



## **Slash Walls: Effective Limitation of Deer Impacts to Hardwood Regeneration**

Smallidge, Chedzoy

Hardwood forests in New York and much of the Northeast suffer from excessive deer impact on seedlings that limit the success of regeneration harvests. Slash walls were established at the Cornell University Arnot Forest on 16,000 feet of perimeter around 4 seed tree and shelterwood harvests in 2017 sized at 11, 12, 16 and 74 acres. The harvesting contract stipulated a wall of slash at least 10 ft wide x 10 ft tall and sufficiently dense to exclude deer. The effectiveness of slash walls is being evaluated with annual height measurement of tagged seedlings inside and outside the slash walls. Annual slash wall measurements document effective width, total height and height to highest 2" diameter stem. Tagged seedlings included *Betula lenta*, *Acer rubrum*, *A. saccharum*, *Quercus rubra*, *Q. montana*, and *Prunus serotina*. In the year between wall completion and the onset of seedling monitoring, seedlings protected from deer browsing may have experienced greater growth than unprotected seedlings given average initial heights of 10.6" versus 7.3", respectively. Repeated measurements of tagged seedlings will account for initial heights. The first year width of slash walls averaged 23 ft, and did not change significantly into the second or third year. The first year total height and height to 2" stem averaged 10.1 ft and 6.2 ft, respectively. Second year total height and height to 2" stem averaged 8 ft and 5 ft., respectively. Initial indications are favorable for the effectiveness of slash walls to exclude deer and protect hardwood seedlings from deer impacts.

## **Slash Walls: Contracts, Costs and Harvesting Systems to Limit Deer Impact to Regeneration**

Chedzoy, Smallidge

Slash walls were established at the Cornell University Arnot Forest on 16,000 feet of perimeter around 4 seed tree and shelterwood harvests in 2017 sized at 11, 12, 16 and 74 acres. Two additional harvests that total 230 acres are active in 2018-2019. The harvesting contracts stipulated a perimeter wall of slash at least 10 ft wide x 10 ft tall and sufficiently dense to exclude deer. The first harvest was sold to a ground-based contractor (GBC). A second and subsequent contracts, were sold to a fully mechanized contractor (FMC). Construction time and retained wood volume were measured. Contracts were incentivized. Contracts were negotiated with prospective loggers rather than via bid. The GBC used manual felling, a grapple skidder, and excavator with thumb to move slash. The GBC failed to complete the harvest and only partially completed the wall; no data were provided. The GBC removed too much low-value wood from the perimeter area. The GBC contract has been assumed by the FMC. The FMC used a Timbco with hot saw and grapple skidder. Labor and machine time for 2017 wall construction averaged \$1.40 per linear foot. Higher costs were associated with slope steepness, insufficient access to low-grade wood/slash near the wall, and wall design having acute or square interior corners. 2018-2019 wood volume estimates for stems >6" diameter averaged 21 cords or \$75 per 100 feet of wall. Wall construction time averaged 2.6 feet per minute. Total estimated cost is \$2.25 per linear foot. Maintenance costs are presumed near \$0.