*forest*SR19.

Harvard Forest Summer Research Program 2019

An anthology and research magazine

By the Harvard Forest 2019 Summer Research Ecology Interns

Our ***Spirit***,
Our ***Mission***:

Creatively *communicate.*

Convey the ***value*** *of our research.*

Deconstruct the ***ivory*** *tower.*

Inspire scientific ***curiosity****.*

We believe the best way to do this is to present the meaning and purpose of our research, not just the abstracts (which can be filled with jargon) and difficult for the general public to understand. Rather than intimidating people into avoiding science, we want to inspire them to love and appreciate it.

harvardforest.fas.harvard.edu/blog/forest-sr19.

RESEARCH | EDUCATION | COMMUNITY

Photo by Lony Clauser

The Importance of the Work

Why our research matters

SOFIA KRUSZKA

39.0458° *N*, 76.6413° *W*

It will help us to visualize the extent of tree death in the area due to *defoliation* and can help us make sense of the oak tree mortality in a future outbreak.

Field of Study: Ecology, Evolution, & Biodiversity
University of Michigan
Project: Insects of Doom

TURTLE MCCLOSKEY

43.8041° *N*, 120.5542° *W*

Reconstructing historical land-use change of the Center Pond watershed through sediment core analysis has broader implications for *ecological restoration* efforts of the New England landscape. Quantifying historical landscape responses to *anthropogenic disturbances* is central to restoration efforts and management planning because ecological restoration utilizes historical reference conditions to provide empirical benchmarks to guide restoration efforts. This research will not only help restoration managers establish authentic reference conditions for the region but will also cultivate an understanding of how landscapes have responded to disturbances in the past, which will aid in expanding our knowledge of how to mitigate future disruptions and manage future changes associated with *anthropogenic disturbances* and climate change.

Field of Study:
Environmental Science & Policy
Southern Oregon University
Project: Reconstructing landscape change in New England from lake sediments

WILEY HUNDERTMARK

43.1939° N, 71.5724° W

Looking at canopy properties at forest edges is crucial because it allows for a more accurate quantification of local and global carbon uptake. If trees at the *forest edge* store more carbon than trees in the *interior*, this has important implications for the *global carbon cycle* and estimates of how much carbon can be stored in forests.

Field of Study:
Environmental Science - Remote Sensing & Geospatial Sciences
Boston University
Project: Forest fragmentation

KHANH NGO

14.0583° *N*, 108.2772° *E*

Data Provenance is the documentation of where data comes from and the processes by which it was produced. If we can build tools to encourage scientists to archive their work, this will make science more transparent and reproducible.

Field of Study: Computer Science and Mathematics
Mount Holyoke College
Project: The Fruits of Provenance

CONCETTA GINEVRA

27.6648° *N*, 81.5158° *W*

Ants are like tiny building blocks of life. They are excellent indicators of any kind of environmental change.

Field of Study: Environment & Society
Florida State University
Project: The Ants of the Harvard Forest

ELIDA KOCHARIAN

36.7783° *N*, 119.4179° *W*

Understanding the limits and mechanisms of how forests sequester carbon is a key factor in understanding how climate change will impact our planet.

Field of Study: Earth & Planetary Sciences
Harvard University
Project: Years to Decades: Cross-comparison of annual tree growth using band dendrometers and tree core ring widths

ELISE MILLER

14.0583° *N*, 108.2772° *E*

The density of wood impacts how much carbon the tree can sequester. Since false rings change the thickness of wood, it is essential to understand what causes them. Through understanding the drivers of false rings, we can generate better *allometric equations* to estimate the carbon sequestration of forests.

Field of Study: Biology
College of Saint Benedict & Saint John's University
Project: Seasons to Years: Wood Formation in Trees

SAVANNA BROWN

40.4173° *N*, 82.9071° *W*

Invasive insects are a growing threat amid climate change, globalization, and loss of biodiversity across the planet. Although gypsy moth, a forest pest native to Japan, invaded New England over a century ago, there is still much to learn about its dynamic population ecology.

Field of Study: Conservation Biology & Ecology, Spanish, Chemistry, and Sociology
Bowling Greet State University
Project: Insects of Doom

LONY CLAUSER
41.2033° *N*, 77.1945° *W*

I am concerned that influential people will take advantage of the changing climate to make others suffer.

Field of Study: Biological Sciences
Smith College
Project:

EMMA CONRAD-ROONEY
42.4072° *N*, 71.3824° *W*

Humans are changing the planet and in doing so are threatening the survival of all organisms on earth, both now and in the future.

Although the science that proves that climate change is happening exists, we still seem to be stuck in the battle of whether climate change is even real or whether it is worth doing anything about it.

Field of Study: Biological Sciences
Wellesley College
Project: Insects of Doom

TURTLE
43.8041° *N*, 120.5542° *W*

I think the general idea that the mitigation of environmental issues is a problem that is separate from **economics**, **politics**, social **inequity**, and **capitalism**.

Climate change, environmental degradation, are inextricably linked to economics, politics, capitalism. Environmental issues need to be addressed in every field, in every business plan, in every classroom, for us to mitigate these global environmental problems.

SOFIA
39.0458° *N*, 76.6413° *W*

I'm afraid of most of the insects dying in my lifetime.

I'm afraid of unprecedented natural disasters in my lifetime.

ELIDA
36.7783° *N*, 119.4179° *W*

I don't think people realize the **imbalanced socio-economic effects** of climate change.

Which coastal populations will be impacted the most by sea-level rise?

Surely not the ones who can afford to implement private *beach management policies* like Malibu's "managed retreat."

Climate Talk:

What concerns you about climate change?

A Tool Belt Fit For A Forest:

What skills have you gained this summer?

MATTEA POWERS

45.2538° *N*, 69.4445° *W*

From my mentors, I have gained professional real-life experience through meetings and how to effectively communicate ideas. Through my project as a whole, *I have gained patience***,** how to work through problems that pop up, how to use my time efficiently, how to use my resources, and to believe in myself. From my fellow students, I have learned how to listen to one another and how to lend a hand when someone needs help. The internship as a whole has given me a ton of networking opportunities that have also given me many new tools. I am really grateful that interacting with many different kinds of people has given me a *better understanding of both cultural and professional diversity* among my peers and mentors.

Field of Study:
Environmental Science & Policy, Geographic Information Systems (GIS)
Plymouth State University
Project: Advancing Wildlands and Woodlands through Collaborative Conservation

JAY MARBURGER

43.1939° *N*, 71.5724° *W*

At Harvard Forest, I have been able to connect with several students and scientists in fields I'm interested in pursuing soon. Additionally, many various job sites have been provided to me as well as resources to improve my skills in the R programming language. My eyes have been opened to many different certifications that I could obtain as well.

Field of Study:
Environmental Conservation Biology
Kent State University
Project: Invasive plant driven responses to global climate change across latitude gradient

ANNA THERIEN

41.5801° *N*, 71.4774° *W*

I have gotten better at communicating ideas to a *variety of audiences*.

Field of Study:
Regional Planning and Environmental Science, Geographic Information Systems (GIS)
Westfield State University
Project: Advancing Wildlands and Woodlands through Collaborative Conservation

ELEANNA VASQUEZ CERDA

18.2208° *N*, 66.5901° *W*

Team work makes the dream work! Communication is essential to realizing that dream!

Field of Study:
Biology
Mount Holyoke College
Project: The future of the Harvard Forest – Tree seedlings of Prospect Hill

CONCETTA GINEVRA

27.6648° *N*, 81.5158° *W*

I've certainly learned a copious amount since arriving at the forest. I think the main takeaways I've made are good connections: never be afraid to research things you enjoy, and always check for ticks!

Field of Study:
Environmental Science
Coconino Community College
Project: The witness tree

AUDREY KAISER

43.1939° *N*, 71.5724° *W*

I have learned to be more patient with myself and my learning process. Everyone here is at *different levels*, and all have *different skills*, and the environment from both staff and students is very *accepting* of those *differences*. We all *learn from each other*.

Field of Study:
Biology
Keene State College
Project: Invasive plant driven responses to global climate change across latitude gradient

ILANA VARGAS

43.7844° *N*, 88.7879° *W*

Living and working with people from so many *different places* brings so many *experiences* and opinions together. You learn so much just from listening to everyone and just having *engaging conversations*.
Oh and also R.
Lots of R.

Field of Study:
Ecosystem Science & Sustainability
Keene State College
Project: From Leaves to Satellites

SHAWNA GREYEYES

34.0489° *N*, 111.0937° *W*

I learned how to use R and made a website!

Field of Study:
Environmental Science
Coconino Community College
Project: The witness tree