It's the Little Things That Count: Ashbridge's Marsh's Pollen

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CGCS Summer Research Program

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Ashbridge's Marsh looking northeast, circa 1909
(City of Toronto Archives, 1909)

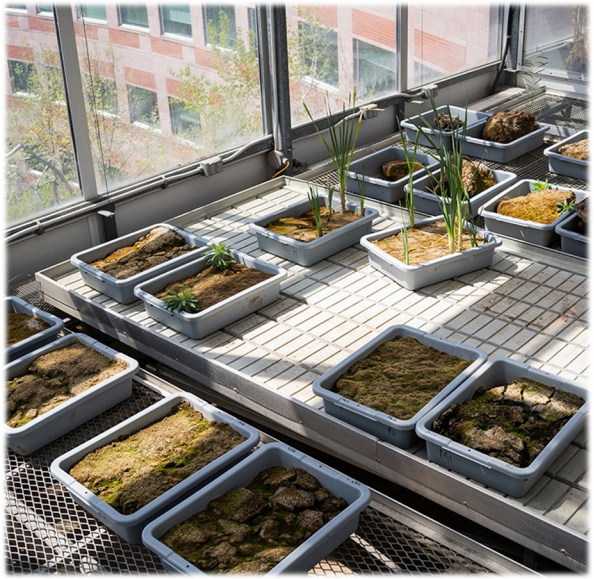
Who my research is about

(City of Toronto, 1890)

(City of Toronto, 1909)

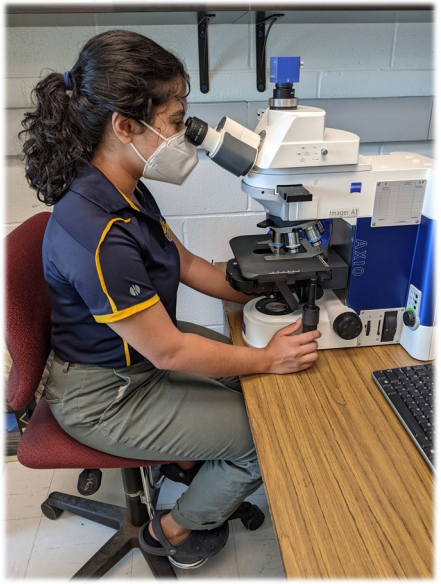
(Walker, 2022)

What I did



(Vendeville, 2022)

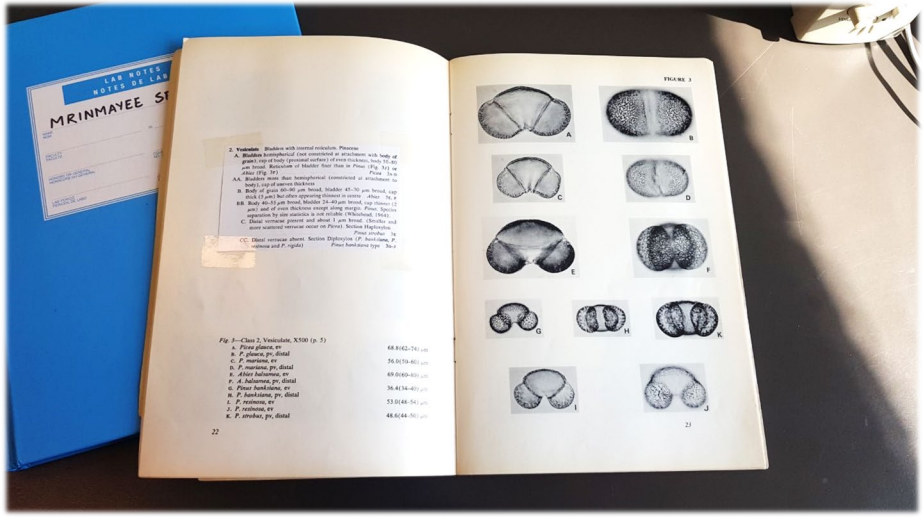
(image credit: Stuart)



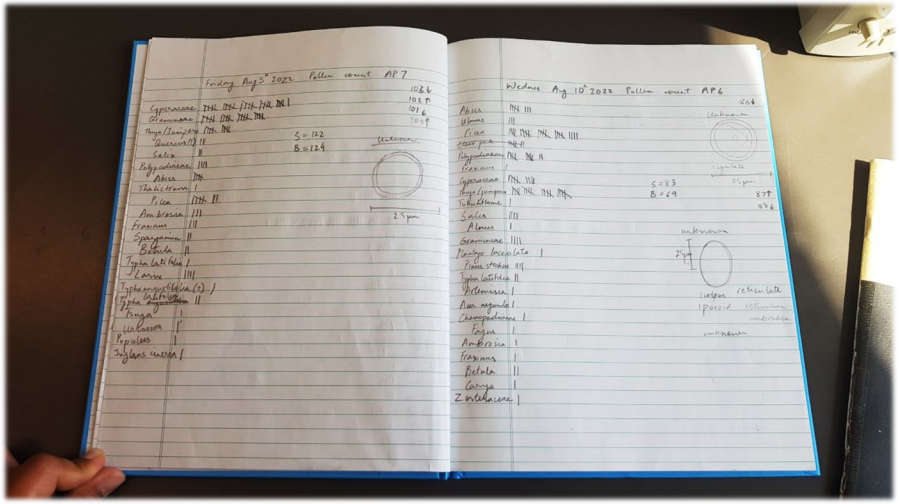
(image credit: Stuart)

- Maintained soils
- Collected soil subsamples
- Conducted soil analyses (bulk density, water content, carbon & nitrogen measurements)
- Processed soil samples to isolate pollen
- Counted and identified pollen grains on compound microscope

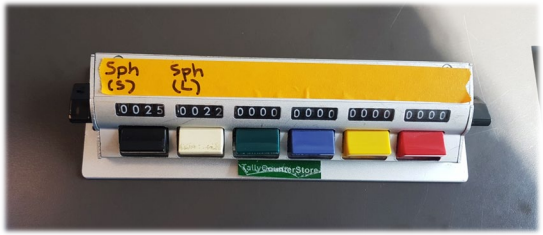
What data I collected and how



ROM pollen reference key



Pollen counts in lab book

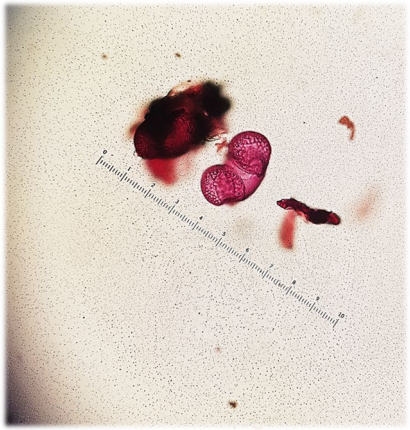


Clicker counter for palynospheres

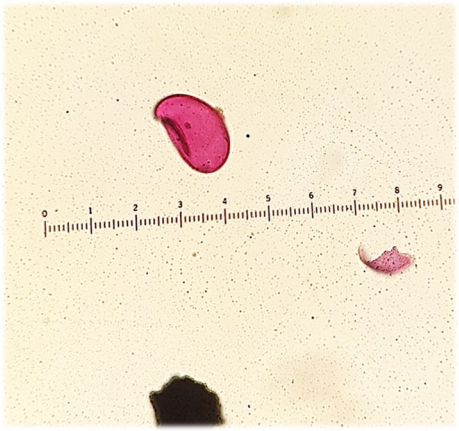
- Counted & identified 100 pollen grains from 5 samples each – focused on peat samples
- Shape, outer texture, and size (pollen grains can be between 2.5 – 200 microns; 1mm =1000 µm!)
- Digitized and analyzed data

What I found – LOTS of pollen!

Grass (Poaceae)

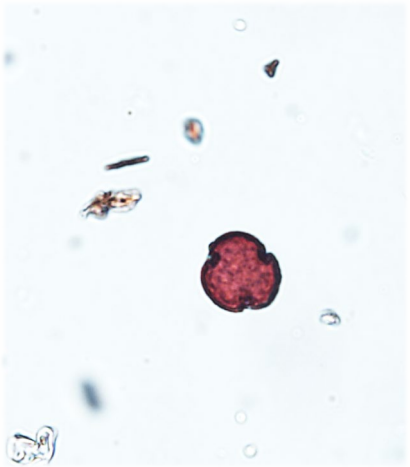


Spruce (Picea)

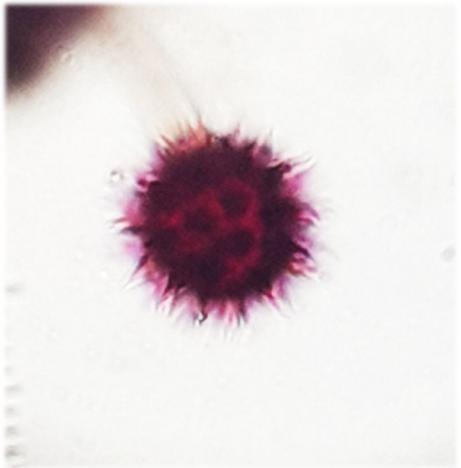


Fern (Polypodium)

Cattail (Typha latifolia)



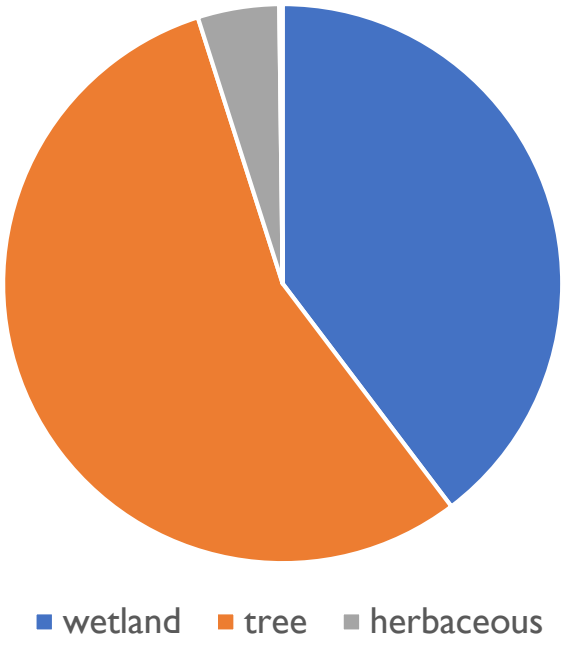
Ash (Fraxinus)



Daisy (Asteraceae)

What I found (contd.)

- Wide taxonomical diversity (51 different taxa!)
- Trees and wetlands plants had the highest representation
- Very few disturbance indicators



Conclusions and Next Steps

1. Samples are from relatively undisturbed marsh ecosystem
2. These soils could provide a suitable analog for wetland restoration along the Don River/ Lake Ontario
3. Pollen has mostly been well preserved
4. Trees and wetlands plants had the highest representation – but wind-pollinated species are over-represented
5. Radiocarbon dating of seeds and more detailed pollen counts may also indicate the true age of these soil samples

Acknowledgments

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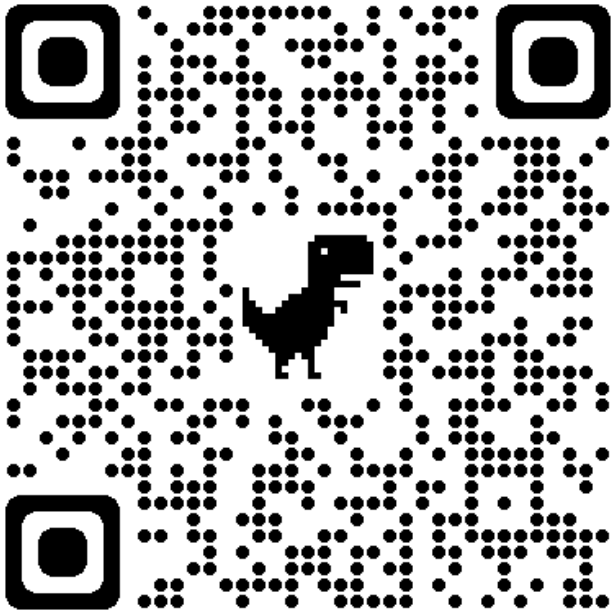

References

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