



Looking across a line of mummified tree stumps on Axel Heiberg Island. The yellow flowers are arctic poppies. Image © D. Greenwood, July 1991.

Mummified tree stump of a dawn redwood (*Metasequoia* species, Cupressaceae) from the Middle Eocene Buchanan Lake Formation, on Axel Heiberg Island, in the Arctic Archipelago. These stumps are representative of extensive *in situ* stump fields or ‘fossil forests’ in life position from the Geodetic Hills, preserved in low-grade lignites in a thick fluvial plain sequence. The site is called “Nupartulik” (place of trees) by the Inuk, since the creation of Nunavut. Associated with these stumps are extensive mummified leaf-mats, preserving the forest-floor leaf litter of the original floodplain swamp-forests. The wood is preserved without chemical alteration (hence ‘mummified’), so perfectly that the original woodgrain and even bark is preserved, and the wood will burn. Analysis of the tree rings of these fossil trees has shown that the trees grew under very benign conditions, and formed part of polar forests that showed similar biological productivity to present-day coniferous temperate rainforests such as those on the west coast of Canada or southern Chile. Dawn redwoods are a deciduous conifer closely related to the coast redwood of the US west coast (*Sequoia sempervirens*) and the Chilean Alerce (*Fitzroya*). *Metasequoia* were first described as fossils (and are a common fossil from Paleogene rocks throughout North America), but were discovered as living trees in central China in 1944, and can today be found planted in the Toronto botanical gardens and elsewhere.

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