FIRE AND HARDWOOD TIMBER / WOOD QUALITY

2020 Upland Hardwood Workshop Presentation Summary Sheet

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- In general, the relative value of the highest grades of hardwood logs and lumber have declined over the last 15 years while the lower grades of logs and lumber have increased in relative value due to shifts in markets.
- Top quality logs and lumber remain substantially more valuable (Grade 1 logs approximately 1.9 x the value of Grade 3 logs) in an absolute sense, but appearance-based markets for hardwoods are now smaller than industrial markets (e.g., pallets and crossties).
- Stave markets for white oak have led to strong markets for white oak in the central hardwood region.
- Many veneer mills in the U.S. have closed over the past decade but those that remain open are very selective in the quality of the high-value logs they will purchase.
- Agents causing tree injuries/wounds include forest operations (bole wounds, broken tops and limbs), prescribed fire, silvopasture, herbicide application, pruning, wind, ice, etc.
- Berry (1969) found decay present in upland oaks at the following rates: 1) 91% of time when open fire scar present; 2) 48% of time with damaged tops; 3) 35% of time with closed fire scars; 4) 16% of time with unsound branch stubs; 5) 10% of time with sound branch stubs; 5) 10% of time with mechanical injuries.
- Thus, fire intensity and wound closure rates are important when planning to use a series of prescribed fires. Smith et al. (1994) found that 61%, 44%, and 33% of wounds smaller than 100 in² closed within 5 years for yellow-poplar, white oak, and red oak, respectively. No wounds larger than 100 in² closed in 5 years for any of these species. New bark covering wounds is less protective for several years.
- Dissection of 18 fire scorched trees after Rx fire showed that 14 of 18 had underlying, hidden fire scars underneath intact bark (Smith and Sutherland 1999).
- **Current study of Rx fire impacts on timber quality** (Mann, Wiedenbeck, Dey, and Saunders 2020) based on plots taken in dozens of burned stands on the Hoosier, Wayne, Daniel Boone, and Mark Twain National Forests indicates that the percentage of trees with FS grade reductions due to the prescribed fire is 1 to 4 percent for the HNF, WNF, and DBNF but almost 16% on the MTNF where fire has been used more regularly and for a longer period of time and fires tend to be more intense. White oak is most resilient.
Literature Cited and other Literature of Value

References


