View results

Respondent

28 James Dalling

09:09
Time to complete

1. Date of this semester progress report submission *

Fall 2024

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 of original award letter *

December 9th 2022

4. Date of expiration listed on award letter (or on scope change approval if more recent) *

December 9, 2024 - however we met with SSC on October 2nd 2024 to discuss extending

5. How much was your award (i.e., original award plus any approved budget increases)? *

$72,721

6. How much of your award has been spent to date (in dollars)? *

$36765

7. Date of forecasted project completion *

December 8th 2025

8. Have you submitted one or more semester progress reports previously? *

- (●) YES
- ( ) NO

9. Describe, in detail, what has been completed on the project since the last semester progress report (or since the project commenced if you have not yet submitted a semester progress report)? *

Trelease Woods is 24 ha old-growth forest remnant of the "Big Grove" that once occupied a 10 square mile area in a bend of the Salt Fork River, near Urbana, Illinois. In 2018 with SSC support we established the Trelease Woods Forest Dynamics plot. After completion of the initial forest survey in 2022 Trelease joined the ForestGeo forest monitoring network, consisting of 71 forest plots around the world. In each plot teams of researchers survey the forest using exactly the same methods. All trees whose diameter (at 1.3 m height, 'DBH') was greater than 1 cm were marked and tagged, species identified and a set of relevant parameters on the status of the trees and their relative positions within a quadrat were recorded. Subsequently a re-census funded with this award was initiated in 2023 to understand forest dynamics including growth rates and turnover of tree species. This was census has been carried out under the field course NRES 285 Techniques in Forest Ecology (TFE) in Fall 2023. Going further, in Summer 2024, students were employed to continue the re-census. And in Fall 2024, another cohort of students carried out the re-census under NRES 285. This report summarizes the activities for Fall 2024.

Following two orientation sessions at the start of the semester, re-census of trees in Trelease Woods began on 2 September 2024 and continued until the Thanksgiving break. We had a total of 23 undergraduate students from LAS and ACES working on the census, split into eight groups each spending 4 hours a week in the woods measuring trees. Apart from re-measuring marked trees and recording if they were dead or alive, the students added into the census new recruits, i.e. any new trees whose diameter (at breast height, DBH) was now greater than 1 cm, according to the ForestGeo tree census protocol. Students also obtained the relative position of the recruit with respect to a previously tagged tree. The new recruits were largely individuals of pawpaw trees (Asimina triloba) as regeneration of other tree species was very low in Trelease Woods due to browsing by deer.

By the end of the fall 2024 semester a total of 4149 trees were censused over 77 sessions, hence, on average about 55 trees per session. There were a couple of groups with only two students working per session and some quadrats such as E1S1 and E1S4 where there were big patches of pawpaw and many new recruits had to be tagged. In Fall 2023, the groups averaged 70 trees per session and measured a total of 4948 trees. However, they also missed (i.e., failed to relocate) more trees. This time, the re-census was more complete and not many trees were missed out per quadrat

Towards the end of the census sessions in November 2024, an R workshop was conducted for the students to get hands-on experience on data handling, plotting and statistical analysis using the data they helped collect, along with encouraging them to make and test some hypotheses. Some questions that were covered included -
a. Do growth rates of sugar maple trees differ across size classes (0-10 cm vs 10-20 cm)?
b. Do single-stemmed and multi-stemmed basswood trees differ in their growth rates?
c. What is the impact of death of Ash trees on the growth rates of their neighbours?
Subsets of data and codes were made available for the students to use, and they were guided through the workshop.

We sincerely thank the students that participated in the Fall 2024 census of Trelease:
Reem Kharfan
Stephen Mackey
Jacob Blackburn
Kennedey Wendt
Jan Mudrak
Sol Ochoa Tsatsos
Amelia Haskins
Taylor Okamoto
Samantha Sanford
Georgia Jackson
Patryk Pachura
Joey Hoffer
Audrey Larson
Keisha Alifia
Samuel Cho
Christopher Kalendr
Janellie Roach
Ben Wagner
Ryan Young
Isabel Wu
Elizabeth Hurley
Nikolas Moric
Jacqueline Zhu
Sumashini Pagaldevatti (TA)

10. Describe, in detail, the project's challenges/obstacles since your last semester progress report (or since the project commenced if you have not yet submitted a semester progress report)? *

The major challenge to date has been the discovery that many more new individuals have recruited into the forest plot than we had expected. This reflects some major changes in the composition of Trelease woods. Starting in 2018 there has been a major die-back of ash trees (more than 500 mature adult trees have died), following the arrival of the exotic pest, the emerald ash borer. Mortality of adult trees creates light gaps in the forest and opportunities for forest regeneration. In Trelease it has stimulated the growth of an understory layer dominated by pawpaw saplings. This burst of new tree recruitment has greatly slowed down progress in the recensus as all these new trees need to be mapped, identified, painted and tagged.

Despite the additional work associated with censusing these additional trees we do not anticipate requiring additional funds to complete the work. We have remaining funds in our budget that we will use to pay for student workers this summer. Remaining work will be carried out by another cohort of students in Fall 2025 (students are currently registering for NRES 285 and IB390 to obtain research credit while on the census).

11. Describe, in detail, the project's successes since your last semester progress report (or since the project commenced if you have not yet submitted a semester progress report)? *

Over the fall semester 2024 we recruited 23 students who obtained experience in forest ecology, tree mapping and data science. Collectively these students completed 17 of the 96 50 x 50 m subplots in Trelease Woods (17% of quadrats). We anticipate that the remaining 47 quadrats will be completed by hourly workers over the summer of 2025 and by the next group of census workers next fall semester.

12. Did your project have any changes to its team that SSC should know about (e.g., project lead, faculty/staff advisor, departmental financial contact)? *

NOTE: If yes, please complete the SSC Project Contact Information Change Form located at this link: https://forms.office.com/r/uBjx9nmNpG

- ○ YES
- ◉ NO

13. 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 documentation from Banner for your award CFOP. NOTE: When your project is completed and/or expired (whichever comes first), any remaining project funds will be transferred back to the SSC.

https://studentengagement.illinois.edu/sites/default/files/2024-09/SSC-Budget-Timeline-SEMESTER-PROGRESS-REPORT-template.xlsx *

SSC-Budget-Timeline-FA24-SEMESTER-PROGRESS-RE_James Dalling.xlsx

14. (OPTIONAL FOR SEMESTER REPORT) Upload project marketing and/or media not previously submitted in semester progress reports.

NOTE: Project marketing and/or media must include SSC's logo and/or a statement of which fee(s) funded the project.