

Connecticut's Dark Day

CTHEducation

**How can tree rings help us
solve a 245-year-old
historical mystery?**

On May 19, 1780, a **strange darkness fell** over much of New England, including Connecticut, when the colonies were fighting for independence. It was so dark by noon that it was **impossible to read or write** even sitting by a window – people had to light candles to see.

“People were unable to read, determine the time of day by their clocks or watches, dine, or manage their domestic business, without the light of candles...

The birds having sung their evening songs, disappeared and became silent; the fowls retired to roost; the cocks were crowing all around, as at break of day; objects could not be distinguished but at a very little distance, and everything bore the appearance and gloom of night.

Early in the morning, the weather was cloudy: the sun was but just visible through the clouds, and appeared of a deep red...

In most places thunder was heard several times in the morning...

In some places there were showers throughout the day.

The water that fell was found to have an uncommon appearance, being thick, dark, and sooty.”

**What did
people notice?**

**What do you
think caused
the darkness?**

In Hartford, there was a legislative meeting in progress at the Old State House in the middle of a debate.

The House decided to adjourn the meeting because of the darkness, but Abraham Davenport, a member of the Council, asked for candles to be brought instead so he could keep doing his duty.

He helped his colleagues feel less fearful about the day and in doing so became a hero!

**What would you have
done if you were in
Davenport's position?**

**Would you have kept
working?**

Through scientific evidence, we've learned
that the cause of the darkness was....

smoke from a forest fire...

all the way up in Canada!

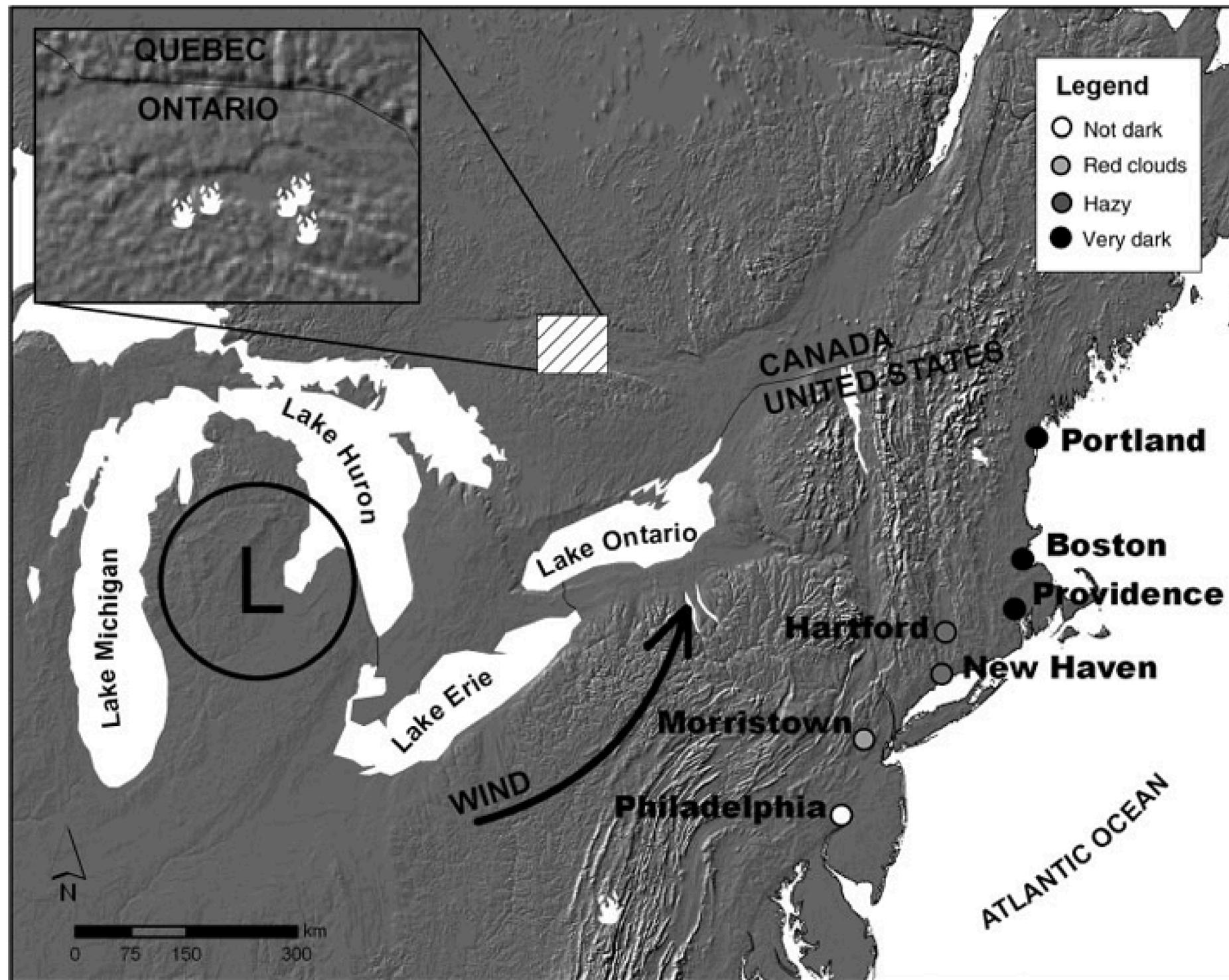


Fig. 1. Map of portions of north-eastern United States and south-eastern Canada. Cities listed are those with information describing conditions during the 19 May 1780 Dark Day (Ludlum 1972). City symbols are coded by degree of darkness (see legend). Inset shows closer view of Algonquin Park fire history study sites.

Scientists learned about the fire by using what's called **dendrochronology**,
or the study of tree rings.

Trees can live for hundreds, or even sometimes thousands, of years! By counting a
tree's rings, you can find out how old it is.

We can also see weather patterns in the rings:

Rings are thicker in years with long, warm, or wet growing seasons.

The trees might have had less competition for resources like sun and water.

The rings are thinner in years where there might have been a drought, cold snaps, disease, pests, or even fires, which leave scars on the rings.

INTERPRETING TREE RINGS

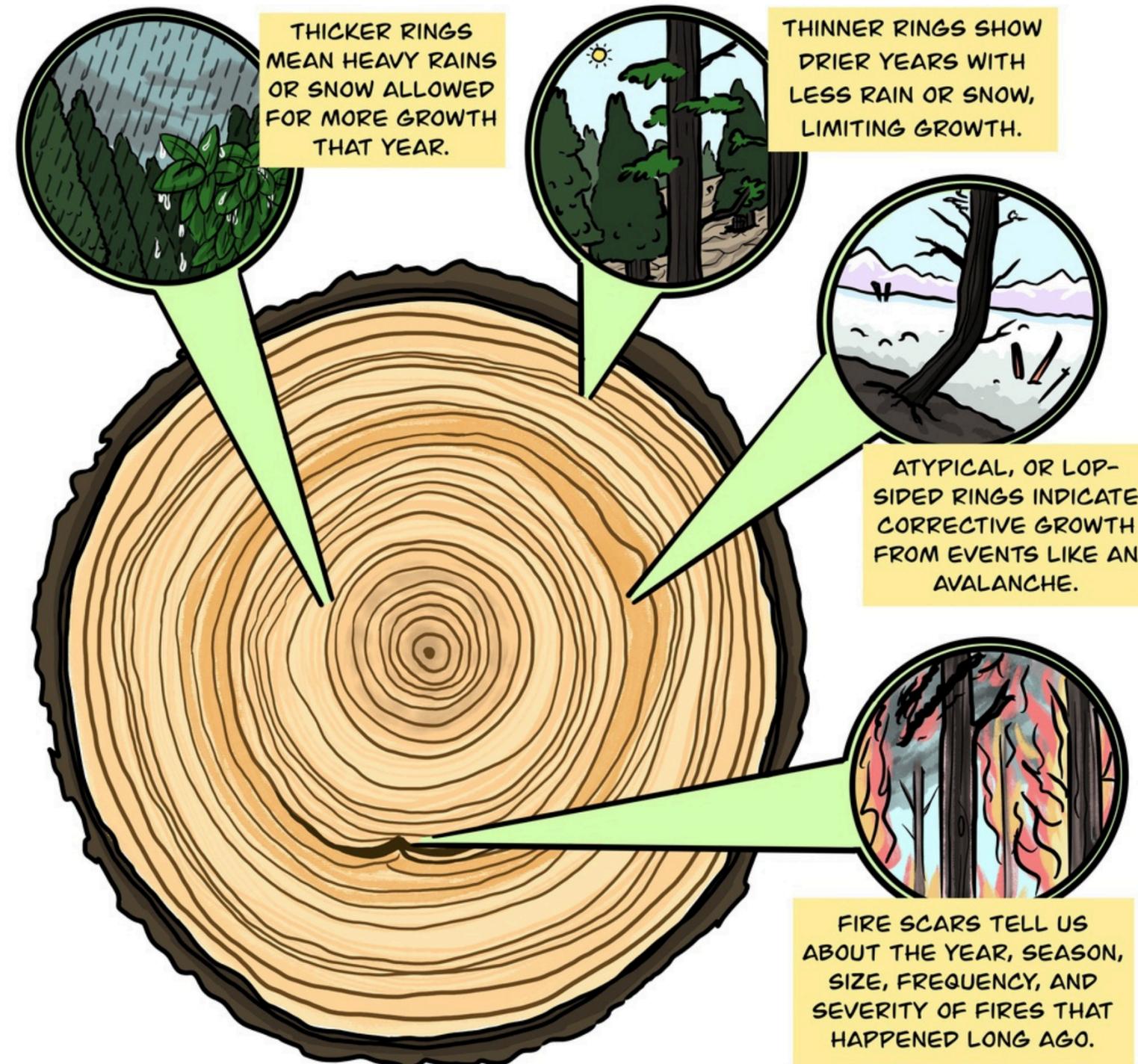




Fig. 3. Cross-sectional surface of a red pine (*Pinus resinosa* Soland.) from Opeongo Lookout, Ontario, Canada, showing the 1780 fire scar and subsequent growth increase. The presence of some earlywood vessels in 1780 (inset) indicates that the tree was fire scarred during the early part of the growing season (e.g. May), which is consistent with the timing of the 1780 Dark Day.

**Why were
there so many
fires in 1780?**

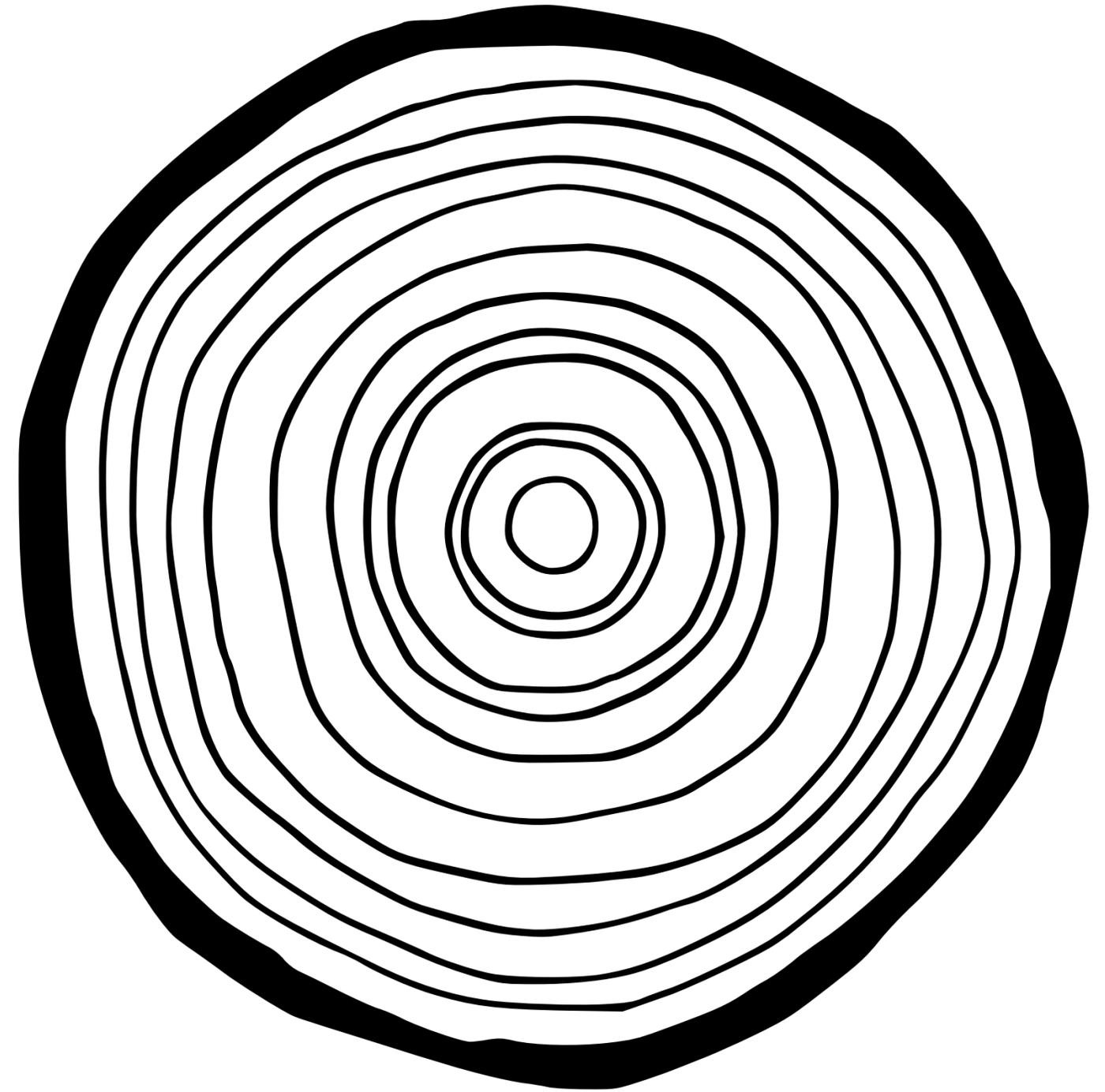
- **Settlement**

- Conflict between Native Americans and Euro-American settlers → fires were often ignited purposefully for revenge or defense
- Spread accidentally from campfires, lanterns and candles
- Clearing land and the subsequent burning of extremely large slash piles

- **Weather**

- Combination of drought and a low pressure weather system may have increased the potential for ignition by lightning

**Tree Ring
Gradient
Worksheet**



Closing Questions

- What do different rings and scars tell us about a tree's life?
- Why is it important for us to study the Earth's history?
- What might events in the past tell us about the future?

Sources

- “Dark Day – Today in History: May 19” ConnecticutHistory.org. 19 May, 2020. <https://connecticuthistory.org/dark-day-today-in-history-may-19/>
- McMurry, Erin R.; Stambaugh, Michael C.; Guyette, Richard P.; Dey, Daniel C. 2007. Fire scars reveal source of New England’s 1780 Dark Day. International Journal of Wildland Fire. 16: 266-270.
- Slyngstad, Ben. “Tree Rings” USGS/Climate Adaptation Science Centers, 22 Jan, 2024. Public Domain. <https://www.usgs.gov/media/images/tree-rings>

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