Wisconsin Woodland Owners Association

Creating tomorrow's woodlands today

Kick Off Your Week by Learning Something New: Snap, Crackle, and POP!

Frost Cracks

Imagine the coldest temperature you've ever been in. Now imagine living in it 24/7. Doesn't sound like a great time, does it? Harsh winter weather can pose significant challenges for plants and animals, including trees. Most organisms have developed some sort of strategy for surviving cold weather (we know about fishes and torpor!), but sometimes they just can't escape the effects of cold. So, while humans may seek refuge from the cold indoors, landscape trees experience Wisconsin's winter temperatures firsthand.

Have you ever heard a loud "CRACK!" when walking out in a winter wonderland? It's possible that you are hearing the sound of a tree trunk cracking.
In particularly low temperatures, the bark of tree trunks may become subject to vertical cracking.
These cracks along the length of the trunk are referred to as **"frost cracks"**. These can penetrate deep into the core of the tree and cause permanent damage. If you have heard of "frost cankers" or "sun scald", frost cracks are similar to these but **differ** in that they extend deeper into the wood of the tree.
Some tree species that are particularly vulnerable to frost cracks include sycamores, maples, willows, apple trees, and cherry trees. More generally, deciduous trees, trees with thin bark, and trees with light colored

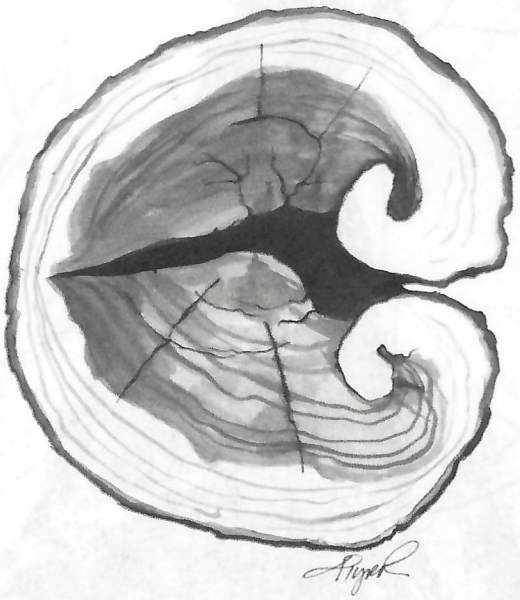
bark are the most susceptible.

Valuable timber logs can still be harvested with frost cracks as millers can cut through them to minimize the defect.

What are the factors that contribute to frost cracks?

Rapid temperature fluctuations play a big role in the occurrence of frost cracks. But rapid temperature changes are not the only contributing factor. Rather, **studies suggest** that frost cracks are most often associated with earlier wounds or branch stubs. Trees that are exposed to direct sunlight during a winter afternoon are particularly susceptible to frost cracks. The sun can heat up both the bark and inner wood on the sun-facing side, but when the sun sets the air temperature drops quickly. This rapid change in temperature causes the bark to shrink quickly, while the inner wood contracts much more slowly, so the bark is stretched taut over the trunk. Ultimately, the shrinking bark (and wood layers underneath) can no longer hold together, and it cracks.

This frost cracked has healed over, but still extends deep into the heartwood of the tree.



When frost cracks occur in a tree's bark, it can be challenging to provide appropriate support. While the cracks may partially close during the summer months, they do not fully heal, leaving an opening for pests and diseases to penetrate. To maximize the lifespan of a tree with frost cracks, it is important to **provide supportive care**.

Some people **winterize their trees** to support them during the cold months. To prevent the formation of frost cracks, you can shield the south and southwest sides of deciduous tree trunks from direct sunlight on cold winter days. One way to accomplish this is by planting evergreens on the side that will provide shade. Another option is to wrap the trunk with reflective trunk guards, which will deflect sunlight. The efficacy of trunk guards is still undergoing research and tree health specialists may have different opinions. There are many **management strategies** to consider when protecting and supporting the health of your trees!