duct tape
Playing cards	
Group toiletries (baby wipes, soap)	



*Table 5 – Contents of first aid kit*

Antiseptic wipes	Saline solution
Blister plasters	Steri-strips
Bandages	Celox
Eye dressings	Sam Splint
Wound dressings	Trauma dressing
Assorted plasters	Dioralyte sachets
Triangular bandage	Tweezers, including tick tweezers
Safety pins	Savlon
Tape	Painkillers (ibuprofen, paracetamol, co-codamol)
Scissors	-

## 6 Food

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A breakdown of the food that was bought prior to the trip is detailed in Table 6. We were generally very happy with the food that we took. The variety was good, so we didn't get bored, and the quantity was also about right. Jemma found Huel difficult to drink at first but got used to it after a few days.

Water was mostly plentiful along the route. This meant we rarely carried more than 1 full bottle at a time, and regularly filled up at rivers along the way. Despite carrying chlorine tablets and a LifeStraw bottle, we hardly ever felt the need to purify the water.

Table 6 - Food bought in UK

Item	Quantity
<b>Breakfast</b>	
Porridge (assorted flavours)	68 sachets
Coffee	25 sachets
<b>Lunch &amp; snacks</b>	
Huel	3.5kg
Clif bars (assorted flavours)	24
Power bars (chocolate caramel)	16
Wiggle energy bars (coconut)	20
Cereal bars (maple syrup & coconut)	12
Sesame snaps	16
Almonds	400g
Salted peanuts	270g
Salted cashews	250g
Banana chips	350g
Dates	600g
Dried apricots	500g
Mixed fruit and nut	650g
Trail mix	300g
Homemade fruit leathers	10
Homemade dried apple	14 apples
Chorizo sausage	3 rings
Beef jerky	80g
Chili rice crackers	125g
Jelly babies	4 bags
M&Ms	2 bags
Peanut butter	340g
Jam	340g
SIS GO energy gel	6 sachets
SIS Hydro drink	1 tube (20 tablets)
<b>Dinner</b>	
Cous cous	900g
Macaroni + cheese	2 packets
Expedition Food Freeze-dried meals for two	6
Tuna pouches	4
Tuna	2 x 160g tins
Cup a soup	8 sachets
Freeze dried vegetables	100g
Freeze dried peppers	200g
Sriracha sauce	3 mini bottles

Food bought whilst hiking from huts is detailed in Table 7. For the most part, it wasn't necessary to buy food at huts along the way, as we were happy with the quantity that we had.

Table 7 - Food bought whilst hiking

Item	Quantity
Instant ramen	4 packs
Goulash soup	1 tin
Cup a soup	3 sachets
Crispbread	1 packet
Coke	1 can
Kex	1 bar

## 7 Finances

A breakdown of the expedition finances is detailed in Table 8. The conversion rate used in the table is 1 GBP = 11.63 SEK

The total cost of the trip was £2530.64. Our original budget was £2189 – the overspend due to spending more on new equipment and having to use more boats and water taxis than we planned.

We received funding of £750 from the Exploration Board, as well as a contribution to our first aid training, BMC insurance and BMC membership. This is indicated with a \* in the table. Taking in to account the financial support we received, the cost of the expedition worked out at roughly £800 each.

Table 8 – Expedition finances

Item	Price	Quantity	Total
<b>Travel</b>			
Flights – Heathrow to Kiruna	£166.53	2	£333.06
Flights – Kiruna to Stockholm	£55	2	£110
Flights – Stockholm to Stansted	£27.5	2	£55
Taxi	10 Kr	1	£8.6
Buses	1762 Kr (total)	12	£151.5
Boats	1520 Kr (total)	8	£130.7
Train	150 Kr	2	£25.8
Subtotal			<b>£814.66</b>
<b>Accommodation</b>			
Camping - Kiruna	225 Kr	3 nights	£58.04
Service fee at STF Saltoluokta	300 Kr	2 nights	£51.59
Hostel - Stockholm	390 Kr	1 night	£33.52
Subtotal			<b>£143.15</b>
<b>Food</b>			
Freeze-dried meals	£7.99	6	£47.94
Energy bars	£63.85 (4 boxes/62 bars)	1	£63.85
Huel	£21	2	£42
Supermarket food	£72.95	n/a	£72.95
Food bought whilst hiking	309 Kr	n/a	£26.57
Food after finished hiking	2313 Kr	n/a	£198.87

Subtotal			<b>£452.18</b>
<b>Consumables</b>			
Fuel	99 Kr	1	8.51
Matches	7.55 Kr	2	1.29
Subtotal			<b>£9.80</b>
<b>New Equipment</b>			
Trekking poles	£47.49	2	£94.98
Sleeping mat (OB)	£89.95	1	£89.95
Pan set	£47.99	1	£47.99
Sleeping bag (JG)	£105	1	£105
Waterproof trousers (OB)	£56.98	1	£56.98
Waterproof trousers (JG)	£68	1	£68
Down Jacket (JG)	£45	1	£45
Maps	£15	3	£45
Tent pegs	£10	1	£10
Subtotal			<b>£562.90</b>
<b>Training</b>			
First aid course	£96	2	192*
<b>Other</b>			
Satellite phone activation and minutes	£130.20	1	130.2
Food shipping	355 Kr	1	30.52
Bag storage in Kiruna	340 Kr	1	29.23
YHA membership	£5	2	10
Postal boxes	£5	2	10
BMC insurance + membership	£73	2	£146*
Subtotal			<b>£355.95</b>
<b>Total</b>			<b>£2530.64</b>

## 8 Learning Outcomes

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### 8.1 Personal Learning

Being the longest and most challenging trip either of us had ever done, we both learnt a lot through the process.

Planning the food was one of the most challenging aspects of the trip preparation. Choosing food that would be lightweight, varied, not bulky and energy rich was hard and required a lot of thought. Breaking this down into day-to-day eating was also difficult.

We were both pleasantly surprised with how easy we found it wild camping and generally being in the outdoors for a long time. We felt like we were incredibly lucky with the weather, especially during the first week, which made things easier.

Another aspect of the learning was the importance of planning. We started planning in December 2017, producing a risk assessment and a rough itinerary. Considering safety and logistics so far in advance ensured that everything went to plan, and all of the details were taken into account.

We both feel confident in undertaking similar expeditions in the future, to potentially more remote environments and for longer timescales. Both of us would also love to return to Sarek now that we have far more knowledge about the area that it was only possible to gain from actually being there.

## 8.2 Comments

### 8.2.1 Kit

In terms of the kit that we took:

- Merino underwear and baselayers were brilliant – they didn't smell after being worn for 2 weeks!
- Trekking poles not only made carrying a heavy pack easier by taking weight off your knees, they really helped when crossing rivers and tackling steep descents.
- Jemma used toe socks that helped to stop blisters.
- Taking a lightweight, back up stove was really useful – you don't want to be trying to fix a dodgy stove when it's cold and wet.
- Our down sleeping bags performed really well – they were warm and weren't affected after getting damp.
- We had very limited space for any entertainment, but we took a min pack of cards, which despite playing the same game every night, kept us entertained.
- Jemma used a 42 litre rucksack, which was slightly too small for this trip. It meant that a lot of equipment needed to be attached to the outside of her pack. Ollie used a 58 litre pack which allowed everything to be stored inside. During the trek, we saw a lot of people with large rucksacks (60 litres and above), which seemed unnecessary, especially if buying food along the way at the huts.

### 8.2.2 Food

In terms of food, we found a few things:

- It's good to have something sugary close to hand for extra motivation.
- Sriracha hot sauce in a small travel bottle made plain food much more interesting.
- Salted versions of fruit and nut are much better than plain.
- Freeze-dried vegetables added a healthy aspect to plain cous cous and noodles, whilst also adding more flavor.
- A variety of energy bars was good – eating the same flavour everyday would have become boring.
- Cous cous, with a cup-a-soup for sauce and tuna mixed in was the best meal!
- All of the Expedition Foods freeze-dried meals we took were good – they were tasty, filling and easy to make.



### 8.2.3 Hiking in Northern Sweden

Before heading to Sweden, we considered buying STF membership for a year, as it grants you free access to STF huts during the day and massively discounted rates if you want to stay or use the facilities. We found that a YHA membership gets the exact same discounts and only cost £5 (£1 if you have a railcard). It also gets discounts in some UK outdoors shops, so we saved lots before even getting to Sweden.

The Kungsleden is very customizable in terms of the level of comfort and duration of the trek. For large sections it is possible to stay in huts, although this is expensive. The shortest route could be done in 4-5 days from Abisko to Nikkaluokta, and to hike the entire trail would take over a month.

The trekking season in the area is also quite short. The weekend that we left, all of the STF huts were closing and the weather was really starting to turn.

The STF huts, which are located along sections of the Kungsleden were great, and really well equipped. Whilst each one varied in size and the facilities on offer, in general:

- As an STF member, you can visit the huts during the day to cook some food, warm up and dry clothes.
- It is possible to camp nearby and use the facilities for half the price.
- The price to stay depends on which hut and what time of year.
- A lot of the huts (alternating) had small shops to buy food. This was very expensive and the range of food available was very limited.
- Often they would have a sauna.

In terms of the popularity of the trail, the number of people that we saw decreased the further south we went. On the northernmost section from Abisko to Nikkaluokta, we saw quite a few people walking in both directions every day. From Singi to Vakkotavare we saw fewer, and from Saltoluokta to Aktse even fewer. In Sarek, we saw 3 people the entire time. Saying that, the trail rarely felt busy – the vast nature of the area meaning you always felt fairly remote.

Before going, we downloaded the Swedish mountain maps app. You can download ‘tiles’ of the sections of the map you expect to be visiting. The maps were the exact same Lantmateriet as the paper maps we had. You could draw a route on the map and it would tell you the distance, which was useful. The best feature however was the GPS locator – it showed your location to a good degree of accuracy and used almost no battery. Whilst we would never totally rely on something like this, it was a great back up to our physical maps.

## 9 Acknowledgements

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We would like to thank the Imperial College Exploration Board for their support and advice throughout the planning of the expedition, the equipment that we were able to borrow, and the financial support that we received. Without this, we would not have been able to undertake the expedition.

## 10 References

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1. Wikipedia. *Kungsleden Map*. Available from:  
[https://commons.wikimedia.org/wiki/File:Kungsleden\\_map.png](https://commons.wikimedia.org/wiki/File:Kungsleden_map.png) [Accessed 29<sup>th</sup> September 2018]
2. Distant North. *Kungsleden Trail – Which section of the trail*. Available from:  
<http://www.distantnorth.com/destinations/kungsleden-trail-which-section-of-the-trail/>  
[Accessed 18<sup>th</sup> October 2018]
3. *One Swedish Summer – Hiking Sarek*. Available from:  
<http://oneswedishsummer.weebly.com/my-blog/hiking-sarek-an-englishmans-guide>  
[Accessed 3<sup>rd</sup> October 2018]

## 11 Appendices

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### Appendix A – Resources

#### **Kungleden**

<http://www.distantnorth.com/destinations/kungleden-trail-which-section-of-the-trail/>

<https://overdueodyssey.com/trail-guides/planning-a-hike-on-the-kungleden/>

<https://www.swedishtouristassociation.com/areas/kungleden/>

<http://www.treksnappy.com/the-kungleden>

<https://aaronteoh.com/kungleden-information/>

<https://www.thehikinglife.com/2010/10/northern-kungleden-sweden-2009/>

#### **Sarek**

<https://www.northernadventures.co/sarek-np>

<https://www.thehikinglife.com/2010/10/sarek-national-park-sweden-2009/>

<http://oneswedishsummer.weebly.com/my-blog/hiking-sarek-an-englishmans-guide>

[http://oneswedishsummer.weebly.com/uploads/1/4/2/8/14280064/sarek\\_3.pdf](http://oneswedishsummer.weebly.com/uploads/1/4/2/8/14280064/sarek_3.pdf)

<http://www.backpackingnorth.com/blog/2014/8/18/views-from-sarek>

#### **Food**

<https://www.backpackingchef.com/>

<http://blackwoodspress.com/blog/16547/ultralight-backpacking-meal-plan/>

<https://philosophyofhiking.wordpress.com/2014/01/30/resupplying-and-food-drops/>

<http://www.hikingdude.com/hiking-food-supply.php>

#### **Camping**

[https://www.alpkit.com/spotlight/winter-camping?utm\\_medium=email&utm\\_campaign=Espresso%2017th%20January%202018&utm\\_content=Espresso%2017th%20January%202018+Version+A+CID\\_0811396f2dde4a5d832750db023e4181&utm\\_source=Email%20marketing%20software&utm\\_term=Read%20Winter%20Camping](https://www.alpkit.com/spotlight/winter-camping?utm_medium=email&utm_campaign=Espresso%2017th%20January%202018&utm_content=Espresso%2017th%20January%202018+Version+A+CID_0811396f2dde4a5d832750db023e4181&utm_source=Email%20marketing%20software&utm_term=Read%20Winter%20Camping)

[https://www.alpkit.com/spotlight/sleep-better?utm\\_medium=email&utm\\_campaign=Espresso%2024th%20January%202018&utm\\_content=Espresso%2024th%20January%202018+Version+B+CID\\_460de353e3f8da8ef3aa8923d7054559&utm\\_source=Email%20marketing%20software&utm\\_term=Find%20out%20more](https://www.alpkit.com/spotlight/sleep-better?utm_medium=email&utm_campaign=Espresso%2024th%20January%202018&utm_content=Espresso%2024th%20January%202018+Version+B+CID_460de353e3f8da8ef3aa8923d7054559&utm_source=Email%20marketing%20software&utm_term=Find%20out%20more)

**Safety**

<https://www.will4adventure.com/advice/articles/outdoor-first-aid-in-emergency-outdoors/>

[https://www.will4adventure.com/PDFs/OFA\\_Cas\\_Mon\\_Sheet.pdf](https://www.will4adventure.com/PDFs/OFA_Cas_Mon_Sheet.pdf)

<https://www.will4adventure.com/advice/articles/>

**Maps**

<https://ext-geoportal.lansstyrelsen.se/standard/?appid=7b933d2ea9084c4dab4bfe38dd87f7ec>

## Appendix B – Risk Assessment

Hazard	Consequence	Control Measures	Probability	Severity	Risk Factor (PxS)
<b>Biological Health Risk</b>					
<b>Food poisoning</b>	Sickness and diarrhoea	Avoid uncooked and non-fresh food. Use hand sanitiser regularly.	4	4	16
<b>Dirty water</b>	Sickness and diarrhoea	Most water is clean, but may be contaminated by animals. Check water sources upstream for obvious contaminants. Always filter and sterilise water.	5	2	10
<b>Dehydration</b>	Serious injury or death	Carry enough water for conditions and research water supplies on the route. Know the symptoms of dehydration.	2	5	10
<b>Sunburn</b>	Skin irritation, possibly leading to skin blistering	Use sun cream, wear a hat and cover up.	2	3	6
<b>Altitude sickness</b>	Serious injury or death	Ascend slowly and sleep at lower elevation where possible. Keep well hydrated	1	6	6
<b>Disease</b>					
<b>Malaria</b>	Fever, headache, muscle ache	No risk from mosquitoes in Sweden	1	7	7

<b>Rabies</b>	Serious illness or death	Ensure team members are vaccinated, although treatment would still be required. Avoid animals which bite or scratch.	1	8	8
<b>Tetanus</b>	Serious illness or death	Ensure all team members are vaccinated. Clean any wounds thoroughly	2	7	14
<b>Environmental Risks</b>					
<b>River crossings</b>	Risk of being swept away	Use good river crossing technique. Will have trekking poles for stability. Assess each river and don't cross if unsure. Morning crossings safer due to lower water level.	4	7	28
<b>Getting lost</b>	Time delay and lack of supplies	Ensure navigation is precise. Both team members to be navigating. Satellite phone to be carried for emergencies.	6	2	12
<b>Bears, wolves and other wildlife</b>	Serious injury or death	Generally scared of humans and pose little threat.	1	8	8
<b>Flash floods</b>	Person(s) being swept away by flood	Check route and land topography, as well as weather forecasts.	1	8	8
<b>Falling into a crevasse</b>	Serious injury or death	No glacier crossings at all, as we don't have the experience or equipment.	1	7	7
<b>Fire</b>	Fire at camp may cause serious	Keep fires away from the camp and	2	6	12

	injury or death. Will destroy equipment and supplies	equipment. Put fires out before bed and keep fuel out of the sun and in a safe fuel container			
<b>Livestock</b>	Injury	Take care when approaching livestock, especially any with calves	2	5	10
<b>Lack of fuel</b>	Inability to cook	Monitor fuel levels and buy more supplies at huts if necessary. Fire wood can be used in emergency.	2	3	6
<b>Bad weather</b>	Getting lost, injury.	Check forecast when possible. Be prepared to stop or make a diversion to a hut if the weather is particularly bad.	7	3	21
<b>Lack of physical fitness</b>	Inability to travel and increased chance of injury	Ensure we have a good training regime prior to the expedition	2	5	10
<b>Temperature conditions</b>	Hypothermia	Ensure we have adequate clothing and spare layers. Avoid being wet for long periods.	4	6	24
<b>Bog</b>	Time delay	Plan route to avoid obviously boggy areas. Divert route if come across very boggy area.	7	2	14
<b>General Risks</b>					
<b>Strain</b>	Less efficient travel and delays	Train well, and carefully distribute pack weight.	5	3	15
<b>Sprain</b>	Inability to travel	Do not take unnecessary	3	8	24

	and delays	risks over rough terrain			
<b>Minor injuries</b>	Delays	Both team members first aid trained	6	2	12
<b>Major injuries</b>	Large delays and permanent harm	Both team members will have advanced first aid training. Satellite phone on hand for evacuation, as well as spare supplies and clothing.	2	8	16
<b>Group separation</b>	Delays and increased risk of injury	Ensure both members are aware of route and place names, and both are carrying ample supplies. Walk at a pace good for both members.	1	5	5
<b>Exhaustion</b>	Delays and increased risk of injury or illness	Build in enough rest days into the schedule. Carry spare supplies in case of delays.	6	2	12
<b>Equipment Failure</b>					
<b>Stove malfunction</b>	Inability to cook food	Take a spare lightweight stove. In emergency, firewood could be used	3	2	6