

Visualizing Science

Visually telling the story of rapid climate change in the Arctic



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Science must be communicated effectively for it to be relevant to the scientific community, policy makers, or the public. The methods, experiment, and results of a study are essential, but conveying the "so what" of a project will make it *influential*. Yet few scientists are trained on how to present their work to audiences outside of their field. Fewer still are trained in basic graphic design and visual communication, which is a useful way to communicate complex information. Science illustration is a communication tool that bridges the gap between scientists and their audience.

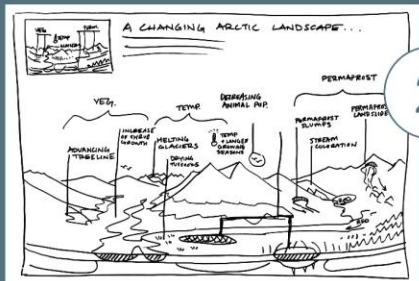
Goals of this Project:

- Explore different types of science illustration
- Produce figures for research projects on vegetation change in Alaska, including projects in collaboration with:
 - NASA Goddard's G-LiHT remote sensing data
 - NASA Ames' MODIS imagery
 - NSF's treeline advance project
- Write a student guide for science illustration and visual science communication (coming soon!)
- Learn how to use Adobe programs commonly used by professional science illustrators

Process of Science Illustration:



1 Field Observation, Research & Sketches



2 Brainstorming, Drafting & Feedback

3 Final Illustration

Graphics are efficient tools for communication.
Science illustration is a great way to breathe life into a topic and make your work **memorable, comprehensible, and meaningful.**

SCAN the QR code or go to juliaditto.weebly.com/senior-project to see all the illustrations made for this project and to download this poster.



A CHANGING ARCTIC LANDSCAPE

The Arctic is experiencing the impacts of climate change at a rapid pace. From thawing permafrost to treeline advance, even the most remote ecosystems are showing the effects of anthropogenic-induced climate warming.

Increasing Temperatures & Longer Growing Seasons

Warming temperatures and longer summers underline many observed changes in the Arctic, including vegetation change, melting glaciers, and thawing permafrost.

Changing Vegetation

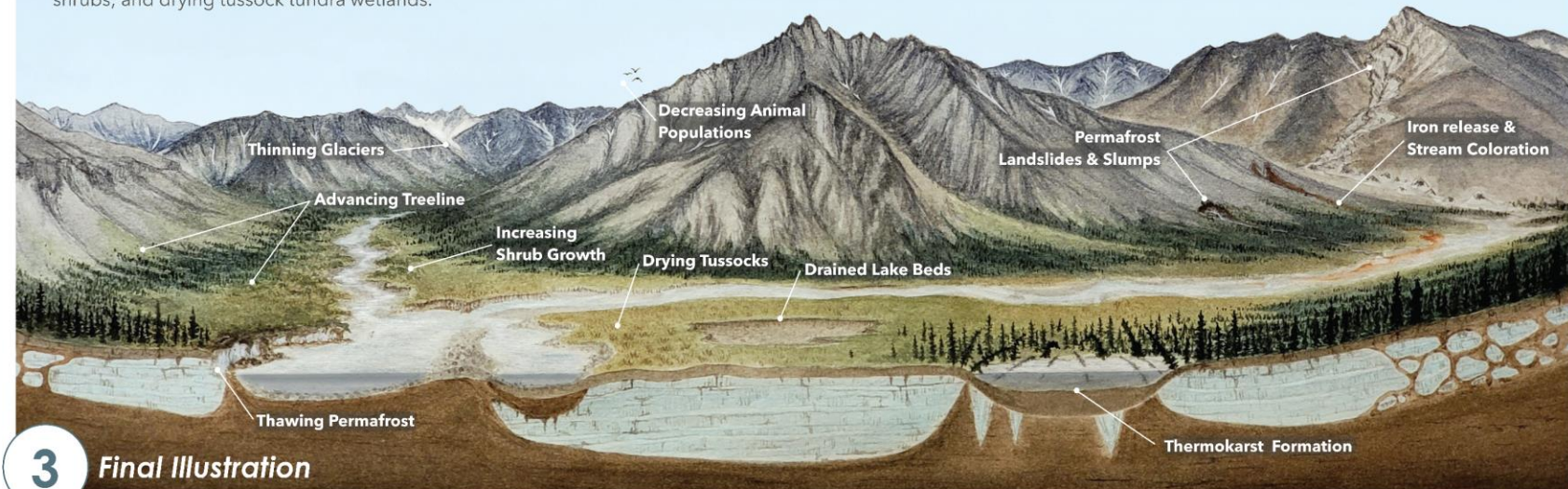
Observed vegetation change includes treeline advance, both in elevation and northward in latitude; increases in height, density, and extent of shrubs; and drying tussock tundra wetlands.

Decreasing Animal Populations

Bird populations appear to be decreasing rapidly in the Brooks Range. Mammal species, such as moose and Dall's sheep, appear to be struggling with deeper winter snow fall from open Arctic seas. Bears appear to be less successful at catching fish in rivers that no longer run clear, cloudy with metals and other substances leaching out of melting permafrost.

Thawing Permafrost

Thawing permafrost leads to many changes occurring in the Arctic. Not only does permafrost release greenhouse gasses such as carbon dioxide and methane, but it changes the land around it too. The melt can cause landslides and slumps, the formation of thermokarst ponds, and drained lake beds.



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