

# Arctic Connections Ski Expedition Report

29th March 2019 - 27th April 2019

Hazel and Luke Robertson

[www.everyday-exploring.com](http://www.everyday-exploring.com)



*Better to keep moving than to stay in one place*

- Sámi Proverb

It is just as important when looking to the future and planning an expedition, to look to the past and reflect on those that have gone before; those that have contributed to our understanding of the world and inspired others and those bright lights that have burned out too soon.

We are fortunate and grateful to have received grant funding for this Arctic Connections expedition from the Gino Watkins Memorial Fund and the Jamie Gardiner Award, through the Andrew Croft Memorial Fund.

The Gino Watkins Memorial Fund was set up in 1933 in the memory of Henry George ("Gino") Watkins who had drowned, whilst kayaking, off the coast of East Greenland the previous summer. Its purpose is to inspire and guide enterprising, particularly young, people towards exploration and research in the polar regions.

The Jamie Gardiner Award was created to honour the memory and achievements of a young man of outstanding potential, whose life was tragically cut short at the age of 22 in the mountains of Norway in January 2017. Jamie was the recipient of two grants from the Trustees of the Memorial Fund, including the prestigious Swithinbank Award, made to the Oxford University team, of which he was an important part, which in 2016 retraced the steps of the University's 1923 Spitsbergen expedition.



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## Introduction and Background

The indigenous Sámi people live in Sápmi – an area covering what are today known as four separate countries: Russia, Finland, Norway, and Sweden. Sápmi covers all the northern part of the cap of the north, from the Russian Kola Peninsula in the east to Dalarna in the south. Sápmi as a concept includes both the land Sápmi and the Sámi people. Sámi people live all over the world – from living and working in Oslo to continuing the traditional practice of reindeer herding in the Arctic.

The Sámi language has several different varieties, of which North Sámi has the most speakers. Sámi is a Finnish-Ugrian language.



Taken from <http://ofelas.se/en/information-2/sapmi/>

## Expedition Objectives

Through ‘Arctic Connections’ we wanted to tell a story of endurance, resilience and respect - and a unique symbiotic relationship. The annual spring migration of Arctic reindeer from feeding grounds in South Finnmark to birthing grounds in the northern tip of Scandinavia is one of nature’s greatest events. To this day, many of the indigenous Sámi people are reliant on the reindeer for the very existence of their culture, but for many this is becoming increasingly under threat.

A summary of the main objectives of Arctic Connections is listed below:

- To embark on a long-distance unsupported ski expedition across the Finnmark Plateau, part of the Sápmi region of what is now Arctic Norway
- To shadow reindeer herders on the annual spring reindeer migration from their winter feeding grounds in southern Finnmark to their coastal summer pastures along Norway’s Northern Arctic coast



- To interview and film members of the Sámi community to better understand the challenges and pressures that they, and the ancient practice of reindeer husbandry, face
- To make an expedition film documentary to help share knowledge, experiences and stories from this Arctic region with others.



### Broader Expedition Objectives

As well as the expedition-specific objectives above, Arctic Connections had a number of broader objectives, which are detailed below:

- As part of our roles as Explorers in Residence for the Royal Scottish Geographical Society we are passionate about bringing geography to life. Using our backgrounds in geophysics/earth science and history we love gaining a deeper understanding about a place - its history, people and nature, its past, present and future - and are passionate about sharing this with other people.
- We wanted to continue to assist others who want to embark on Arctic expeditions by offering and exchanging information on research and travel in these regions.
- Luke has an artificial pacemaker (fitted in 2008 at 23 years old) and underwent extensive brain surgery in 2014. These medical challenges have spurred him to pursue his passion to inspire people to follow their own passions, to overcome challenges and

explore the world around them. This expedition and its legacy, we hope, can continue to inspire people to do this.

- For Hazel, the outdoors has been a huge part of her life and she was lucky enough to grow up in Alaska and Canada, which developed this love further. Taking on increasingly larger challenges and expeditions in remote and harsh environments has made her stronger and more confident in what she can achieve. She is passionate about being a positive role model and encouraging others, particularly the younger generation, to step out of their comfort zone and discover what they really are capable of.
- We want to engage and inspire people to broaden horizons and become more aware and interested in the Arctic regions through exploration. This is done in part, through our roles as 'Explorers in Residence' (explained in the previous section) for the Royal Scottish Geographical Society, but this expedition is key in enabling us to showcase the Arctic region.
- During our 2017 Alaska expedition, we spent (not enough) time with local communities in the North Slope, understanding the fragility of the culture and landscape. We wanted to understand this more fully and bring these important stories to a wider audience.
- We are both Guides and Ambassadors for the inspiring 'Polar Academy' charity. Support for this 'Arctic Connections' expedition assisted us, and ultimately The Polar Academy, with leading groups of young adults in Greenland, as part of The Polar Academy.
- We wanted to support, foster and continue to demonstrate safe expedition and exploration conventions and continue the excellent friendship between the UK and our Scandinavian neighbours.
- We wanted to share our expedition experience with a younger audience, including school children. We conducted an expedition planning session in February with a group of high school pupils in Perth to help them plan their own expedition and have continued to offer support on our return.

## Outcomes and achievements

Arctic Connections was a successful expedition and met or exceeded all expectations.

Three of four initial main expedition aims have been met so far. These are:

- To embark on a long-distance unsupported ski expedition across the Finnmark Plateau, part of the Sápmi region of Arctic Norway
- To shadow reindeer herders on the annual spring reindeer migration from their winter feeding grounds in southern Finnmark to their coastal summer pastures along Norway's Northern Arctic coast
- To interview and film members of the Sámi community to better understand the challenges and pressures that they, and the ancient practice of reindeer husbandry, face

The fourth aim will be met over the course of the next 9-12 months as we distil and edit the hours of footage from this expedition to make an expedition documentary film.

A summary of the achievements of the expedition is as follows:

- Four 90 minute interviews with key figures from Sápmi (1) Aili Keskitalo - President of the Sámi Parliament of Norway; (2) Jon Mikkel Eira – a young reindeer herder, entrepreneur and chef; (3) Oystein Rusfelt - CEO of Nussir ASA – who are seeking planning permission to build a copper mine in the Repparfjord; (4) Ingá Káre Márjá Utsi - leader of local branch of Sámi youth organisation Noereh and from reindeer herding family. More information is available in the Interviews section of this Report.
- Followed the start of the spring reindeer migration (Lars Johan Anti's reindeer herd) and saw the reindeer herd over three days; also spoke to Juhæn Gaup and visited his herd
- Completed approx. 250 km unsupported ski expedition (distance slightly less than planned due to additional interview opportunities and unseasonably warm temperatures)

### Next steps

Sharing stories and insights from the expedition via social media

- Luke Instagram and Twitter
- Hazel Instagram and Twitter
- Everyday Exploring website (blogs)
- Everyday Exploring Facebook page

Sharing stories and insights from the expedition via print

- 4 page article published in 'The Herald' national newspaper (<https://www.heraldscotland.com/news/17626532.melting-world-what-explorers-luke-and-hazel-robertson-learned-by-following-the-reindeer-migration/>)
- RSGS Geographer Magazine (12,000 print readers and several hundred thousand impressions online)

Sharing stories and insights from the expedition through talks

- The 2019 Scottish Arctic Club Annual Gathering
- The 2020 RSGS Inspiring People talks programme
- The 2020 Peebles Outdoor Film Festival
- Various other talks and upcoming events

Editing the hours of video footage of interviews, spring reindeer migration and long-distance unsupported ski expedition to make a documentary film.



## Key Findings

The key findings from the expedition are below, split into two headings: expedition findings and personal takeaways.

The expedition findings are based on interviews and time spent in, and with, the people of Sápmi. The personal takeaways are discoveries that resonated and remained with us as individuals.

### Expedition Findings

#### **The spring reindeer migration is being affected by climate change.**

Warmer winters are producing freeze-thaw conditions. Layers of ice forming in the snowpack make it difficult for the reindeer to graze, especially challenging for those in calve. This year, when we arrived in Karasjok, we found many reindeer herds whose winter pastures were affected by this had already been transported by truck to coastal summer pastures. This included interviewee Jon Mikkel Eira's herd.

#### **The spring reindeer migration is being affected by growing industrialisation of the Arctic.**

Climate change requires climate change solutions, including electrification and renewable energy. Electrification requires copper and a controversial copper mine, Nussir, is planned in the Repparfjord area. Many of the Sámi people we spoke to highlighted how this mine will affect the summer grazing land of reindeer herding families and how increasing numbers of wind turbines are also putting pressure on grazing land. We travelled to Repparfjord to witness current activities and acquired footage of the area proposed for development, as well as interviewing the CEO of Nussir ASA, the company developing the mining project.

#### **The Sámi people are navigating the challenges and opportunities of modernisation, globalisation and expectations of older generations.**

Many reindeer herders from the younger generation have multiple jobs (i.e. tourism, working at the slaughterhouse, working offshore) and use drones, GPS and snowmobiles to keep track of their reindeer, especially on the migration. Interviewee Ingá Utsi spoke about the burden that she and many indigenous people feel to keep their traditions, culture and language alive while the world around them changes rapidly. At the same time, however, with the development of the internet, many indigenous peoples across the world are connecting and helping each other. For example, with the Dakota Access Pipeline in the US, many Sámi people raised awareness that Norway's local authority pension fund KLP had a stake in the pipeline. This led to KLP announcing it would sell of shares worth \$58m of companies building the pipeline.

#### **Change happens when environmentalists and Sámi people come together.**

This happened during the 1970s and 1980s during the Alta Conflict - a huge protest against a dam built on the Alta river that would have flooded the Sámi town of Maze. We travelled to Maze and acquired footage of the village that was saved by these actions. Ultimately the Alta conflict was a crucial trigger leading to the creation of the Sámi Parliament in Norway. Both interviewees Aili Keskitalo and Ingá Utsi spoke about how environmentalists and Sámi people are again coming together again to protest the Nussir mine.

**The Sámi people have a deep connection with nature, but this is being lost.**

A changing climate causing poorer winters and trucking of the reindeer to the coast means that reindeer herders are losing touch with the natural connection of the migration. Herder Lars Johan spoke about how his grandfather knew many rules for predicting weather and snow conditions but that these, alongside other traditions were being lost.

**Many of the traditions and practises of the Sámi people provide lessons on how to live sustainably.**

Aili Keskitalo touched on this in her interview – that indigenous people, including the Sámi, have been living in touch with nature for many years. Taking only what's needed and using resources efficiently, wasting nothing. This is what is known today as the circular economy and is one of the key pillars to living on a planet with finite resources.

### Personal Takeaways

**Things happen over a coffee**

This was perhaps the first lesson we learned in Sápmi. We managed to organise a lot of interviews and contact many people in advance, but it was really when we got to Karasjok and sat down with people over a coffee, that we were able to organise following the spring reindeer migration. Sitting down with a coffee is a great way to connect with and understand people and this is how many things are done in Sápmi.

**Do what you can, then accept the rest; nature can't be organised or hurried**

We took a lot away from our time spent with the reindeer herders and their herds. They undoubtedly have a very tough and demanding job. The wellbeing of their herd is fully at the mercy of predators, weather and climate change in all pastures, during migration and calving. The future of the reindeer herding culture is under threat from climate change and industrialisation of the Arctic.

Yet there is a calmness about those whom we met. Herders plan as much as they can – thinking ahead about every eventuality; from buying fuel when it is cheaper, to making sure the herd are fed – but after controlling what they can, they accept that in nature things just happen. Nature can't be organised or hurried. This is something we've thought about a lot more since being back in Scotland – controlling what we can but also accepting that some things can't be controlled and just enjoying the uncertainty that comes along with it.

**Nothing beats local knowledge**

Even with extensive prior expedition research, we found just a short skype call or emails with people in the area really helpful in being able to test our ideas and see what would work. A reminder that even nowadays you can't necessarily find everything online.

**Seeking to understand the connection of people with place has stayed with us**

Having the privilege of skiing into the Sámi village of Karasjok, conducting interviews and follow the reindeer migration has really helped us acquire a deeper understanding of the connection that the Sámi people have to Sápmi. It also made us reflect on our own connection to a place and how we define *home*. For Sámi people a least a century ago, a nomadic lifestyle

meant that *home* was not a fixed place. Even today, reindeer herders have cabins in both winter and summer pastures. It always amazes us when traveling somewhere completely new, with our senses alert and taking everything in, that for many people the new place we are in is so familiar and has been for generations.

**Those who contribute least to climate change are suffering the most**

As with a previous expedition to Alaska, where villages are undergoing forced re-location due to coastal erosion, we found that it is the local communities whose welfare and livelihood are suffering the most from a changing climate. In their daily lives, however, they can be considered as some of the lesser contributors to climate change. With parts of the Arctic warming two or three times the rate as the global average, those who live the most sustainably are undoubtedly suffering the consequences of the actions of those who do not.

## Expedition Team Members

As well as being expedition team members, we are husband and wife. We both have extensive experience in coordinating the preparation and logistics, and the execution of expeditions and endurance events across the world.

### Hazel Robertson

33, BSc (Hons) Geophysics, MSc Carbon Capture and Storage  
Explorer in Residence at the Royal Scottish Geographical Society  
Guide at The Polar Academy  
Qualified Mountain Leader



Growing up in Scotland, Alaska and Canada instilled Hazel's deep love for the outdoors and nature. As a result of this, plus her expeditions around the world and her work on climate change solutions, Hazel is passionate about showing we can all achieve more than we ever thought possible, the benefits of physical activity, exploring the connections between people and place, celebrating the environment and doing all we can to leave our world in a good place for future generations.

#### **Cold weather, Arctic/Polar and expedition expertise**

- Mountain Leader
- 15-day ski expedition across Finnmarksvidda as part of Arctic Connections Expedition

- 70-day expedition from the southernmost point to northernmost point of mainland Alaska by kayak and bike covering over 2500 km (including kayaking in the Arctic Ocean)
- Led two-week kayak expedition in Killarney Provincial Park, Ontario, Canada
- 14-day ski touring near Ólafsfjörður, Northern Iceland
- Back country ski touring in Europe and Scotland (various)
- Back country ski touring - the Haute Route (European Alps)
- Winter and summer season in British Columbia, Canada
- Arctic Ice Ultra (140-mile race on snowshoes, Kungsleden Trail, Sweden)

### Other Expertise

- Summer hiking expedition in Greenland with The Polar Academy
- Climbed Kilimanjaro unsupported via the Umbwe Route and Western Breach
- Outdoor First Aid qualified (16 hour; 7th October 2018)
- Climbed Mt Blanc and Mt Triglav (the highest peak in Slovenia)
- Completed the 250 km 'Marathon des Sables' trail running race in the Sahara Desert
- Completed the 400 km trail running 'Cape Wrath Ultra Expedition Race'
- Ran the 170 km route of the Ultra Tour de Mont Blanc (10,000m of ascent/descent)
- Ran a variety of marathons and ultramarathons, including the Glencoe Marathon, the Edinburgh Marathon, the London Marathon, as well as completing the Kindrochit Quadrathlon in second place in the mixed pairs category





## Luke Robertson

34, MA (Hons) History and French, MSc

Explorer in Residence at the Royal Scottish Geographical Society

Guide at The Polar Academy

Qualified Mountain Leader



After overcoming personal health conditions, Luke is focussed on encouraging, inspiring and motivating others to tackle challenges head on, explore the world and achieve their own goals in life. Having explored and witnessed the changes taking place on the planet and worked for the United Nations, Luke is also passionate about the environment and making a positive difference to climate change.

### **Cold weather, Arctic/Polar and expedition expertise**

- Mountain Leader
- First Scot to ski solo and unassisted 730 miles to the South Pole (via Hercules Inlet route), Antarctica
- 15-day ski expedition across Finnmarksvidda as part of Arctic Connections Expedition
- 200km solo ski expedition across the Hardangervidda Plateau, Norway
- Two-week south-east Greenland ski expedition, exploring the area to the North of Kulusuk
- 70-day expedition from the southernmost point to northernmost point of mainland Alaska by kayak and bike covering over 2500 km (including kayaking in the Arctic Ocean)



- Skied the Haute Route (European Alps)
- Ski touring in Europe and Scotland (various)

### **Other Expertise**

- Summer hiking expedition in Greenland with The Polar Academy
- Outdoor First Aid qualified (16 hour; 7th October 2018)
- Climbed Mt Blanc and Mt Triglav (the highest peak in Slovenia)
- Completed the 250 km 'Marathon des Sables' trail running race in the Sahara Desert
- Completed the 400 km trail running 'Cape Wrath Ultra Expedition Race'
- Climbed and cycled between the '3 peaks' in the UK
- Ran the 170 km route of the Ultra Tour de Mont Blanc (10,000m of ascent/descent)
- Led a hiking trip around the 180 km Monte Rosa Tour (11,000m of ascent/descent)
- Ran a variety of marathons and ultramarathons, including the Glencoe Marathon, the Edinburgh Marathon, the London Marathon, as well as completing the Kindrochit Quadrathlon in second place in the mixed pairs category

### [Explorers in Residence, Royal Scottish Geographical Society](#)

We are humbled and honoured to be Explorers in Residence for the Royal Scottish Geographical Society. The role was introduced in 2014, by the CEO Mike Robinson, in order to recognise the role that exploration still plays in inspiring people about the world around them. The aim is to excite people about the world's physical and cultural variety, to awaken people's personal potential and better inform them about global issues.

The role has so far included: delivering talks to businesses, charities and schools (including the RSGS 'Inspiring People' talk series), engaging school children through our "Ask An Explorer" initiative, writing blogs and articles and helping with school expedition trip planning and logistics, among other activities. We have also assisted with the preparation for other expeditions including various Antarctic expeditions, [Voices on an Amazon Road](#) and [The Arlight Tandem Expedition](#).

### [Guides, The Polar Academy](#)

When undertaking the Arctic Connections Expedition we were Ambassadors for the transformative children's charity, The '[Polar Academy](#)' and have since been made Guides. Increasing our involvement in this charity reflects our interest and ever-increasing experience in Arctic Expedition and culture. It also acknowledges our determination to offer the opportunity for young people to travel to and experience the Arctic. We will become increasingly involved in the Polar Academy over the coming months and years, including being part of the Guide Team on the 2020 Expedition in Eastern Greenland.

## Logistics and Expedition Diary

### Logistics

All logistics were organised by us, with advice from local experts where required.

We had originally sought to undertake the expedition completely without flying, to reduce CO<sub>2</sub> emissions associated with the expedition. This would involve travelling to Norway by boat and then travel northwards to Alta via train and bus, with a return possibly via the Hurtigruten ferry and boat back to the UK. We researched all possible options, however time constraints and costs prevented us from doing so and instead flights were taken.

### Ski Expedition Route

A map of the ski expedition route is shown below.



### Travel to Alta

We flew from Edinburgh, Scotland to Alta, Norway via Oslo Gardermoen Airport on 29th March.

Luggage: 2 x 20kg bags each, one ski bag + 10kg hand luggage on Norwegian Airlines. All equipment was flown over with us except food, pulks and fuel, which were already arranged to be picked up in Alta.

All equipment and expedition gear was taken on the ski expedition across Finnmark, with a small bag left at the hotel in Alta to collect on return.

2 x overnight accommodation in Alta for kit preparation requirements and interview of Oystein Rushfeldt. This included one full day to pack pulks and backpacks, pick up dried food and fuel, pack food for ~7 days of skiing to Karasjok.

## Alta to Karasjok

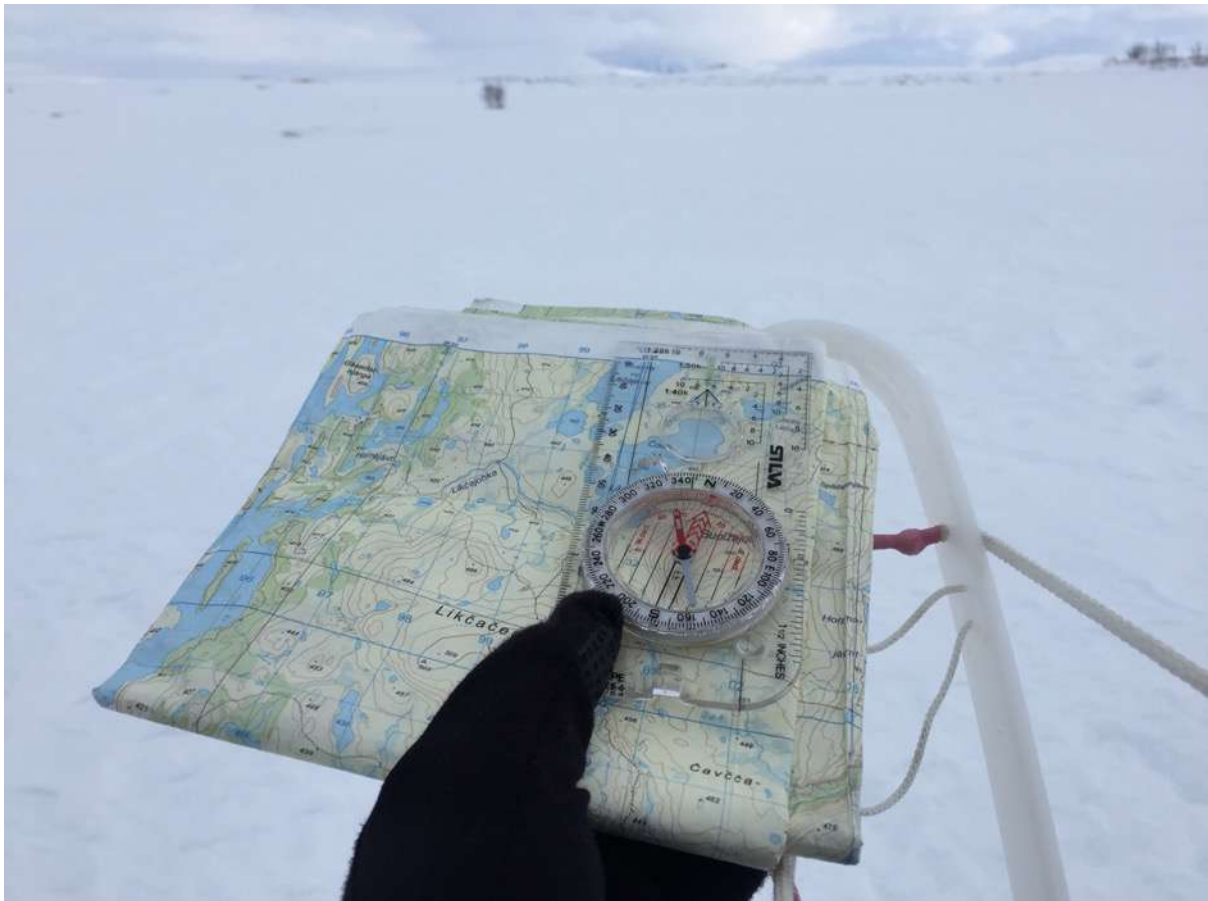
### Expedition days 4-8

After a couple of days of preparation and our first interview in Alta, we took a taxi to the start point of the ski to Karasjok, Ovrestilla.

We spent four days skiing to Karasjok via Finnsmarkvidda (the Finnmark Plateau) – approximately a 100km ski with pulk hauling and winter camping. We passed several huts and crossed the beautiful and huge 68 km<sup>2</sup> Iešjávri Lake, glimpsing the mountains on the far side that we would ski past on our journey back. The weather was mixed but mostly cold and not too windy. The temperature plummeted to -20°C during one clear and starry night on the height of the plateau, but the wind was calm. We saw many white ptarmigan (or *rype* in Norwegian) and the occasional dog sledding team. The final ski into Karasjok was along the wide, meandering Karasjok River as it wound into the town and past the Parliament that we would interview the President of the Norwegian Parliament in a couple of days later. We could not have asked for a more fitting arrival to this Sámi village.

Maps used: Alta kart 1:50,000; Ovre Stabbursdalen kart 1:50,000; Máze kart 1:50,000; Kárášjohka kart 1:50,000 (all purchased from <https://www.kartbutikken.no/norge-serien>).

It should also be noted that the magnetic declination in the Karasjok/Kárášjohka area was +12° 42' (East).



## Karasjok Interviews and Reindeer Migration

Expedition days 9-16

We spent several days in Karasjok in order to: meet and interview local Sámi people, take a tour of the Sámi Parliament, re-stock food and fuel supplies, prepare to follow the spring reindeer migration and finalise our return ski leg.

During this time, we stayed in a room of a shared cabin at Karasjok Camping in order to be able to securely store all our filming equipment whilst in a populated area.





Two of the three interviews we conducted in Karasjok were set up in advance: Aili Keskitalo - President of the Sámi Parliament in Norway and Ingá Utsi – from Sámi youth organization Noereh. While we were there, we also connected with Jon Mikkel Eira – entrepreneur and reindeer herder who we also interviewed.



Once in Karasjok we were able to meet reindeer herders in order to arrange visiting their herds and follow part of the spring reindeer migration. This could only be done via face to face meetings in Karasjok and could not be set up in advance.

We saw two separate reindeer herds a total of four times: Juhæn Gaup's herd (once) and Lars Johan Anti's herd (three times, including the start of the spring migration).



The start of the Spring reindeer migration was one of the most special moments we witnessed. Watching these magnificent and very peaceful beasts start their ancient journey northwards as their herder looked after them was truly magical. We were lucky enough to be able to spend some time feeding the reindeer and really getting to know the personalities of some of them – distinguishing them from their subtle differences in colour, size, antlers and movements.





## Karasjok to Alta

### Expedition days 17-24

We skied back to Alta from Karasjok via a different route to the one we skied out on, seeking advice from locals as to some of the most interesting and beautiful places to ski past. We headed east of lešjávri Lake through rolling hills and encountered generally good weather throughout the 150km ski expedition. This return leg was the most beautiful and remote section of the whole trip, as we saw very few people and the tracks of large cats in the snow.

Due to unseasonably warm conditions causing rivers to break up earlier than expected and the snow becoming heavy and challenging to ski on, we decided to cut the expedition short by a couple of days for safety reasons.



Our final ski day across one of the lakes had surface water which caused our pulks to float along behind us as we splashed across it with our skis.

### [Alta back to Scotland](#)

#### Expedition days 25-28

We spent the few days in and around Alta doing some additional filming and preparing for our flight home.

We spent a day travelling South to Maze – the Sámi village that was due to be flooded by the original plans for the Alta dam and which sparked the Alta conflict that led to formation of the Sámi Parliament.

We spent another day travelling North to Repparfjord to document the location of the proposed Nussir copper mine.

27th April: Flight from Alta, Norway to Edinburgh, Scotland via Oslo Gardermoen (same baggage allowance as on outward leg).

## Interviews

We conducted different types of interviews whilst in Sápmi. These included both face to face interviews, where we sat down with the interviewee and asked a series of pre-planned questions – and more informal interviews when visiting the reindeer herds.

### Face to face interviews

#### Oystein Rushfeldt

Oystein is the CEO of Nussir ASA, a mining company based in Norway. The company is progressing with plans to develop a controversial copper mine up in the Repparfjord, near the village of Kvalsund. The potential mine has split opinion within the Sámi community and its development was a topic we wanted to understand and explore more whilst in Sápmi.



*Photo credit: Robin Røkke Johansen*

We interviewed Oystein at his house in Alta for 90 mins and covered, among other, the following topics:

- Overview of the proposed copper mining in Repparfjord
- Benefits and drawbacks of the mine (environmental, economic, social, cultural)
- The politics of doing business in Sápmi
- How climate change and subsequent movements to low-carbon solutions necessitates copper extraction.



## Aili Keskitalo

Aili Keskitalo is a Norwegian Sámi politician representing the Norwegian Sámi Association (NSR), and the fifth and current president of the Sámi Parliament of Norway, incumbent since 16 October 2013.



Prior to her current presidency, she served as president of the Sámi Parliament of Norway in 2005, the third in its history and the first female President of any Sámi Parliament. Aili was the first Sámi President whose mother tongue was not Sámi but Norwegian. However, she speaks Northern Sámi - as well as English- fluently.

We interviewed Aili in her office in the Sámi Parliament of Norway for over 90 minutes and discussed the following topics:

- The Alta Dam conflict and its role in the creation of the Sámi Parliament of Norway
- The challenges currently facing the Sámi community, including the effects of climate change in the Arctic and the industrialisation of Sápmi (including development of copper mines and wind farms)
- Her role as president of the Sámi Parliament of Norway and her global role as a representative of indigenous communities from around the world
- How some traditional methods and ways of sustainable living are a more important model for the rest of the world to follow, than ever before.

Jon Mikkel Eira

Jon Mikkel Eira is a 26-year-old Sámi reindeer herder and trained chef. He lives in Karasjok in northern Norway, 200 miles north of the Arctic Circle. He works as a chef in a local school and runs Ravdol Reindeer Herding, where he offers guests the chance to experience Sámi culture first-hand.



We interviewed Jon Mikkel in Karasjok for c.90 mins and touched on the following subjects:

- How changing snow conditions and weather patterns are affecting the reindeer migration, with direct consequences for his family's herd.
- The growing trend for younger reindeer herders to have multiple jobs
- The history, and politics and technology involved in reindeer herding in the 21stC
- His experience of being brought up in a reindeer herding family

## Ingá Utsi

Ingá Utsi is a 17-year-old Sámi woman and part of the Sámi youth group Noereh.



We talked with Ingá Utsi for c.90 mins on a wide range of topics, including:

- The pressure of expectation of a young Sámi girl vs life goals and dreams
- The stereotypical views held by many against the Sámi people
- The #Sapmitoo movement and the challenges facing rural communities
- Noereh – the Sámi youth organisation
- How the impact of the Alta conflict has instigated the current generation of young Sámi activists

## Reindeer Herders and Spring Migration

### Lars Johan Anti

Lars Johan Anti is a Sámi reindeer herder whom we were fortunate to spend time with during our Arctic Expedition. In particular we spent a total of a day and a half with him and his father as they commenced their 2019 Spring reindeer herd migration.





During this time, we:

- Witnessed and learned more about the reindeers and the migration
- When it begins, the process
- How he was one of the fw families migrate traditionally this year.
- Challenges of snow conditions, predators, weather, melting rivers

#### Juhæn Gaup

Juhæn Gaup is a Sámi reindeer herder whom we were fortunate to spend time with during our Arctic Expedition. We spent half a day with him, travelling out to his herd via snowmobile and learning about reindeer, reindeer herding and the weather conditions. Since his reindeer had not yet been fed with supplementary food this year (as they were still a few weeks away from starting their migration), they were not as tame as Lars Johan's herd and so we observed them from a few hundred metres away.

## Research

Arctic Connections assisted a research study related to psychology in challenging and demanding expedition environments. A team from Aberdeen University and Manchester University analysed our progress daily throughout their expedition and followed our responses to the various physical and psychological challenges that the Arctic environment presented.

<http://wp.lancs.ac.uk/expeditionpsychology/>

This research aims to help recognise the potential impact of psychological challenges to further develop support in maintaining wellbeing of people working or travelling in environmental extremes. The researchers are looking at how people prepare for, adapt to, and perform in harsh, unforgiving and often dangerous places. The overarching aim of their research is to help people understand and cope with the hardships and maximise the positive aspects of expedition-going.



## Weather

Statistics for typical April weather for Alta, Finnmark are shown in the graph below (graph and information taken from:

<https://www.yr.no/place/Norway/Finnmark/Alta/Alta/climate.month04.html>)

The graph shows long term statistics for April monthly temperature and precipitation.

**Temperature:** The dots show average monthly temperature. The line is a 10-year Gaussian distribution. The monthly *normal* is drawn as a thick horizontal line, with *normal* defined as the average weather during a 30 year period. The current normal period is from 1961 to 1990.

**Precipitation:** The blue bars in the bottom of the picture show the amount of precipitation compared to the normal — which is drawn as a thick line through the bars. The line is a 10 year Gaussian distribution.

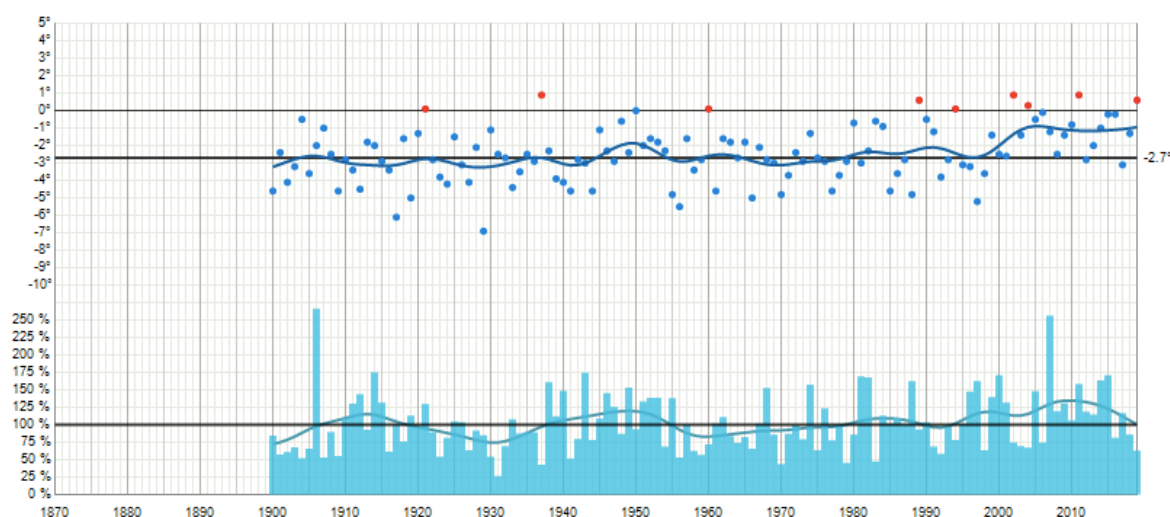


Image source: <https://www.yr.no/place/Norway/Finnmark/Alta/Alta/climate.month04.html>

Some key temperature trends to observe:

- 2019 (the far right hand side of the x-axis) had an average monthly temperature of 0.6°C, indicated by the red dot. This is ~3.2°C above the mean (-2.7°C) over the period 1961 to 1990.
- The 10-year Gaussian distribution line on the temperature plot has increased since 2000, which correlates with the frequency of April monthly average temperatures that are above 0°C (the red dots)

On our Arctic Connections expedition, we had warmer temperatures and rain, with the nightly temperature not falling to below zero meaning the soft snow wouldn't freeze overnight.

This meant we ended up having to cut our return ski leg short by a couple of days due to challenging and dangerous skiing conditions. Not only were conditions exhausting with the

heavy snow, but the once-frozen rivers were opening up and a 15 cm layer of water sat on top of the frozen lakes, making skiing challenging.

We met several people who said this was very unusual and who had skied at this time of year for many years with colder conditions and therefore good snow. One couple we met had to cancel their annual ski trip after half a day as conditions were so poor.

There were also many challenges with the reindeer migration due to the prematurely thawing rivers presenting dangers for crossing. Johæn Guap had to start the migration of his herd sooner than he had expected to, as he had to cross the wide Karasjok River on his way north.

## First Aid and Safety

### First Aid

Please see Appendix for full list of first aid equipment taken on the expedition.

We both hold a 16 hour Outdoor First Aid Qualification (awarded 7th October 2018), including trauma, evacuation and scenario planning in remote situations. A full wilderness first aid kit was brought on this expedition.

### Safety

An in-depth risk assessment was carried out prior to undertaking the expedition, including contingency plans.

The key hazard for the expedition was the cold weather and ensuring that it didn't lead to hypothermia. Warm layers, skiing at a pace without sweating and taking on sufficient calories are all key to avoiding hypothermia.



Other hazards included: blisters (managed through proper foot care, including pre-taping of possible hot spots) and carbon monoxide poisoning from cooking in the tent porch (managed through ventilation).



Later in the expedition the key hazard was the warmer temperatures and rain leading to poor snow conditions and the early breakup of rivers. This was managed by modifying our route to reduce river crossings where possible and if they were unavoidable, to cross at the safest points. We made a decision based on safety to end the expedition earlier due to worsening conditions.

Some specific safety and navigation elements:

- We were both insured for search and rescue by 'Global Rescue'
- We carried an Iridium satellite phone
- We carried one Delorme (now Garmin) Inreach GPS and texting devices (which also updated the tracking map on our website)
- In addition to the paper maps and compass we used for navigation, we had maps of the region loaded onto a GPS as back-up

## Equipment

### Expedition Equipment

Please see the Appendix for a full equipment list.

### Filming Equipment

In addition to the equipment required for the expedition, we carried two mirrorless cameras with three lenses, a tripod, two small video cameras, sound equipment and a drone.

Cold and wet conditions were a key consideration for the filming equipment and so several sets of spare batteries, for example, were kept warm in our jackets as lithium-ion batteries drain quickly in cold conditions.

A full list of the filming equipment is in the Appendix.



### Food

Our expedition breakfast and dinner was dried food provided by a company called [TentMeals](#).

Snacks for during the day were a combination of energy bars (fruit and nut bars brought from the UK) and chocolate and nuts (bought locally in Norway).

When we were with the reindeer herders we ate both boiled and dried reindeer heart, back and tongue.



## Water

For the first ski leg we melted snow for water.

In Karasjok, through local knowledge, we bought an ice drill which meant we could drill for water in the frozen lakes we skied over, thus saving fuel.





## Knowledge Sharing

### During Expedition

We had an Arctic Connections page on our Everyday Exploring Website with a tracking map and made updates via our Facebook Group, Instagram and Twitter.



### Post Expedition

We are passionate about sharing stories and insights from the expedition with as wide an audience as possible. We will do this by:

Sharing stories and insights from the expedition via social media:

- Luke Instagram and Twitter
- Hazel Instagram and Twitter
- Everyday Exploring website (blogs)
- Everyday Exploring Facebook page

Sharing stories and insights from the expedition via print:

- 4 page article published in 'The Herald' national newspaper (<https://www.heraldscotland.com/news/17626532.melting-world-what-explorers-luke-and-hazel-robertson-learned-by-following-the-reindeer-migration/>)
- RSGS Geographer Magazine (12,000 print readers and several hundred thousand impressions online)
- Other blogs (e.g. Arctic Relations)

Sharing stories and insights from the expedition through talks:

- The 2019 Scottish Arctic Club Annual Gathering
- The 2020 RSGS Inspiring People talks programme
- The 2020 Peebles Outdoor Film Festival

Editing the hours of video footage of interviews, spring reindeer migration and long-distance unsupported ski expedition to make a documentary film. We look forward to sharing the film upon its completion.

## Environmental Impact

We both fully understand the environmental impacts that undertaking expeditions such as Arctic Connections has on both a local and global scale. We are aware of the challenges around the importance of raising awareness of global issues, such as climate change, by speaking to the people on the ground who are affected by it - but also balancing that with flying to these places, which in itself has a huge carbon footprint and contribution to the changing climate.

It is a balance we find quite difficult and so in travelling to these places such as Sápmi, to share these stories from the ground and raise awareness of these global issues, we seek to minimise our impact as much as is possible.

For our Arctic Connections expedition:

- We borrowed or used secondhand equipment where possible to avoid buying new
- We followed the principles of leave no trace
- We ate vegetarian food where possible, apart from reindeer with the herders (which was locally sourced and organic)
- We will offset the emissions associated with our flights at the end of the calendar year (along with any other travel)
- We will use renewable energy for most of the video editing requirements (we have a renewable energy supplier for our home in Scotland).

## Acknowledgements

We are both hugely grateful for the support, both financially, and otherwise, received on behalf of our Arctic Connections Expedition. We'd like to acknowledge the specific support of the following funds, organisations and individuals, without whom this expedition would not have been possible.

### The Arctic Club

Financial support for this expedition was provided by The Arctic Club, through the Gino Watkins Memorial Fund, under the joint trusteeship of the University of Cambridge (through the Scott Polar Research Institute) and the Royal Geographical Society.

The Fund gives grants towards expeditions that meet its objectives of guiding and inspiring enterprising young people towards scientific research and exploration in the polar regions. The Fund endeavours to increase our knowledge of one of the least known, but most important parts, of our planet, and also to stimulate the lasting qualities of enterprise, endurance and leadership gained in this uniquely arduous environment.

The Fund was set up in 1933 in the memory of Henry George ("Gino") Watkins who had drowned, whilst kayaking, off the coast of East Greenland the previous summer. Its purpose is to inspire and guide enterprising, particularly young, people towards exploration and research in the polar regions.

### Scottish Arctic Club

Financial support for Arctic Connections was awarded by the Scottish Arctic Club, which we are both members of. The Club contains a group of enthusiasts with a common interest in the Arctic and was founded in 1970.

The main activities of the Club are the Annual Gathering and Supper, the Spring Meet, the Award of Expedition Grants and the distribution of three Newsletters each year.

The club wishes to encourage younger members, and in 1995 it set up an Expedition Fund to provide grants to young people wishing to travel in the Arctic. As part of the conditions of the award, we will be speaking about the Arctic Connections Expedition at the Scottish Arctic Club's 2019 Annual Gathering and Supper.

### Andrew Croft Memorial Fund and Jamie Gardiner Award

Arctic Connections was awarded financial support from The Andrew Croft Memorial Fund, established in 1998 to preserve for future generations the life, spirit and hopes of Colonel Andrew Croft DSO OBE, Arctic explorer and wartime commando. In summary, the Fund's objectives are:

- Supporting the advancement and education of young people by the provision of grants in support of Arctic expeditions.
- Assisting Her Majesty's Constabulary with grants towards the cost of further education and training aimed at enhancing their effectiveness in the community.



We were also incredibly honoured to be the very first recipients of the Jamie Gardiner Award, as mentioned at the start of this report. In his life, Jamie displayed a combination of ambition, enterprise and endeavour, coupled to a commitment to science and research and we are honoured to have been considered as an appropriate recipient of an award in Jamie's memory. We'd like to explicitly record our thanks to Jamie's parents for the creation of the award.

### TentMeals

Discounted expedition food, for the benefit of Arctic Connections, was provided by Tentmeals. We have used TentMeals on expeditions ever since we discovered them in 2016. Delicious, vegan, lightweight, nutritious and with minimal packaging, the high energy expedition foods are designed for ultimate endurance and recovery and fueled us throughout our Arctic Connections Expedition.

### The Polar Academy

We are both honoured to be Guides for the Polar Academy, a transformative charity that identifies 'invisible' 14-17-year-old secondary school children, crushed by a lack of self-esteem and gives them the chance to redefine their physical and mental limits.

Participants are put through a rigorous ten-month training programme before being immersed in the wilds of Greenland, navigating through some of the world's remotest terrain for ten days. Their confidence soars with every step. On their return to Scotland, each pupil shares their experiences with their peer groups, speaking to more than 20,000 school children in their region.

The Polar Academy has been very generous in their support of this expedition through the lending of equipment.

### Royal Scottish Geographical Society

We are both humbled to be Explorers-in-Residence for The Royal Scottish Geographical Society (RSGS). The RSGS assisted Arctic Connections through publicity, profile and providing character references. The society is one the UK's most dynamic small charities, which aims to advance the subject of geography (in its widest sense) worldwide, inspire people to learn more about the world around them and provide a source of reliable and impartial geographical information. Hazel and Luke regularly provide talks, expedition training and blogs for the society.

The role of Explorer-in-Residence was introduced in 2014, by the CEO Mike Robinson, in order to recognise the role that exploration still plays in inspiring people about the world around them. The aim is to excite people about the world's physical and cultural variety, to awaken people's personal potential and better inform them about global issues.

The RSGS has an incredibly rich history of association with many of the most influential names in exploration of the last 150 years. It was founded by David Livingstone's daughter, Agnes, Ernest Shackleton worked for the society and William Speirs Bruce, who was a council member, led the first Scottish Antarctic expedition in 1902.

### Turgleder

Expedition route advice along with the coordinating of meetings with local people in Karasjok was provided by Expedition Specialists Turgleder. Based in Norway, Turgleder offers pre-designed activities which are open for booking as well as tailor-made adventures for individuals, groups and enterprises. More information is available here [www.turgleder.com](http://www.turgleder.com).

### Aberdeen University and Manchester University

Arctic Connections assisted a research study related to psychology in challenging and demanding expedition environments. A team from Aberdeen University and Manchester University analysed our daily progress throughout the expedition and our responses to the various physical and psychological challenges their environment presented. The research aims to help recognise the potential impact of psychological challenges to further develop support in maintaining wellbeing of people working or travelling in environmental extremes.

More information is available here: <http://wp.lancs.ac.uk/expeditionpsychology/>

### Family and Friends

We'd also like to thank family and friends, notably both sets of parents, Kay and Paul Clyne and John and Veronica Robertson, Hazel's brother and Luke's brother-in-law, Andrew, Amy Martin from Threshold podcast, Kelvin Murray from EYOS Expeditions and many others.

## Appendix – Equipment List

## Expedition Equipment

Type	Item(s)	Number of items
First Aid and Medical Kit	First Aid bag	1
	Trauma dressing	1
	KT Tape	1.5m
	Large adhesive wound dressing	3
	Paracetamol 500mg	20
	Anti diarrhoea immodium	7 tablets
	Antihistamine	14 tablets
	Dioralite rehydration	2
	Neosporan cream	Small tube
	Inhaler	1
	Antibiotics	
	Hydrocortizone cream, 15g 1%	Small tube
	Superglue	
	Zinc oxide tape	
	Compeed	Multiple
	Scalpel blades	6
	Compeed stick	1
	Tourniquet	1
	Steristrips	Multiple
	Tweezers	1
	Wound cleansing wipes	3
	Compression bandage	
	Betadine / TCP	

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	Dental Kit	
	Eyewash	
	Plasters	10
	Sterile first aid dressing, small	5
	Minor Burns Kit	
	Clingfilm	
<b>Admin</b>	Notebook	2
	Pencil	2
	Maps	Multiple
	Passports	
	All filming docs required (GDPR etc.)	
	Insurance	
	Scottish Pins	
	RSGS Flag	
	Sámi Flag	
	Mini carabiners	
<b>Sled &amp; Skis</b>	Pulk	2
	Bungee cords and ropes to go over bags	
	4mm cord to keep bag in pulk	
	Snow bags	2
	Traces	2
	Karabiners	6
	Spare karabiners	4
	Pulk harness	2
	Skis	2
	Short Skis	3



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	Bindings	2
	Ski poles, pair	2
	Backpack	2
<b>Camping and shelter</b>	Tent	1
	Tent poles	Multiple
	Foam Tent Floor	1
	Long Snow Pegs	Multiple
	Snow Shovel	1
	Emergency Survival Shelter	1
	Toilet trowel	1
	Small tent sheet repair kit	1
	Small tent brush	2
<b>Sleeping</b>	Ridgerest Sleeping Mat	2
	Thermarest Sleeping Mat	2
	Thermarest repair kit	
	Sleeping bag	2
	Silk sleeping bag liner	2
	Mesh bag for evening stuff	1 each
	Eye mask	2
	Earplugs	3
	Pee Bottle	1
	Pee Funnel	1
	Down Booties	2
	Pillow	2
<b>Cooking</b>	Bag for Stove	2
	Stove	2
	Spare Stove parts	one box

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	Wind Shield	2
	Heat conductor	1
	Fuel	Multiple
	Fuel Bottles	2
	Titanium Pot	2
	Spork	2
	Lighters	6
	Matches	1 pack
	Water bottle, 1l Nalgene	2
	Water bottle insulating cover	2
	Pot scraper	1
	Thermos flask 1.5L	1
	Stove board	2
	Drying cloth	1
	Food	Multiple
<b>Various (Tools, Spares &amp; Repair Kit Etc.)</b>	Cable Ties	6
	Ziplock bags	Multiple
	Bio bags for rubbish	6
	Waterproof map case	1 each
	Whistle	1 each
	3mm rope	
	Duct Tape	
	Rubber bands	
	Leatherman	1 between
	Penknife	1

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	Buckle and nylon strap	
	Ski skin adhesive	
	Dry bags	
	Towel	2
	Tools for bindings etc.	
	Araldite adhesive	
	Small sewing kit	
<b>Toiletries</b>	Dry wet wipes	Multiple
	Eight hour cream	
	Nail clippers	
	Hand sani	2
	Toilet paper	
	Hairbrush	1
	Floradix	
	Orange toiletry bag	
	Mirror	1
	Toothbrush	1 between 2
	Toothpaste	
	Suncream 50+ 100ml	
	Lip Balm	1 each + 1 spare
	All in one soap	
	Hair ties	
	Glasses	
	Contact lenses	
<b>Clothes</b>	Mitts	1 pair each
	Spare Mitts	1 between

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	North Face Gloves	1 pair each
	OR Gloves	1 pair each
	Thin gloves	1 pair each
	Warm socks	2 pairs each
	Baselayer Top	2 each
	Baselayer leggings	1 each
	Midlayer top	1 each
	Fleece / primaloft jacket	1 each
	Waterproof/Windproof Jacket	1
	Oversized down jacket	1 each
	Waterproof Trousers	1
	Midlayer Trousers	1
	Face Mask	1
	Balaclava	2
	Hat	2
	Headband	2
	Fur Ruff	1
	Buff	2 each
	Pants / boxers	4
	Sports Bra	2
	Sunglasses	1 pair each
	Spare sunglasses	1 pair each
	Goggles	2
	Hiking boots	2
	Cap	2



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	Ski Boots	2
<b>Communications</b>	Satellite Phone	1
	Satellite phone sim	1
	Satellite Phone Charger - Mini USB	1
	Satellite Phone Case	1
	Inreach + charging (micro USB)	1
	Inreach contract	1
	Iphones	2
	iPhone 7 charger	2
<b>Electronics and Navigation</b>	Batteries (AA + AAA)	Multiple
	AA & AAA rechargeable battery chargers	Multiple
	GPS	1
	Batteries for GPS	
	Compass Mount	1
	Compass	2
	Thermometer / anemometer	
	Solar Panels - 7W & 20W	2
	Expedition Battery	2
	Laptops	2
	Laptop charger	1
	Headtorches	2
	Batteries for headorches	Multiple
	European chargers USB	1
	Worldwide adaptor	2
	SD card reader for Hazels laptop	1
	Light for inside tent	1

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	Gaia GPS	
	Garmin Topo maps to load onto Garmin	
	Garmin watches	
	Watch chargers	
	Casio watches	

## Filming Equipment

Type	Item(s)	Number of items
<b>Filming Equipment</b>	Sony A9 camera	1
	Sony A7III camera	1
	Sony X3000R video camera	2
	Sony FE 100 - 400mm lens	1
	Sony FE 24-105mm lens	1
	Sony E 18-135mm lens	1
	Sony Camera instructions	2
	Lens filters	3
	Sony X3000R lens protector	
	Camera cleaning kit	1
	Camera bags	2
	Waterproof covers for camera	2
	Remote Intervalometer	1
	Batteries for Intervalometer & remote	4
	Sony A9 / A7iii batteries	4 sony / 2 Rav
	Sony A9/A7iii battery charger	1
	Sony X3000R camera batteries	4
	Camera lens protector	2
	Lens cap	3

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	Lens drop protector	3
	SD cards for 3 cameras / drone	Multiple
	SD capture boxes	4
	Tripod	1
	Mini tripod	1
	Selfie stick for Sony X3000R	1
	Mic for camera	1
	Extra fluffy mic cover (& comb)	1
	Bracket for camera mic	1
	Lapel Mic + wind jammer	1
	Batteries for Sennhesier	
	Rode Mic with windjammer & attachment cable	2
	Solid state drive	2
	Solid state drive USB C to USB 2.0/3.0 cable	2
	Monitoring headphones	1
	Drone	1
	All Drone Equipment	Various
	Gimbal	

