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Tundra Science and Culture Camp

July 27 – August 5, 2013

Daring Lake, Northwest Territories

ANNUAL REPORT

Northwest Territories Environment and Natural Resources

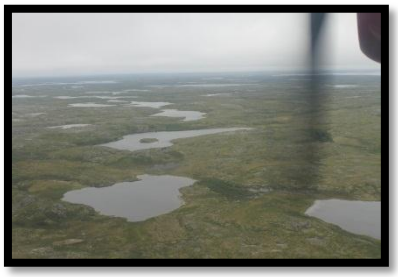
Background

Daring Lake and the Tundra Ecosystem Research Station (TERS) are located 300km north of Yellowknife, in the Southern Arctic Ecozone 50 km northeast of the tree line. The Station was established in 1994 by the Department of Environment and Natural Resources (ENR) as a multi-purpose facility whose primary goal is to facilitate long-term research and monitoring of the tundra ecosystem.

The Station also supports conservation education programs including ENR's Tundra Science and Culture Camp (TSCC). Initiated in 1995, the TSCC provides students with an interdisciplinary exposure to arctic ecology, natural history, human history and Dene traditional knowledge. Participants work closely with scientists, environmental educators, university researchers and Dene elders. The focus is on learning about the land from both scientific and Dene perspectives in a cross-cultural setting.

Students learn about wildlife ecology, ornithology, plant ecology, aquatic ecology, geology, archaeology and human history. They get hands-on field techniques experience with experts in each discipline. Dene Elders teach traditional skills, cultural practices and their ways of knowing the land.

Scattered throughout the camp are activities for participants to learn about decision-making, resource management and development issues in this diamond mining region of the Northwest Territories.



In addition to classroom and field sessions, time is provided for students to conduct their own small-scale research project in an area of special interest. There are opportunities for recreational activities such as swimming, wildlife viewing, photography, storytelling, games, crafts, art, music and simply spending time with friends both old and new!

Eligibility and Selection

A maximum of 16 students are selected annually from NWT high schools. Numbers are limited by the capacity of the TERS facility and seats on the floatplanes that transport participants to and from camp. Preference is given to students who have completed Science 10 or equivalent so they have a general understanding of scientific concepts prior to camp. Up to three teachers from participating school boards are also given the opportunity to attend and maintain a legacy of the camp in the school system.

Student application forms are distributed to high schools in early April. Forms are submitted to the school and the school recommends applicants to the program coordinators by mid-May. Accepted participants are notified by early June and more program information is provided then.

Following an agreement with the Commission scolaire francophone des Territoires du Nord-Ouest (CSFTNO), we designated 2013 as a francophone focus camp, which we endeavour to provide every third year, alternating with a Tłı̨chǫ focussed year and an open year. With the target of providing a French milieu at camp, we reserved six spaces this year exclusively for francophone or French-speaking students and gave preference to francophone or bilingual teachers.

Students' applications were submitted to the school principal or science teacher liaison, who provided comments and recommendations to the program coordinators. Academic excellence is not the primary selection criterion; rather an attitude towards learning that will maximize the benefit of this on-the-land opportunity. Program coordinators offer the limited spaces to recommended students who meet the criteria. Priority is given to more senior students, on the rationale that younger students may have a chance to attend in subsequent years. Eligible students who cannot be accommodated in the first round of acceptance are put on a standby list. Last minute withdrawals are expected, so the standby list helps to avoid empty spaces and missed opportunities for other students to attend.

Costs

The camp is heavily subsidized by grants, contributions and in-kind support from the GNWT Departments of Environment and Natural Resources (ENR), Education, Culture and Employment (ECE) and Industry, Tourism and Investment (ITI) along with participating school boards.

To cover a portion of the costs of return air transportation from Yellowknife to Daring Lake, meals, and accommodation at the Research Station, each participant is required to pay a registration fee. Student fees cover roughly 10% of the direct costs of running the program. In 2013, the fee for each participant was $300.

Fees are paid in a variety of ways. Some parents provide funds while some students fundraise. In the past, the Tłı̨chǫ Community Services Agency (TCSA) has covered the cost for participating Tłı̨chǫ students including covering travel to Yellowknife if required. CSFTNO provided support for Francophone students wishing to attend the camp this year.

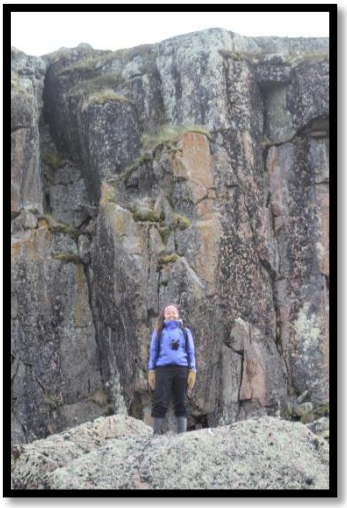
Camp Promotion: Students

To promote the camp to students, Public Education Specialists took a two-pronged approach. Firstly, they presented to, or arranged presentations, in schools. Given the financial restraints of presenting to each senior school in the Territory, traditionally, this has taken place only in Yellowknife and Behchoko. In 2013, however, we took advantage of pre-arranged work trips to Fort Smith and Fort Resolution to deliver a slideshow and answer questions.

Former students were also called upon to help promote and give their unique “students’ view” of the Camp and its merits. In Yellowknife, former students presented at Sir John and St. Pat’s. ENR Officer Kevin Kotchilea, a former camp attendee, presented to students in Behchoko.

The second approach was to circulate electronic and hardcopy promotional posters and program information (Appendix A) to all high schools throughout the territory via school principals and science teachers.

We rely on these contacts in the communities as they are a direct link to students and also can provide us with recommendations regarding applicants. They are essential and much-appreciated liaisons between ENR, parents and students



Camp Promotion: Teachers

To reach NWT teachers, posters and application packages (Appendix A) were distributed to all the senior level schools in NWT via emails to school boards and mail out packages. In addition, this information was disseminated through Employment, Education and Culture, the Northwest Territories Teachers Association and Aurora College teachers training program.

Camp Attendance

The number of applicants for 2013 was slightly lower than in past years. Whether some students were deterred by the fact that it was to be a “french-focussed” camp is not known. During promotion, we emphasized that lack of French language should not prevent any student’s participation.

The number of francophone applications did not fill the six reserved spaces, although several of the other applicants were from French immersion programs. One of the CSFTNO students withdrew, leaving only two participants from the francophone school board. Thus we opened up all spaces to any eligible students.

We did receive more applications, initially, than spaces available, including several from communities outside Yellowknife. Three of the initial applicants were participants from the previous year – who recognized the unique opportunity and hoped to be lucky enough to return. These three were restricted to the standby list.

As usually happens, some of the prospective students withdrew for various reasons including family holiday plans, and other land program opportunities closer to home or for which they got paid. Unfortunately, there were more withdrawals this year than usual, and most of them were in the last weeks and days before camp. Thus we were left

scrambling to fill spaces, even with two of the standby repeating students who were still available on short notice.

One space was filled with only a few days' notice by another Yellowknife student. Two more spaces were filled with Tłı̨chǫ summer students who had been hired by ENR and the Wek'èezhìi Renewable Resources Board (WRRB), to work for one month each as summer field assistants at the Tundra Ecosystem Research Station (Appendix B).

Since the objective was to provide the summer students with a broad fieldwork exposure, it was agreed that attending TSCC would be included in their summer experience. They were excused from their field assistant duties during the duration of the camp and participated as regular TSCC students.

Finally, one additional space was offered to ENR's Public Education Assistant to attend as a student teacher. (Public Education employs a summer student annually to assist the Unit and to obtain relevant work experience in their Education studies.)

One teacher from Yellowknife also registered and attended.

In the end, the demographics of the TSCC participants in 2013 were:

- Community
  Yellowknife -11; Hay River -1; Behchoko – 2

- School level:
  High school – 10; Post-secondary – 3; Teacher – 1

- Gender:
  Female – 8; Male – 6

- Ethnicity:
  Dene – 2; Metis – 1; non-aboriginal – 11

- French:
  Francophone – 3; French-speaking: 7

Staff and Instructors

A total of 33 people were at the Tundra Ecosystem Research Station during the 2013 Camp. In addition to the 14 participants, there were:

- 7 camp staff/instructors
- 2 camp cooks
- 3 Tłı̨chǫ elders and Tłı̨chǫ youth (Cultural Team);
- 4 university researchers;
- 1 university researcher who participated as a TSCC instructor; and
- 1 Tundra Ecological Research Station manager.

Instructors and Elders provided both formal and informal learning opportunities for the students. This ranged from classroom and outdoor programming to evening sharing circles and learning activities such as a geology time line and atl atl throwing.

Staff/instructors had varied backgrounds and provided a full spectrum of experiences to the students:

- Tom Andrews
  (Archaeologist – ECE, Prince of Wales Northern Heritage Centre)
- Diane Baldwin
  (Geologist - NWT Geoscience Office)
- Nimisha Bastedo
  (Assistant Camp Cook)
- Karin Clark
  (Biologist – Cumulative Effects Biologist/TERS Manager, ENR –Wildlife Division)
- Sarah Desrosiers
  (University researcher/plant biologist/guest instructor)
- Mike Mitchell
  (Cultural Liaison –ECE, Prince of Wales Northern Heritage Centre, Education Coordinator)
- Dora Nitsiza
  (Tłı̨chǫ Elder, Whati)

- Joachim Obst
  (Contract Ecologist/Ornithology Specialist)
- Tasha Stephenson
  (Biologist/TSCC Coordinator – Public Education Specialist, ENR)
- Rosanna Strong
  (Camp Cook)
- Archie Wetrade
  (Tłı̨chǫ Elder, Gameti)
- Rita Wetrade
  (Tłı̨chǫ Elder, Gameti)
- Stephanie Yuill
  (Camp Coordinator – Public Education Specialist, ENR)

University students, using the facility as a research station, gave TSCC students the opportunity to participate in on-going climate change monitoring programs and to learn from these researchers about their "real life" studies. In addition, the TSCC students were able to talk informally with university students about education, careers and climate change. Occasionally, we are able to use the talent and expertise of graduate students as actual session instructors. As such, the university students provided important role models for our high school students.

The two camp cooks, Rosanna Strong and Nimisha Bastedo, kept everyone well-fed. The cook handled all the food ordering and menu planning as well as cooking three meals a day plus snacks for each day during the 10-day camp.

Schedule/Programming

The TSCC program started on Saturday morning in Yellowknife with a ½ -day orientation session. Included in orientation was:

- Introduction of staff/instructors (via photos)
- Introduction of each other through ice breakers
- Overview of camp rules, logistics

- Bear safety
- Personal Equipment check
- Review of expectations of participants
- Camp scheduling

Two Twin Otter loads of students and staff were flown out to Daring Lake on Saturday afternoon. For many students, it was their first time in a float plane and their first view of the tundra landscape. After a tour of the camp area and then settling in to their assigned bunk buildings, the on-the-land learning began.

The schedule in Appendix C provides an overview of the session topics as well as the extra evening activities. Midway through the camp, we went on an all-day hike. The last few days were spent on the students' individual projects, with mentoring from instructors and elders.

For all the instructional sessions, students were divided into two groups. Each session included time spent in the "classroom" and in the field. All instructors incorporated both hands-on and outdoor components in each session. Often, other staff would accompany the main instructor to provide inter-disciplinary insights.

While camp programming doesn't vary greatly, each year attempts are made to take advantage of opportunities that arise. This year, Sarah Desrosiers, a graduate student from the University of British Columbia was able to assist with the plant ecology programming, act as a mentor for students and introduce a Berry Productivity Monitoring program she is working on. Other university researchers met the group on our all-day hike and explained their field research projects on climate change monitoring.

As in the past, Tłı̨chǫ elders were involved in cultural programs. A nimba (tipi) was assembled by students under the watchful eye of Archie Wetrade. Despite the cold and windy weather this year, several cultural activities and programs were held in the nimba.

In support of the educational opportunity the TSCC provides, we were allotted a single caribou tag should we harvest one. This year we were fortunate, and Archie was able to take a young bull. The highlight for many was cutting, hanging and tasting dry meat and sampling some unusual portions prepared by Dora and Rita.

Below are highlights from selected activities.

- Walking barefoot through a bog and feeling permafrost under their feet;
- Walking around a kettle lake and observing slumping along the shores;
- Learning to fire off a bear banger;
- Discovering the spruce “forest” while hiking to the peregrine nesting cliffs;
- Throwing an atl atl, a reproduction of an ancient spearthrower;
- Checking traps as part of the small mammal monitoring program;
- Erecting the nimba and experiencing cultural life inside;
- Learning and playing hand games;
- Tasting caribou marrow, nose, brain and eyeballs;
- Walking a beach seine through the lake in an attempt to catch something; and
- Exploring 2.7 billion year-old bedrock.

In addition to the program sessions, students were responsible for various chores. They were divided into chore groups and rotated tasks throughout the week and never repeated the same chore twice in a row. In the morning, groups washed breakfast dishes, took daily weather readings, cleaned latrines or assisted with the small mammal study by counting animals caught along a trap line (part of a coordinated survey across the NWT). Chore groups were also responsible for washing lunch and dinner dishes.

Social activities depend upon the composition of the camp. Inclement weather at the beginning of the camp saw many students socialising in the kitchen tent during down times; playing cards, talking, reading and generally hanging out.

Swimming was not as popular as in past years likely due to the cold water temperatures. However, students still swam and bathed in the lake.

Traditional Knowledge

Traditional knowledge has always been a significant part of the camp. We have always included Tłı̨chǫ elders, on whose ancestral land the camp is held. Instructors also incorporated traditional knowledge into their sessions. In 2012, we acknowledged this by changing the name of the camp from Tundra Science Camp to Tundra Science and Culture Camp.

For 2013, we had two new Tłı̨chǫ elders, the Wetrade's, accompanying Dora Nitsiza, who was returning for her 7th year. A staff member from the Prince of Wales Northern Heritage Centre acted as cultural liaison while at camp.

From beginning to end, the three Tłı̨chǫ elders were involved in camp programming. Immediately after arrival and the camp orientation, elder Archie Wetrade led everyone through a Thanking the Water ceremony. To close the camp, just before departure, the elders took us through a Feeding the Fire ceremony.

In between, students had opportunities to interact with, and learn from, the elders. Formal traditional knowledge sessions included Dene games, storytelling, rattle-making, beading and caribou hide scraping. Informally, elders also acted as a resource for a number of students who used their knowledge for research projects.

The presence of the elders also provided invaluable bonding time. Students were often seen simply sitting with elders, chatting with them during meal times or picking berries during the all-day hike.

The Tłı̨chǫ language was promoted, even during this "French-focussed" camp, through the use of a word-of-the-day poster in the dining tent. Each day, two relevant words were written in English, French and Tłı̨chǫ for all to see and learn.

This year, the traditional knowledge component gained greatly from the caribou that gave itself to us. When Archie arrived back at camp with word a bull caribou had been harvested, all activities stopped so everyone at

camp could learn from this special moment. The meat was laid out on the hide and the students learned to identify different parts of the animal. They were also shown how to bundle the meat into the hide for transport. A few vigorous volunteers then got to try packing the bundle on their backs. Not as easy as it looked!

The cultural team took advantage of this opportunity to teach the students throughout the remainder of the week. Meat was cut by students and placed on racks above the fire to make dry meat. Ribs were cooked and enjoyed by all camp attendees. For some, the highlight was the once in a lifetime opportunity to taste the eyeballs, brains, marrow and muzzle boiled over the fire by the elders.

It was a great honour to have received this gift and this honour was reflected in the students' behaviour. Each person was grateful for the opportunities they had and extremely respectful. While they may not have enjoyed the taste of muzzle, they still understood this was an amazing opportunity and tried whatever the elders proffered.

Hand games were popular with students and two nights were spent in friendly competition. This year saw increased participation by the university students who participated in a number of activities, including hand games.

Student Collections

During the first seven days of the camp, students were exposed to a number of different fields of Western science and a number of traditional practices. This exposure culminated with two student-lead activities: a collection fair and a student project presentation.

Students were informed of both activities at the beginning of camp. Information was reinforced throughout the week (particularly during the all-day, instructor-led hike) so students could take every opportunity to collect the necessary specimens/ samples.

Students were expected to choose their own areas of interest for both activities for it to be interesting and relevant to them. To help them focus and prepare their research and presentations, students were given hand-outs from previous years with examples of what, and how, things were done in the past (Appendix D).

On the final Friday evening, students set up displays of their collections as staff, instructors and other students circulated and asked questions.

Collections were as varied as always; however, this year saw incredible creativity in the displaying of the collections. Most students did not simply lay out information; many of them made their booth hands-on and interactive.

- One student collected photos of stone tools. Her display included a quiz that asked what the tools were used for, what they were made from and what the modern replacement could be!

- One student collected caribou food and put together a game called Caribou Cravings. Observers had to flip post-it notes to discover what the bulls and cows ate during spring and winter.

- One student collected animal signs which included scat, plaster castings she set and different food.

- One student collected nine different mushrooms and created identification/*guess the mushroom* game on an egg carton.

- One student laid out evidence of the food chain (photos, plant specimens etc.) and observers were asked to try and add to the food chain!

- One student collected plants and put together a trivia game based on their medicinal properties.

- One student collected, and identified 50 items off the tundra and created a colourful Colour of the Tundra display.

- One student collected and identified eight different feathers and created a *guess who the feather belongs to* game.

- One student put together a Berries of the Tundra display and showcased each one's berry, leaves and Latin name.

- One student collected three types of berries and did a tea sampling display. She had people taste and rank six different teas made of the berries and/or their leaves.

- One student collected Tłįchǫ words and created a matching game, getting observers to match the English word with the Tłįchǫ word.

- One student collected Labrador tea and displayed its Tłįchǫ name, traditional uses and the different parts of the plant.

- One student collected, identified and displayed tundra plants.

Student Projects

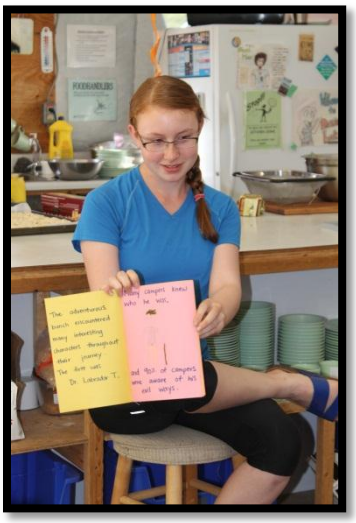
The last few days of camp were spent on the students' individual research projects. These projects enabled them to pursue an area of interest and present it in their own way. They could work individually or as a team, depending on the depth of research.

To help them focus and prepare their research and presentation, students were given project outlines from previous years and an outline sheet to fill out (Appendices E and F). Students were also assigned an instructor to mentor them throughout their projects. The mentor acted as a resource for the students, answering questions or providing direction to other resources. Mentors also ensured students were on track with timing, encouraged them to start work or accompanied students in the field to collect the necessary samples or field data.

Students were made aware of the projects early and had ample time to prepare. Aside from the all-day hike and time during other classroom activities, almost three full days were available for research and preparation. Final presentations were held the early evening of the final full day.

Thirteen projects were presented:

1. Indicator Minerals - the student looked at minerals and asked several research questions including What Makes a Good Indicator Mineral and What Elements are most abundant.



2. Traditional Beading - one student worked with elders to learn the history and techniques of traditional and current beading methods and materials.

3. Myths and legends – one student compared the teachings of French, English, Dene stories.

4. Water Quality – the student compared water quality at different sites before and after disturbances such as when planes and boats took off from the dock.

5. Tundra Foods – one student wrote a children's book on tundra foods that while appealing, can harm you.

6. When the World was New – one student looked at how her ancestors would have survived on the tundra in the past.

7. Plants and Nutrition – one student compared different plants that could be used as food and looked at their nutrition values.

8. Cosmetic Uses for Plants – two students looked at different plants and their cosmetic values such as moisturizing and astringency.

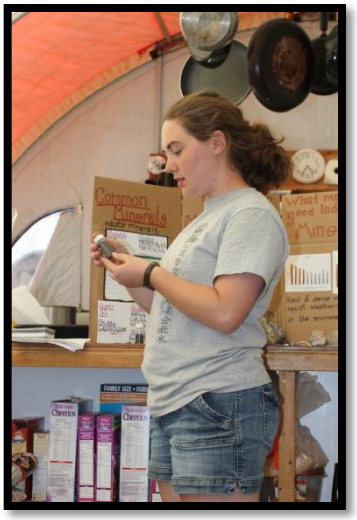
9. Permafrost Levels – one student explored and compared permafrost around the camp.

10. Animal behaviour – one student wrote a booklet about animal behaviour.

11. Fish Sampling – one student took otolith samples from fish caught at the camp and researched the use of sample data.

12. Vegetation Change – one student compared plant types and stages of development as he moved from the top to the bottom of a north facing slope.

13. Drum making – one student worked with the elders to make a Dene drum.



Budget

The Table 1 details the budget for TSCC for the students and staff in attendance for the 10 days. Note, this does not include salary costs for GNWT or WRRB staff nor does it include miscellaneous supplies.

Table 1: 2013 Tundra Science and Culture Camp Budget

Debits		
Air Charters	Caravan (Split) - Groceries	$2,671.10
	Twin Otter Groceries & Personnel	$5,258.44
	Twin Otter - Staff & Participants (4 @ $5,300)	$18,342.03
Food	Groceries	$6,551.59
Contracts	Cook	$4,913.16
	Assistant cook	$1,875.00
	Contract instructor (1 @ $3,000)	$3,000.00
	Elders (3 @ $3,000)	$9,000.00
Total Cost		$51,611.32
Credits		
Tuition	14 X $300 (Students and Teachers)	$3,000.00
GNWT Financial Contributions	ENR (Field Support)	$5,000.00
	ENR (Wildlife)	$21,111.32
	ECE (PWNHC/Education)	$9,000.00
	ECE (Education)	$5,000.00
	ITI (Geology)	$5,000.00
	Total GNWT Financial Contributions	$48,111.32
Additional Partners	WRRB	$3,500.00
Total Credits	Tuition, GNWT and Additional Partners	$51,611.32

Evaluations

The camp evaluation form was updated this year to encourage students to provide more feedback on their experiences at camp. The evaluation included both open and closed questions. Students and student teachers were asked to fill out evaluation forms on the last day of camp.

Overall, the feedback was positive. Some issues specific to this year's camp were identified by students. Appendix G is the detailed and tallied summary of their evaluations.

Camp instructors also do a communal evaluation/ debrief at the end of Camp. The problems mentioned by the students were already observed by the staff, and discussions were held to come up with solutions to avoid similar issues in future.

Conclusion

Group dynamics differentiate each Camp as each student brings something different to the experience. The 2013 camp was no different.

The main thing that stood out was the resilience, fortitude and positive attitude of the participants. The weather at the beginning of the camp was cold and inclement. Much of the camp activities took place outdoors and students put on their gloves and toques and participated fully. There was no complaining about going outside – they just did what they had to do with a great attitude. Many even went swimming (or dipping in the pool).

In attendance at camp this year were two previously-injured students. One was on crutches for the better part of the camp and the other using a cane. However, they tackled all activities with enthusiasm and no complaints. This was also reflected in the helping attitude of the other students. If someone needed help, there was always someone to provide support. This feeling of cohesion amongst the students was prevalent.

As always, the ten days concluded with tears of happiness and sorrow. Much fun was had throughout the camp and students were often seen smiling and heard laughing. This made saying goodbye hard for many students. One of the most important lessons students left camp with was that science, traditional knowledge, fun and friendship can all work together in harmony.

Appendix A – Promotional Poster for Teachers

NWT Teachers!
Pensez vous à l'été?

Looking for a professional development opportunity
that's exciting, engaging *and* located in an exotic location?
Parlez vous aussi le français?

The Department of Environment and Natural Resources
invites NWT teachers to apply *now* for its annual

Tundra Science & Culture Camp

Saturday, July 27th – Monday, August 5th 2013

10 DAYS LEARNING FROM EXPERTS ON THE TUNDRA

Note: Preference is given to high school science teachers;
however, teachers of other grades and subjects are encouraged to apply.
2013 is a triennial "milieu français"; priority given to les francophones.

Note: Applications for high school ***students*** will be available soon.

For more information and application forms, contact:

Tasha Stephenson ~ 873.7064 ~ tasha_stephenson@gov.nt.ca

Stephanie Yuill ~ 920.8975 ~ stephanie_yuill@gov.nt.ca

Northwest Territories Environment and Natural Resources

Appendix B – Advertisement for TERS Research Assistant

Summer Student Job Opportunity at Daring Lake, NWT

Are you interested in science and the environment? Would you like to learn more by working with a researcher this summer? Are you a Tłı̨cho high school student?

There is a 1-month opportunity to work as a summer field assistant at the Tundra Ecosystem Research Station at Daring Lake. We are looking for two Tłı̨cho students: one for the month of July and one for the month of August.

Scientists are researching many interesting issues, such as the effects of climate change on Arctic tundra ecosystems. Successful applicants will learn how to do fieldwork, assist in the lab, learn about the unique ecology of the Barren lands and find out more about careers in science and research.

Here's how to apply:

Send your resume to
Karin Clark, Wildlife Division, ENR
Ph: 867-920-3014
Fax: 867-873-0293

Email: Karin_Clark@gov.nt.ca

The application deadline is **JUNE 24, 2013**

Appendix C – Tundra Science Camp Schedule 2013

Saturday July 27th

Orientation Day/
Flights to Daring L.

9:00 am. - 12:00 pm.

*Meet at Scotia Center Basement Boardroom

-meet & greet
-logistics
-bear safety
-Gear list
-etc.
Lunch and pack-up

1:30 and 2:00 pm.
Flights to Daring L.

4:00 pm.
Paying the Water (Archie)
Camp Orientation
Rules/Walkabout (Steph/Tash)
Bear Safety (Chris)

6:00 pm. Supper

7:30 pm.
Evening activity
-Stephanie & Tasha
Opening Circle
- Steph & Tasha

Staff Meeting

Sunday July 28th

8:00 am. Breaky/Chores
Set up Trapline

9:15 am.
Reflection - Mike

10:00 am.
Group 1
Human History
-Tom

Group 2
Geology
-Diane

1:00 pm. Lunch

2:00 pm.
Group 2
Human History
-Tom

Group 1
Geology
-Diane

6:00 pm. Supper

7:30 pm.
Atl atl presentation
-Tom

Monday July 29th

8:00 am. Breaky/Chores

9:30 am.
Group 1
Cultural Activities
-Culture Team

Group 2
Caribou Ecology
- Karin & Joachim

12:30 pm. Lunch

1:30 pm.
Group 2
Cultural Activities
- Culture Team

Group 1
Caribou Ecology
- Karin & Joachim

6:00 pm. Supper

7:30 pm.

Collections and Projects
-Steph

Co-management
Activities (Vote & Obstacle Course)
- Karin & Steph

Tuesday July 30st

8:00 am. Breaky/Chores

9:30 am.
Group 1
Aquatics Insects & Fish
-Tasha & Joachim

Group 2
Plants & Berries
- Karin &Sarah

12:30 pm. Lunch

1:30 pm.
Group 2
Aquatics
-Tasha & Joachim

Group 1
Plants & Berries
- Karin &Sarah

6:00 Supper

7:30 pm.
Time Travel & Glaciers
- Diane & Steph

Sharing Circle

Wednesday July 31st

8:00 am. Breaky/Chores

9:30 am.

All Day Hike

-Grad Student Projects
-den ecology
-wildlife viewing
-geology
-human history
-Dene perspective
-birds
-plants
-GPS
-First Aid Kit
-Maps
-Radios
-Bear Deterrents
-Lunch/Snacks & Water
-Sunscreen
-Bug Spray
-Swim suit
-Binoculars
-Scope

6:00 pm. Supper

Thursday August 1st

8:00 am. Breaky/Chores

9:30 am.
Cultural Program (All)

12:30 pm. Lunch

1:30 pm.
Group 1
Birds
-Joachim

Group 2
Projects-Introduction & Mentor

6:00 pm. Supper

7:30 pm
Wildlife Techniques/ Tracking
-Tasha, Karin & Steph

Friday August 2nd

8:00 am. Breaky/Chores

9:30 am.
Group 2
Birds
-Joachim

Group 1
Projects-Introduction & Mentor

12:30 pm. Lunch

1:30 pm.
Projects

6:00 pm. Supper

7:30 pm.
Collections Fair

Circle / Hand Games

Saturday August 3rd

8:00 am. Breaky/Chores

9:30 am.
Projects

12:30 pm. Lunch

1:30 pm.
Projects

6:00 pm. Supper

7:30 pm.
Tundra Challenge
2013
-Tasha & Stephanie & Some Really Special Guests

Sunday August 4th

8:00 am. Breaky/Chores

9:30 am.
Reflection

10:00 am.
Projects

12:30 pm. Lunch

1:30 pm.
Projects
3:00 pm.
Project Presentations

6:00 pm. Supper

7:30 pm.
Story Telling

Closing Circle

Monday August 5th

Say Goodbye to Daring Lake!

9:00 am. Breaky

10:00 am.

-pack up camp
-closing ceremony
-feed the fire
-evaluations
-staff meeting

Departures to YK
1:30 & 3:30 pm.

Appendix D: Examples of Tundra Science Camp Student Collections

Objective:

1. Collect 8-10 items/ species/ examples,
2. Learn the classification system for those items
3. Become familiar with the field guides, manuals and other resources available for identifying these items.
4. Display and present your collection at an informal collections fair.

Past Collections, for example:

1. Rock types/minerals/potential for tool-making

2. Plants – common/medicinal/traditional uses/traditional teas/flowers

3. Aquatic invertebrates.

4. Mushrooms

5. Soil samples.

6. Animal sign/remains (not bones).

7. Sunspots.

8. Lichens.

9. Tracks.

10. Terrestrial insects

11. Hair

12. Indicator minerals

13. Berries

14. Original poetry/art

15. Habitats

16. Traditional stories

17. Sounds

18. Fish prey

19. Mosses

20. Scents

21. Feathers

22. Archaeological sites (using photos)

Appendix E – Examples of Tundra Science Camp Student Projects

Past Projects

1. Permafrost - comparison of permafrost depth at various locations with different plant coverage and different degrees of human disturbance.

2. Daring Lake Ecology – construction of a food web based on evidence of species in the lake.

3. Tool making – collection of rocks that have conchoidal fracture and attempt to make tools from them.

4. Tool-making – construction of various tools using wood, obsidian, stone, hide including bow drill, arrows, bow, knife, model dead-fall and fish traps, snares and willow fishnet.

5. Tool-making – construction of caribou fence and description of traditional caribou hunt.

6. Late evening wildlife observation – planning a walking route for observing and recording evidence of wildlife.

7. Habitat comparison for plants – measurement of plant height and leaf size of dwarf birch in a variety of habitats.

8. Medicinal uses of tundra plants – collection and pressing of plants with traditional medicinal uses.

9. Ecology of peregrine falcons – observation of peregrine nest sites, response to disturbance, collection of prey remains and if possible, banding of chicks.

10. Comparison of food bait preferences of insects.

11. Pictorial description of process for tanning hides.

12. Mapping of archaeological sites.

13. Recording of traditional place names.

14. Mapping and description of wildlife use of bear rocks.

15. Mapping of rock outcrops.

16. Pictorial dictionary of Dogrib.

17. Mushroom collection and spore printing.

18. Plant collection and taxonomy.

19. Description of caribou hunting and meat and hide processing.

20. Comparison of aquatic invertebrates in fast-moving water, lake and pond habitats.

21. Comparison of plant phenology on island and mainland.

22. Comparison of phenology and size of blueberry plants in different habitats and preparation of pemmican and blueberry squares.

23. Mapping of “spoon” glacial feature and construction of a model.

24. Stream dynamics.

Appendix F - Tundra Science Camp Project Outline

Project Team
(Who's doing it? 1,2,or 3 people max.)

Title of Project
(What it's about?)

Purpose
(What questions are you trying to answer?)

Methods of Study
(How are you going to find your answer?)

Equipment
(What will you need?)

Expected Results/Product
(What do you think you will find?)

Presentation
(How will you "show and tell" your project?)

Project Team: **Kay and Curly**

Title of Project: Tracking Wildlife Life of the Narrows Beach

Purpose: To see what animals hang out around the Narrows when people are not hanging out there.

Methods of Study:
Monitor animal tracks/footprints in the sand at different times of the day and night. Rake the sand clean of tracks and return to check for tracks first thing in the morning; in the afternoon; late evening. Identity and document the tracks; measure size of track for comparison of individuals; record direction of movements. Record human activity during intervals between sampling, to see if that influences number of tracks. Photograph or make plaster cast for sample tracks.

Equipment:

Garden rake	Camera	Watch/clock
Notebook and pencil	Plaster and mold form	Each other, buddies to leave camp

Expected Results/Product:
We think we will find tracks of some small animals, and maybe caribou and wolf and maybe even a Big Animal. During the day, we expect some human tracks. Probably there will be more animal tracks overnight, when people aren't moving around.

Presentation:
We can do a bar graph of the number of each species that we found there. We can do another graph to show the activity at different times of the day. We may have some plaster casts to show different animal tracks. If we get a 'mystery' track we can make up a story about it!

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Project Team: Lina and Jake

Title of Project: Traditional Uses of Caribou

Purpose: To see how our grandparents used parts of the caribou.

Methods of Study:
We will talk to elders at the camp, research and read books and other materials,

Equipment:

Notebooks and pencils	Camera	Caribou hide	Caribou
Scarf/traditional clothing	Thread and needle	Birch bark basket	Buttons

Expected Results/Product:
We think that our grandparents used each and every part of the caribou and did not waste anything.

Presentation:
We would like to present it as a play. One of us will be the interviewer and one of us will be the elder being interviewed. We would like to use various props to demonstrate the different uses of different parts of the caribou. For example, how the sinew was used for sewing clothes and stitching together baskets.
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Appendix G – Amalgamated Tundra Science Camp Student Evaluation

Orientation Day:

1. Did orientation prepare you for camp?
   Yes 6 No 2 Somewhat 5 N/A 1

2. What we you NOT prepared for?

- Collections
- Projects
- Not enough water for all day hike
- Hot weather
- Didn't have a camera
- Bugs (2)
- Not prepared for all day hike - Spent 9/10 of the day sitting down and waiting
- Rain – send an e-mail to kids a few days before with an update on the recent weather at camp
- Cold weather

3. Rate the following parts of orientation and how useful they were for you:

	Extremely Useful	Very Useful	Somewhat Useful	Not at all Useful	Hunh?
Logistics	**3**	**5**	**2**		2
Safety	**3**	**6**	**3**		
Equipment Check	**3**	**4**	**5**		
Expectations	**3**	**7**	**2**		
Group Activities	**3**	**4**	**5**		

4. Do you recommend any changes to the orientation?

- Better Muffins
- Don't show bear video

Camp Schedule:

1. Was the length of camp:
   Too long 1 Too short 6 Just right 7

2. Were the instructional sessions:
   Too long 3 Too short 3 Just right 10

3. Was there enough time to pursue your own interests?
   Yes 4 No 3 Sometimes 7

4. Did you have enough time to complete camp chores?
   Yes 14 No

5. Did you feel lights out and wake-up times were appropriate?
   Yes 10 No Sometimes 4

6. Do you recommend any changes to the camp schedule?

- More time for breakfast
- More time to work on projects (2)
- More free time to explore land and pursue interests
- Designated times to questions experts on projects
- All day hike after the sessions are finished
- Students should choose which lessons they want to attend
- More time between sessions and meals
- Shorter evening sessions or less academic evening activities (atl atl good for evening, wildlife management too heavy)
- Day at the beginning of the camp to hang out and get to know the other campers
- More time to get ready before breakfast

Camp Content:

1. Program variety. Was there:
   Too much 1 Too little Just right 13

2. Which sessions/activities were most valuable to you (check *all* that apply):

Human History	12	Plants and Berries	10
Cultural Activities	12	Caribou Ecology	8
Aquatics and Insects	6	Geology	6
Birds	9	Tool Making	N/A
Wildlife Techniques	7	Collections Fair	7
Projects	6	All Day Hike	8
Tundra Challenge	7	Sharing Circles	6
Sunday Reflections	5	Co-management Activities	2
Atl Atl throwing	11	Geology Time Travel	3

3. Are there other topics you would think would be useful at future camps?

- More Atl Atl throwing
- More permafrost walks
- More cultural activities (2)
- Zoology in general
- Space Activities
- More human history
- Ways to survive if lost on the Tundra

4. Was there enough balance between instructor-led sessions and student-directed studies?

   Yes 9 No 5

Group Dynamics:

1. Did you prefer: Activities with the whole group 2
   Activities with smaller groups 4
   A mix of both sized groups 8

2. Did you get enough time to interact with people at camp:

Fellow students	Yes	13	No	1		
Staff	Yes	13	No	1		
Elders	Yes	8	No	2	Somewhat	4
Grad Students	Yes	6	No	3	Somewhat	5

3. Was there enough time for group reflections and sharing?

   Too much 4 Too little 3 Just right 7

4. Did you feel you could approach a staff member if you were concerned about things?

   Yes 11 No Sometimes 3

5. If no, what prevented you from feeling comfortable with this?

- Don't know how to put it
- Sensed tension between certain staff members (2)
- Felt some instructors were distracted and were more interested in their own projects
- Felt some instructors were belittling – would laugh in a rude way when they answered questions during sessions

Accommodations:

1. Were you satisfied with sleeping arrangements?
   Yes 12 No 2

2. Do you have any suggestions for improvements?

- A fan in the tent. Got hot at night.
- More bug spray
- Sturdier bunks (2)
- Bunk was ill constructed and almost collapsed
- Top bunks seemed pretty rickety

Meals:

1. Were you satisfied with the food?
   Yes 14 No

2. Was time spent helping in kitchen:
   Too much 1 Too little Just right 13

3. Do you have any suggestions to improve the menu or the way meals were prepared?

- More bacon
- More dessert
- BBQ
- Better Teas – Cream of Earl Grey or Buckingham Palace Blend
- More student involvement in food prep
- Possibly have a “Kids Cook” day

Facilities:

1. How can we improve other camp facilities (wash tent, lab tent, outhouses, dock, dining tent etc.)?

- More games (board, card, badminton, etc.)
- Camp showers (2)
- Outhouses smelt bad (4)
- King sized bathroom
- Better sanitation station
- Wash tent smelt like mildew (2)
- Fresh air fresheners and more ventilation in outhouses (2)
- Use paper bags for toilet paper so that you can burn it along with the toilet paper

More to Say?

1. In case we missed something, feel free to comment on any and all aspects of the program.

- A little more free time (2)
- More bacon
- Do either collections or project (2)
- More free time to talk to elders, teachers, staff to learn more about what interests students (2)
- Later wake-up time
- Have divided groups in all day hike (2)
- Role of teacher student could be reconsidered or changed slightly. Good to have a teacher involved in activities but felt that it would have been more appropriate to give the teacher the option to opt out of certain activities or play a different role. At times, felt like they were being treated like a teenager.
- Students spent amazing days (weather wise) feeling stressed about projects instead of enjoying the tundra. (2)
- Instructors should coordinate more before sessions. A lot of info was repeated from session to session
- Tourism/tradition/industry portion of the Tundra challenge was boring
- During presentations, instructors should not ask so many questions that clearly weren't in the student's capability to answer. Made students feel uncomfortable watching their fellow students struggle to answer questions they didn't know the answers to while other students weren't asked a single question. (2)
- During the presentation, felt as though instructor was deliberately trying to ask questions they didn't know the answers to. (2)
- Instead of having an all day hike possibly do smaller hikes each evening. Gives students the opportunity to spend more time at each site.

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