

# PRACTICES TO MINIMIZE LOGGING INJURIES TO RESIDUAL TREES

William D. Ostrofsky  
Forest Pathologist  
Maine Forest Service

Harvesting is a necessary and critical part of forestry by which numerous products required and demanded by society are obtained. As long as forests are managed for the extraction of wood products, the potential exists for trees and stands to be mechanically damaged. Unlike pathogens, insects, or undesirable climatic conditions, mechanical injuries to trees is one forest health factor under substantial control by landowners, foresters, and loggers. All harvesting does not result in unacceptable damage levels, nor does it often result in widespread stand decline. However, constant attention must be paid to avoid those factors or conditions which can result in unacceptable levels of damage to forests by harvesting activities.

Consider the following:

1. Plan skid trails and lay out landings before harvesting operations begin.
2. Know the site and stand characteristics.
3. Assess current (pre-harvest) stand health and tree vigor.
4. Clearly identify the crop trees, and use extra caution when working near them.
5. Use branches and slash in trails as a protective roadbed.
6. Use sacrificial "bumper trees" along skid trails - designate before the harvesting begins.
7. Consider season of harvest - usually there is less damage during winter months.
8. Match equipment type and size to stand and site conditions.
9. Know the pattern of the previous harvest. Multiple injuries are especially damaging.
10. Bark is easily injured from early spring *through* summer.
11. Use high-flotation tires or tracks on the sites with more fragile and/or wetter soils.
12. Limit or concentrate machine activity on skid trails and access corridors.
13. Increase awareness of consequences of mechanical injuries to trees and forest stands.
14. Use silvicultural prescriptions that concentrate harvesting activity to limited areas (i.e small "patch cuts.")
15. Landowner, forester, logging contractor, and equipment operator all share job performance responsibilities.
16. Agree to be more "weather sensitive" when harvesting. Delay conditions earlier when wet conditions occur.
17. Minimize the number of stand entries over time.
18. Recognize that sapling/pole stages are most vulnerable to damage, both in terms of tree size, and time for damage (discoloration and decay) to develop.
19. Prioritize efforts to reduce injuries to roots/soil first; upper bole/crown next; root crown area last.
20. Extraction of larger pieces has higher potential for causing damage than that for smaller stems.
21. Extraction of heavy loads has higher potential for causing damage than that for lighter loads.
22. Use crop tree selection methods rather than area-wide thinning techniques.
23. Avoid harvesting "wolf" trees. Whenever possible, leave as wildlife trees.
24. Mark skid trail locations prior to harvest.
25. Assess risk of sun scald to residual trees - consider trail and access and corridor orientation.