White-tailed deer commonly cause tree damage from rubbing their antlers against trunks.

2022 Update!

Stopping Buck Rub

THINK TWICE BEFORE REMOVING TREE SHELTERS


Tree damage from buck rub.

What's New?

Since conducting field trials, Stroud Water Research Center has updated recommendations for tree shelter removal: Unless individual trees show signs that their shelters are causing damage or disease, *do not* remove them. Instead, allow trees to burst out of their shelters as they grow.

For a tree showing damage or disease from its shelter, cut the shelter vertically, starting at the bottom, and leave 1 to 2 inches intact in the middle or at the top so it stays in place.

Why the Change?

Prior recommendations were based on limited field observations (not research trials) and mostly unwarranted concerns over shelters causing disease or damage if left on too long. Instead of preventing disease, removing shelters often resulted in severe tree damage or death from deer rubbing their antlers against the young and still fragile tree trunks.*

Deer Presence

The recommendations assume deer presence. Be cautious about assuming otherwise.

Disease and Damage Caused by Shelters

Previous recommendations assumed that shelters could cause disease or damage as trees reach tube diameter. The hypothesis was that tight tubes would cause a high-moisture environment or trap leaf debris that would lead to bark rot. To date, the Stroud Center's trials have not observed such damage, even with shelters left in place and intact. Splitting shelters and leaving them in place can increase ventilation and reduce bark rot while still helping to deter buck rub.

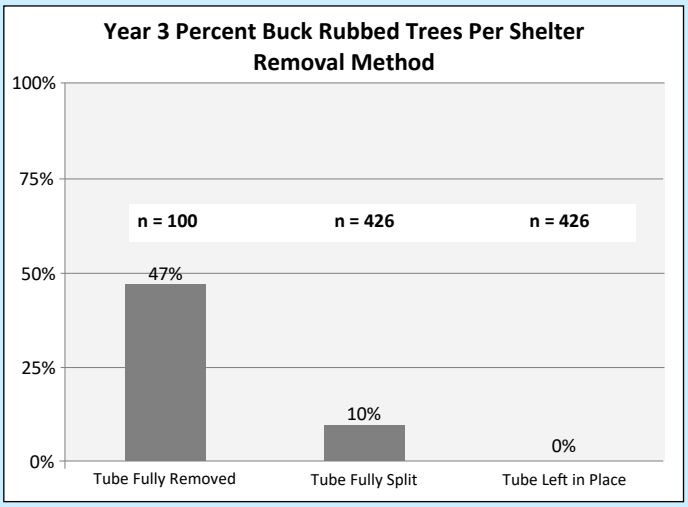
When to Split Tubes

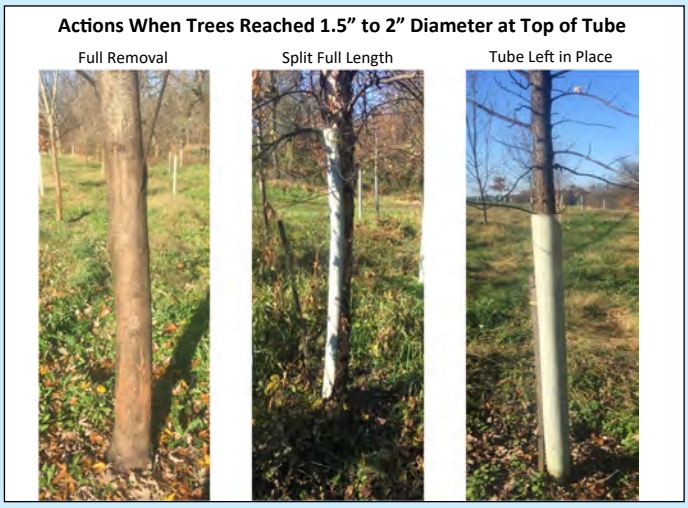
While it is preferable to allow trees to burst out of their shelters for maximum deterrence against dear, some forestry professionals in Maryland and Virginia, where temperatures and moisture are often higher than in Pennsylvania, split tubes before any signs of disease. Waiting to do this until shelters are starting to split at the base of the tree is reasonable. The timing will be different for different trees, depending on growth rates. Leaving a 2-inch band of tube unsplit near the middle may help keep split tubes in place and help reduce buck rub.

*Note that results may vary by location and tree species.


A tree bursts through its perforated shelter as designed. Photo: Libby Norris, Chesapeake Bay Foundation

Field Trials on Tree Shelter Removal





Background and Methods: The Stroud Center conducted field trials on seven sites in Chester County, Pennsylvania, where deer populations are high. Species tested included river birch, sycamore, red maple, silver maple, pin oak, swamp white oak, black gum, sweetgum, hackberry, persimmon, black willow, redbud, flowering dogwood, basswood, and hornbeam. Plantings were installed in 2016 to 2017 using 5-foot-tall Tubex standard tubes (unvented) and white oak stakes.

Results: For trees with tubes fully removed, most of the rubbed trees had substantial damage — often dying back to ground level. When this happens, it is unlikely that resprouts will ever make it into the tree canopy. For trees with tubes split and left in place, the extent of damage from buck rub was noticeably less.

Species Differences

Different tree species may respond differently. Smooth-barked species appear to have more issues with bark rot than rough-barked species. Anecdotal reports indicate black locust may be more prone to damage/disease from shelters as trees fill the tubes. Consulting knowledgeable field practitioners in your area may be helpful. Regular checks of trees will help catch issues.

When to Remove Tree Shelters, If You Must

It should be safe to remove shelters once trees reach 4 to 5 inches in diameter at top of shelter. In general, trees this large are unlikely to suffer severe effects of buck rub.

Stakes

Stakes that are still supporting the shelter may help deter buck rub and help keep the shelter in place, even if split. Once wooden stakes rot off at ground level, their weight can cause tubes to come off — perhaps prematurely. It may be best to remove such stakes. Any nonwood stakes should be removed before the tree engulfs them by outward growth.

Using a Knife

A utility knife with a hooked tip will cut tubes without cutting into the tree.

Other Types of Shelters

Tubex Combitube (vented) and Plantra's vented tube were not formally tested, but they show similar patterns to those that were. The Stroud Center sites with Suregreen tubes are not yet old enough to yield data. Tubes *without* a perforation line generally can't be expected to reliably self-remove. Some brands (e.g., TreePro) even with perforations are reported to not self-remove. Overall, vigilance is key. Watch for issues to decide if tree tubes should be split.

Ongoing Vigilance

Regular attention to tree plantings is critical. Once trees are 4 to 5 inches in diameter and shelters are off, threats decrease dramatically. Regular inspections can catch many issues (e.g., invasive plants, flood damage, and mower damage) early and improve outcomes.

Stay Tuned!

Research is ongoing, and the Stroud Center will provide updates as they become available.

Visit *stroudcenter.org/restoration/resources* for more tips on planting and maintaining streamside forests.

Questions?

Email us at buffers@stroudcenter.org to speak with one of our watershed restoration professionals.