



Conservation Center for Art & Historic Artifacts (CCAHA)

"OUR PLANET, OUR COLLECTIONS" CONFERENCE

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Presenters:

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Session Title

Storytelling for Palaeoecological collections: preserving and interpreting microscopic specimens to understand a changing environment

Abstract

Palaeoecological collections at museums comprise a wide range of specimens. Among its collections, the Quaternary Environments program at the Royal Alberta Museum has thousands of plant microfossils (e.g., pollen slides) and macrofossils (e.g., seeds, leaves, shells) documenting over 300 study sites throughout Alberta, and spanning the postglacial interval (about 13,000 years ago) to the present. While being almost invisible, and certainly not "showy", these specimens can provide a wealth of knowledge about past landscapes, changes in the environment and climate over time.

While telling stories and using other techniques like photogrammetry (3D models) to present these tiny specimens, museum curators and educators are faced with unique and similar challenges. On one side, curators are challenged to preserve specimens, disseminate research, and turn data and models about microscopic specimens into compelling narratives, while addressing the controversies arising from the topic of climate change and eco-anxiety. On the other side, educators are concerned with making palaeoecological collections relevant to diverse audiences, and experimenting with communication strategies to make the audiences care about tiny specimens with a great story to tell. Together, both curators and educators are challenged with presenting almost invisible specimens in an engaging way while discussing environmental science topics.

In our presentation, we will provide an overview of the Quaternary Environments' collections, their composition, use and conservation, and share the learning and interpretive approaches we utilise to help the audience connect with specimens and stories from the collections.

Resources Based on Tools Presented in Talk

Interpretation and Science Communication / *Connecting diverse audiences with museum collections*

- Compass, *The Message Box Workbook. Communicating Your Science Effectively*. Clackamas: Compass Science Communication Inc., 2017
- Green, Stephanie J., Grorud-Colvert, Kirsten and Mannix, Heather. “Uniting science and stories: Perspectives on the value of storytelling for communicating science”. *FACETS*. 3, 2018 (1): 164-173
- Tilden, Freeman. *Interpreting Our Heritage*. Fourth Edition, Expanded and Updated ed., Chapel Hill: The University of North Carolina Press, 2009

Images / *Comparing modern day pictures of plants and comparing them with the microscope pictures of seeds*

- Insteading. *Microscopic Images Of Seeds*. October 12, 2020, <https://instead.com/blog/microscopic-images-seeds/>
- PalDat. *Palynological Database an online publication on recent pollen*, October 17, 2022, <https://www.paldat.org/>

Photogrammetry / *Visualizing, observing objects from multiple angles and perspectives, appreciating the details*

- Royal Alberta Museum. *Blue beardtongue 3D Model*. Sketchfab, August 21, 2020, <https://sketchfab.com/3d-models/blue-beardtongue-69b592afa1c04e4395fa5b5d25172ee8>
- Royal Alberta Museum. *Wolf-willow seed 3D Model*, Sketchfab, July 23, 2020, <https://sketchfab.com/3d-models/wolf-willow-seed-d39cd9068049415b8d468a73506c9382>

Models 3D printed models / *Hands-on Learning and Accessibility*

- Flowers, Alex. “Taking sculptures for a walk: 3D printing and museum outreach”. *V&A Blog*. Victoria and Albert Museum, April 6, 2018, <https://www.vam.ac.uk/blog/digital/taking-sculptures-for-a-walk-3d-printing-and-museum-outreach>
- Kim, Gillian. “Enhancing Museum Education: 3D Printing”. *Arts Management & Technology Laboratory*, Carnegie Mellon University, January 8, 2018, <https://amt-lab.org/blog/2017/12/3d-printing-in-museum-arts-education>

- Rushing, Erin. “Educational Experiments with 3D Printing”. *Smithsonian Libraries and Archives Blog*. Smithsonian Institution, March 28, 2019, <https://blog.library.si.edu/blog/2019/03/28/museum-in-a-box-2/#.Y1bKEbMI2x>
- Short, Dan. “Use of 3D Printing by Museums: Educational Exhibits, Artifact Education, and Artifact Restoration”, *3D Printing and Additive Manufacturing*. 2015, 2. 209-215.
- The 3D Pollen Project for outreach, education and research. *Why Pollen?*, 2018 <https://3dpollenproject.wixsite.com/main>

Additional Learning tools

- International Seed Morphology Association. *Publication Guide. Common Colour Description*, 2019, https://www.idseed.org/authors/details/seed_colour2.html
- Royal Botanic Gardens Kew. **Plants of the World Online**, 2022, <https://powo.science.kew.org/>

Other Ways to Display and Engage with Small Objects

- Crotty, David. *The 2022 Small (Microscopic) World in Motion*. The Scholarly Kitchen, October 21, 2022, https://scholarlykitchen.sspnet.org/2022/10/21/the-small-microscopic-world-in-motion/?informz=1&nbd=&nbd_source=informz
- Hora, Shilin. *Seed Museums: Viewing and Using Nature* (exhibition). Grand Valley State University Art Gallery, November 2, 2018 – March 1, 2019, <https://www.gvsu.edu/artgallery/seed-museums-viewing-and-using-nature-155.htm>