View results

Respondent

3 James Dalling

18:46
Time to complete

Final Project Report

1. Date of this final project report submission *

Feb 22, 2026

2. Name of project exactly as it was listed in your award letter *

A student-driven recensus of the Trelease Woods Forest Dynamics plot

3. Date (or semester/year) of original award letter *

December 9th, 2022

4. Expiration date of award as listed on original award letter or approved scope change letter - whichever is more recent *

Original completion date was December 9th, 2024, following discussion with SSC this was extended to December 2025. A semester report was submitted in May 2025

5. Enter the amount of the award, including any budget increases as a result of a previous scope change. *

$72,721.00

6. What is your project's 6 digit fund account number created for this project and to which the SSC allocation was transferred?

Please ask your project's financial contact for this information if unknown.

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7. How much (in dollars) of your award (including previous approved budget increases) is remaining? *

$0. Our last budget statement from December 2025 shows an overspend of $207.76 This overspend will be transferred to Dalling's ICR account

8. Briefly describe the goals of your project. *

The four key goals of our project were to provide:
• Training for 50+ undergraduate census workers during Fall semester 2023, Spring 2024 and summer 2024
• The first measurement of forest growth and mortality for Trelease
• New undergrad research opportunities to track changing carbon storage patterns in forests
• Opportunities to educate students on the critical importance of forest conservation in reducing carbon emissions and mitigating the effects of emissions of atmospheric CO2 levels.

9. Did you complete your project as it was outlined in the original award letter or in a subsequent approved scope change? *

- ○ Yes, the project was completed as originally outlined.
- ◉ No, the project was not completed as originally outlined.

10. On what date did you consider the project finished or that you stopped working on it? *

We completed work (and funding for this project) in December 2025 with the field activities and data analysis workshop for the last group of undergraduate students before our funding ended.

11. Describe, in detail, the challenges / obstacles your project faced. *

Our only challenge for this project has been finding far more new trees to census than we had anticipated. After the 2018 census we expected to find around 5% more trees in total, all the trees marked in 2018 plus new individuals that grew into the first size class (1 cm diameter) that therefore have to be added to the census. However, between 2018 and 2020 almost all 700 mature white ash trees in Trelease Woods died. This die-off was caused by an invasive insect pest, the emerald ash borer. The treefalls created by these dead ash trees create light gaps (openings in the forest canopy) that stimulated the growth of seedlings and saplings. We currently have 17% more trees to census than in the original census. Adding new trees greatly slows down the census. At Trelease Woods, the pawpaw tree (Asimina triloba) grows rapidly and is chemically well-defended against deer browsing. Pawpaws account for the vast majority of new recruits that entered into the recensus. Locating, mapping, measuring and tagging all these new pawpaw trees reduced our anticipated progress, particularly in the southern portion of Trelease Woods, such that 30 out of 96 50 x 50 m quadrats in Trelease still need to be remeasured.

12. Describe, in detail, the successes your project experienced. *

(1) Our project provided research training in the recensus to 75 undergraduate students for research credit during Fall semester 2023 (26 students), Fall semester 2024 (23 students) and Fall semester 2025 (26 students). These students were trained extensively in surveying methods, species identification and data entry, and were given a workshop at the end of the semester in data management and analysis. Note we cannot continue the census during the Spring semester due to cold weather, lack of leaves and short day length.

(2) We employed 3 undergraduate students over summer 2024 and 6 undergraduate students over summer 2025 has hourly paid workers to continue the census. For the Fall semesters 2023, 2024 and 205 we also employed a graduate student Research Assistant. This position was critical for student training and to ensure that census data were collected accurately.

(3) We were able to recruit from our census two undergraduate students, Nick Berenio and Quinn Ham to do independent research to further quantify carbon stocks in Trelease. Over summer 2024 and Fall 2025 Nick and Quinn estimated the biomass of dead woody debris in Trelease and recorded plot and fallen tree locations to allow debris estimates to be used as ground-truthing data for drone-based estimates using light detecting and ranging (lidar), implemented by Prof. Mark Lara.

(4) Our MS student, Jennifer Alvarez, published the first paper using the Trelease census data and coarse woody debris data to estimate how above-ground carbon storage in Trelease has changed over the last 96 years (using historical plot data). A second manuscript is in preparation that provides a complete carbon inventory of Trelease woods that includes estimates of soil carbon.

(5) Working on the census at Trelease has provided undergraduates with critical experience and training that makes them competitive for internships to advance careers in ecology and natural resource management. We notify and encourage students from the census to apply for these opportunities.

13. Describe, in detail, how your implemented project addressed sustainability. *

The major motivation for the Trelease Forest Dynamics plot is to determine how carbon storage is changing in temperate deciduous forest. Trelease is exceptionally unusual, if not unique, because of the availability of data on forest composition and stand structure extending back to the 1920s. Our census data has allowed us to measure changes in forest carbon over the last century. We use the Trelease plot dataset to the importance of forests to overall biosphere carbon storage and climate stabilization in our classes (IB203 and IB372) and in our training to students. The current recensus, when completed, will also provide data on the dynamics of Trelease Woods, and therefore the extent to which carbon storage is changing over short (5 year) periods relative to other plots in the network.

In addition, we have agreed to use the recensus data in a collaborative project with Adam Martin (U Toronto), David Orwig and Benton Taylor (Harvard University) to determine how differences in wood chemistry among North American tree species contributes to variation in forest carbon stocks. There are now 24 large forest plots in the North American section of ForestGeo allowing biome-wide assessments of dynamics on forest carbon capture.

14. Describe, in detail, how your project integrated student involvement and community outreach. *

The Trelease Woods forest dynamics plot has been transformative for student experiences. Undergraduate students complete all the census work, and a graduate student is responsible for coordinating undergraduate work, data management and quality control. In addition to providing research and training opportunities to 75 undergraduate students, we have also integrated census data into our ecology classes. Now, all undergraduate students in the Integrative Biology and Integrative Biology Honors majors (~200 students per year) use the census data and measure trees in Trelease as part of the lab component of these classes.

15. Describe how the project engaged individuals from underrepresented groups and/or how it promoted diversity, equity, and inclusion. *

A key goal has been to involve as many undergraduates as possible in the project. This includes providing a first opportunity in research to first-year students, and to those with identities that are typically under-represented in ecology and natural resources. Recent research indicates that this remains a critical issue in the field – with reports of historically excluded groups – including scientists of color; women; lesbian, gay, bisexual, queer, pansexual, asexual, and other non-heterosexual (LGBQPA+) individuals; and those who identify as disabled – being 1.5 times more likely to encounter negative workplace experiences (for instance, sexual harassment, interpersonal mistreatment, and insulting behaviors) as compared to their counterparts in the historical majority (Primack et al. 2023 Frontiers in Ecology and the Environment). For many ecologists and other field-based scientists, field experiences have served as a 'rite of passage' by cementing their identities as ecologists (Morales et al. 2020, Bulletin of the Ecological Society of America), paving the way to future careers. We have aimed to provide this opportunity to all students. We accept students regardless of GPA, major, or seniority, which has resulted in a student group that reflects the diversity of our campus.

16. What key takeaways should the campus community know about your project? *

(1) The university of Illinois stewards a rare, well-studied example of old-growth eastern deciduous forest that provide insights into changes in species composition and soil and biomass carbon storage over the last century, and that participates in a global monitoring network of forest dynamics that includes 78 research sites, and 7 million trees around the world. Trelease is one of only two sites in the network in which censuses are run and funded by undergraduates.
(2) Participating in the Trelease census provides students an opportunity to experience ecological research first-hand, and gain skills that opens opportunities for further career development, internships and graduate studies.
(3) Forests contain approximately 92% of all terrestrial plant biomass and over 80% of total global above-ground biomass carbon. They are therefore essential to global climate regulation. Changes in carbon storage in forests resulting from climate change and invasive insect pests and fungal diseases could potentially have enormous impacts on this carbon store. A first step in mitigating these effects is to have long-term monitoring data from key forest sites.

17. Describe the marketing material developed for promotion of your project, including but not limited to advertising (including digital) and/or signage related to this project. All marketing must include SSC's logo and/or a statement of which fee funded the project. Projects must coordinate with SSC to ensure the promotion appropriately highlights the SSC's contributions to the project. *

No signage/advertising has been produced. Trelease Woods is a natural area with no public access.

18. Upload project marketing and/or media not previously submitted in semester progress reports. *

Trelease for ForestGeo May 17_James Dalling 1.pdf

19. Complete and upload the semester financial documentation for your project. You should reflect all expenditures since your last semester project report. **We strongly suggest that you also upload supporting financial transaction reports from Banner for your award's CFOP. Talk to your project's financial advisor for more information on generating this report.** https://studentengagement.illinois.edu/sites/default/files/2024-09/SSC-Budget-Timeline-SEMESTER-PROGRESS-REPORT-template.xlsx *

NOTE: Any unused project funds remain the property of SSC and will be transferred back to SSC when the project has finished or when the award expires, whichever comes first.

1-304706-377000-377175 SSC - Cumulative Finan_James Dalling.xlsx

SSC-Budget-Timeline-FINAL 2026_James Dalling.xlsx