Economic and Ecological Effects of Forest Practices and Harvesting Constraints on Wisconsin's Forest Resources and Economy

Principle Investigator: Alexander M. Evans, Research Director, Forest Stewards Guild

Co-Authors: Forest Stewards Guild: Michael Lynch and Fred Clark; Applied Ecological Services: Genesis M. Mickel, Kim Chapman, and Elizabeth R. Tiller; Bureau of Business and Economic Research at the University of Minnesota Duluth: Monica Haynes

Wisconsin's 16 million acres of forestland are crucial to the well-being and wealth of all Wisconsin citizens. In 2012, the Wisconsin forestry and forest products industry directly added $23 billion to the state's economy. Other forest benefits such as recreation, hunting, fishing, and clean water also have a large (if more difficult to measure) economic impact. Because forests and forestry provide benefits to many different stakeholders, any effort to enhance one benefit may limit other benefits. Balancing those benefits over the long term is an ongoing challenge for policy-makers and leaders in the forestry community.

This study evaluated the collective impact of forest management constraints that are designed to protect forest productivity, safeguard populations of rare animals, reduce the impact of forest pests, or control invasive species. We use the term "forest management constraints" to describe a broad set of regulatory and non-regulatory factors that significantly affect timber harvesting and other forestry operations. Our goal was to address the three questions included in the request for proposals:

1. What is the scope of selected timber harvesting restrictions in Wisconsin, and the potential for the restrictions to shift forest harvesting from summer to winter months?

2. What are the economic consequences of the timber harvesting restrictions identified in question 1?

3. What are the ecological consequences of the timber harvesting restrictions identified in question 1?

To answer these questions, the Forest Stewards Guild and our partners Applied Ecological Services and the Bureau of Business and Economic Research at the University of Minnesota Duluth carefully reviewed the existing scientific literature, mapped affected areas, analyzed harvest cases studies, conducted surveys of foresters and timber professionals, modeled economic effects, and assessed ecological impacts.

The resulting report highlights the complexity of balancing economic, social, and ecological forest benefits. Key conclusions of our report include:

- The summer months have the most accumulated constraints.
- Constraints have a larger impact in southern Wisconsin due to the higher prevalence of oak wilt, annosum root rot, invasive species, and the shorter winter logging seasons.
- Oak wilt and frozen ground constraints affect the largest area and generally cause the greatest impact by creating prohibitions on harvesting.
- Other factors outside the scope of this study such as the size of forest holdings, distance to roads, population density, and owner attitudes toward harvest also create significant forest management constraints.
- On average, the constraints we assessed collectively reduced the number of months of allowable forestry operation to 6.5 per year, although the particular months of allowable operation varied greatly.
- Thirty five percent of timber sales we reviewed limited harvesting to frozen ground. Recent studies have shown the period of frozen ground has shortened by two to three weeks in Wisconsin over the last 50 years.
- The study modeled an economic scenario wherein a change in constraints expanded the logging season by 30 days, which would generate between $32 and $63 million in increased economic output. Expanding the logging season and realizing this increase in economic output would be difficult because many of the most significant forest management constraints (including the length of frozen ground conditions) are difficult to influence with policies or regulations.
- Most foresters and timber professionals recognize and support forest management constraints that protect forest health, forest productivity, and other conservation values.
- The analysis of the ecological consequences of forest management constraints indicates that overall they are likely to have positive effects on forest composition and structure and in protecting forest productivity.
- Improving forest management constraints so that they balance harvest limitations and protections for other forest values requires continued, rigorous scientific study.

The localized impacts of harvesting constraints vary across the seasons and geography and are felt by timber professionals, foresters, forest-based businesses, and woodland owners. The economic benefits of removing or adjusting forest management constraints should be weighed against the benefits of forest values (including non-monetized ecosystem services) that are protected by constraints. Those benefits are less tangible and less easily measured, but they are no less important and are widely valued by society and by taxpayers who support forestry programs. It may be possible to adjust forest management constraints so that they better balance positive and negative impacts; however, any adjustments must be based on sound science.