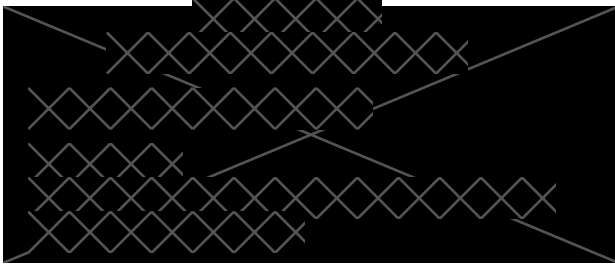




Registration Summary

RKMF Expedition Grant (GROUP APPLICATION)
2014/2015



Ritt Kellogg Memorial Fund
Registration

Registration No. LJ2Z-NNPP8
Submitted Jan 5, 2015 6:16pm

Registration

Oct 30, 2014-
Aug 31

Ritt Kellogg Memorial Fund
RKMF Expedition Grant GROUP APPLICATION

This is the group application for a RKMF Expedition Grant. If you have received approval, you may fill out this application as a group. In this application you will be asked to provide important details concerning your expedition.



Participant



I. Expedition Summary

Expedition Name

Nahanni Daydreaming

Objectives

As soon as we laid eyes on the South Nahanni we knew we had found the perfect river trip. The South Nahanni flows through Nahanni National Park and Preserve in the Northwest Territory. We intend to paddle inflatable kayaks (IKs) from a gravel bar just upstream of Rabbitkettle Lake to the takeout at Lindberg Landing, an almost 400 kilometer stretch of river! We intend to navigate this river slowly, in 19 days, to fully take in and appreciate sights along the way including a glimpse of the Cirque of the Unclimbables, a waterfall twice as tall as Niagara, and beautiful

mountain vistas. This slow pace will also allow us to explore a few side-hikes from the river. We hope to treat this trip as a culmination of our college experience, and reflect on the important role wilderness has had in our lives thus far. We have the skills necessary for this trip and wish to utilize them to experience this beautiful and challenging environment as a team in a safe and slow manner so as to fully grasp the adventure. This is the river of our dreams, and it wouldn't be possible without the support of a Ritt Kellogg Grant.

Location

We propose to navigate the South Nahanni River from Rabbitkettle Lake to Lindberg Landing (just south of Fort Simpson on the Liard River). The South Nahanni lies within the protected Nahanni National Park and Reserve in the Northwest Territory.

Departure Date

Jun 29, 2015 12:00am

Return Date

Jul 23, 2015 12:00am

Days in the Field

July 2nd – July 20th 19 days

Wilderness Character

The South Nahanni River is accessible only by bush plane, and it is situated within Nahanni National Park and Reserve. Nahanni National Park and Reserve was among the first 12 UNESCO World Heritage sites established in 1978, and the prime minister of Canada quickly declared it a National Park in 1971 after experiencing a river trip down its length. It is estimated that only 700 people travel down the South Nahanni each year, and river travelers must reserve camping dates at Virginia Falls, which helps regulate river traffic so that most people are unlikely to run into other river runners while on the river. This environment is wild and inaccessible, making it the perfect fit for a Ritt Trip.

Note: River runners must reserve dates for camping at Virginia Falls and pay a park fee. We have contacted the Nahanni ranger and our selected dates remain open, and permits have been forwarded.

II. Participant Qualifications

Participants' Graduation Date

Avery Kernan – December 2014

John Nestler – May 2016

Medical Certifications

John Nestler – National EMT certification, with IV training (expires 3/31/2015. Certification will be renewed using continuing education hours).

WFR - re-cert scheduled 1/16/2015 through Colorado College

Avery Kernan – WFR - expires Jan 2016

Does your group have adequate experience?

Yes

Training Plan

Avery and John have IKed many rivers together as either day trips or overnights. These sections include Browns Canyon of the Colorado, Royal Gorge of the Arkansas, Rio Chama, and Pumphouse section of the Colorado. John utilized tandem IKs during a previous Ritt Trip (2014) with Sam Seiniger and Zane Randell down the Tatshenshini and Alsek Rivers in the Yukon. On this 12-day whitewater trip much was learned about how to pack an IK optimally for whitewater, and they proved to be incredible versatile vessels. Having two craft allows for redundancy in safety, and enables a more personal experience while floating down the river.

In order to further prepare for this trip we will continue utilizing the IKs and developing our skills in them with extended multi-day gear set-ups. In the spring, once snowmelt starts, we will hone our skills on multiple runs of:

Browns Canyon, Arkansas River (Class III, technical and tight)

Pumphouse section, Colorado River (Class III, overnight, bigger water)

Waterton Canyon, South Platte (Class III at the top, IVs can be walked)

Gunnison Gorge, Gunnison River (Class III overnight)

These are some of Colorado's most classic Class III runs and are all significantly more difficult than the South Nahanni since the Nahanni is much more open, while these runs are tight and technical in areas, while still having the waves and boil lines of the South Nahanni. We will use fully loaded tandem IKs to practice in the boils and rapids of the canyons. Special consideration will be given more technical maneuvering such as eddy peel outs, ferrying, and punching waves since these will be the main river features present on the South Nahanni.

Additionally, we plan on doing a multi-day river trip in IKs with friends over spring break on either the San Juan (Class II-III) or sections of the lower Rio Grande (Class II-III+). Both of these rivers are much harder than the South Nahanni and will ensure that our paddling skills are honed.

From a safety standpoint: John has taken an ACA Swiftwater Rescue Class and teaches rescue and Z-drag unpinning at an advanced kayak camp. Avery plans to attend a Swiftwater Rescue Course sponsored by the Colorado College in spring 2015 with the help of an education grant. This course will ensure she is solid in all aspects of river rescue. She and John will then rehearse these skills, including hand, paddle, and whistle signals, and swimming positions, together to make a solid plan in the unlikely case a situation arises on the river.

III. Expedition Logistics, Gear and Food

Travel Plan

We will meet in Colorado Springs a few days prior to departure, and drive north to Fort Simpson, in Avery's Subaru Forester, starting on June 29th. We will use the MacKenzie Highway to access Fort Simpson, which is approximately 38 hours north of Colorado Springs (see Google Map attached in appendix). We plan to tackle this drive in roughly 3 or 4 days of 12-hour drives. We will find appropriate and safe campsites at night to rest at. The final bit of the drive will include a free ferry to cross the Liard River on the MacKenzie Highway. We will call the ferry ahead of time at (1-800-661-0751) to determine operating schedules closer to the time of driving and plan accordingly. We will follow the same route in reverse to return to Colorado Springs.

Expedition Itinerary

Itinerary

Note: All images from the guidebook maps are included in the appendix. Maps should be read in the downstream direction (bottom to top). Descriptions of hikes are included, and marked trails for the hikes are indicated on daily river maps.

-

Dates in the wilderness: July 2nd – July 20th

19 days

Leave COS on June 29th. Drive to Fort Simpson (36 hours) on 29th, 30th, 31st, July 1st. Register trip with the Park Service in Fort Simpson on the 1st.

Fly out of Fort Simpson on July 2nd.

July 2nd

- Organize gear and fly out of Fort Simpson with Wolverine Air. Fly into the Bunny Bar located just a few kilometers upstream on the South Nahanni from Rabbitkettle Lake (typical float plane fly-in spot). Note: Prior Ritt trip flew into the Bunny Bar as well (guidebook refers to it as Brintnell Bar). Load IKs, and float 16 km downstream to gravel bar across from Rabbitkettle Lake and set up camp. Stop along the way for views of Cirque of the Unclimbables.

July 3rd

- Paddle to the right bank, and have a quick look at Rabbitkettle Lake. Meet up with the ranger, if they are stationed at the ranger cabin, for a 5 km guided tour of the famous tufa mounds in the morning. Float down 37 km to Hell Roaring Creek, and set up camp at a designated campsite just downstream of the Creek.

July 4th – July 6th

- Work to make downstream progress as the current after Hell Roaring Creek is described as slow and meandering. We will base our days around floating and paddling at a pace necessary to get to a designated campsite each night. We hope to cover the 76 km to Virginia Falls in these three days, averaging a little more than 25 km per day. On July 6th we will unload gear at Virginia Falls, and use the boardwalk to transfer gear to required campsite above the falls (500 m above the start of the falls). The guidebook states that the water in this section is extremely slow, and there will be no issues pulling over in time. We will keep the IKs inflated and secured, as the start of the portage trail is located 470 m downstream.

July 7th

- We will use the day to hike around Virginia Falls on the boardwalk, and explore this spectacular waterfall, which is twice as high as Niagara. River runners are only allowed to camp two nights at the falls, so we will take full advantage of this. Check in with the ranger at Virginia Falls and sign the check-in logbook. Ask about any changing conditions downstream.

July 8th

- Paddle across the river from the campsite (extremely slow current), and anchor IKs on opposite bank. We will gauge our interest in a hike up Sunblood Mountain (hike info on Fig 26.), which provides excellent birds eye views of the Ragged Range, Mackenzie Range, and Virginia

Falls. This hike covers 16 km and should take 5 hours. We will also explore the north bank of Virginia Falls for an alternate perspective. Paddle back across the river to spend another night at the Virginia Falls campsite.

July 9th

- Today is the portage! The portage trails runs for 1.2 km, mostly along boardwalks, and then steep switchbacks for the descent to the base of Virginia Falls. The IKs will be deflated and carried in one trip, while each set of personal gear should take a trip with both of us carrying drybags. This should take the better part of an afternoon. We will reinflate the IKs and paddle down 8 km through Fourth Canyon and camp at a designated site at Marengo Creek. This will go quickly as the current picks up and the book describes the 5 km of Fourth Canyon as having rapids Class I-II with one possible III, although they will be significantly easier at lower water levels after the peak of runoff. Few rocks exist in the river, so the IKs will have no issues on waves or small ledge drops provided we keep them pointed straight downstream. We will also avoid the canyon walls, where hydraulics tend to form at higher water levels.

July 10th

- Paddle 23 km to the confluence of the South Nahanni River with the Flat River. This section contains Figure 8 rapid (also known as Hell's Gate Rapid), which is the most notable rapid on the river below Rabbitkettle Lake. Online trip reports mention that this rapid has changed and is significantly easier than it used to be, which may be more accurate than our 1998 guidebook, but care will still be taken with this rapid. The danger lies in that the river takes a sharp right, then a 90° left turn. The cliff wall on the river right side must be avoided as water piles up here. We will hug the right bank of the river, which will feed us into a large eddy before the left turn. From here we can access the portage trail and scout the rapid. If the move looks too difficult we will use the defined trail to portage our gear 800 meters on the river right side of the river.

July 11th

- We will paddle 29 km through Third Canyon, which cuts through the Funeral Range, to the designated campsite at Pulpit Rock; just upstream of a notable formation called the Gate. Current in this section is quite swift with no rapids, but the possibility of small whirlpools in the current exists.

July 12th

- Today will be an easy day, with just 21 km of paddling to Big Bend designated campground. The river maintains a swift current, but no rapids lie in this stretch. If we arrive early enough at camp we will hike up an unnamed side creek right below camp, and cool down in some natural water slides.

July 13th

- We will paddle through Second Canyon, which starts just below our campsite, and paddle 30 km to the Deadman Valley Campground. Along the way the option exists to reach a summit in the Headless Range by hiking 16 km from the river just a few kilometers below Big Bend campground (see Figure 27). The hike takes around 7 hours round trip, so we will start the day early if we plan on this hike. The guidebook provides detailed directions and a map for this route. A ranger station exists here should we need any assistance. No rapids exist in this section.

July 14th

- Spend a layover day to explore the many sidehikes from the Deadman Valley Campground (see Figure 20).

July 15th

- Enter into First Canyon and paddle 34 km to Kraus Hotsprings. This can easily be done in a day, as the current is still swift. George's Riffle, a rapid of note exists just below Dry Canyon Creek in this section. The only hazard is standing waves, and these can be avoided by hugging the left bank of the river around the sharp left turn. This canyon reaches an impressive depth of 1,300 meters as it cuts through the Nahanni plateau. Soak in the riverside hotsprings at night and camp at the designated campsite nearby.

July 16th

- Layover at Kraus' Hotsprings, and relax. Explore Clausen Creek, which is just downstream, within walking distance of the hotsprings and campsite.

July 17th – July 19th

- 116 km exist until we arrive at Lindberg Landing. We will split this into three days of paddling, averaging around 39 km per day. Many braids exist in the middle section of river nicknamed "The Splits", and we will take care to follow the channels with the most water. The river maintains adequate current until the confluence with the Liard River, whereupon the current slows considerably. This section comprises the final 45 km of the section, so we will try to make more miles on the first two days in preparation for a longer third day. High upstream winds on this final section may impede progress, so extra food will be brought in case we need to wait a day until winds die down. Each night we will find a suitable campsite to spend the night at.

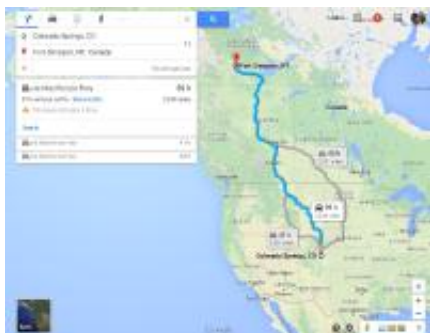
July 20th

- We will arrive at Lindberg Landing in the morning, after camping relatively close. Lindberg Landing is a well-maintained lodge, and a popular takeout option for river runners. We will use a shuttle from the lodge to retrieve our car from Fort Simpson, load up, and start the drive back to Colorado Springs. While in Fort Simpson we will de-register our trip at the Park Service office.

July 21st – 23rd

- Drive the 38 hours back to Colorado Springs following the route used on the drive up. Driving times may vary depending on the driving we cover on the 20th, but we plan to average around 12 hours of driving per day.

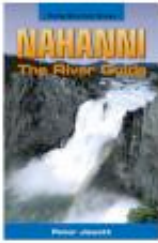
Maps/Topos/Charts



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Uploaded Jan 5 by John Nestler

Fig 0. Nahanni: The River Guide
Guidebook



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Uploaded Jan 5 by John Nestler

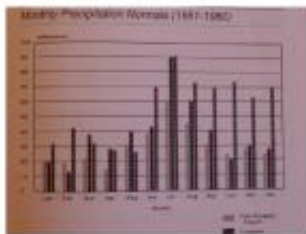
Fig 1. Average Temperatures (°C) from
Guidebook

Month	Avg. Temp. (°C)	Range (°C)
January	-28.2	-35.0
February	-22.0	-28.0
March	-10.0	-15.0
April	0.0	5.0
May	7.0	11.0
June	14.0	18.0
July	17.0	21.0
August	14.0	18.0
September	7.0	11.0
October	0.0	5.0
November	-10.0	-15.0
December	-20.0	-25.0
Annual	0.0	0.0

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Uploaded Jan 5 by John Nestler

Fig 2. Precipitation Averages from
Guidebook



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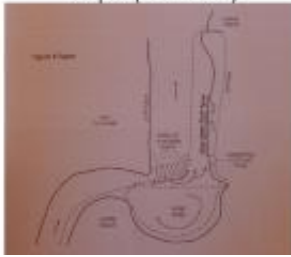
Fig 3. Guidebook Description of Whitewater
Rating System



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Fig 4. Graphic Representation Figure 8 Rapid (Class II-III)



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Uploaded Jan 5 by John Nestler

Fig 5. Left hand turn on Figure 8 Rapid



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Fig 6. Drawing of George's Riffle (Class II)



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Fig 7. Canoeists Navigating George's Riffle



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Fig 8. View upstream into 1st Canyon, with George's Riffle in the foreground.



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Fig 9. Overview of South Nahanni and surrounding Nahanni National Park



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Uploaded Jan 5 by John Nestler



Fig 10. The orange indicates the Rainy Bar, where we plan on flying in on a scheduled bush plane.

Note: For all published maps, there is a down arrow from the bottom of the page to the top.

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Uploaded Jan 5 by John Nestler



Fig 11. River from Rainy Bar to Pukaburto Lake and Hot Springs.

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Uploaded Jan 5 by John Nestler



Fig 12. Downstream of Rattlesnake Lake canal.

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Uploaded Jan 5 by John Nestler



Fig 13. Downstream detail with Bearng Creek and Head Creek.

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Fig 14. Downstream detail Head Creek to just below right before the falls.

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Uploaded Jan 5 by John Nestler



Fig 15. Downstream detail just below waterfall to Virginia Falls.

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Uploaded Jan 5 by John Nestler



Fig 16. Virginia Falls detail.

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Fig 17. Downstream detail
Virginia Falls to Hat House.

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Fig 18. Downstream detail
Hat House to Third Canyon.

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Fig 19. Downstream detail
Third Canyon to Headless
Creek.

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Fig 20. Deadman valley detail.

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Fig 21. Deadman valley detail
Deadman valley to Kraus Holdings.

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Fig 22. Deadman valley detail
Kraus Holdings to The Spills.

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Fig 23. Detail of the Spills.

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Fig. 24. Aerial of Redwood
River & the Land Plane
confluence.

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Fig. 25. Aerial Land Plane to
Columbia Landing

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Fig. 26. Sunbaked meadows
near detail.

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Uploaded Jan 5 by John Nestler



Fig. 27. Howell's Ranch on
Columbia Creek detail.

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Uploaded Jan 5 by John Nestler

Re-Ration Plans

There are no plans for re-rationing.

Food Storage

All food will be stored and transported in airtight drybags. These Watershed drybags have a thick rubber gasket seal and allow no air to escape. These are ideal for bear country as smell will not

spread out of the drybags, and the drybags will be stored on the IKs at night to prevent mice and other rodents from chewing through them in camp. Many campsites will also have bear caches available in which case we are required to store our food in the caches. We will make sure to camp at least 100 feet away from our boats and kitchen. Any kitchen scraps or cookware will also be thoroughly cleaned to prevent attracting wildlife.

Food List

I have used this menu on previous Ritt trips and it has worked very well. It will provide plenty of food with just a hair over 2 lbs of food per day. Having a little extra food planned here may come in handy if the paddling out to Lindberg Landing is delayed at all due to high winds. Nonetheless, we will eat well!

	USD Price/lb	Quantity (lb)	USD Price
Breakfast			
Oatmeal	2.5	4	10
Granola	4.99	6	29.94
Bagels	4.79	4	19.16
Pancake Mix	3.5	1.5	5.25
Lunch			
Cashews	8	2	16
GORP	6.8	3	20.4
Peanuts	4.99	2	9.98
Chocolate Almonds	8.9	1.5	13.35
Raisins	3.52	2.5	8.8
Sunflower Seeds	4.25	1.5	6.375
Dried Apricots	6.75	2	13.5
Beef Jerky	5.89	2	11.78
Tortillas	3.49	1	3.49

Dinner

Lentils	1.86	4	7.44
Pinto bean flakes	6.74	3	20.22
Dehydrated black beans	6.5	3	19.5
Penne Pasta	2.55	5	12.75
Quinoa	4.96	4	19.84
Brown Rice	2.62	4	10.48
Dried Hummus	5.24	3	15.72
Tomato Powder	4.78	0.5	2.39
Tortillas	3.49	2	6.98
Dried Veggies	7.82	2	15.64

Cheese & Fats

Cheddar	7.98	3	23.94
Mozzarella	7.98	2	15.96
Cream Cheese	3.89	2	7.78
Butter	3.64	2	7.28
Peanut Butter	4.22	4	16.88
Summer Sausage	9.4	3	28.2
Granola Bars	5.82	2	11.64

Drinks

Hot Cocoa	3.92	2	7.84
Tea	9.6	1	9.6
Powdered Milk	3.68	1.5	5.52
Fruit Crystals	2.78	2	5.56

Fresh Produce

Carrots	2.39	3	7.17
Onions	1.29	3	3.87
Garlic	1.5	3	4.5
Peppers	2.99	3	8.97
Apples	1.59	3	4.77
Oranges	1.49	3	4.47
Cucumber	1.49	3	4.47
Zucchini	1.89	3	5.67

Total		112 (lb)	\$483.075
Per Person (2 people)		56 (lb)	\$241.5375
PPPD (53 person days)		2.11 (lb)	\$9.11

Equipment List**Personal Gear**

Passports

Bug headnets

On the Water:

Small Dry Bag
PFD with Whistle and River Knife
Helmet
Drysuit/Wetsuit
Long Underwear (Tops and Bottoms)
River Shoes
Neoprene Gloves or Poagies
Fleece Tops and Bottoms
Bathing Suits
Sunglasses with Strap
Sun Hat

Camp Gear

Large Dry Bag (4400-5000 Cubic Inches)
Sleeping Bags and Pads
2nd Set of Long Underwear (Tops and Bottoms)
Fleece Jacket (2)
Down Jacket
Rain Jacket and Pants
6 Pair Warm Socks
2 T-Shirts
Hiking Boots
Shorts
Warm Gloves
Chapstick
Headlamp w/ set of extra batteries
3 Water Bottles (6L Capacity Total)
Personal Toiletries (toothbrush, toothpaste, etc.)
Personal Eye Care (spare contact lenses, glasses, contact case, contact solution)
Personal Medications
Camera
Carabineers
Multi Tool/Knife

Group Gear

4-season tent (2 Person)
Biodegradable soap

Plastic Gallon Ziplocs (1 Box) and Trash Bags (1 Box)
100 Meters of Rope
1 Roll Duct Tape
1 Large Bottle of Sunscreen
1 Large Bottle of Mosquito Repellent
Trowel
Satellite Phone
Collapsible, lightweight firepan (used by John on kayak self-supports)
Binoculars
1 box heavy duty garbage bags

River Gear

Two Tandem NRS Inflatable Kayaks
2 Paddles
2 Spare break-down paddles
Repair Kit (see contents below)
Bow Line and Stern Line
Spare Life Jacket
Air Pump
Soft-sided cooler
Waterproof Food Bag

Repair Kit

4oz Clifton Hypalon Adhesive
6" x 18" Piece of Tube Material
6" x 18" Piece of Floor Material
Roller Rasp
Round and Oval Rubber Temporary Patches
Sand Paper
Hypalon Glue
Leaffield Valve Wrench, Adapter and Plug
C7 Repair Kit, Pin, Spring, Rubber Stopper
Razor Blade
Allen Wrench

Rescue/Emergency Gear

Throw Ropes (2)

2 Prussics
Carabineers (6 Steel Lockers)
Flip Line
Signal Mirror
First Aid Kit
Emergency Blanket
Bear Spray (2 Cans)
Bear bangers (bear flare)
Emergency Orange "X" panels (for helicopter signaling)
SPOT Emergency Device

Kitchen Gear

Whisperlite Stoves (2)
4L White Gas in 4 1L Fuel Bottles
Matches and Lights
Hand Sanitizer
Iodine tabs for 120+ L water
Pots, Pans, Cooking Utensils
Fire Pan
Sponge
Dishwashing Screen
Biodegradable Dishwashing Soap
Plates, Bowls, Eating Utensils
Stove Repair Kit
Bleach
Purell
Pocketknife for kitchen cutting and can opening

First Aid Kit

(In a medium Pelican Case)

Airway

CPR Mask
Gloves

Wound Prep

Gloves

10 Povidone-Iodine Prep Pads
4 Cotton Tipped Applicators
2 Alcohol Prep Pads
Benzoin Tincture: Swab and Capsules Antiseptic Applicator

Dressing

Gloves
Petroleum Dressing
2nd Skin Burn Pad
12 Sterile Gauze Pads, Assorted Sizes 3 Thick Sterile Combine Pads, 8x10 Bloodstopper Trauma Dressing
Triple Antibiotic Ointment

Packaging:

Cravat
2 Tongue depressors
3 Rolls Stretchy Gauze
2 Rolls Vet Wrap
Ace Bandage
Finger Splint
2 Rolls Waterproof Adhesive Tape SAM Splint
25 Assorted Small Bandages Steri-Strips
Moleskin

Medications

1 bottle of Pepto-Bismol
6 Claritin (Allergy Medicine)
1 bottle of Imodium
5 Diphen (Antihistamine)
1 bottle of Aspirin
8 Advil (as alternative)
8 Tylenol (as alternative) Hydrocortisone Cream
8 Electrolyte Packets

Tools:

Space Blanket
EMT Shears
Irrigation Syringe
Sharpie

Penlight
4 disposable Thermometers
Tweezers
SOAP Notes
First Aid Booklet
Duct Tape

Leave No Trace

Both expedition members are familiar with Leave No Trace principles, and have been educated about them as ORC leaders at the Colorado College. See “Plan for Minimizing Impacts” for more.

Plan for Minimizing Impacts

Plan Ahead and Prepare

We have contacted rangers who work in the Nahanni National Park and have received advice on planning as well as read all park-provided information. Additionally, we have talked to Will Stauffer-Norris, who navigated down the Nahanni as part of a Ritt trip in 2009. Finally, many videos exist online of the Nahanni, and these videos have been used to get an idea of the terrain and difficulty of the rapids on this stretch. Of course the guidebook, written by a Parks Canada and Nahanni veteran (Peter Jowett) has been a great help in terms of sorting out logistics and helping us plan for the conditions present on the South Nahanni. As a small raft group of two, using a white gas stove, we will be incredibly low impact and tread lightly in this beautiful place.

Travel and Camp on Durable Surfaces

Since we will be floating and paddling down most of this section, most of impact will be mitigated. While in camp however, we will respect pre-existing trails and use them whenever possible to prevent additional degradation of the surrounding area. Sand, gravel, and bedrock will be traveled on in camp to prevent signs of our stay. While in camp use of the firepan will prevent significant impact, and we will clean all scraps & ashes to leave a beautiful campsite.

Waste Disposal

Parks Canada encourages the use of cat holes on this stretch of river, which is unusual for us since we are used to using groovers while on Southwestern river trips. We will respect the park rules and use cat holes for human waste disposal on this trip, and these will be dug at least 100m from water sources. If an outhouse is provided in a camp we will use it instead. We will urinate in the river if a cat hole has not already been made – LNT encourages this practice as the urine is quickly diluted in a large river. Per park regulations, excess dish and cooking water will be buried in a sump hole 50 m from water sources and outside the campsite. Finally, the use of biodegradable soap will be minimized while on the river to protect the environment. All food scraps and trash will be carried out with us, as well as all partially burned firewood and ash. We will always sweep campsites for micro trash after use.

Leave What You Find

Since this is a National Park and Reserve it is illegal to remove anything from it. We will obviously respect this and follow the old adage of take only pictures and leave only footprints. We want everyone to be able to experience this wild landscape like us, and will ensure that nothing is removed from the Nahanni. All river gear and boats will also be cleaned prior to use to ensure no invasive species are introduced into the river.

Respect Wildlife

Through managing food properly in drybags, traveling on defined paths, and alerting animals to our presence with appropriate noise, we will do our best to avoid close wildlife encounters. We will have binoculars to get a close view of wildlife from a safe distance. If an animal does stumble across us, we will be considerate and remove ourselves from the situation before it escalates.

Be Considerate of Other Visitors

July is a popular time to run the Nahanni, but there is no telling how many people we may meet on the river, if any at all. Will Stauffer-Norris reported seeing one other party on the river below Virginia Falls during their 18-day trip. If we do meet another party on the river we will be respectful, and make sure that we give them appropriate space so as not to interrupt their river experience. By following LNT practices we will ensure that visitors are not affected by our travel on the river.

Cultural Concerns

The Nahanni has a rich cultural heritage starting with the Naha peoples, and today the Dene people are considered the natives to the area. Originally the Nahanni was known as the Setting Sun River as it is the only river in the region that cuts through the mountains, pointing towards the setting sun. Parks Canada recognizes this rich history, and many lakes and river features are referred to by their native names in park publications. Additionally, the Dene people are still allowed to forage and trap within the National Park area, which is strictly forbidden to outsiders.

We will respect the Dene's place in this environment and ensure that we take care of the river during our journey down it and uphold LNT standards.

IV. Risk Management

Hazard Mitigation Plan

Water

-

Water will not be consumed from the Meilleur River due to high levels of arsenic, nor the Kraus Hotsprings due to the high sulphur content. We will ensure minimal contamination in the water by ensuring carcasses and other contaminants are not nearby the water source. All water will be collected and allowed to sit for an hour to allow the silt to settle out. Water will then be purified with iodine according to the directions of the iodine used. Water temperature will be warmed using body heat if needed in order to increase the effectiveness of the iodine.

Bears

Both black bears and grizzly bears inhabit Nahanni National Park and Preserve. Potentially dangerous contact with bears will be diminished by our lack of bushwhacking, and typically traveling on the wide river by raft. Additionally, bears in this environment are less likely to be habituated to humans and garbage, making them generally less aggressive. This being said, proper precautions are needed in bear country to avoid dangerous situations. We have read Steven Herrero's Bear Attacks: Their Causes and Avoidance, and will use that information to be informed and proactive about potential bear encounters. We will also carry bear spray and bear bangers with us and keep them accessible at all times.

Thus we avoid areas of high bear activity. This will be done by asking rangers about potential bear hotspots, and observing all campsites and trails for signs of scat, bear tracks, or evidence of their presence such as dead carcasses. Rangers will close parts of Nahanni National Park based on reports of excessive human/bear interaction, so their advice will be heeded. Additionally:

- All cooking will be done 100 meters downwind of the campsite. Food scraps will not be left out, and all food will be kept in scent-proof drybags. If a campsite has a permanent bear cache or locker, we will use it; otherwise we will keep the airtight drybags on the IKs at night, away from camp.

- We will hike only in a group with both of us, and never alone. This will increase our safety, as bears are less likely to attack two people compared to a single person.

- Both of us will hike and travel with bear spray and bear bangers accessible at all times. Bear spray has been shown to be the most effective deterrent during an imminent attack according to Herrero's analysis. Additionally, we will be loud and call out often to alert bears to our presence on trails or at camp. We will also carry bear bangers, and rehearse their use in an emergency.

Through these preventative measures the odds of coming into direct contact with a grizzly or black bear is greatly diminished. If a confrontation would arise, we will use our knowledge from Herrero's book to understand whether to play dead after using bear spray or slowly back away. In no situation will we simply run away.

Remoteness

No roads access the South Nahanni. The closest road to our put-in will be a small logging road leading into the Little Nahanni (a tributary of the South Nahanni) by the town of Tungsten, NWT. Thus bush plane is our only access to the remote Nahanni National Park. This comes with a set of risks that we are prepared to deal with.

Per Ritt guidelines we will both be certified WFRs (John will re-cert his in January 2015.) Additionally, John is a nationally registered EMT and has received IV training in the hospital. Obviously IVs won't do much good in the backcountry, but we possess a wealth of wilderness medical knowledge. The best plan here is to avoid any potential health issues though. We will eat well on the trip, hydrate often, and dress warmly incase of cold weather. This includes wearing drysuits or wetsuits while on the river. We will carefully assess any river travel or hiking options to make sure we minimize risk, and will be very cognizant of our actions to prevent simple accidents resulting in broken bones or burns.

- Our trip will be registered with the Nahanni National Park office before putting on. Opportunities

exist downstream from Rabbitkettle Lake to sign logbooks, which the Park Service can examine to determine our last known location if we fail to deregister the trip. This helps the Park Service narrow their search area in the event of a disappearance. These logs exist at staffed cabins at Rabbitkettle Lake, Sunblood, Virginia Falls, Flat River, and Deadmen Valley. The park service also allows river trippers to break into these cabins if an emergency occurs as the cabins contain Personal Locator Beacons, Emergency Food, and other supplies.

- Each of us will carry a small survival bag with a signal mirror, emergency blanket, bear spray, some high-energy food, matches, and a lighter. This will give us some essential survival supplies incase we are ever separated from each other and the boat.

Weather

While summer time temperatures in July average 61°F, afternoon temperatures may often approach 80°F. That being said, the guidebook is quick to point out that snow can fall at any time, and there may be sudden shifts in temperatures. We will treat the Nahanni as any northern environment, which may be friendly and warm at one moment, and sleeting just a few minutes later. We will come prepared with warm sleeping bags, and good rain gear. July and August are the wettest months of the year in this region, and rain averages 60-90 mm of precipitation in these months. We will use a layering system to ensure that we are comfortable in the rain, sun, and snow. Drysuits and wetsuits will also ensure that we are comfortable while on the river.

Quality Watershed drybags will also ensure that our clothes are protected from the elements, and we will have warm jackets and gloves easily available at all times. Thunderstorms are likely to happen in the afternoons due to convective heating patterns, so we will likely get the river miles done earlier in the day to avoid afternoon showers or thunderstorms. If a thunderstorm strikes we will head to the riverbank and assume proper lightning position. We do not want to be caught exposed in the middle of a river during a storm.

Rain brings another set of challenges as flash floods and rapidly rising waters are a possibility on the Nahanni. We will always hike in a group, avoid drainages while hiking and carry a throw rope for additional safety while on hikes. If poor weather rolls in we will promptly return to camp, and we will always be aware of possible escape routes. Additionally, due to seismic shifts in the area from the late 90's the Park Service discourages camping or hiking in the Clearwater creek delta, 11km downstream of Virginia Falls due to high flash flood danger. This warning will be heeded.

Finally, in the event of wildfires we will use ranger advice to avoid potentially dangerous areas, and evacuate if danger is present. We will respect all fire bans that may be in place during our time on the river. All decisions will be made as a group, and we will err on the side of conservative decision-making.

Terrain

Most travel will take place via the river. On the river we will avoid standing up in swift water to prevent the chance of foot entrapments in the loose bedrock. While on trails, portaging, or exploring up creekbeds we will be very aware of the presence of loose rock. The Cirque of the Unclimbables remains one of the few good climbing destinations in this area as the majority of the rock is of poor quality. Accordingly, we will be on the lookout for fractured or loose rocks on the trails. As preventative measures we will:

- Assess routes before undertaking hikes, and stay in constant communication. We will also hike spaced apart or together to minimize the chance of triggering a rockfall onto one another.
- Always travel in a group to minimize danger, and so that a person can always be of assistance if an accident occurs to one person.
- Avoid any travel on snowfields or glaciers, as slick ice, or unstable snowfields may present additional risk..

Working with helicopters

In the case of interacting with a helicopter, we will take steps to ensure our and the pilots safety. We will clear a landing area and mark with the orange panels. When the helicopter approaches, we will leave the landing area and not approach the landed helicopter until we are told to do so.

River Safety

-

This section of river from Rabbitkettle Lake to Lindberg Landing was originally pioneered with canoes, and the hardest rapids lie upstream of Rabbitkettle Lake. We decided to mitigate the risk of swamped canoes, and enable easier transport by using two tandem inflatable kayaks (IKs) on this trip. IKs are self-bailing, so water will quickly drain if a wave splashes on board, instead of collecting in a canoe and possibly swamping it. John used IKs on his previous Ritt Trip down the Tatshenshini and Alsek Rivers in the Yukon where the whitewater was much more formidable, and they performed very well. We have also done quite a few IK trips together, and feel very comfortable with each other on the river, and open communication has led to much trust while navigating rivers. This experience together allows us to function efficiently, and avoid potentially dangerous situations. Tandem IKs allow for adequate gear storage (albeit light, backpackers style) with only one paddler and gear per boat, and are very maneuverable. They are also extremely easy to right in the odd event of a flip. Having two IKs on the river will enhance our safety, and they are the best choice for a trip of this nature as many floatplanes will not fly in with two canoes, and a previous Ritt Trip had to cut their raft frame just to fit it in the floatplane.

No rapids of significance exist from Rabbitkettle to Virginia Falls, and Figure 8 stands as the most significant rapid below Virginia Falls. Figure 8 rapid is easily portaged if necessary, meaning that we are only committed to Class II rapids in portions of the Canyons. We have also timed this trip to coincide with lower water levels after the peak of spring runoff, so the rapids will be generally easier with less water than at their peak in mid June. According to our guidebook Class II is described as:

Straightforward rapids, possibly with low ledges, sweepers, or large protruding boulders. Occasional maneuvering may be required. Open boats may ship some water. Clear channels are evident. Swimmers are seldom injured, and group assistance is seldom needed.

- From Nahanni: The River Guide

We have viewed online videos of the South Nahanni, scouted internet beta, consulted with Will Stauffer-Norris, who ran this river as part of a Ritt Trip in 2009, and have decided that while river risks are always present, the whitewater on this river is easily manageable, especially in

maneuverable, self bailing IKs compared to a canoe which is much more limited in its ability on a whitewater run. Modern beta also indicates that Figure 8 rapid has become much easier in character than it was in 1998 when our guidebook was published, and most trips rate it as a Class II+ according to the July water levels when we will encounter the rapid.

Both Avery and John have significant river experience and are capable of basic river rescue techniques. John has attended an ACA Swiftwater course through Colorado College, and teaches river rescue and Z-drag unpinning as part of an advanced kayaking camp, and Avery will attend an ACA Swiftwater Rescue class this spring with the funding from a Ritt Education Grant to enhance her rescue abilities. This will ensure that both of us are competent rescuers on the river and aware of all hazards. Additionally, we are aware that the wilderness nature of the river elevates risks, so we will be very conservative in our paddling and acutely aware of any possible consequences on the river. Finally, since we are aware of these risks we will practice self-rescue techniques in a calm environment using the IKs prior to embarking on the Nahanni trip.

The biggest hazard on the Nahanni is the cold water. Even in the summer the river temperature hovers around 10-15°C. At temperatures like this a swimmer in the water has a little more than 10 minutes before hypothermia sets in. Because of this we will bring either wetsuits or drysuits to wear while on the river. In the event of a flip, we will work to minimize swimming time and regroup next to the upside down IK. The swimmer will then climb on top and use flip lines to flip it back over, and make sure that no gear was lost. PFDs and helmets will be worn at all times on the river.

Swimming in the river is a hazard, and the following precautions will be taken:

- Hold onto our paddles at all times unless doing so prevents rescue, or presents a hazard.
- Swim with our nose and toes out of the water, floating on our backs with the legs pointing downstream. This will prevent possible foot entrapments. If we are close to an eddy by the shore we will flip on our stomachs and aggressively swim into the eddy out of the current.
- Immediately swim upstream of the raft to prevent entrapment between the downstream end of a raft and upstream end of a rock.
- Immediately blow a whistle on the lifejacket to signal that a rescue is needed. If one of us is still in the raft we will make eye contact with the other, and toss them a throwrope if needed. This will be signaled with an audible confirmation: "ROPE!".
- If a strainer (log or obstruction over the water) exists downstream, we will swim to avoid it. If this is not possible, we will swim aggressively towards it and pull ourselves on top of it to prevent being submerged under it.
- If caught in a ledge hole we will ball up, be pushed down, and release our body like a starfish in order to catch the green water and be pushed out.

The IKs will also be treated like a strainer and avoided if swimming down a rapid. Minimal straps will be used to secure gear, so danger of entrapment is minimized there. As mentioned previously, rapids such as Figure 8 will be scouted, and any horizon lines with uncertain will also be scouted.

Beta indicates that most rapids and riffles will be very visible, and have open lines. We will keep an eye out for hazards such as undercut rocks, ledge holes, strainers, waves, and sieves, and will work to aggressively avoid these while navigating the river. On the river we will have open communication to avoid potentially hazardous situations. Avery and I will have river knives accessible on our PFDs as well as a whistle, and small food bar for energy.

Risks Particular to the South Nahanni

As mentioned, the South Nahanni, similarly to many northern rivers contains cold water. This brings up hypothermia as a significant risk in the unlikely event of a swim. We will help each other out of the water as quickly as possible, and warm them with gloves, hats, socks, jackets, and pants kept in an easily accessible drybag. We will also stay hydrated and eat plenty to keep our bodies functioning at their peak, thus preventing hypothermia.

We will also be navigating the South Nahanni well after the peak of spring runoff, which occurs in mid-June. Lower water levels will make the rapids easier, but there is always the possibility of elevated water levels from sustained rain. In the event of a significant spike in the river level we will assess the difficulty of whitewater possibly wait until water levels fall before putting back on the water. We will also be aware of changing water levels when setting up camp, and always haul IKs out of the water each night and anchor them to a fixed object on the bank.

The rapids on the Nahanni have previously been discussed, with all but one being Class I-II. Avery and John both have extensive Class III experience, specifically paddling challenging, creek runs such as the Royal Gorge of the Arkansas (III+). John also has Class V+ experience on a variety of classic runs, and extensive multiday river trip experience culminating in a 27-day Grand Canyon kayak solo, and 22 day sea kayaking expedition in Newfoundland. Our skills prepare us for the Class I-II whitewater, and our judgment will be used for the Class III Figure 8 rapid, which can be portaged if necessary.

Finally, while it is not a distinct hazard, bugs are purported to be extremely dense in the mellow sections below Kraus Hotsprings. We will bring bug head nets, and set up camp in areas with sufficient wind to keep the bugs at bay. This will improve our comfort on the trip, and allow us to operate more efficiently.

Evacuation Plan

If a situation or injury should arise we will carefully consider our evacuation plans. For non-emergent evacuations we will continue down the river, floating as much as possible each day to quickly get to the Lindberg Landing takeout downstream. Along the way we will pass by ranger cabins that may be staffed. This option assumes evacuation is not urgent. The guidebook estimates that most paddlers can make 80km a day on the river, which means we are never more than 4 or 5 days from the takeout. Additionally, the days will be almost continuous with ample light to navigate the river at almost all times, so evacuation times could be even quicker.

Faster evacuation options all involve air travel, as there are no roads coming near the river in Nahanni National Park. Fortunately, there are ranger cabins at Rabbitkettle, Sunblood, Virginia Falls, Flat River and Deadmen Valley. The park service encourages river runners to break into these cabins in the event of an emergency as there is food, satellites phones, and personal locator beacons stashed inside. In a true emergency we would first stabilize the victim, then call the Fort Simpson main office, which Search and Rescue is based out of. Their number is (867) 695-7750. We will describe the situation, give our location, and await further instruction. If an air evacuation is warranted we will find a suitable, clear landing area and mark it with the orange blazes which we brought along. Rabbitkettle Lake, Glacier Lake (near Cirque of the Unclimbables), and Virginia Falls are all designated float plane landing zones in the park. Other areas may be accessed by helicopter if necessary.

Special Preparedness

John had shoulder surgery his sophomore year of college for a torn labrum and frequent dislocations. Thanks to a successful surgery and frequent physical therapy he was paddling Class V within 6 months after the surgery, and the shoulder has not given him any issues since.

There are no other medical issues that warrant special preparedness on this trip. We are both healthy, and in fine physical shape.

Emergency Resources

Fort Simpson Park Station (Search and Rescue)

10002 100 Street

P.O. Box 348

Fort Simpson, Northwest Territories

Canada

X0E 0N0

Tel: (867) 695-7750

Nahanni National Park Duty Officer Line (Additional # for Search & Rescue)

(867) 695-3732

Fort Simpson Health Center on-call Nurse (small ER facility). Fort Simpson, NWT

(867) 695-3232

Stanton Territorial Hospital. Yellowknife, NWT (Larger facility that Fort Simpson Health Center will transfer to after 6 hours of care).

(867) 669-3100

Emergency Communication

We will carry an Iridium 9505A satellite phone borrowed from the Colorado College Outdoor Ed department on this trip. This phone is the gold standard in satellite phone technology, and John has used in on his Grand Canyon trip as well as the Ritt trips in Newfoundland and the Yukon.

Additionally, John will carry a SPOT device that can be used in an emergency if an issue arises with the satellite phone or coordinates are needed for positioning. The SPOT will also be used for periodic updates to family while on the river, giving them further peace of mind. Parks Canada informs river runners that SPOT coverage can be occasionally obstructed in the canyons, so we will inform family members that a missed "OK" signal is fine, and will have the satellite at all times for a more predictable connection to outside help, if needed.

V. Budget

BUDGET

Transportation: \$2141.09

Cessna 206 (1,000 lb payload) to Bunny Bar through Wolverine Air
\$1432.09 USD + GST (at current December 2014 exchange rates)

Travel from COS to Fort Simpson

24 mpg car, 2,234 miles each way = 186 gallons of gas total. Projected 2015 avg. gas price is \$3.38 per gallon (<http://www.eia.gov/tools/faqs/faq.cfm?id=287&t=10>).

\$629 round-trip gas

Lindberg shuttle (from Lindberg Landing to Fort Simpson)

\$80

Food and Fuel: \$505.57

Food

26 day x 2 at \$9.11 per day = \$483.07

1 Gallon White Gas

\$22.50

Maps and Books: \$58

Nahanni Guidebook

\$58

Communication Device Rental: \$0

Sat Phone

Free rental through Colorado College Outdoor Education

Permits/Fees: \$294.40

Nahanni Park Fee

\$147.20 x 2 = \$294.40

Gear Rentals

\$0

Note: We have not included bear bangers and bear spray as we will likely purchase these items

before the trip and keep them for later personal use.

Total: \$2999.06

Note: We have not included bear bangers and bear spray in the requested budget as we will likely purchase these items before the trip and keep them for later personal use.

Transportation

\$2141.09

Food and Fuel

\$505.57

Maps and Books

\$58

Communication Device Rental

\$0

Permits/Fees

\$294.40

Gear Rentals

\$0

Total Funding Request

\$2999.06

Cost Minimization Measures

Any trip involving a bush plane flight in remote northern areas is bound to be expensive. We have cut costs in a couple different ways to do this trip in the most economical way possible. All river gear, including repair kits and first aid, will be personal and thus not have to be rented. We both have IKs to use for the trip, which cuts down on rental needs, and they are very easy to transport in planes and cars for the journey. Our menu is also much less extravagant than a typical rafting trip, and will save quite a bit of money.

Obviously driving together to Fort Simpson to begin the journey is much cheaper than flying with gear, and this will save on food costs since we can buy all food at Costco in Colorado Springs rather than spending more money on food in Fort Simpson. We will also save on communication devices as Outdoor Education has let students borrow satellite phones in the past, and John has his own SPOT device to bring on the trip.

Finally, after talking to Wolverine Air we determined that the cheapest way to get to the river was a wheeled plane that could land at the Bunny Bar just above Rabbitkettle Lake. This will save more than \$400 over the typical floatplane flight into Rabbitkettle Lake. Funding will largely cover travel costs, permits, a guidebook, and food. Avery and John will gladly cover any extraneous expenses beyond the outlined budget. Finally, thank you for reading our application and for your consideration in making this trip happen! We are both feel extremely fortunate for the opportunity to apply to this fund and be a part of a community that has such opportunities.

References Used:

Nahanni: The River Guide (1st edition) - Peter Jowett

Bear Attacks: Their Causes and Avoidance - Stephen Herrero

Nahanni National Parks Publications

Beta, and trip report from 2009 Ritt Trip to the South Nahanni River (from Will Stauffer-Norris)

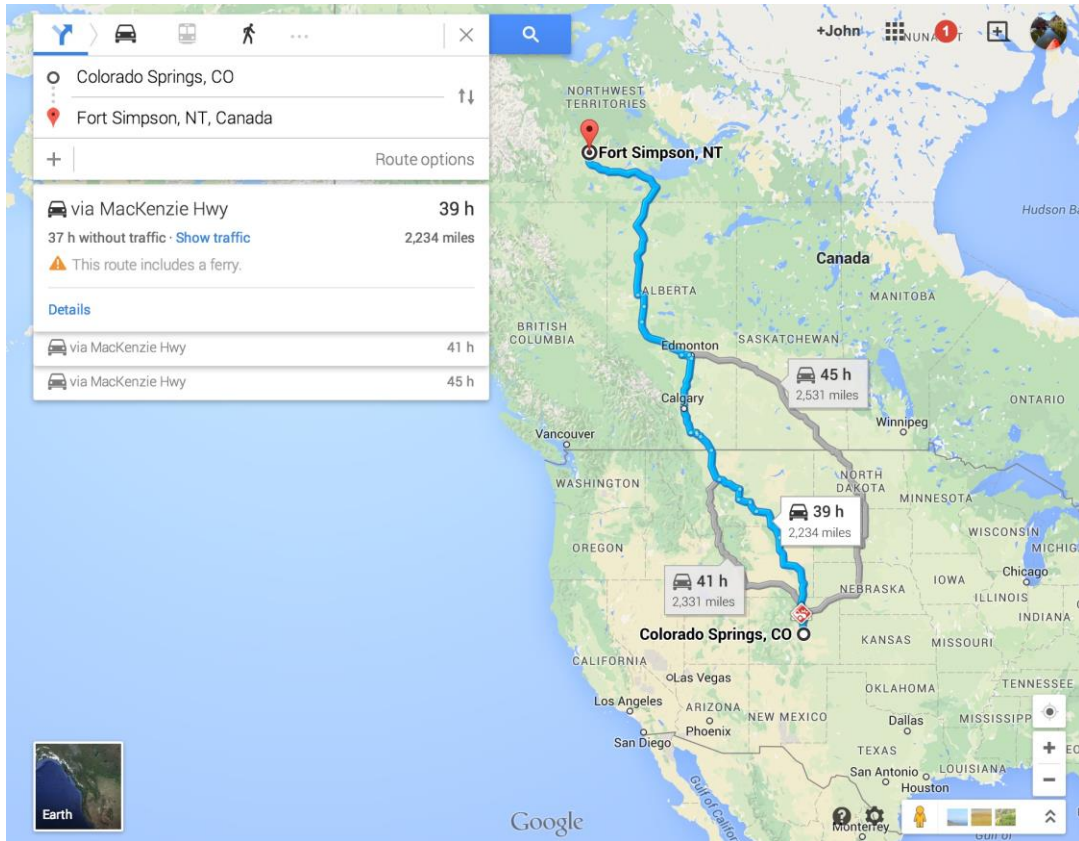
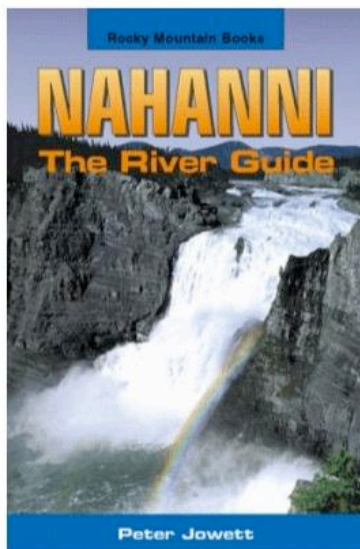


Fig 0. Nahanni: The River Guide Guidebook



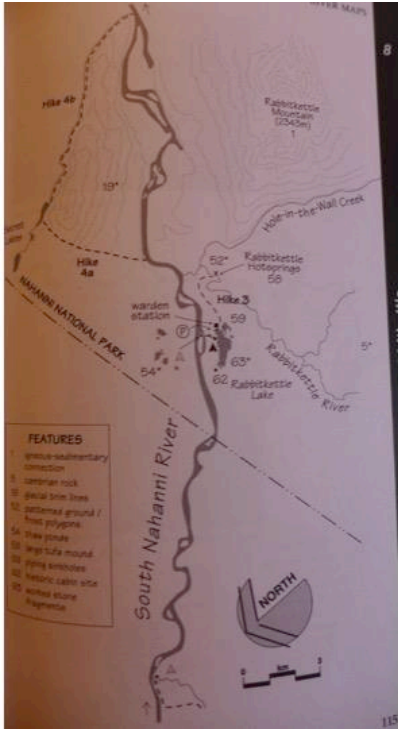
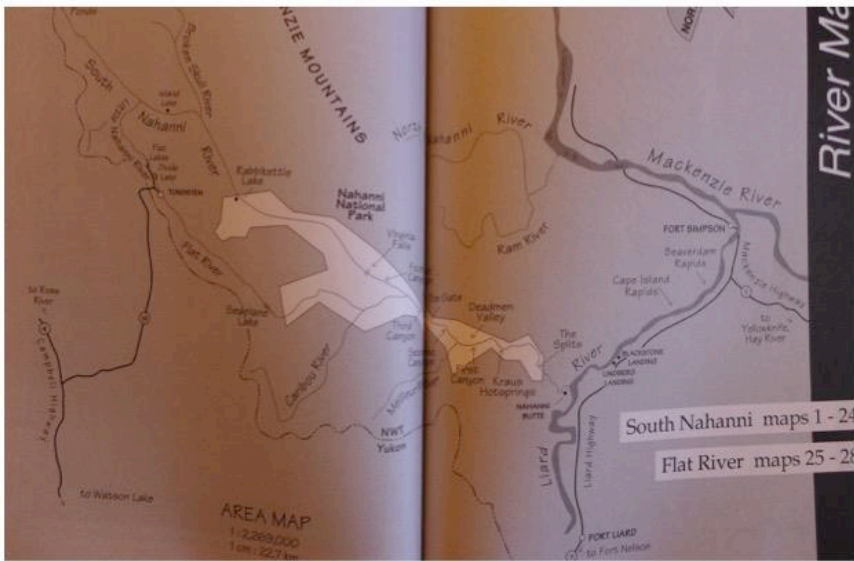


Fig 11. River from Bunny Bar to Rabbitkettle Lake and Hotsprings.

Fig 9. Overview of South Nahanni and surrounding Nahanni National Park



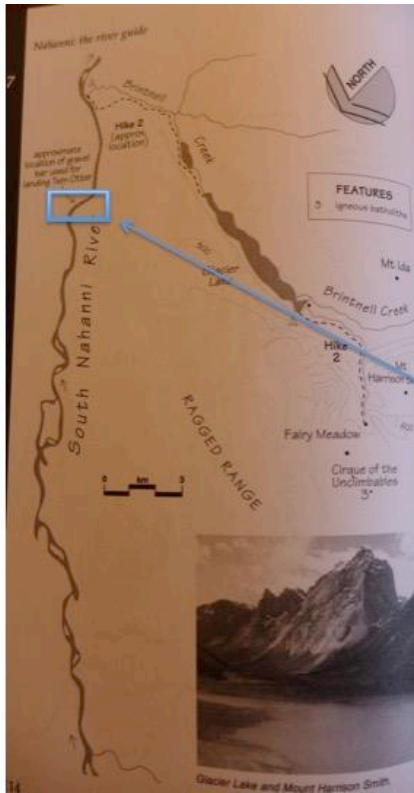


Fig 10. Rectangle indicates the Bunny Bar, where we plan on flying in on a wheeled bush plane.

Note: For all guidebook maps, river runs downstream from the bottom of the page to the top.

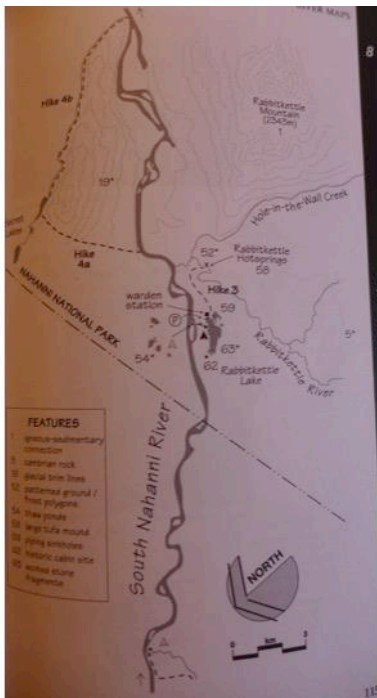


Fig 11. River from Bunny Bar to Rabbitkettle Lake and Hotsprings.

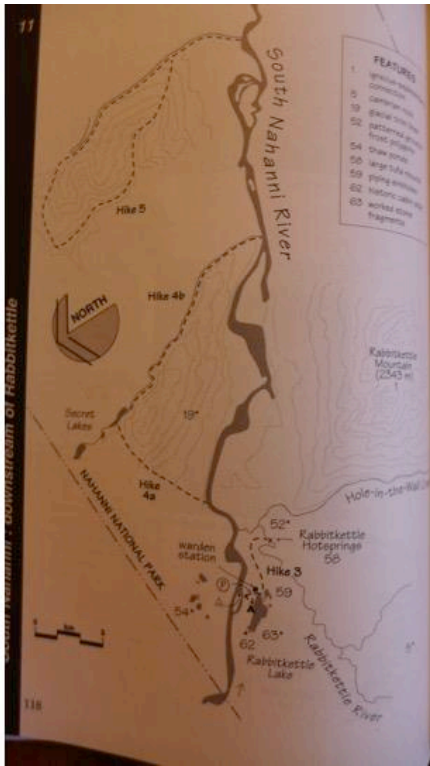


Fig 12. Downstream of Rabbitkettle Lake detail

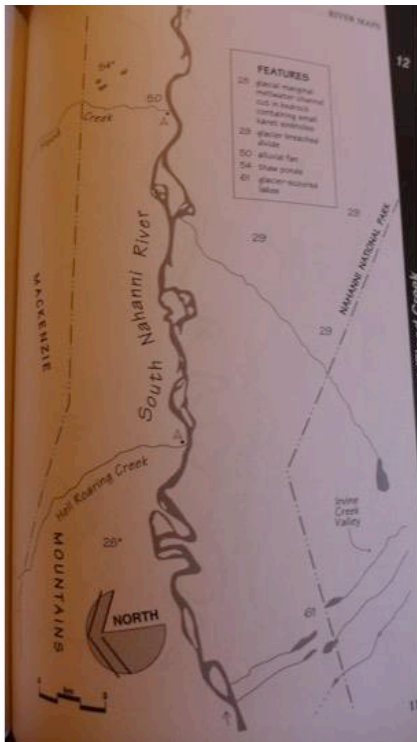


Fig 13. Downstream detail with Hell Roaring Creek and Flood Creek.

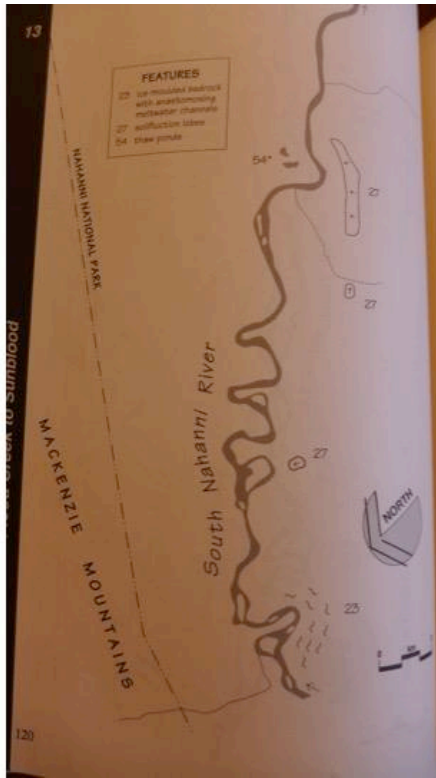


Fig 14. Downstream detail
Flood creek to Sunblood
(right before VA Falls)

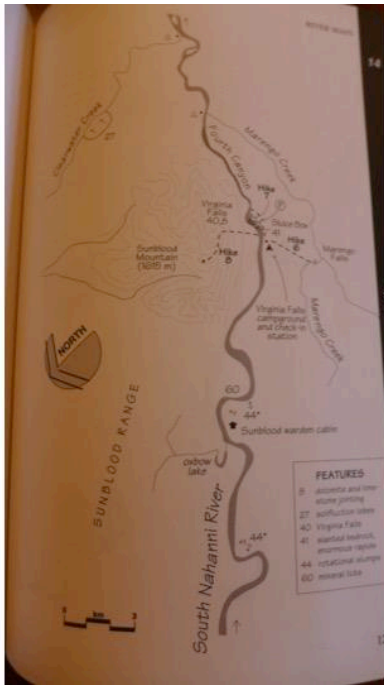


Fig 15. Downstream detail
Sunblood warden cabin to
Virginia Falls.

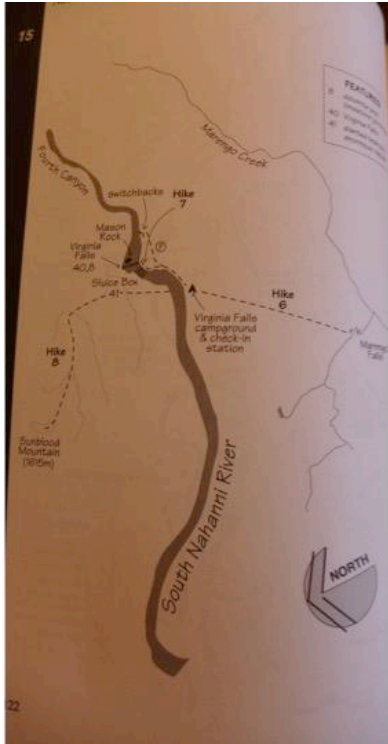


Fig 16. Virginia Falls detail.

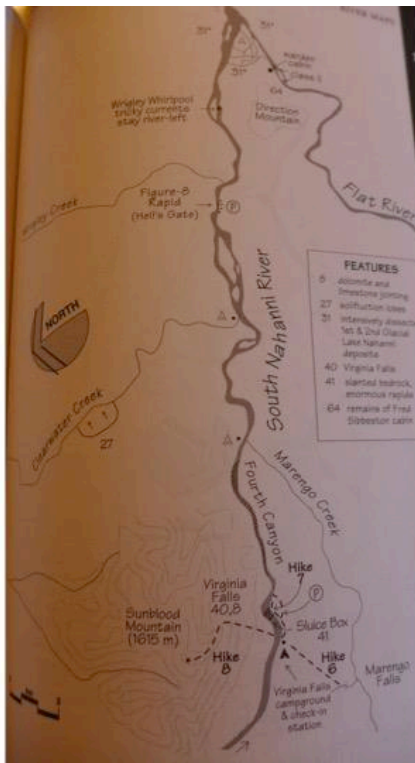


Fig 17. Downstream detail Virginia Falls to Flat River.



Fig 18. Downstream detail Flat River to Third Canyon.

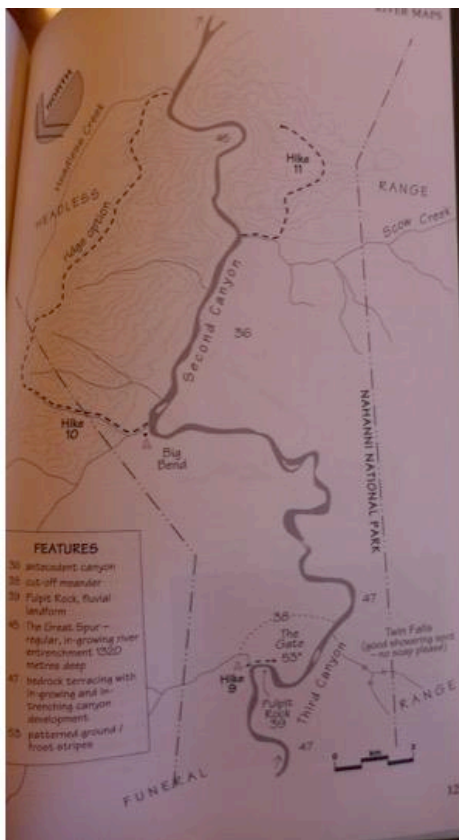


Fig 19. Downstream detail Third Canyon to Headless Creek.

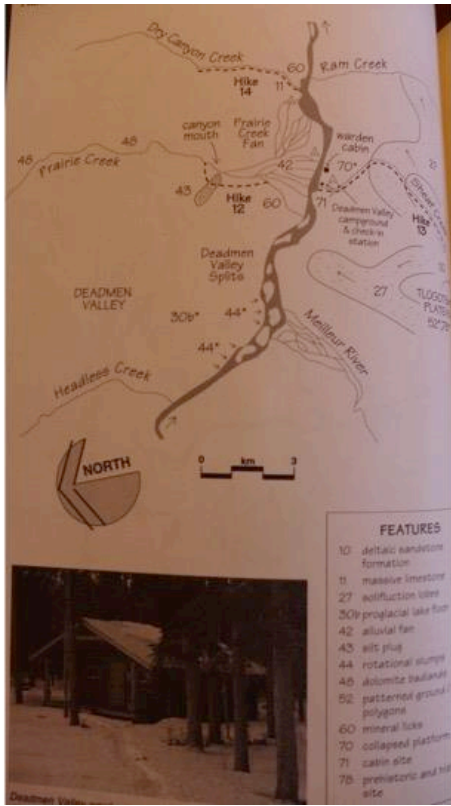


Fig 20. Deadmen valley detail.

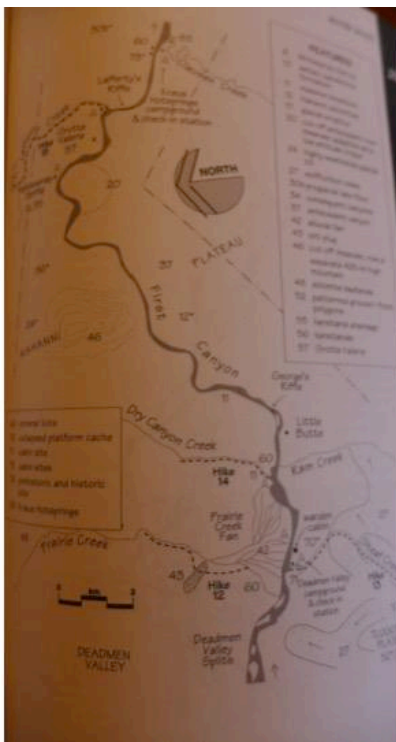


Fig 21. Downstream detail Deadmen valley to Kraus Hot Springs.

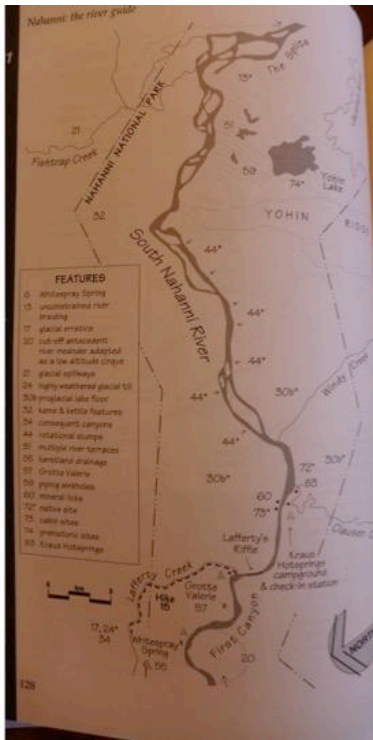


Fig 22. Downstream detail Kraus Hotsprings to The Splits.

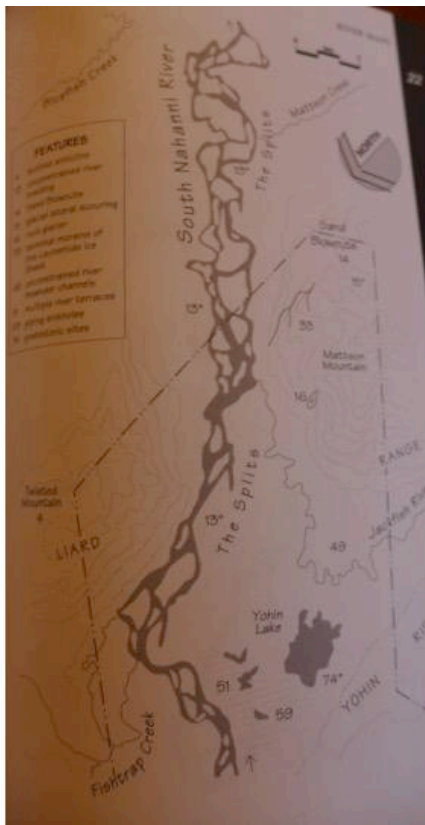


Fig 23. Detail of the Splits.

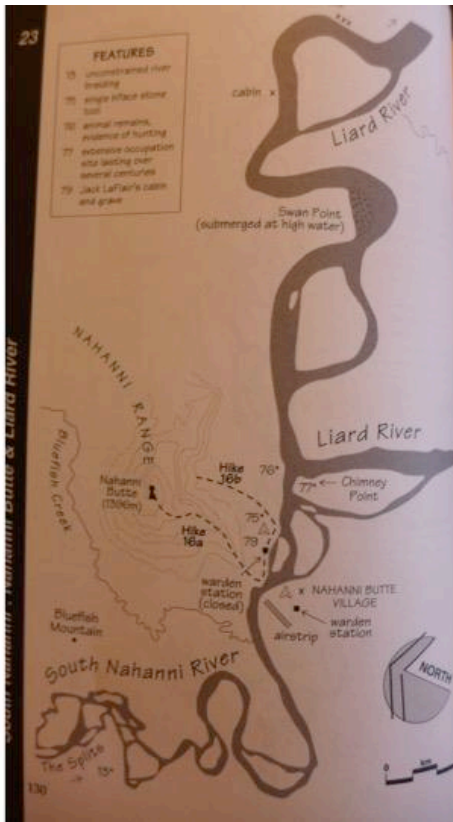


Fig 24. Detail of Nahanni Butte & the Liard River confluence.

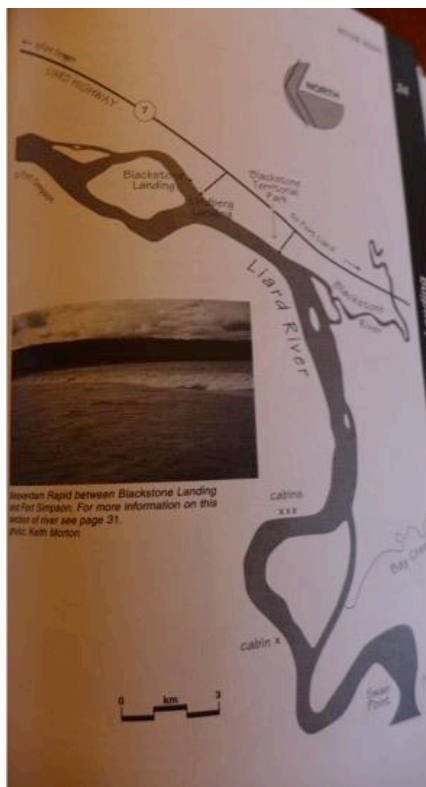


Fig 25. Detail Liard River to Lindberg Landing.