

Inclusivity in the Outdoors: addressing barriers to participation in field research and outdoors-based learning at Queen's University

Authors: Isabella Asselstine, Emily Cervenka, Samantha Gene, Lisa Han, Kristen Hayward, Samreen Munim, and Hana Thompson
Queen's Outdoor Field Experience Initiative¹
Department of Biology

¹E-mail: queens.field.initiative@gmail.com

Summary:

In the Winter of 2021, Queen's Outdoor Field Experience Initiative (QOFEI) surveyed 103 members of the Queen's University community as a first step in addressing barriers to participation in field research. The survey gathered feedback on perceived barriers to the outdoors, student experiences with outdoor learning, initiatives of interest, and methods to support equal access to outdoor opportunities.

Financial barriers to participation in fieldwork were commonly experienced by survey respondents, with 32% reporting a lack of access to personal equipment and 37% reporting a lack of financial means to travel. Between 20-30% of survey respondents expressed discomfort with at least one component of navigating the outdoors, including limited outdoor knowledge, uncertainty in operating equipment, or a lack of childhood outdoor experience. The most commonly reported barrier was found to be a lack of awareness of fieldwork-related opportunities, with 74.7% of respondents citing this as having prevented their participation in the past.

To help mitigate some of the hidden financial barriers associated with field research, QOFEI is in the process of creating a gear lending library to give students free access to outdoor equipment and apparel. The lending library will be just one facet of our program – we also aim to offer individual funding opportunities for students to purchase their own equipment and necessary apparel, a website with centralized resources and opportunities for outdoor research participation, and outdoor experience workshops and skills training opportunities in order to foster a sense of community and nurture positive self-image and environmental competency. Lastly, QOFEI will be working with the Biology Department to increase awareness of opportunities at Queen's.

Full report:

Participation in field research and outdoor-based learning at the undergraduate and graduate levels provides students with the opportunity to develop essential research skills, discover their interests in biology, and build confidence. Such experiences can set the tone for a student's involvement with outdoor learning and can determine future willingness to pursue opportunities post-graduation. However, there are a range of factors that prevent equal access to outdoor learning such as knowledge, financial, and cultural barriers. In order to create a welcoming and inclusive outdoor learning environment, these barriers must be addressed.

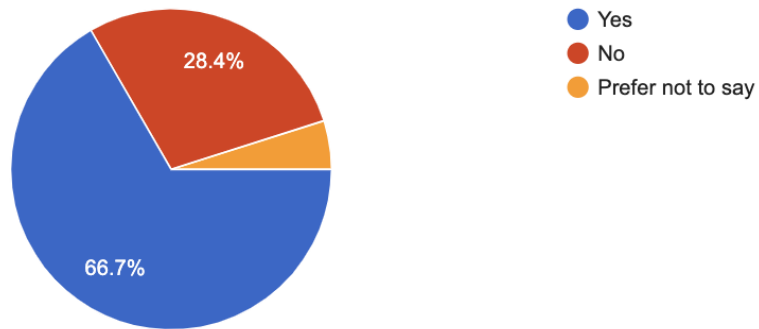
In the 2021 Winter semester, a short voluntary survey (Appendix A) was distributed to the Queen's community in an effort to better understand barriers to outdoor participation experienced by the student population. This project was conducted by the Queen's Outdoor Field Experience Initiative (QOFEI), a student-run subcommittee of the Queen's Biology Equity, Diversity, Inclusion, and Indigeneity Committee. In the survey, respondents were asked about their general comfort with the outdoors and about past experiences with Queen's field research opportunities. Respondents were also asked about perceived barriers to participation in the outdoors and were invited to provide suggestions on how the Biology Department may work to improve the accessibility of outdoors-based learning opportunities. This survey was sent to relevant email lists including the Queen's Biology graduate students, undergraduate students, faculty, and postdoctoral fellows email lists. The survey was also circulated within relevant Facebook groups with high student engagement including "Queen's Biology Graduate Students and Postdocs", "Overheard at Queen's", and "BIPOC at Queen's." Participation in the survey was entirely voluntary and all responses were anonymous.

A total of 103 individuals participated in the survey, 96% of which were students at the graduate or undergraduate level (Figure 1). 66.7% of respondents self-identified as part of an equity-seeking group (defined as groups "that identify barriers to equal access, opportunities and resources due to disadvantage and discrimination and actively seek social justice and reparation" by the Canada Council for the Arts¹), 28.4% did not identify as part of an equity-seeking group, and 4.9% indicated "prefer not to say" (Figure 1).

¹ Canada Council for the Arts, 'equity-seeking groups', *Canada Council for the Arts*, <https://canadacouncil.ca/glossary/equity-seeking-groups>, Accessed 20 July. 2021.

Do you identify as part of an equity seeking group? (Equity-seeking groups are those that identify barriers to equal access, opportunities, and resources due to disadvantage and discrimination such as racialized individuals, individuals with disabilities, women, indigenous individuals, and LGBTQ+ individuals)

102 responses



What level of study are you currently in?

101 responses

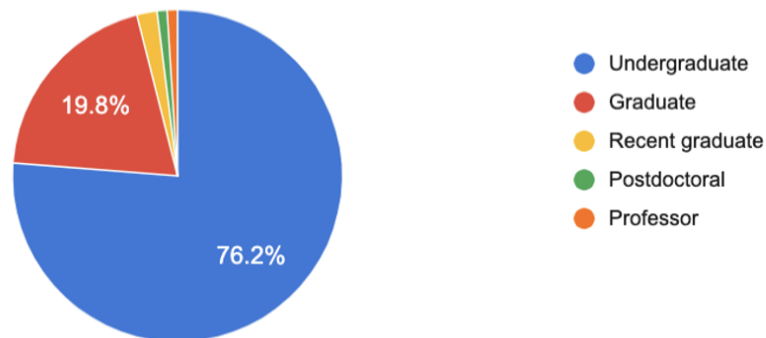


Figure 1. Respondent demographic information from Winter 2021 Barriers to Outdoors Participation Survey.

Participants were asked to rate their general level of experience with outdoor activities on a scale from 1-5, with 5 indicating very experienced and 1 indicating no experience. 55.4% of respondents rated their level of experience as a 4 or 5, 32% rated their level of experience as a 3, and the remaining 12.6% rated their level of experience as a 2 or 1 (Figure 2).

How would you rate your level of experience with outdoor activities?

103 responses

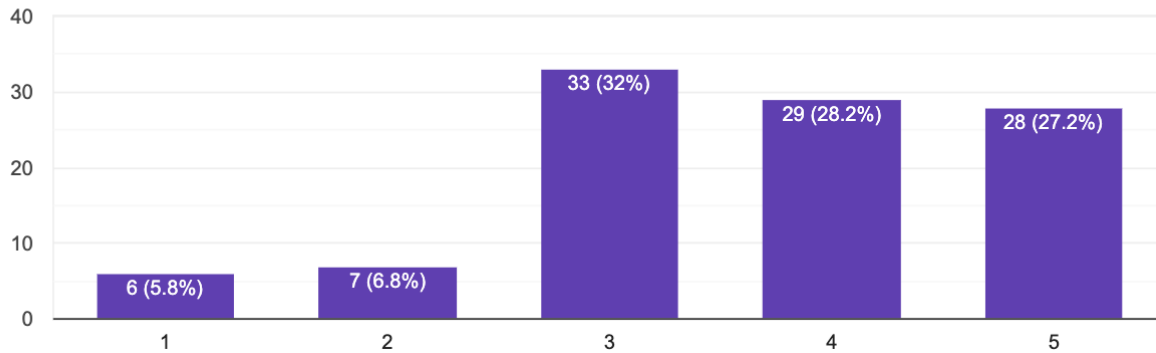


Figure 2. Respondent answers for the question “How would you rate your level of experience with outdoor activities?”. 1 = not experienced and 5 = very experienced.

Respondents were then asked to rate how welcome they feel in outdoor spaces on a scale of 1-5, 5 meaning very welcome and 1 meaning not welcome. 70.9% of respondents answered with either a 4 or 5, 24.3% answered with a 3, and the remaining 4.9% answered with a 2 (Figure 3).

How welcome do you feel in outdoor spaces?

103 responses

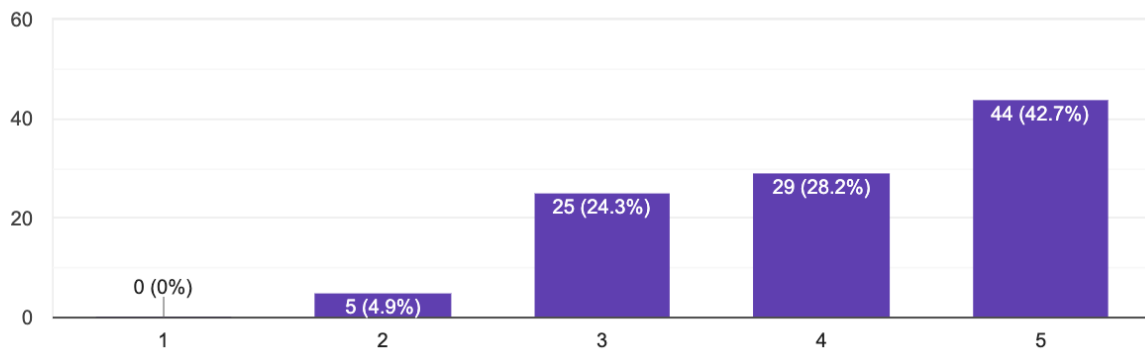


Figure 3. Respondent answers for the question “How welcome do you feel in outdoor spaces?”. 1 = not welcome and 5 = very welcome.

In order to gauge comfort with specific outdoor activities, participants were asked to rate their comfort level with 9 activities commonly encountered during fieldwork on a scale of 1-5, 5 meaning very comfortable and 1 meaning not comfortable. There was a high level of comfort for day hikes, sleeping outdoors, being in the water, canoeing/kayaking, and traveling, with 70% of respondents or more rating their comfort as a 4 or 5. There was less overall comfort with

overnight hiking trips, pitching a tent, and making meals with a fire or camp stove, although these activities still saw 58% of respondents or more answer with a 4 or 5. The activity with the lowest confidence score was operating a motor boat, with 50% rating their comfort as a 1 or 2 (Figure 4).

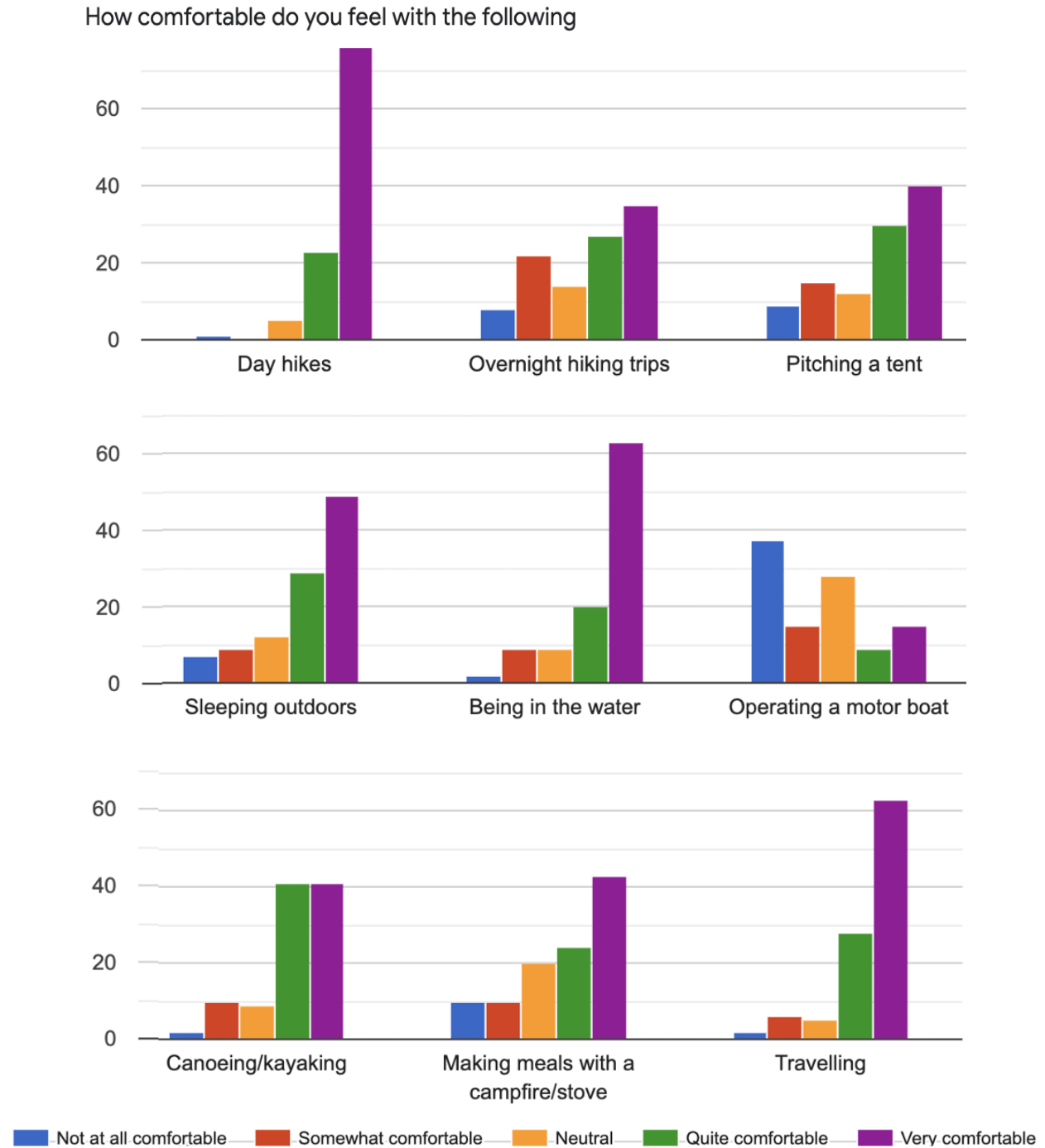


Figure 4. Respondent answers regarding their comfort with various outdoor activities.

66% of survey respondents indicated having no prior experience participating in outdoor field courses, trips, or summer positions involving fieldwork (including the Summer Work Experience Program and positions at the Queen's University Biological Station). The remaining 34% of respondents who had participated in prior fieldwork were asked to describe how they acquired necessary gear and what support they found useful for their fieldwork experience (respondents were able to select multiple answers). 64.7% of participants reported that their supervisor or employer paid for some or all of the equipment and materials needed in the field, 50% were able to borrow or already owned the equipment and materials, 5.9% accessed a grant, and 64.7% paid for some or all of the equipment and materials themselves (Figure 5). Additionally, 26.5% of participants cited financial support (such as grants) as being helpful to their overall fieldwork experience (Figure 6).

How did you access the materials and equipment needed?

34 responses

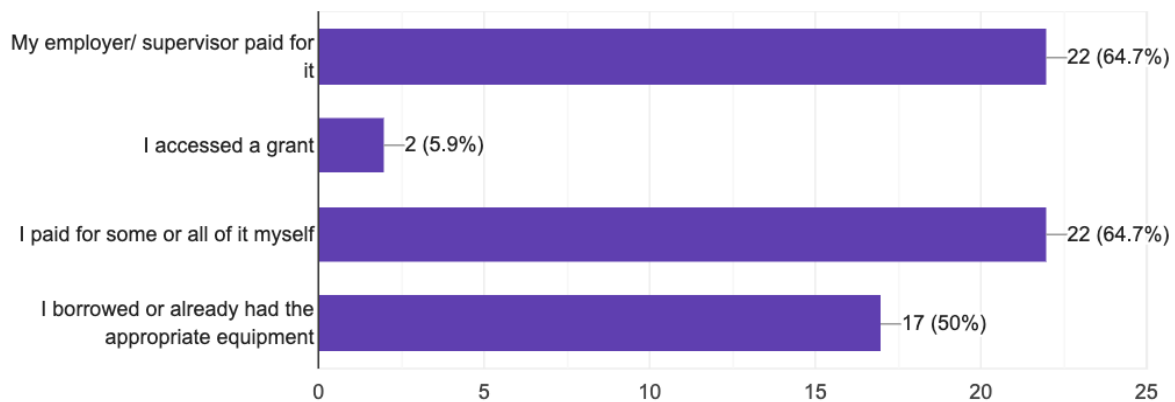


Figure 5. Respondent answers regarding how they accessed field gear in previous outdoor participation experiences.

What supports, if any, did you find were helpful to you and your fieldwork experience?

34 responses

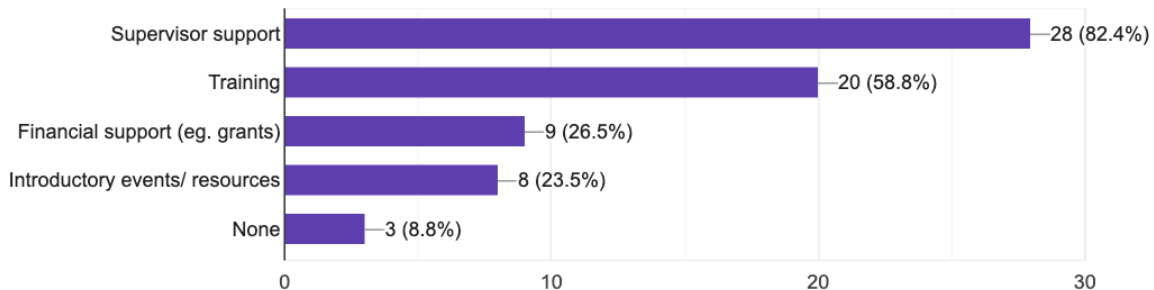


Figure 6. Respondent answers regarding which supports they found helpful during previous outdoor participation experiences.

All respondents were then asked which barriers have kept them from participating in outdoor field experiences at Queen's in the past. Being unaware of opportunities was the biggest barrier to outdoor experiences, with 74.7% of respondents citing it as a reason they did not participate. Lack of time was the second most reported barrier and was experienced by 44.4% of respondents. Additionally, 32% of respondents reported that they lacked adequate personal equipment or access to equipment, and 37% reported insufficient financial means to travel. Other notable barriers experienced by 20-30% of participants included limited outdoor knowledge, uncertainty in operating equipment, minimum childhood outdoor experience, and lack of representation within the field. Lastly, 13.1% of participants cited feeling unwelcome or unsafe, and 14.1% said that they feared experiencing overt discrimination or microaggressions.

Participants were then invited to highlight any other factors which they thought may impede students from outdoor participation. One recurrent comment was that many field courses take place during the summer, requiring students to take time off from their summer jobs. This poses a significant financial barrier to entry as not all students are able to afford time away from work. In addition, multiple participants reported course fees as being a barrier to entry, including travel expenses and the cost of gear. Beyond financial considerations, some respondents cited feeling worried that their lack of experience made them unfit to participate. Other barriers that were mentioned included concern of physical or neurological disabilities not being accommodated for, being too busy, and safety concerns (particularly for marginalized students such as students of colour and females). Lastly, concerns regarding diet, culture (outdoor attire required, having the time and space to pray), and gender (sleeping arrangements, facilities for menstrual care) were also noted.

Next, respondents were invited to offer suggestions on how the Queen's Biology Department might work towards breaking down these barriers in order to make the outdoors more accessible and inclusive. The most commonly listed suggestions included providing grant opportunities, offering an equipment borrowing system, facilitating workshops focused on teaching outdoor skills, greater integration of field components into courses, and offering a greater range of accessible locations for field courses to reduce the cost of travel. Additionally, multiple respondents expressed a desire for opportunities to be better advertised and circulated long in advance in order to allow students sufficient time to plan. Finally, respondents suggested that field courses should emphasize that registration is open to everybody in order to encourage applicants who may otherwise be deterred due to feeling inexperienced.

48.4% of participants cited that they would be interested in a seminar series focused on teaching outdoors skills, and 41.1% of participants said that they might be interested (Figure 7). Respondents highlighted a variety of skills which they would be interested in learning including basic survival skills, wilderness first aid, preparing for overnight trips (cooking, pitching a tent, etc.), hiking, canoeing, and how to dress appropriately for the outdoors.

Would you be interested in a seminar series focused on teaching outdoor skills?

95 responses

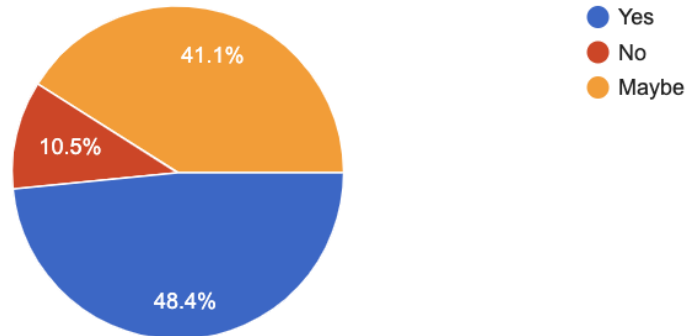


Figure 7. Proportion of respondents who would be interested in an outdoor skills seminar series.

Discussion points

1. There is an urgent need to increase student awareness of field research opportunities. Our survey found that 74.7% of respondents reported not being aware of past outdoor opportunities. This statistic, combined with write-in answers suggesting better advertising of opportunities, emphasizes the importance of effective information distribution. One way that this could be addressed is by creating a centralized webpage that details all field-based opportunities offered through the Biology Department as well as upcoming opportunities. This will be included on the Biology Department website, the upcoming QOFEI website, and could exist as a “course” page on OnQ. Additionally, more frequent emails regarding opportunities that are sent well in advance and posterings around campus could also help mitigate this barrier.
2. There is a need for financial support to cover travel and gear expenses associated with fieldwork. Field experiences often carry hidden costs, such as acquiring appropriate outdoor attire and gear such as shoes, clothing, and camping equipment. This can exclude students who do not already have the appropriate materials. In fact, 32% of survey respondents cited lack of personal equipment as a barrier that kept them from participating. 64.7% of respondents who had previously participated in outdoor opportunities reported having to pay for some or all of the equipment and materials themselves. Furthermore, traveling to and from outdoor locations can present a significant financial barrier as well, with 37% of respondents reporting insufficient financial means to travel. One way that this could be addressed is through the establishment of a gear lending library, a goal which QOFEI is currently working towards. This could potentially eliminate a great deal of the financial burden faced by students who do not already have and cannot purchase the necessary gear. Additionally, setting

up grant initiatives to cover the cost of travel and gear expenses could also help mitigate these barriers.

3. Students are interested in a seminar series and other resources to help increase outdoor competency. 20%-30% of survey respondents listed lack of experience and knowledge with the outdoors as barriers to participation. Creating a seminar series focused on teaching key outdoor skills in a diversity of settings (including focused groups such as women-only hikes and family-based birding), compiling resources on the QOFEI website, and creating informative videos are all strategies to increase student comfort with the outdoors. In fact, 89.5% of survey respondents reported that they would be interested or might be interested in participating in an outdoors skills seminar series.
4. Finally, it is clear that there are systemic barriers that exclude equity-seeking groups from participating in and having positive experiences with outdoor activities. As such, there is a need for a cultural shift in field research in order to address these barriers. QOFEI aims to continue learning and unlearning through group discussions, research, and in collaboration with affinity groups that have expertise in creating an inclusive and welcoming outdoor community. We aim to promote awareness of the barriers that prevent outdoor research participation and to provide resources to help facilitate individual confidence in outdoor skills and self-image. We will continue to work with the students and faculty of Queen's University to collect feedback and to create an environment engaged in working towards a continuous cultural shift.

Appendix

Appendix A - Copy of "Barriers to Outdoor Participation Survey"

Barriers to Outdoor Participation Survey

The Queen's Biology Equity, Diversity, Inclusion, and Indigeneity Committee has created a subcommittee to focus on implementing initiatives that address barriers to participation in field-based research and outdoor-based learning. For example, the cost of personal field equipment can act as a financial barrier to student participation in field courses, classes with a field component, and field-based research programs/summer jobs. Our program would work to offer an outdoor equipment/apparel lending co-op and individual funding, as well as outdoor experience and skills training opportunities for students to increase their comfort in the outdoors, gain a sense of community, and nurture positive self-image and environmental competency.

The purpose of this survey is to help us gauge which barriers to outdoor participation are faced by graduate and undergraduate students, as well as to receive suggestions as to how our program can best help overcome these barriers.

The survey should only take 5-10 minutes of your time.

All questions are fully optional and anonymous. We appreciate any information you are comfortable sharing.

1. Do you identify as part of an equity seeking group? (Equity-seeking groups are those that identify barriers to equal access, opportunities, and resources due to disadvantage and discrimination such as racialized individuals, individuals with disabilities, women, indigenous individuals, and LGBTQ+ individuals)

Mark only one oval.

- Yes
- No
- Prefer not to say

2. What level of study are you currently in?

Mark only one oval.

- Undergraduate
- Graduate
- Other: _____

3. How would you rate your level of experience with outdoor activities?

Mark only one oval.

	1	2	3	4	5	
No experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very experienced

4. How welcome do you feel in outdoor spaces?

Mark only one oval.

	1	2	3	4	5	
Not welcome	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very welcome

5. How comfortable do you feel with the following

Check all that apply.

	Not at all comfortable	Somewhat comfortable	Neutral	Quite comfortable	Very comfortable
Day hikes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overnight hiking trips	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pitching a tent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sleeping outdoors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Being in the water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Operating a motor boat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Canoeing/ kayaking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Making meals with a fire or camp stove	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Travelling (locally or farther abroad)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Have you in the past participated in outdoor field courses/ trips or summer positions that include field work (SWEP, positions at QUBS, etc.)?

Mark only one oval.

Yes *Skip to question 7*

No *Skip to question 9*

Previous participation in outdoor activities

7. How did you access the materials and equipment needed?

Check all that apply.

- My employer/ supervisor paid for it
- I accessed a grant
- I paid for some or all of it myself
- I borrowed or already had the appropriate equipment

Other: _____

8. What supports, if any, did you find were helpful to you and your field work experience?

Check all that apply.

- Supervisor support
- Training
- Financial support (eg. grants)
- Introductory events/ resources
- None

Other: _____

Barriers to outdoor participation

9. Which, if any, of the following has kept you from participating in outdoor field courses/ trips or summer positions that include field work (SWEP, positions at QUBS, etc.)?

Check all that apply.

- Unaware of opportunities
 - Not having enough outdoor knowledge in general
 - Not having enough personal equipment or access to equipment
 - Not having enough knowledge of how to operate equipment
 - Inadequate financial means to travel
 - Lack of outdoor experience growing up
 - Not having enough time
 - Lack of representation within the field (eg. lack of a mentor who you identify with, have shared values with, etc.)
 - Feeling unwelcome or unsafe
 - Fear of experiencing overt discrimination or microaggressions
- Other: _____

Final thoughts

10. Can you think of any other factors that may impede students from participating in outdoor field courses/ ecology trips equally?

11. Do you have any suggestions about how the biology department can work towards breaking down these barriers and make the outdoors more accessible?

12. Are there any skills you would like to learn out of interest or to increase your comfort in outdoor spaces?

13. Would you be interested in a seminar series focused on teaching outdoor skills?

Mark only one oval.

- Yes
 No
 Maybe

14. Do you have any other additional comments or concerns for the committee or any of the members?
