16 April 2024 26 April 2024
Lizzie Meeting and with the UBG staff (Adriana, Andy, and Daniel)

MAGNOLIA ISSUES

1. Partially pool by species or individually pool or whatever, just get the data all sorted out and visualised individually first
2. Separate models for the several common species, maybe something with all the data too
3. Should definitely have how many individuals per species/cultivar in a table and check if they have the same amount of data more or less
4. Partial pooling lets us throw in those individuals with only 2-3 years of data so they can at least do something

FROM ADRIANA

- There is old physical data of winter weather from Totem Field, UBC Climate station
    - It has data all the way from the 90s, 1961 to 1993 (winter weather) and 1990 to 1994 (Totem Field data)
- Ask Lizzie if this would be useful to have, maybe we could use it to calculate historic temperature somehow?
- How to get this into the computer…surely it should be available somewhere? Can we find Totem Field's data itself
- Ask Lizzie if we want to present something along the lines of Biodiversity Celebration?
- Given that long-term data is the limitation, what else would the lab be interested in needing for this project?
    - If she's interested in continuing this collaboration, what would Lizzie want to get from them? What might the garden gain and what kinds of new data collection could they be taught?
- What kind of chilling models could be applicable to plants in the garden? What about winter-blooming plants that are active even when they should be dormant given our understanding of callose deposition

FROM UBG

- Check overlap with the Totem Field data and see how different it is from the airport's data e.g. the years in which they are both collecting
    - If they're very different then temperature is unlikely to be a good predictor for magnolia phenology
- A new tower was built at Totem right, so then did they stop collection because they had a significant change in their data recording based on what was compared against by the airport?
- Check with EOSC building data as well
    - We could also approach them directly as well
- What directions should we go with for data collection?
- When you select for certain traits, there are definitely some that are carried along with baggage
    - E.g. pink coloured might be earlier flowered or what not, e.g. pleiotropy
    - Look through the species clustering the cultivars into species as well as replicates
- How comparable is this data with other gardens' data?
    - E.g. we have single trees of certain species and we could collaborate with other groups and then pool our data together
    - Find commonalities in the methods

        - Check US and UK phenology networks
- It would be fun to have a webpage on the UBG website about anticipating bloom events
    - Contribute through iNat, when is best to visit? Use these models to plan your trip kind of thing
- How can this study be improved?
    - Ways in which the garden can support teaching
    - Test the methodology: use cameras or even AI to check out accurate the FOGs are in their assessments
        - Camera trapping? Is a drone feasible?
        - Consistent observation point

CLIMATE DATA

- Plot the range of data min and max each year and see if the range changes
    - Maybe the average isn't changing because it's both winters getting colder and summers getting hotter
- Look for precipitation data and see if that aligns with the phenology patterns
- The garden irrigates, so precipitation might not even play a big role; just keep that in mind