# **Supplemental Figures and Tables for:**

**Terrestrial ecosystem transformations in response to rapid climate change during the last deglaciation around Mono Lake, California, USA**

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Diagram

Description automatically generated with low confidence

**Figure S1.** Full palynological diagram of the MONO15 core. Dots represent the presence of pollen grains at less than <1% abundance. Mirocharcoal is present in influx of particles cm-2 yr-1.



**Figure S2.** Bacon package output figure showing the age-depth model for the UWI-MONO15 core.

Diagram

Description automatically generated with medium confidence

**Figure S3:** Morphology of Taxodiaceae-Cupressaceae-Taxaceae pollen and taxa relationships. (A) Photomicrographs of *Sequoiadendron*-type pollen from the MONO15 core. The presence of a papilla and rougher texture on the exine distinguishes Sequoiodeae pollen from other Cupressaceae family pollen, labelled as Cupressaceae (B). At Mono Lake, Cupressaceae pollen grains sans papilla is largely attributed to the genus *Juniperus* but may also include *Calocedrus*. (C) Cladogram of other subfamilies within the former Taxodiaceae have papilla but are not plausibly found in the Sierra Nevada (C, orange boxes). The presence of a papilla appears to be a robust identifier of Sequoiadendron-type pollen in the Sierra Nevada as *Sequoiadendron giganteum* is the only Cupressaceae pollen type found in the region (C, green boxes) that has a papilla. NA is North America. Cladogram modified from Bouchal et al. (2020).

**Chart, scatter chart

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**Figure S4.** Detrended correspondence analysis (DCA) ordination showing all MONO15 pollen samples analyzed for this study. (A) Biplot of fossil taxa with letters indicating CONISS zones. Symbols show modern pollen samples from different biomes in the Sierra Nevada superimposed onto the MONO15 fossil pollen ordination. (B) MONO15 fossil pollen taxa ordination.

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| **Table S1**: List of fossil and modern pollen taxa included in the DCA analysis. | | | | |
| Trees | Tree/Shrubs | Dry Shrubs | Herbs | Non-pollen Palynomorphs | |
| *Abies*  Cupressaceae  *Pinus* undif.  *Quercus*  *Sequoiadendron*-type\*  *Tsuga mertensiana* | *Alnus*  *Ceanothus*  *Cercocarpus/*  *Purshia*-type  *Chrysolepis*  *Corylus*  Elaeagnaceae  *Ericaceae*  *Juglans*  *Lithocarpus*  *Salix* | *Artemisia*  *Ephedra*  *Sarcobatus* | *Amaranthaceae*  *Ambrosia*  Asteraceae  Brassicaceae  Cyperaceae  *Eriogonum*  Poaceae | *Sporormiella\** | |
| *Note:* Modern pollen data were obtained from Anderson and Davis (1988), Davis (1999), Woolfenden (1996), and Batchelder (1970).  \*Taxa not found in modern surface samples. | | | | | |

**References (included in main text)**:

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Bouchal, J.M., Denk, T., (2020). Low taxonomic resolution of papillate Cupressaceae pollen (former Taxodiaceae) impairs their applicability for palaeo-habitat reconstruction. Grana 59, 71–93. https://doi.org/10.1080/00173134.2019.1701704

Davis, O. K. (1999). Pollen Analysis of a Late-Glacial and Holocene Sediment Core from Mono Lake, Mono County, California. Quaternary Research, 52(2), 243–249. <https://doi.org/10.1006/qres.1999.2063>

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