Creation Research Society Quarterly 2019 56:48–51.

"Missing" Ice Age Forests: Evidence for the Flood?

Jake Hebert*

Abstract

Uniformitarian scientists have long been puzzled by an apparent dearth of trees, even in unglaciated areas, during the supposed 2.6 million years of the Pleistocene Epoch. Thick forests can take centuries to grow, and creation scientists estimate that the most likely duration of the post-Flood Ice Age was 700 years. Since the Genesis Flood killed every living tree in the pre-Flood world, and since thick forests normally take centuries to grow, this general absence of Ice Age trees could be evidence for the Creation Ice Age model. On the other hand, it may also present a challenge to the Creation model, as abundant precipitation early in the Ice Age would seem to favor rapid tree growth. Evidence for an absence of mature Ice Age forests seems especially strong in Europe and North America.

Introduction

When Noah and his family got off the Ark, vegetation, including at least some trees (Genesis 8:7–12), had begun to sprout. Nevertheless, trees would be essentially non-existent in the immediate post-Flood world. It is generally thought that a forest planted by humans takes about 100 years to mature. Akira Miyawaki, 2006 Blue Planet Award winner, has become famous for developing a method that dramatically accelerates this process by a factor of 10. However, according to the theory of "potential natural vegetation" which underlies his method, a naturally-occurring forest takes much longer to mature (Shubhendu, 2015):

> If a piece of land is free from human intervention, a forest will naturally self-seed and take over that land within a period of around 600 to 1,000 years, with the species that would be native and robust, and that would require no maintenance.

I have not been able to find additional confirmation of this figure, but if it is indeed accurate, then it has implications for the post-Flood Ice Age. This number is especially interesting in light of Oard's estimate that the Ice Age, which began immediately after the Flood, lasted around 700 years (Oard, 1990, pp. 199–210). If naturally occurring thick forests take at least 600 years to grow, thick forests might have been non-existent or scarce during much of the post-Flood Ice Age. In that light, the comment made by British geologist J. K. Charlesworth (Charlesworth, 1957, cited in Oard, 1990, p. 41) is intriguing:

> Evidence has been found which suggests that the ice in places advanced over standing and probably living forests in which the annual rings show a marked decrease in the rate of growth only during the last twelve years before death occurred. *Nevertheless, the ice may generally have invaded a barren, timberless, and storm-swept country. … The rarity of vegetation in the drift suggests that the preglacial material was carried beyond the limits of glaciation* [emphasis mine].

* Jake Hebert, jhebert@icr.org

Accepted July 29, 2019

Early in the Ice Age, thick forests would have been non-existent—not because trees were "carried beyond the limits of glaciation," but because living trees had all been destroyed in the Flood, and those that sprouted after the Flood had not yet had time to reach maturity. Oard briefly referenced this 1957 statement by Charlesworth in his 1990 monograph, but did not elaborate on it much. Given that this 1957 reference is very dated, I felt it worthwhile to see if more recent research had confirmed Charlesworth's statement. As it turns out, secular scientists are convinced that Ice Age trees were scarce in Europe, North America, and northern Asia.

This paper's referee pointed out that mild winters, cool summers, and abundant vegetation would have enabled forests to grow more quickly during the Ice Age, so this issue may not be as simple as it first seems. On the one hand, it seems that abundant precipitation early in the Ice Age (Oard, 1990) would cause trees to grow up fairly quickly everywhere. Indeed, large trees have been found in growth position in far north Siberian permafrost (Oard, 2006, p. 141). On the other hand, secular researchers have repeatedly noted a dearth of Ice Age forests, even *outside* glaciated areas. Of course, what constitutes a "thick" forest may be "in the eye of the beholder." Even with abundant precipitation, it could be that forests in unglaciated areas did not grow as thick in the few centuries of the post-Flood Ice Age as uniformitarians had expected. After all, their model of Earth history affords them many thousands of years for forest growth. So it may be that Ice Age forests did indeed exist outside the glaciated areas, but uniformitarian scientists were surprised that they were not as large, thick, or abundant as they had expected.

I encountered this subject in the course of my Ice Age research. Admittedly, I am not a geologist or paleontologist, so I am not really qualified to discuss Ice Age forests or paleobotany. However, I am bringing this to the attention of the creation community in the hope that more qualified creation researchers can perhaps look more deeply into this issue, in case it turns out to be significant evidence for the Creation Ice Age model.

Estimating the Sizes of Ancient Forests

Most paleo-estimates of Quaternary tree coverage are based on fossil pollen. Two writers (Birks and Tinner, 2016) described why analysis of fossil pollen is so important:

> As we cannot directly observe the forests of the past, to answer these questions [about European forests in the Quaternary] we need to reconstruct past forests indirectly using the fossil record. This involves the study of seeds, fruits, leaves, wood, and charcoal (macrofossils)[1] and of microscopic pollen grains, spores, cells (e.g. stomata), and charred particles (microfossils) preserved in lake, bog, alluvial, and other sediments where organic material can be preserved.[2] Pollen analysis as a tool for vegetation reconstruction—invented in 1916 by the Swedish geologist Lennart von Post—was and still is the dominant technique in the [study of the] Quaternary period, especially the last 15 000 years of the late-Quaternary. [footnotes in original]

There are at least four difficulties confronting attempts to reconstruct past forests using pollen analysis (Birks, 2011, slide 48). One of these is the difficulty of correctly interpreting sites with low pollen values, as such low values could be the result of either long distance transport or a nearby, scattered population. Also, some trees cease pollen production when exposed to colder temperatures. Likewise, low atmospheric concentrations of atmospheric carbon dioxide can also reduce pollen production. Finally, a lack of continuous sites can be a problem as well. Hence paleo-reconstructions are somewhat uncertain. Even so, the reconstructions discussed here are broadly consistent with a largely treeless landscape during the Post-Flood Ice Age.

Uniformitarians generally attribute the decrease in tree cover to colder Ice Age temperatures that began during the Pliocene Epoch and continued into the Pleistocene (Polly, 1994):

> Accompanying the general cooling trend of the Pliocene was, as already mentioned, an increased aridity. This led to a number of noteworthy changes in the environment. The Mediterranean Sea dried up completely and remained plains and grasslands for the next several million years. *Another environmental change was the replacement of many forests by grasslands*. [emphasis mine]

A popular-level website (Anonymous, 2014) concurs:

> The global cooling that occurred during the Pliocene may have spurred on *the disappearance of forests* and the spread of grasslands and savannas [emphasis mine].

There is some limited evidence of a dearth of Ice Age trees in Australia, Africa, and South America (Colinvaux et al., 1997; Anonymous, 2007; Mayle et al., 2009; Monroe, 2016; Piñeiro et al., 2017), but probably not enough to warrant any firm conclusions. At present, not much can be said about Antarctica, as information about possible post-Flood but pre-glaciation trees on that continent seems hard to come by. Of course, given the difficulty of doing geological fieldwork in Antarctica, this is hardly surprising. This paper focuses mainly on Europe, northern Asia, and North America.

Europe and Northern Asia

Birks (Birks, 2011, slide 29) had this to say in a PowerPoint presentation for a Ph.D. course:

> Forest vegetation of N America and Europe has no history longer than 10 k yr (at best).

We shall return to the North American tree cover shortly. In any case, the history of trees in Europe is relatively short. This is quite odd given the truly vast time allowed by the uniformitarian model of Earth history. Of course, creationists would argue that even this 10,000-year figure is greatly inflated, which is not surprising given the uniformitarian tendency to "stretch" a single Ice Age into roughly 50 Pleistocene ice ages supposedly occurring over a period of 2.6 million years (Walker and Lowe, 2007).

Researchers (Huntley et al., 2013) had this to say about trees in Europe and northern Asia during the last glacial:

> Whereas fossil evidence indicates *extensive treeless vegetation* and diverse grazing megafauna in Europe and northern Asia during the last glacial, experiments combining vegetation models and climate models have to-date simulated widespread persistence of trees. [emphasis mine]

Of course, creation scientists argue that the most recent "glacial" interval or ice age was in actuality the only Ice Age. Note that secular climate models' prediction (actually a *retrodiction*) of widespread Ice Age trees in Europe and Northern Asia is contradicted by the geological field evidence. Ice Age trees were apparently rare in those locations. A popular level article describing this research said (Peel, 2013):

> Previous computer simulations of vegetation during the last ice age had suggested that trees may have persisted in ice-free areas of Europe and northern Asia. But, curiously, there has never been any sign of trees in fossils from the region.

However, Oard has pointed out that there is evidence of trees in northern Asia. For instance, large trees have been found in growth position in far north Siberian permafrost (Oard, 2006, p. 141). Furthermore, due to abundant precipitation, mild winters, and cool summers, Oard *expects* abundant vegetation during the early part of the Ice Age (Oard, 2015). I am not sure of the answer to this apparent contradiction, but again, it may involve different creation and uniformitarian expectations regarding the extent of Ice Age flora.

The abstract of a 2016 paper (Kaplan et al., 2016) has this to say about the absence of European Ice Age trees:

> Reconstructions of the vegetation of Europe during the Last Glacial Maximum (LGM) are an enigma. Pollen-based analyses have suggested that Europe was largely covered by steppe and tundra, and forests persisted only in small refugia. Climate-vegetation model simulations on the other hand have consistently suggested that broad areas of Europe would have been suitable for forest, even in the depths of the last glaciation.

Kaplan et al. went on to state:

> Although climate change was an important driver of landscape change during the LGM, paleoclimate alone cannot not [*sic*] provide sufficient explanation for the large-scale open nature of LGM landscapes. While the openness of the LGM landscape itself may be debated—our tree-cover reconstruction (Fig 1) and a number of previous studies [3, 24, 29–31] confirm the notion that Europe at the LGM was probably not a homogenous, vast open steppe, but rather characterized by a patchy mosaic of forest and non-forest vegetation—*no GCM simulation results in a modeled vegetation of Europe that is even remotely treeless* (S1 Fig). [emphasis mine]

In other words, global climate computer simulations have consistently failed to account for the lack of European trees at Last Glacial Maximum, even in unglaciated areas. The authors attempted to attribute this dearth of trees to ignition of wildfires by early humans.

A book on Cenozoic mammals (Rafferty, 2011, p. 194) notes:

> In the temperate zones of central Europe and the United States where deciduous forests exist today, vegetation was open and most closely resembled the northern tundra, with grasses, herbs, and few trees during glacial intervals. Farther south, a broad region of boreal [coniferous] forests with varying proportions of spruce and pine or a combination of both extended almost to the Mediterranean in Europe and northern Louisiana in North America.

So forests seem to have been rare in at least parts of central Europe during the Ice Age. The above statement also mentions North America, which we now discuss.

North America

As noted above, secular researchers have also concluded that dense forests were generally absent from much of North America during the Last Glacial Maximum (Anonymous, NASA Earth Observatory, no date given):

> By comparing modern forests and the pollen records they leave behind to pollen records from thousands of years ago, [Margaret] Davis [an ecologist at the University of Minnesota] has created a picture of ancient forests. Her meticulous studies of North America's fossil pollen record show that although trees associated with modern forests existed many thousands of years ago, forests as we know them today—dense, continuous stands of trees whose branches form a closed canopy overhead—were likely very rare at the last glacial maximum.

Another researcher (Williams, 2002) has confirmed Davis' findings:

> [North American] [t]ree cover densities during the last glacial maximum were low relative to present, and have increased since.

Summary

Secular scientists are clearly puzzled by an apparent dearth of thick Ice Age forests. This could be evidence in favor of Oard's Ice Age model, but it may also present difficulties for creation researchers, since abundant precipitation early in the Ice Age would be expected to favor rapid plant growth. This information is presented here in the hope of spurring further creation research in this area.

References

Anonymous. 2007. Tropical rain forest thrived throughout last Ice Age. University of Michigan Press Release. January 5, 2007. https://news.umich.edu/tropical-rain-forest-thrived-throughout-last-ice-age/ (Accessed October 19, 2018).

Anonymous. 2014. "Pliocene Epoch." *Geology Page*. Posted May 5, 2014, http://www.geologypage.com/2014/05/pliocene-epoch.html (Accessed October 19, 2018).

Anonymous. No date given. Not in Kansas Anymore. NASA Earth Observatory. https://earthobservatory.nasa.gov/Features/BorealMigration/boreal_migration2.php (Accessed June 11, 2018).

Birks, H. J. B. and W. Tinner. 2016. Past Forests of Europe. In San-Miguel-Ayanz, J., de Rigo, D., Caudillo, G., Houston Durrant, T., Mauri. A. (editors), *European Atlas of Forest Tree Species*, p. 36. Publ. Off, Luxemborg, EU.

Birks, J. 2011. *The Evolutionary Legacies of the Quaternary Ice Ages*. PowerPoint presentation for Nordforsk Ph.D.Course. https://w2.uib.no/filearchive/evolution-arylegacies.pdf (Accessed October 19, 2018).

Charlesworth, J. K. 1957. *The Quaternary Era*. London: Edward Arnold: 225–226.

Colinvaux, P. A., M. B. Bush, M. Steinitz-Kannan, and M. C. Miller. 1997. Glacial and Postglacial Pollen Records from the Ecuadorian Andes and Amazon. *Quaternary Research* 48 (1): 69–78.

Huntley, B., J. R. M. Allen, Y. C. Collingham, T. Hickler, A. M. Lister, J. Singarayer, A. J. Stuart, M. T. Sykes, and P. J. Valdes. 2013. Millenial Climatic Fluctuations are Key to the Structure of Last Glacial Ecosystems. PLoS ONE 8 (4): e61963.

Kaplan, J. O., M. Pleiffer, J. C. A. Kolen, and B. A. S. Davis. 2016. Large Scale Anthropogenic Reduction of Forest Cover in Last Glacial Maximum Europe. PLoS ONE 11 (11): e0166726.

Mayle, F. E., M. J. Burn, M. J. Power, and D. H. Urrego. 2009. Vegetation and Fire at the Last Glacial Maximum in Tropical South America. In Past Climate Variability in South America and surrounding regions: from the Last Glacial Maximum to the Holocene. Vimeux, F. F. Sylvestre, and M. Khodri, editors. Springer: 89–112.

Monroe, M. H. Ice Age Australia. In Australia: The Land Where Time Began—a biography of the Australian continent. Updated October 21, 2016. https://austhrutime.com/ice_age_australia.htm (Accessed October 19, 2018).

Oard, M. J. 1990. *An Ice Age Caused by the Genesis Flood*. Institute for Creation Research. El Cajon, CA.

Oard, M. J. 2006. *Frozen in Time: Woolly Mammoths, the Ice Age, and the Biblical Key to Their Secrets*. Master Books. Green Forest, AR.

Oard, M. J. 2015. Trees in Northwest Scandinavia during the Ice Age. *Journal of Creation* 29 (3): 10–11.

Peel, A. 2013. Rapid climate change ruled out ice age trees. Posted May 17, 2013 at https://phys.org/news/2013–05-rapid-climate-ice-age-trees.html (Accessed June 7, 2018).

Piñeiro, R., G. Dauby, E. Kaymak, and O. J. Hardy. 2017. Pleistocene population expansions of shade-tolerant trees indicate fragmentation of the African rainforests during the Ice Ages. *Proceedings of the Royal Society B* 284: 20171800.

Polly, D. 1994. The Pliocene Epoch. University of California Museum of Paleontology. April 30, 1994. Most recent update was June 10, 2011. http://www.ucmp.berkeley.edu/tertiary/pliocene.php (Accessed October 19, 2018).

Rafferty, J. P. *The Cenozoic Era: Age of Mammals*. Britannica Educational Publishing. New York.

Shubhendu, S. How to Grow a Forest Really, Really Fast. *TED Fellows*. Article posted February 18, 2015 at https://fellowsblog.ted.com/how-to-grow-a-forest-really-really-fast-d27df202ba09 (Accessed October 19, 2018).

Walker, M. and J. Lowe. 2007. Quaternary science 2007: a 50-year retrospective. *Journal of the Geological Society, London.* 164(6): 1073–1092.

Williams, J. W. 2002. Variations in tree cover in North America since the last glacial maximum. *Global and Planetary Change* 35: 1–23.