



Parks Canada Agency

Research and Collection Permit

(Not Transferable)

Permit Number: QAUNP-2023-45502
Fieldwork Start Date: 2023-07-18
Fieldwork End Date/Expiry Date: 2023-07-29

Project title: The Impact of Land Plants on Earth Systems

Principal Investigator Name: Erik Sperling

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Affiliation: Leland Stanford Junior University

Is hereby authorized to conduct the research project entitled "**The Impact of Land Plants on Earth Systems**", Research and Collection Permit Application Number "**55943**", in **Qausuittuq National Park of Canada**, subject to the terms and conditions set out below and/or attached to and forming part of this Research and Collection Permit.

Members of the Research Team:

Lidya Tarhan: Department of Earth and Planetary Sciences, Yale University, P.O. Box 208109, New Haven, CT USA 06520; 1 917-828-0098; lidya.tarhan@yale.edu

Keith Dewing: Geological Survey of Canada, 3303 33Rd St NW, Calgary, Alberta, Canada T2L 2A7; 1 403-292-7000; keith.dewing@NRCan-RNCan.gc.ca

Emily Ellefson: Department of Earth and Planetary Sciences, 450 Jane Stanford Way, Building 320, Rm 118, Stanford CA USA, 94305; 1 650-750-6399; edellefs@stanford.edu

Sydney Riemer: Department of Earth and Planetary Sciences, 210 Whitney Ave., New Haven, CT USA 06511; 1 917-828-0098; sydney.riemer@yale.edu

Devon Manik: Wildlife Monitor, Resolute, Nunavut

Acts, Regulations and Terms and Conditions



Permit issued pursuant to:

National Parks General Regulations: Subsection(s) 7(5), 11(1)

Project proposals within National Parks, National Marine Conservation Areas and National Historic Sites administered by Parks Canada in Nunavut are subject to the Nunavut Land Claims Agreement (NLCA) and therefore screening by the Nunavut Impact Review Board (NIRB) in accordance with Section 8.2.11. However, Schedule 12-1 of the NLCA exempts certain types of project proposals from screening by the NIRB. Under an agreement through 12-1(7), the NIRB and Parks Canada have agreed to exempt Research and Collection Permits for the National Parks from screening by the NIRB.

General Terms and Conditions:

Failure to comply with the applicable Heritage Area regulations or the terms and conditions of the permit may constitute grounds to cancel or suspend the permit, refuse to issue future permits, and may be considered as grounds for prosecution under the applicable Act(s) or Regulation(s).

Permit:

All permit holders must be in possession of a valid permit before the fieldwork commences and at other periods as stated on the permit.

Permits are not transferable and each member of the fieldwork team must have a copy of the valid permit in their possession.

The permit is valid only for the geographic location, the period, the activities, and under the terms and conditions described on the permit, unless amended and revalidated by the Superintendent.

Restrictions:

The Superintendent may suspend, cancel, or restrict the scope of the permit.

The permit shall cease to be valid if the fieldwork is not started within six months of the date of issue.

Other Acts and Regulations:

The Principal Investigator must abide by applicable regulations and all other federal, provincial, territorial or municipal regulations applying to the Heritage Area or the Research and Collection Permit.

The Principal Investigator and any team member will identify themselves and show a valid Research and Collection Permit when requested by the Superintendent, an authorized Heritage Area staff member, fisheries officer, Indigenous guardian or a police constable.

Principal Investigator's Responsibilities:

Any damage resulting from a Principal Investigator's activities, or those of their team, shall be



reported promptly to the Superintendent. Principal Investigators will be financially responsible for any damage resulting from their activities or those of their team.

A site, or site component(s) that has been excavated or disturbed shall be restored or conserved by the Principal Investigator to the satisfaction of the Superintendent.

The Principal Investigator must advise the Research Coordinator of any adjustments in work location, research plan and methodology, implementation schedule, or main personnel, among others, during the course of the research project.

Principal Investigators working in a Heritage Area are required, as a condition of their permit, to submit, unless otherwise negotiated:

- a) A report of progress sixty (60) days following the completion of the fieldwork, unless otherwise agreed with the Research Coordinator;
- b) An Investigator's Annual Report (IAR) within one year of signing the permit. In the case of a multi-year permit, the principal investigator will submit an IAR for each year of the research project; and,
- c) A final report, in electronic or hard copy form no later than eight (8) months following the completion of the fieldwork, unless otherwise agreed with the Research Coordinator.

The reporting requirements above do not replace any reporting requirements set out in any contract between Parks Canada and the Principal Investigator.

The Principal Investigator will be responsible for all members of their team. All team members must observe all terms and general and specific conditions of the Research and Collection Permit.

The Principal Investigator, and their team, shall at all times indemnify and save harmless the Crown (Canada) from and against all claims, demands, loss, costs, damages, actions, suits, or other proceedings, by whosoever made, sustained, brought or prosecuted, in any manner based upon, occasioned by, or attributable to, anything done or omitted by the Principal Investigator or the project personnel in the fulfillment or purported fulfillment of any of the terms and conditions of the permit. This does not apply to Principal Investigators or permit holders who are employees of Parks Canada.

General Conditions Governing Natural Science Research:

Any natural objects collected under authority of this permit remain the property of the Crown (Canada) and are considered on loan to the permit holder. Final disposition of natural objects must be described in the Project Proposal Form unless amended by the Superintendent. Export of natural objects or specimens requires approval by the Superintendent and is subject to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the *Cultural Property Export and Import Act* and the *Export and Import Permits Act*. Intention to export specimens must be indicated in the Project Proposal Form.

Only the natural objects or categories of natural objects indicated on the permit may be collected.

A detailed inventory of material collected will be provided to the Research Coordinator prior to its



removal from the Heritage Area by the Principal Investigator.

Fossils or evidence of previous human occupation must be immediately reported to the Superintendent and must be left undisturbed upon discovery until they may be inspected by a Parks Canada palaeontologist or archaeologist.

Specific Conditions:

The following conditions apply to Research & Collection Permits issued for Qausuittuq National Park and are in addition to those outlined above.

The Permit holder(s) are required to check in at the park office in Resolute prior to the commencement of their field activities. Exceptions to this must be discussed with the Park Manager prior to the start of the field season.

The Permit holder(s) are required to confirm their arrival and departure from the field research camp to the Park Manager.

For air access, Permit holder(s) will confirm aircraft operators have an Aircraft Access Permit authorized by the Superintendent. Landings identified for this Research and Collection Permit are authorized by the Superintendent as per Section 5 of the National Parks of Canada Aircraft Access Regulations subject to the following provisions:

- A list of all aircraft use must be provided to the Superintendent and Park Manager prior to commencement of fieldwork. This list must include: dates, location, and type of aircraft for all landings and take offs;
- Conflict with wildlife, wildlife habitat and park visitor use must be minimized;
- A minimum flying height of 610 meters (2000 feet) must be adhered to except during landing, takeoff or as part of the approved research methods. For areas with known concentrations of migratory birds (e.g., bird colonies, moulting areas) a lateral distance of at least 1,500 metres (4,900 feet) must be respected. If this is not possible, a minimum flight altitude of 1,100 metres (3,500 feet) must be maintained over these areas.

The use of UAVs or drones is not permitted.

A list of all fuel caches associated with research activities must be provided to the Superintendent and Park Manager prior to commencement of field work and must include: location, amount, and the type of fuel at each cache

- All fuel caches and empty drums are to be clearly and indelibly marked with the project leader's name, year that fuel was cached, and Polar Continental Shelf Project (PCSP) number if applicable
- All fuel drums are to be removed from the park at the end of the field season unless otherwise agreed upon

All garbage is to be removed from the park in accordance with the National Park Regulations.

Solid Human waste: in field camp situations, human waste is to be collected in sealable metal or plastic containers. The project leader is responsible for ensuring that all containers of human waste must be removed for disposal at an appropriate facility. The cost of this disposal is



the project leader's responsibility.

The project leader will ensure that all party members understand and comply with the Canada National Parks Act and Regulations.

Nunavut Agreement Inuit employed by the research project are not permitted to use research or Parks Canada chartered aircraft and vessels to transport any materials gathered, fished or hunted during their leisure hours while in the park.

The project leader is responsible to ensure that all party members read available polar bear safety information.

All polar bear observations and encounters must be reported to the Park Manager.

The permittee shall not remove, disturb or displace any archaeological artifact or site.

Should an archaeological site or specimen be encountered or disturbed by any land use activity, the permittee shall immediately contact the Parks Canada (Nunavut Field Unit) Cultural Heritage Manager at 613-408-8934.

The permittee shall immediately cease any activity that disturbs an archaeological site encountered during the course of a land use operation, until permitted to proceed with the authorization of Parks Canada.

A field season summary report must be submitted to Parks Canada by 30th October each year that the permit is valid (email: rechercheparcsnunavut-nunavutparksresearch@pc.gc.ca) and to the following community groups: Hamlet Council of Resolute Bay and Resolute Bay HTO.

The project leader or designate must present the research project and results to Parks Canada staff in Iqaluit at a mutually agreed upon time.

The project leader or designate must present the research project and results to the community of Resolute Bay at a time mutually agreed upon between the project leader and the communities.

Copies of all reports, scientific papers, and posters must be provided to the Parks Canada office in Iqaluit.

Data files will be provided to Parks Canada upon request.

The Park Management Committee for Qausuittuq National Park will review annually the terms and conditions of this permit. The permit may be revoked if terms and conditions are not adhered to.

The following are the approved collections & procedures that can be made in Qausuittuq National Park during each field season. (For details on methodology, refer to application # 55943. Exceptions or amendments to the methodology are identified here):

Field Dates: Approximately late July to early August 2023.



Field Work Location: near Grant Point on northwest of Bathurst Island, Qausuittuq National Park (76° 05.583 N; 100° 35.333 W). Access through Twin Otter provided by PCSP, landing on the established landing strip on Grant Point. If that location is not viable, Option B, Twilight Creek (76° 11.410' N, 99° 14.410' W) can be used as an alternative.

- Any caribou observations and any signs of caribou disturbance from landing or during field work, will be reported by the Principal Investigator in the field report due on October 30.
- Landing where Peary caribou are present is not permitted.

Research Purpose: Examine changes in the rocks related to the rise of land plants, which took place at the time these rocks were deposited.

Objectives:

1. Collect samples of rocks to understand rock chemistry, organic matter (including fossil spores and plant particles), and fossil molecules.

To meet these objectives the following field work is permitted:

1. Measure the vertical succession of rock types in order (measuring the stratigraphic section), record sedimentary structures and paleontological data.

2. Take 300-400 small rock samples (maximum total of ~200 grams each) for routine analysis, and larger samples for more complicated analysis (maximum total of ~1000 grams each, for 50 samples), from an outcrop in a river bank west of Grant Point (or at Twilight Creek backup location). Overall, samples will be collected every ~1 meter of stratigraphic height.

- Samples collected by hand, hammer or shovel

3. Fossil samples will be removed from the park for analyses at Stanford University in the Historical Geobiology Laboratory.

- Fossil samples will be brought to the Canadian Museum of Nature in Ottawa after analysis is complete.
- Report in the field report due October 30th the status of the fossils.
- Inform the Parks Canada research account once the fossils have been sent to the Canadian Museum of Nature (rechercheParcsNunavut-NunavutParksResearch (PC) <rechercheparcsnunavut-nunavutparksresearch@pc.gc.ca>)

4. Group will stay at 6 people as much as possible, only when necessary is the group allowed to split into 3 and 3 (no more or less), with a permitted firearm user in one and the wildlife monitor in the other.



Principal Investigator Signature

I, **Erik Sperling**, the Principal Investigator, accept all the stated Research and Collection Permit terms and conditions.

Erik Sperling
Name

Signature

2023-07-08
yyyy-mm-dd

Permit issued and approved by:

Superintendent Name

Superintendent Signature

yyyy-mm-dd

Parks Canada Contact

Qausuittuq National Park of Canada
Iqaluit, Nunavut

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