

## SUPPLEMENTAL CONTENT

This supplemental content supports the Great Lakes Silviculture Library case study titled, “Fuels reduction thinning in multi-aged red pine.”

Figure 1. Basal area diameter distribution by species prior to harvest. Trees are grouped into two-inch diameter classes and all trees with a DBH  $\geq 23$  inches are grouped as “24”. ‘ABBA’ is balsam fir; ‘BEPA’ is paper birch; ‘PICE’ is white, black, and Norway spruce; ‘PIRE’ is red pine; ‘PIST’ is white pine; and ‘POP’ is quaking and big-toothed aspen; jack pine was not picked up in the pre-sale cruise.

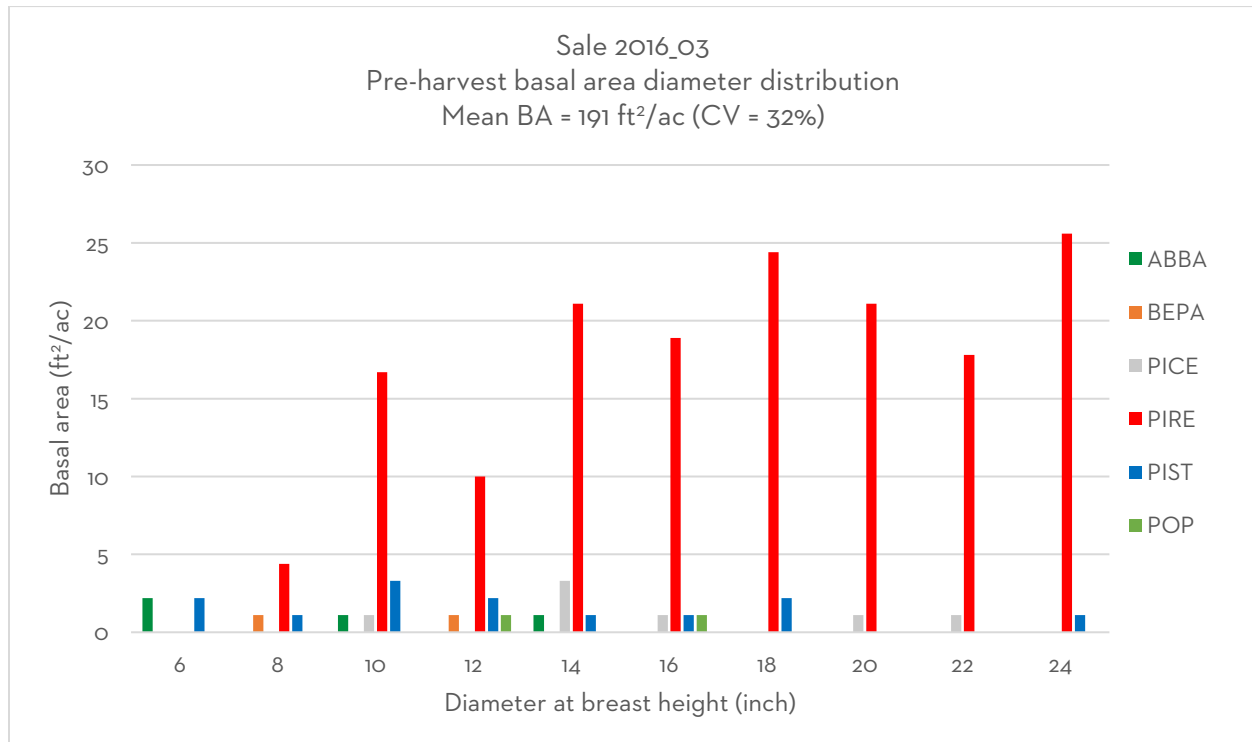


Figure 2. Residual basal area diameter distribution following the harvest. Trees are grouped into one-inch diameter classes. See Figure 1 for species codes.

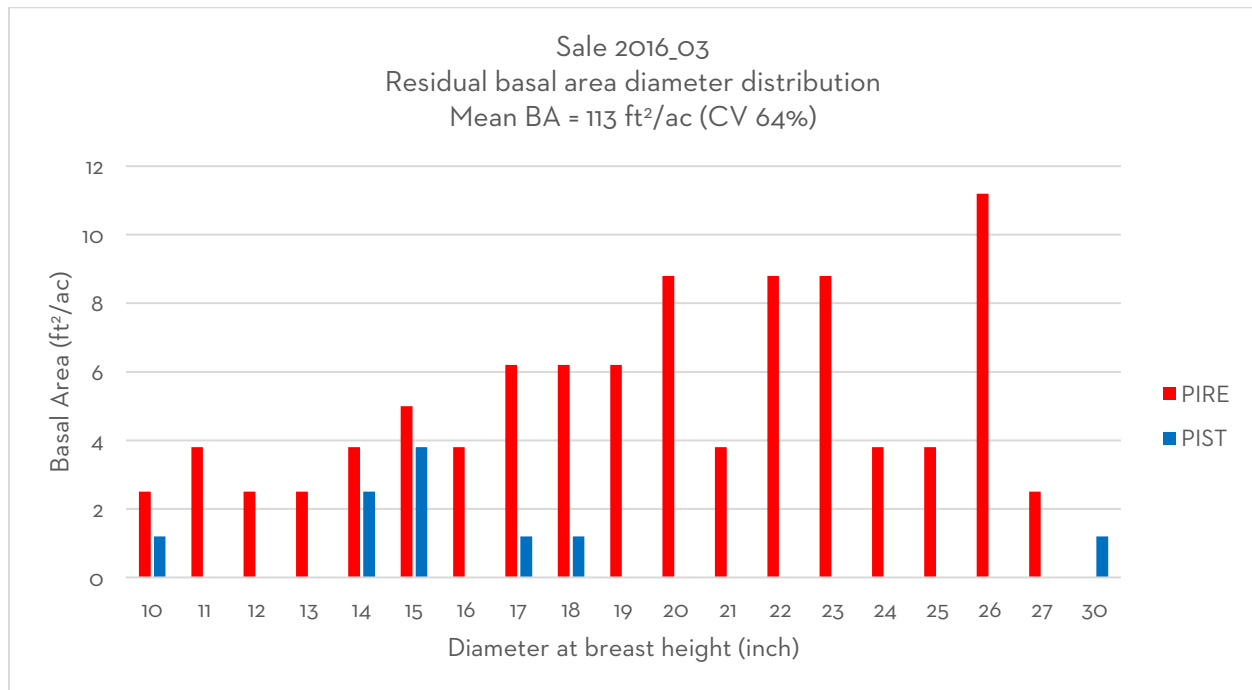


Figure 3. Residual trees per acre diameter distribution following harvest. Trees are grouped into one-inch diameter classes. See Figure 1 caption for species codes.

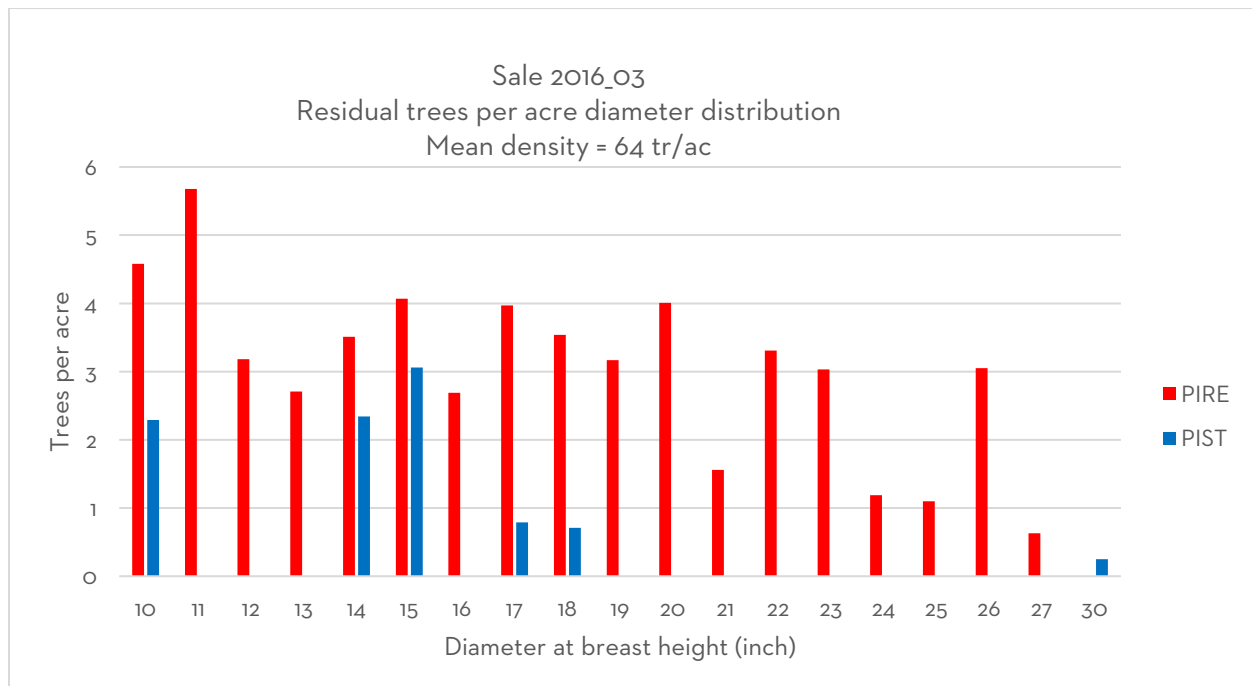


Figure 4. Pre-harvest sale map for Cloquet Forestry Center timber sale #2016\_03 with harvest boundary and location overlaying Spring 2015 aerial imagery

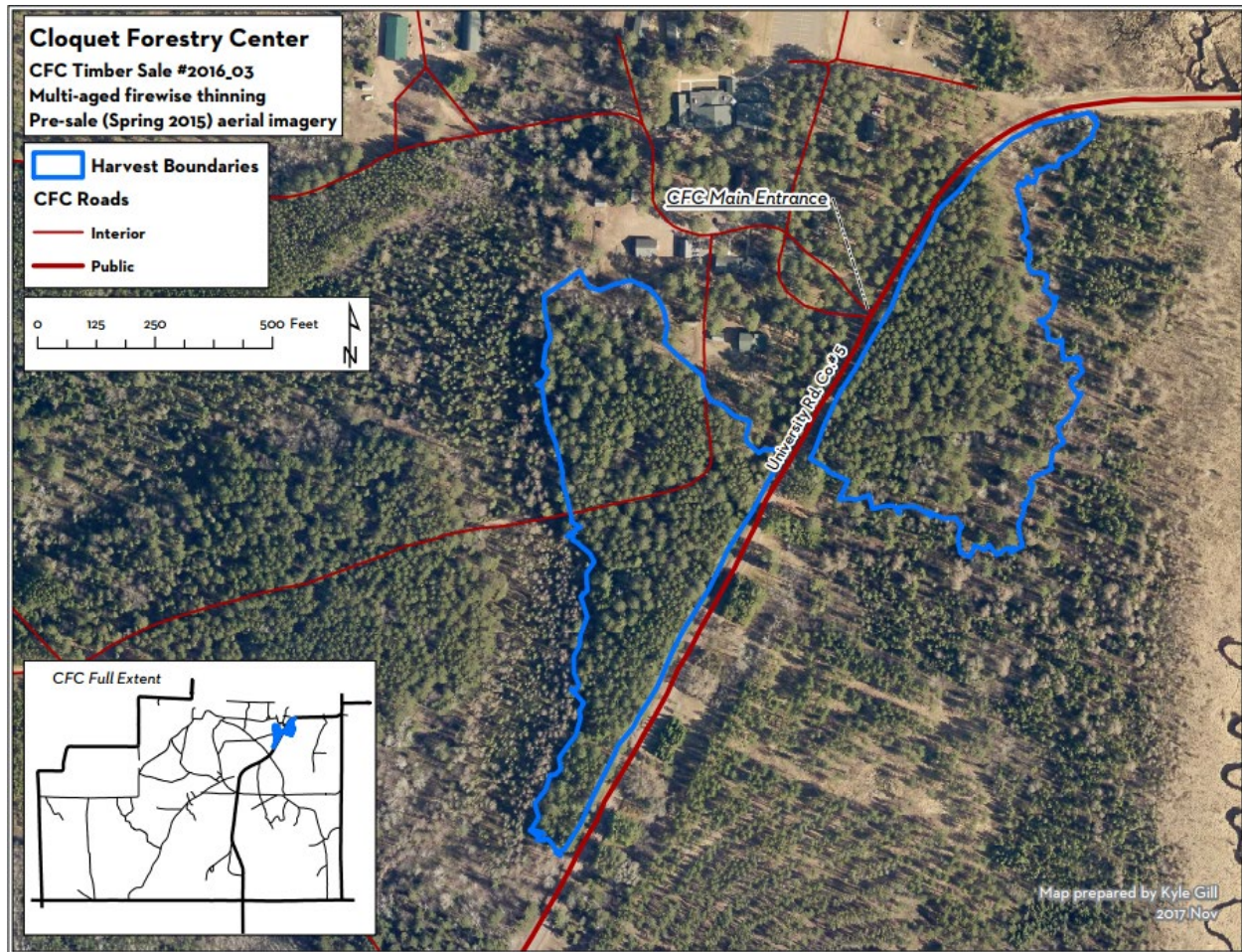
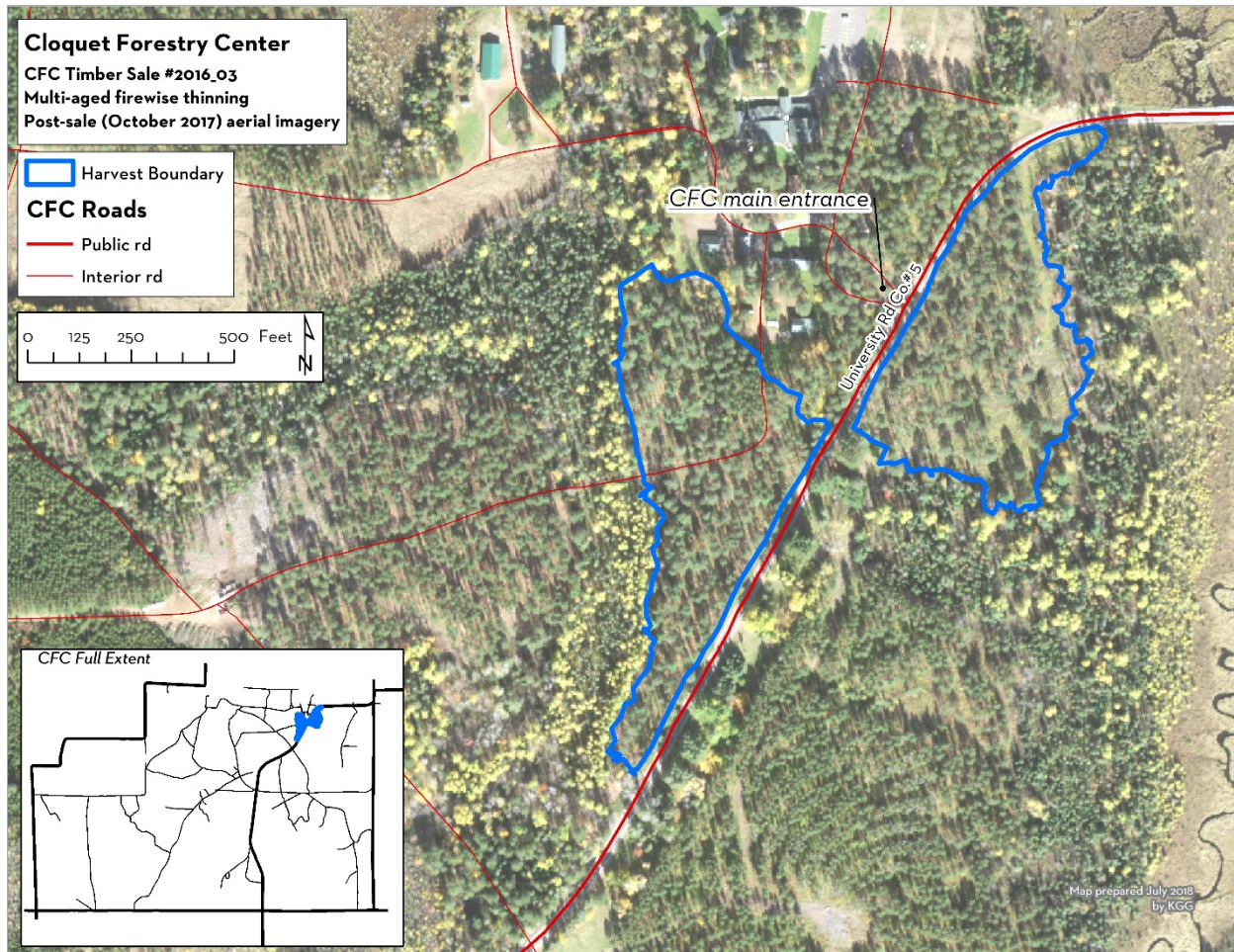




Figure 5. Post-harvest map for the Cloquet Forestry Center timber sale #2016\_03 with harvest boundary overlaying October 2017 aerial imagery





## PHOTOGRAPHS

All photos collected by Kyle Gill

*Figure 6. Red pine to be harvested during the sale assessed on-the-stump to be of house log quality.*





*Figure 7. A pair of fire-scarred red pine trees that were retained for their history and visual quality.*





Figure 8. Skid road through western block of the sale area during the operation. The grapple skidder used and CFC building 33 (aka the Faculty Cabin) are visible in the background.



Figure 9. Cloquet Forestry Center main entrance with eastern tract of sale in the background across the road.





Figure 10. Western tract of the sale shortly after all timber had been cut (tops of two skid piles visible near bottom of the photo).





*Figure 11. Eastern tract of sale near the end of the first full growing season after harvest (2017).*

