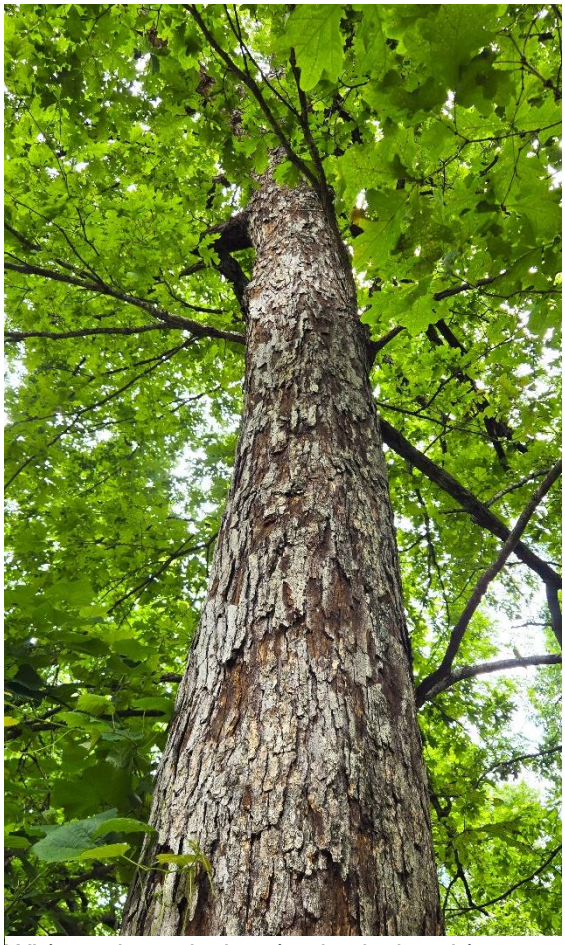
Extreme Bark Sloughing on White Oak

Update provided by Robbie Doerhoff, MDC Forest Health Program

Issue: In May 2025, foresters, forest landowners, and homeowners reported sudden and extreme bark sloughing on white oaks. Most trees have a healthy canopy and show no signs of wilting or advanced decline. The bark sloughed from trees is only outer bark; the inner bark and sapwood remains intact and undamaged on affected trees.

Tree species affected	Primarily white oak (*Quercus alba*), occasionally post oak *(Q. stellata*), rare reports on other species including pecan and catalpa
Reported locations	Southern half of MO in maintained yards, urban forests, and natural forests
Cause (preliminary)	The most likely fungi are smooth patch (*Aleurodiscus oakesii*) and/or bark rot fungi such as *Dendrothele* spp. and *Perenniporia* spp. Diagnostic work is ongoing.
Treatment & care for yard trees	No treatments are recommended, nor are there any products that are likely to be effective on bark rot and/or smooth patch. Some trees with bark sloughing also have other issues, notably jumping oak gall and herbicide injury due to lawn maintenance. High-value trees with multiple stressors will benefit from supplemental watering during the dry summer months. Aim for 10 gallons of water per inch of trunk diameter every 2-3 weeks.





White oak trunk showing bark sloughing up the trunk and through the main branches.



The inner bark appears healthy on most trees. These dark areas should weather and fade over time.

← A large pile of bark pieces accumulated around this tree in about 7 days.

What do we know about smooth patch and bark rot fungi?

- Smooth patch and bark rot fungi colonize and decompose the dead, outer layers of bark on living trees. They do not attack living tissue. Many trees with smooth patch look healthy and show good growth and longevity.
- Smooth patch has been a concern for forest managers for over 100 years, but research looking at the impacts of smooth patch and bark rot fungi on tree health is lacking. The current view is that these fungi cause no known tree health issues.
- Outer bark helps to protect a tree by decreasing water loss, protecting it from mechanical damage and wood-rot fungi, and providing insulation from temperature extremes and fire. The loss of this outer bark layer could lead to increased drought, thermal, and/or mechanical damage.
- Since 2023, smooth patch has been observed increasing in intensity on white and post oaks. Some trees are affected from the ground all the way up through the main branches, with almost no normal bark remaining. We have also observed bark rot fungi on many root flares of oaks across the state. We suspect that warmer nighttime temperatures during the summer, milder fall and winter temperatures, and wetter springs could favor the development of smooth patch and bark rot fungi.



A post oak with extensive smooth patch and very little normal bark.

Forest Management Considerations

- The loss of thick, outer bark, particularly at ground level, may have implications for prescribed fire in some stands. Affected oaks may be more sensitive to heat.
- At this time, we are not associating the presence of smooth patch, bark rot fungi, or bark sloughing with tree decline or death. We are not recommending a harvest due solely to the presence of these fungi.

Past Observations of Bark Loss in White Oak

- Excessive bark sloughing on white oak was most recently observed from 2012- 2014, often in areas with **Rapid White Oak Mortality (RWOM)**. Generally, these observations were from trees that developed Hypoxylon canker (see below). RWOM research **has not shown** a direct link between white oaks sloughing bark and trees eventually dying of RWOM.
- **Hypoxylon canker** is a common, native fungal disease that is often a secondary cause of tree death. This disease can overcome a tree's vascular system once the water potential in the trunk drops below a certain point, such as during an intense drought or when a tree's root system is physically damaged by heavy equipment or Armillaria root rot. Often, the first sign of Hypoxylon canker is bark chunks on the ground, as the flat fruiting body of the fungus pushes through the bark from the sapwood. By the time this occurs, the trees are actively wilting or dead. So far, no trees examined from the 2025 reports have shown signs of Hypoxylon canker and most have healthy canopies.
- **Squirrels** will occasionally pull off platy bark sections to access caterpillars that hide under bark during the day and feed in tree canopies at night. This was last observed in 2013 and 2014 when outbreaks of native caterpillars were documented between St. Louis and Columbia on white and post oaks. In 2025, little to no defoliation has been observed on affected white oaks, indicating a caterpillar outbreak is not present.
- **Woodpeckers** generally attack trees that are infested with **wood-boring insects**, causing damage that extends through the bark and into live tissues and heartwood. In the sites reported so far in 2025, no woodpecker damage has been observed, nor has any evidence of wood-boring insect infestation been noted.

May 29, 2025