

# Student Perceptions on incorporating ‘Native Plant’-- Focused Green Spaces on Dalhousie University’s Studley Campus.

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## **Executive Summary**

The idea behind this research is to grasp Dalhousie student interest for the presence of green spaces and their curiosity in the involvement of creating and maintaining these areas. Our specific research question being “What are Dalhousie students’ perceptions on getting involved with green spaces on Studley campus that aim to increase native plant species biodiversity of Nova Scotia to support local bee populations?”. The survey gained 119 responses with students from various educational backgrounds such as, science, arts and social science, health, and management. There were limitations as the total number of responses did not meet the minimum sample size for the population of 378, however the data gained was still usable for our compilation and analysis on our research question. The results were showcased automatically by Google Forms. They were compiled and summarized using percentage distribution tables, frequency tables, and pie charts.

The survey results indicate a significance for green spaces (with native plants) on Studley campus as many questions illustrate this conclusion. Survey questions #3, #8, and #11 (Appendix I) highlight this result. The results from question #3 demonstrate that about 63% of respondents believe Studley campus does not have enough green spaces. Whereas question #11 suggests that approximately 92.5% of respondents consider the implementation of new or improved greenspaces to be a smart financial investment for Dalhousie. Also, question #8 reveals that roughly 89% of respondents think that these green spaces should incorporate native plants. Thus, the incorporation of improved green spaces with native plants is an important facet for Dalhousie University students.

Questions #5 and #6 (Appendix I) help to pinpoint the issues at hand regarding current greenspaces at Dalhousie. 39.5% of students have not heard of Studley campus’ existing greenspaces. Thus, the results from question #6 are logical in indicating that 55.5% of respondents do not spend time in these green spaces. Therefore, Dalhousie students’ do not have a well-rounded knowledge of green spaces on campus and the University should do a better job at promoting them. This idea of spreading awareness was further seen in the suggestions for greenspace improvement seen in question #7, as many suggested.

Finally, the notions of student involvement are seen in question #10 (Appendix I). The maintenance of green spaces and the spending of time in green spaces are popular activities for

interest within the university community. Overall, students are interested in the creation and improvement of current green spaces around Studley campus.

## **Introduction**

Student involvement in university green spaces is an area that could improve the local ecosystem while being beneficial for student wellbeing. It has been found that having students actively participate in greenspaces on campus improved their quality of life through the themes of connected, positive emotional responses, and active engagement sensory responses (Stepansky, K., Delbert, T., & Bucey, J. C., 2022). Strong student involvement is something that has been seen at other universities that are recognized for their sustainability. University of California, Berkely is currently ranked #1 on the 2023 QS World University Rankings for sustainability. One of their student-run projects on campus is the Berkely Student Farms, which is a collection of garden spaces that have each been created with a unique history and purpose (Berkeley Student Farms, 2020). However, UC Berkely does have the advantage of being in a warmer climate, making this a more attainable project to create. Looking at University of British Columbia as an example is beneficial, as it is also located in a coastal Canadian city and has a similar climate to Halifax. UBC has over 70 student groups that are centered around environmental and social sustainability; this includes the Roots on the Roof group, which is responsible for managing a rooftop garden space as well as community garden plots (*Student Groups*).

Dalhousie University is located in Halifax, Nova Scotia and is comprised of several campuses, including the Studley campus. The university has shown improvements in sustainability with the presence of student-run societies that focus on garden and plant life around the university. One of which is the Dalhousie Urban Garden Society (DUGS) which has achieved several food security goals in the community since being founded in 2015. DUGS created their garden spaces with the goal of educating students while creating a connection between Dalhousie students, the community, and the environment (DUGS, 2023). Dalhousie University has shown evidence of student interest in working on green spaces for several reasons, leading to our research of student perception of becoming involved in these campus green spaces.

The green spaces hoping to be incorporated on campus will have the addition benefit of helping support local bee populations by increasing the native plant species biodiversity. There are numerous benefits of choosing native plants to be included in these spaces including less required care to the plants, increased support for local wildlife populations by attracting insects, and being a source of seeds to help native plants remain populated in local natural areas (Scholtens). These benefits allow for the green spaces to have more than an aesthetic value and have a greater impact on the local environment.

The goal of this study was to research Dalhousie University students' thoughts on the importance of green spaces that specifically include plants native to Nova Scotia and whether or not they would become involved in these green spaces by posing the question: "What are Dalhousie students' perceptions on getting involved with green spaces on Studley campus that aim to increase native plant species biodiversity of Nova Scotia to support local bee populations?". While there is a significant amount of research found on green spaces, there is limited information on university student involvement in the green spaces.

## **Methods**

The study targeted students who frequented Dalhousie Studley campus during Fall 2022 and/or Winter 2023 semesters. These students could be from any faculty and could be undergraduates and graduates. Also, the respondents King's College University students were welcome to complete the survey as long as they frequented Studley campus. Overall, if the student was involved with visiting Studley campus in some way, they were targeted during this research project.

The study design included a survey of 14 questions. These questions ranged from multiple choice, check all that apply questions, rating questions, short answer, and long answer. The survey was created on Google Forms which was appropriate for the type of data that was collected. We used many methods to share the survey to our targeted audience. We first sent the survey to other students we personally know, and encouraged them to, send it to others *they* know; thus, promoting the desired snowball effect. With this method, we gained a good portion of our final number of responses. After this method a group member asked a King's College University Instagram account (@ksunion) to post the link on their stories to widen our population. This successfully aided in increasing our overall response numbers. As a last step to

increase response numbers we shared our survey link with the students of “Environmental Problem-Solving 2” which was successful in added another group of responses.-

An online survey was ideal for this type of research question as it helped to provide useful and strategic responses. Holding some interviews could have aided us in developing our results, however, it was not seen as appropriate for our study path. As individual stories are important, but a higher rate of responses was crucial for the determination of our research. As mentioned previously, the survey included short answer and long answer questions, so we had access to more developed details in types of answers that could be seen in interviews. Also, in terms of interviewing, we would have to had orchestrated individual interviews which would take much longer. Instead, simply, giving access to an online survey where one has the option to expand on their reasons was ideal for our research goals and designated time period designated for our research.

Thus, to decide on questions on the survey, we compiled a list on Microsoft Teams. Each team member added five questions where we would vote on most relevant to the research question. Then, with the list of questions, a group member created the survey on Google Forms. Each question was then input into the form with appropriate response formatting options in order to collect relevant and useful data I.e., multiple-choice, check all that apply, rating scale or open ended. For example, while asking for individual opinions, like question #7 (Appendix I), we gave the ability for a short answer response. Once all four team members were content with the look and function of the survey and all questions, we began accepting responses.

There are some limitations with our research project, specifically in how many participants answered the survey. We collected 119 responses, however, to truly gain a better and more accurately representative understanding of Dalhousie University students, the minimum sample size of 378 would make for a more accurate portrayal. This sample size was calculated based on the total number of students enrolled in Studley taught classes as well as ones on Kings Campus. Thus, with limitations in the course agenda and social relationships (as the team only contained four students), our response numbers suffered upon relying largely on the snowball method of data collection. Also, to have a more accurate depiction of student thoughts relating to our research question, more questions would aid in this dilemma as well as provide more information to base future research\_steps. There was also the limitation of relying on the risk of

students choosing or not choosing to complete the survey, due to possible lack of interest or possible lack of attention-grabbing nature of the topic. Thus, the results are less complete than they would be in an ideal format of if the minimum population sample size was met.

## Results

The percentage of participants that have at least some level of disagreement with the statement in survey question 3 “Dalhousie University has enough green spaces on campus.” totals 63.1% (Figure 1). The percentage of students who have at least some level of agreement with the statement in survey question 3 totals 22.7%, the remaining students being neutral at 14.3%.

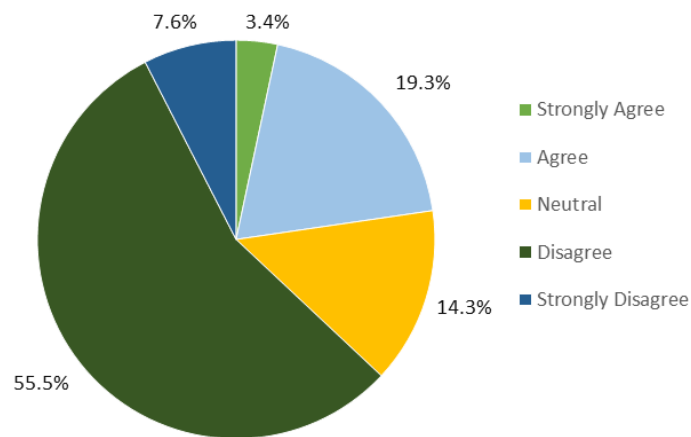


Figure 1. Percentage distribution of participants level of agreement with the statement in survey question 3 “Dalhousie University has enough green spaces on campus.” Percentages are rounded to represent one decimal place, therefore total chart percentage equals ~100.0% within one decimal place.

The percentage of participants that have at least some level of disagreement with the statement in survey question 4 “As a student, green spaces around Dalhousie University’s Studley campus are important for my overall wellbeing.” totals 4.2% (Figure 2). The percentage of students who have at least some level of agreement with the statement in survey question 4 totals 88.2%, the remaining students being neutral at 7.6%.

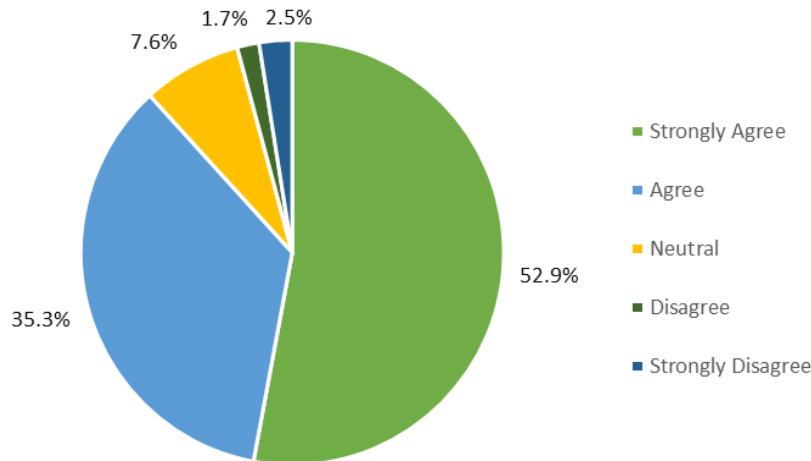


Figure 2 Percentage distribution of participants level of agreement with the statement in survey question 4 “As a student, green spaces around Dalhousie University’s Studley campus are important for my overall wellbeing.” Percentages are rounded to represent one decimal place, therefore total chart percentage equals ~100.0% within one decimal place.

The percentage of participants that have at least some level of disagreement with the statement in survey question 8 “Dalhousie’s Studley campus should incorporate native plants into green spaces.” totals 1.6% (Figure 3). The percentage of students who have at least some level of agreement with the statement in survey question 8 totals 89.1%, the remaining students being neutral at ~9.2%.

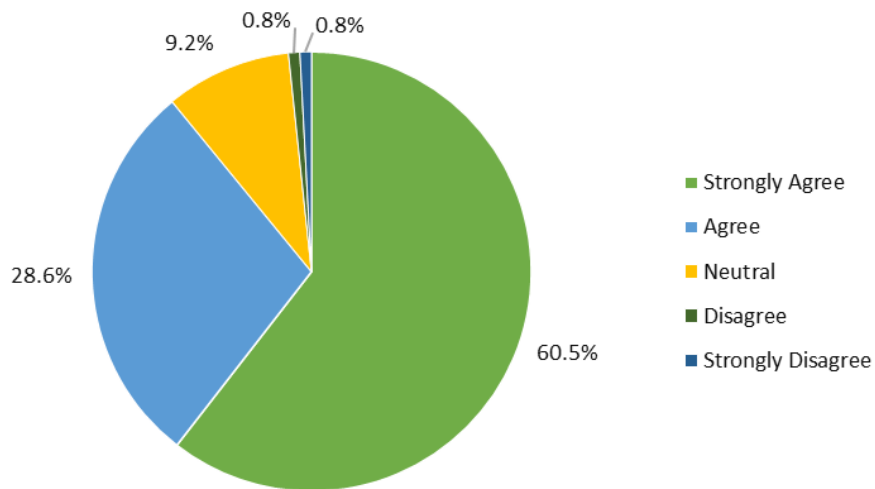


Figure 3 Percentage distribution of participants level of agreement with the statement in survey question 8 “Dalhousie’s Studley campus should incorporate native plants into green spaces”. Percentages are rounded to represent one decimal place, therefore total chart percentage equals ~100.0% within one decimal place.

The results from the survey question 10 “Rate your interest in these opportunities with green spaces” - ‘Maintaining the pollinator gardens/ green spaces’ represented in Table 1 (A),



indicate that 94.2% of participants are at least slightly interested in this opportunity, 26.1% of which are extremely interested. 5.9% of participants are not at all interested. The results from survey Question 10 “Rate your interest in these opportunities with green spaces” - ‘Spending time sitting near and observing the pollinator gardens/green spaces’ represented in Table 1 (B), indicate that 94.9% of participants are at least slightly interested in this opportunity, 39.5% of which are extremely interested. 5% of participants are not interested at all.

Table 1 Responses to Survey Question 10 “Rate your interest in these opportunities with green spaces”.

(A)

‘Maintaining the pollinator gardens/ green spaces’

<b>Interest Level</b>	<b>Number of Participants who selected the answer</b>	<b>Percentage of Total Participants (%)</b>
Extremely interested	31	26.1
Very interested	31	26.1
Moderately interested	30	25.2
Sightly interested	20	16.8
Not at all interested	7	5.9
Total	119	100*

\* Within one decimal place.

(B)

‘Spending time sitting near and observing the pollinator gardens/green spaces’

<b>Interest Level</b>	<b>Number of Participants who selected the answer</b>	<b>Percentage of Total Participants (%)</b>
Extremely interested	47	39.5
Very interested	37	31.1
Moderately interested	18	15.1
Slightly interested	11	9.2
Not at all interested	6	5.0
Total	119	100*

\* Within one decimal place.

The percentage of participants that have at least some level of disagreement with the statement in survey question 11 “The creation of more green spaces on Studley campus is a beneficial investment for Dalhousie University” totals 2.5% (Figure 4). The percentage of students who have at least some level of agreement with the statement in survey question 11 totals 92.4%, the remaining students being neutral at 5.0%.

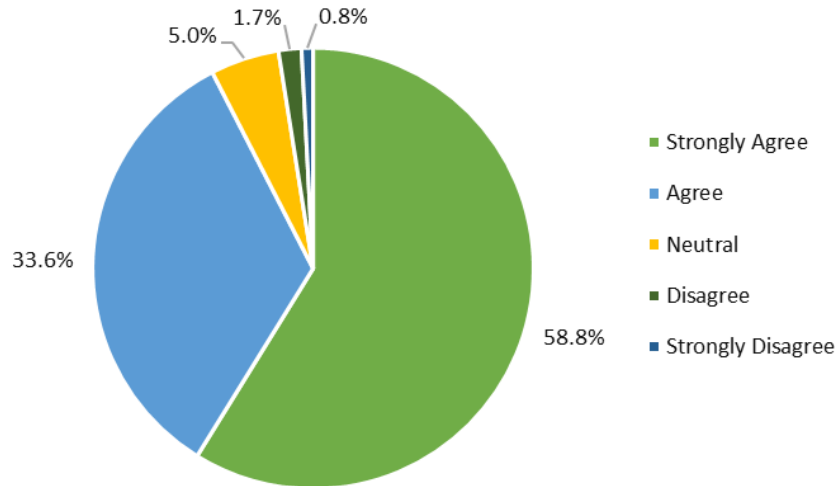


Figure 4 Percentage distribution of participants level of agreement with the statement in survey question 11 “The creation of more green spaces on the Studley campus is a beneficial investment for Dalhousie University”. Percentages are rounded to represent one decimal place, therefore total chart percentage equals ~100.0% within one decimal place.

The percentage of participants who answered that they would be willing to pay \$1-\$5 or greater as a yearly tuition increase in survey question 12 “How much of an increase in yearly tuition would you be willing to pay if it meant the addition of green spaces on the Dalhousie Studley campus.” totaled 80.7%. The total percentage of people not willing to pay anything (\$0) totaled 19.3%.

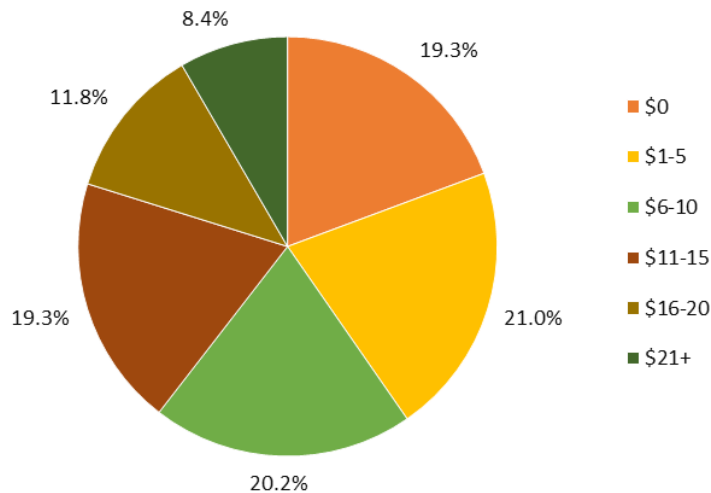


Figure 5 Percentage distribution of participants choice of answer for survey question 12, “How much of an increase in yearly tuition would you be willing to pay if it meant the addition of green spaces on the Dalhousie Studley campus. Percentages are rounded to represent one decimal place, therefore total chart percentage equals ~100.0% within one decimal place.

## Discussion

Our analysis of the survey responses we received were centered around the inquiry of our research question, “What are Dalhousie students’ perceptions on getting involved with green spaces on Studley campus that aim to increase native plant species biodiversity of Nova Scotia to support local bee populations?”. With these responses, we planned to present the perception of Dalhousie University students on this subject which could create the possibility of our research being used in order to enact a change on the Studley campus regarding the number of green spaces and the amount of student participation involved in their care.

The survey results indicate that a majority of participants disagreed with the statement in survey question 3 (Figure 1), “Dalhousie University has enough green spaces on campus,” with a total of 63.1%. However, just 22.7% of participants agreed with the statement, and the remaining 14.3% were undecided. This indicates that students may feel that there aren't enough green spaces on campus.

According to survey question 4 (Figure 2), "As a student, green spaces near Dalhousie University's Studley campus are vital for my overall welfare," 88.2% of respondents agreed at least to some extent with the statement, while only 4.2% disagreed. This implies that despite their apparent shortage of green spaces on campus, students understand the value of green areas for their wellbeing.

Participants strongly agreed with survey question 8 (Figure 3), "Dalhousie's Studley campus should introduce native flora into green spaces", with 89.1% agreeing to some extent and only 1.6% opposed. This indicates that participants are in favour of integrating native plants on campus green spaces.

According to survey question 10's findings (Table 1), most respondents are interested in maintaining the pollinator gardens and green spaces with 94.2% (Table 1 A), as well as spending time observing pollinator gardens and other green places, with 94.9% (Table 1 B) of respondents showing at least some level of interest. These findings imply that students are interested in both having more green spaces on campus and participating in their upkeep and observation.

Results from survey question 11 indicate that 92.4% of participants expressed some level of agreement (Figure 4), with only 2.5% opposing the idea that adding extra green areas to the

Studley campus is a wise investment for Dalhousie University. Comparing these results with responses from question 12 indicates that students are not opposed to the funding for this investment to be provided by students through their tuition.

In response to survey question 12 (Figure 5), "How much of an increase in yearly tuition would you be willing to pay if it meant the addition of green spaces on the Dalhousie Studley campus," 80.7% of respondents indicated that they would be willing to pay \$1 to \$5 or more annually, while only 19.3% indicated that they would not be willing to pay anything. This shows that students are prepared to contribute money in the development of additional green spaces on campus.

In conclusion, the survey findings show that there is a perceived lack of green spaces on campus, yet students are in favour of adding native plants and more green spaces since they understand the value of these areas for their wellbeing. The results also suggest that students are interested in being involved in the maintenance and observation of green spaces and are willing to make a financial investment in their creation. This shows that not only do Dalhousie students believe that more native plant green spaces could be added to the Studley campus, but that there is interest in the student participation aspect as well.

Despite our survey getting a decent number of results, 119, we were still shy of our target number for our sample size of 378. This was mainly due to our method of reaching out to potential people to fill out our survey. All of us were able to get close friends that attended classes on Dalhousie's Studly campus, and through use of the snowballing method, get some people they know to fill out the survey. We were even able to get it posted on some larger Instagram pages, but even then, the incentive for people to fill out the survey that didn't know us or know someone who has done it was not there. Hence, making it hard to collect the results of random people as most people are not willing to just do a random survey, they might feel has no importance or may not impact them. Another limitation in our research was that we were not able to compare survey responses based on specific conditions. For example, we could not look at the responses from students from a specific faculty. This was due to the website that was used to create the survey and that we were only able to access the collected data from each individual question. This limited the analysis that we could further perform on the data and the trends that we were able to find.

There are a few ways in which we could have potentially increased our responses. One such way is to offer an incentive of sorts, now this could lead to some more ethical issues, but it would also all depend on what we offer as our incentive to do the survey. Another way is if we tried other channels of reaching people such as more Instagram accounts or possibly even an email to classmates in our current classes to help broaden our reach. One final method we could have used to increase responses is just a simple friendly reminder to people or reposts on Instagram stories to help push people who have yet to take it.

## **Conclusion**

In general, Dalhousie students are not satisfied with the amount of greens spaces on the Studley campus, as shown in the majority response from our survey as well as even more positive responses indicating the green spaces on the university campus is important in their wellbeing. In addition, students believe that it would be beneficial to have native flora introduced into these green spaces. This information answers a major part of our research question and allows us to move forward with the conclusion that most undergraduate Dalhousie students on the Studley campus see the benefit of the addition of greens spaces.

Looking at the logistics of how these green spaces will be funded, survey responses indicated that this is a good investment for Dalhousie University and that the majority of participants would be open to a slight increase in tuition in order to provide these spaces. As important to know if students are interested in contributing to the success of these green spaces, it is important to consider if it is possible from a financial standpoint. These results confirm that the majority of students who responded were willing to help fund a project that would result in more green spaces. Especially with the success of the student perception portion of the results, it is good to know that Dalhousie students would follow multiple steps to see a change on their campus.

With this information that we have collected, the next steps could involve creating a student group that would be responsible for maintaining certain green spaces and starting conversations with university administration to determine what changes could be made in respects to university investment and tuition changes. This is a change that could take time to implement, but this research provides hope that in the future, more Dalhousie students could enjoy the benefits of having and contributing to native plant green spaces on the Studley campus.

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## Appendix:

### I Questions used in Survey

1. What faculty represents your primary major at Dalhousie University/King's College?
2. On average, how often do you visit Studley campus throughout the week during Fall or Winter term?
3. Indicate your level of agreement with the following statement: "Dalhousie University has enough green spaces on campus."  
( $\Delta$ green space: "an area of grass, trees, or other vegetation set apart for recreational or aesthetic purposes in an otherwise urban environment" - Oxford Dictionary)
4. Indicate your level of agreement with the following statement: "As a student, green spaces around Dalhousie University's Studley campus are important for my overall wellbeing."
5. Check all that apply. Which space(s) have you heard of on Studley Campus?
6. Do you spend time in any of the green spaces you checked above?
7. In your personal opinion, how could these green spaces be improved? (optional)
8. Indicate your level of agreement with the following statement: "Dalhousie's Studley campus should incorporate *native plants* into green spaces."  
( $\Delta$ native plant: "A plant is considered native if it has occurred naturally in a particular region, ecosystem, or habitat without human introduction." - The National Wildlife Federation)
9. Rate your interest in learning about the following topics.
10. Rate your interest in these opportunities with green spaces.
11. Indicate your level of agreement with the following statement: "The creation of more green spaces on the Studley campus is a beneficial investment for Dalhousie University."
12. How much of an increase in yearly tuition would you be willing to pay if it meant the addition of green spaces on the Dalhousie Studley campus?
13. Check all that apply. If a new native plant focused green space was created, what would you like to see at Studley campus? (photos are references for understanding)
14. If you have any other ideas, suggestions, or comments about Dalhousie green spaces and/or the incorporation of native plant species, let us know! (optional)