Gabby John
First Committee Meeting

Feb. 8, 2024

My background

How did I get to this point where I'm chatting with you today?

I love trees!

I ditched my degree program in biochemistry when I realized I could do research on my favorite hobby - spending time in nature. (2014 proof)

B.S. in PBIO

In 2023, I got a bachelor's with full honors in plant biology (concentration in ecology & evolutionary biology) from the *other* OSU.

M.S. in progress

I'm now working on my M.S. in Forest Ecosystems and Society in CoF after researching top programs and finding a PI with the right fit for me. I will get a PhD thereafter.

Future professor

I am doing all of this so I can be a research professor and mentor students while learning more about how to keep trees healthy. Change is scary, but it doesn't have to be a mystery.

Project plan

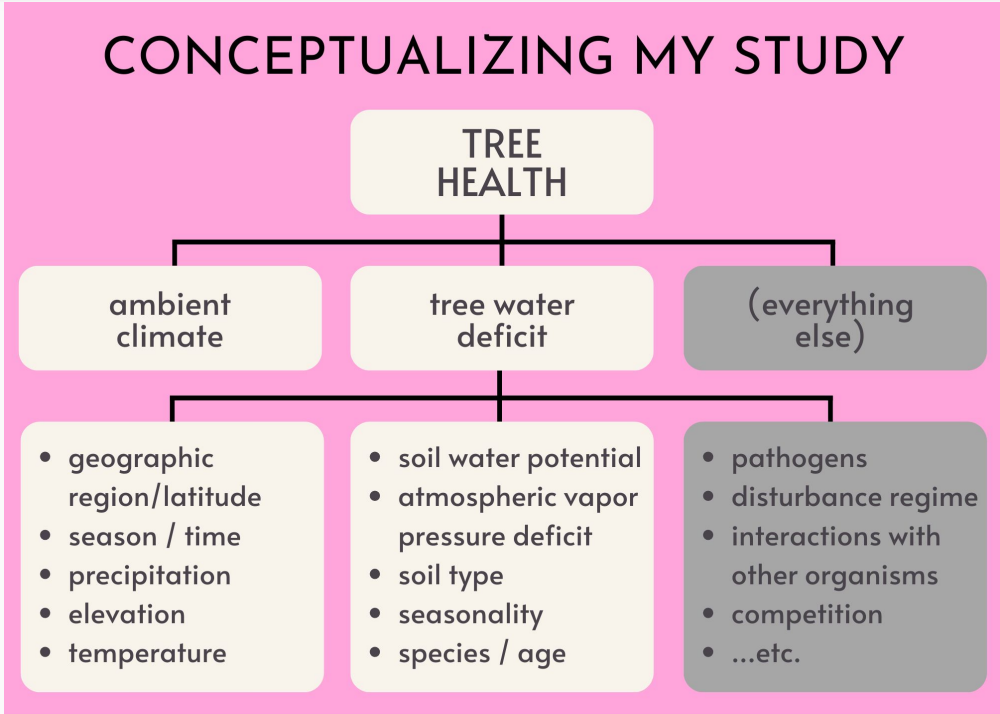
What physiological changes occur among old-growth Douglas-fir and western hemlock in western Oregon before, during, and after a heat wave?

- Underlooked aspects of research
  - Old-growth (OG) trees (spoiler)
  - “*Heat-induced* drought”
- Importance of research
  - Climate change
  - Doug-fir/WC-dominated forests
  - More C sequestration in OG trees
  - OG forests offer exclusive habitat
  - …have you seen them?

Why do I want to do this?

What is missing from the literature that I plan to do and why does this matter?

- Studying OG trees is hard
  - Size; confounding interactions
  - Not greenhouse-friendly
- Dendrometers and tree rings provide short- and long-term records of physiology and growth
  - No time for a longitudinal study
  - Statistical and field skills
  - More details coming in Research Proposal Spring 2024



What I took/did at the other OSU:

- Non-specialized STEM courses
  - Elementary Statistics (F19); Organic/Biochemistry (F20/S21)
- Plant courses
  - Plant Biology (S21); Plants and People (S22)
  - Oklahoma Field Botany (F22); Plant Physiology (S23)
- Forestry courses
  - Forest Health and Disturbance Ecology (S22)
  - Elements of Forestry (F22)
- Ecology/Climate courses
  - “Global Warming and Human Use of Earth” seminar (S20)
  - Ecology (F21); Conservation of Natural Resources (F21)
- LOTS of undergraduate research; RCR training (since expired)

How will I get this done?

Program of Study

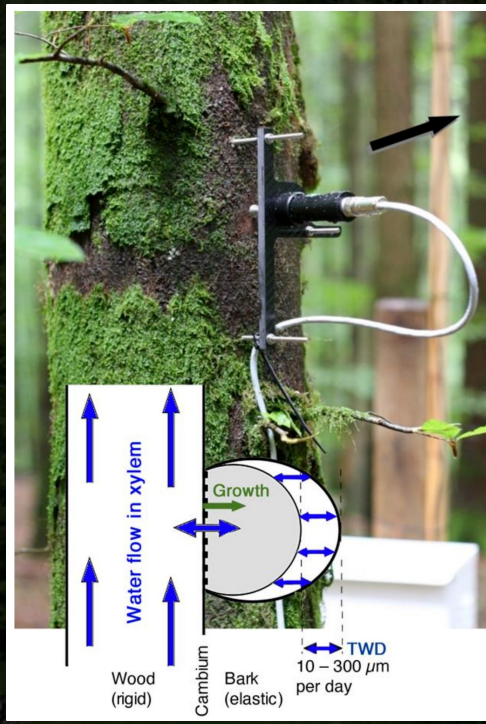
- Meets all FES requirements
- Purposes for selection outlined in Learning Outcomes
- *currently enrolled
- GRAD 520 for ethics
- 24 credits done / in progress out of 48
- Room for research

Transfer Symbol	G*	Title of First Major Courses	Course		Cr.	Gr.
			Dept.	No.		
	G	RESPONSIBLE CONDUCT RESEARCH	GRAD	520	2	
		METHODS OF DATA ANALYSIS	ST	511	4	*
	G	NATURAL RESOURCE DATA ANALYSIS	FES	524	4	
	G	FOREST MODELING	FOR	525	4	
	G	POSING RESEARCH QUESTIONS	FES	520	3	
	G	MRKT TOOLS GRNHS GAS EMISSIONS	FES	500	3	*
	G	ST/ ISOTOPICS - JOURNAL CLUB	FES	699	1	*
	G	FLD RESEARCH IN GEOMORPHOLOGY	GEOG	596	3	A
		R PROGRAMMING FOR DATA	ST	536	3	A
	G	ADV FOREST COMMUNITY ECOLOGY	FES	546	4	
	G	FOREST CARBON ANALYSIS	FES	527	3	
	G	COMM SKILLS FOR SCIENTISTS	FES	526	1	
	G	CARBON SEQUESTRATION IN FOREST	FES	536	3	*
	G	ID APPROACHES TO PROBLEMS	FES	525	3	

How will I get this done?

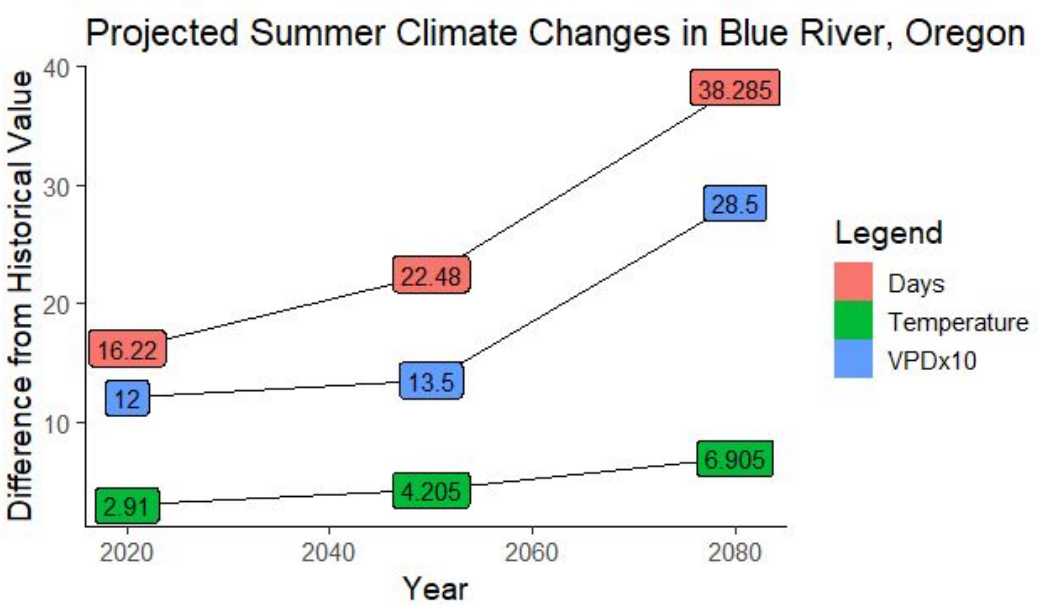
Details in Learning Outcomes document, but…

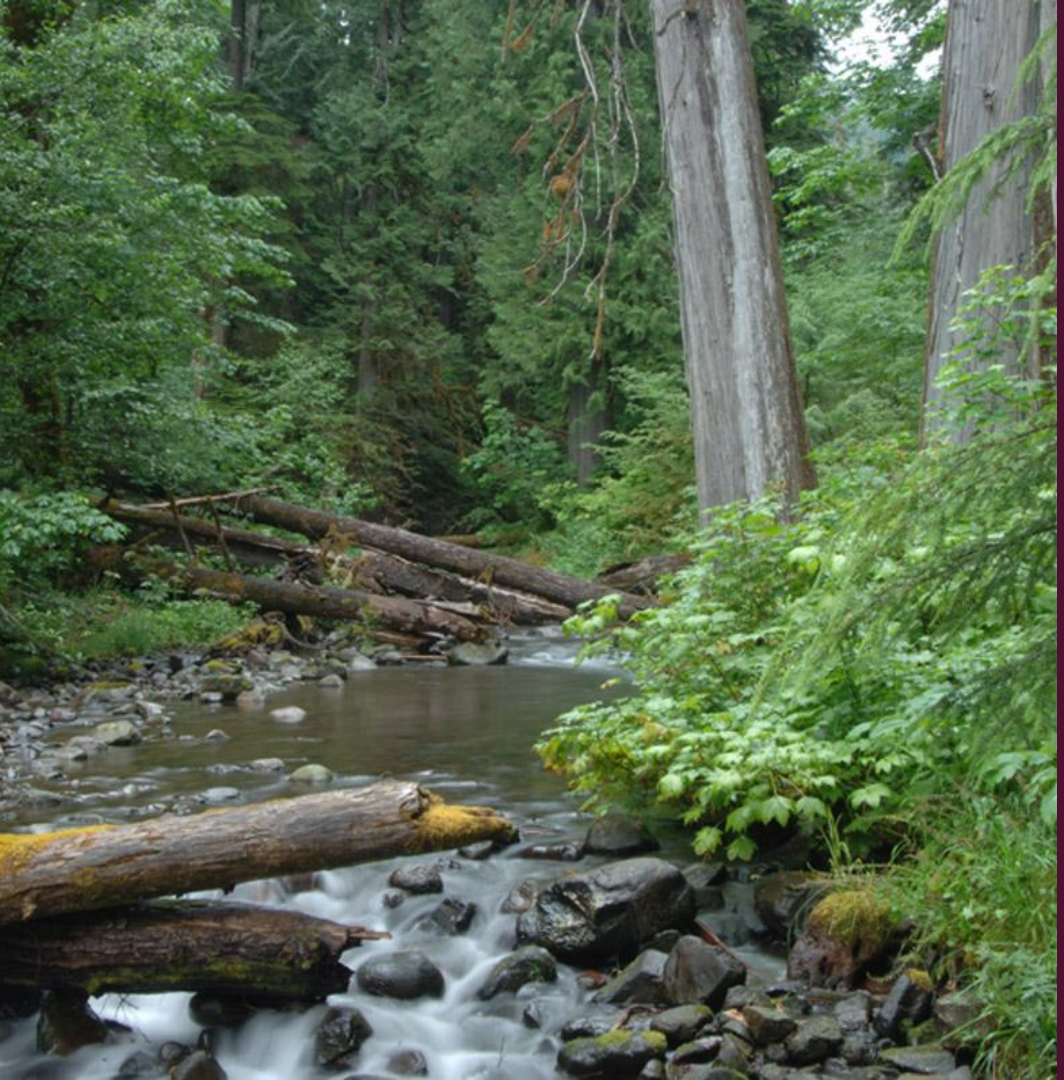
- Proficiency in R, specifically “treenetproc” through coursework and independent study
- Presenting & publishing / reviewing & organizing literature (e.g., right photo: Knüsel *et al.*, 2021)
- Developing field skills through specific data streams
    - Dendrometry (with the help of Mark Schultz)
        - Band vs. point
    - Dendrochronology cores (summer field work)
    - Long-term climate data from the Andrews
- Interdisciplinary growth and thinking
    - Study Abroad (e.g., Chile 2024!)
    - Phys-Fest 4



For example:

- Right: Projections made with Climatetoolbox.org; R
- Below: Diameter expansion with bark peeling (credit to Alex Dye





Thank you!

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