

Woody Biomass Harvesting Guideline Development for Forestland in Wisconsin

Scope Document

Introduction

Interest in bioenergy is increasing due to higher energy prices and incentives to produce renewable energy. The expansion of a wood-based bioenergy industry could potentially benefit Wisconsin's economy by expanding markets for forest products, creating jobs and reducing reliance on fossil fuels. However, concerns have also been raised about the sustainability and environmental impacts of increased removal of woody biomass from Wisconsin's forests. Understanding these impacts and assuring that the harvest of woody biomass is done within the framework of sustainable forest management is a priority of the Wisconsin Council on Forestry. The development of guidelines in advance of widespread biomass harvesting in Wisconsin is intended to forestall impacts that could adversely affect forest ecosystem sustainability.

The Wisconsin Council on Forestry is charged with advising the Governor, the Legislature, WDNR, and other state agencies on issues related to forestry, including the sustainable management of Wisconsin's forestland, forestry research, economic development and employment in the forestry industry, and the marketing and use of forest products. The WDNR Division of Forestry is responsible for developing, implementing, and administering current and long-term programs to protect and sustainably manage the state's forest resources. Shared forest management responsibilities provide the impetus for the cooperative development of guidelines to facilitate the sustainable management of forestland woody biomass.

In September 2007, the Council decided to sponsor an effort by the WDNR Division of Forestry to develop guidelines for the harvest of woody biomass on Wisconsin's forestlands. Guideline development will build on the work done by the Minnesota Forest Resources Council. The process will include expert review, stakeholder advisory committee input, and approval by the Wisconsin Council on Forestry. The guidelines are expected to be completed by December 2008. If approved, these guidelines may become part of Wisconsin's Forest Management Guidelines.

Guideline Objectives

The guidelines will focus on the sustainable harvest of woody biomass from forested areas within the context of generally accepted forestry practices, while protecting soil, water, and biodiversity that are characteristic of sustainable forest ecosystems. Recommendations will be based on the best available information regarding harvesting effects on forest ecosystems. Although it is always an option not to harvest biomass, these guidelines are intended for cases where biomass harvesting is being planned or considered.

The objective is to provide guidance to forest resource managers, loggers, equipment operators, contractors, and landowners in Wisconsin. The guidelines will facilitate operational analysis and informed decision-making regarding the harvest of woody

biomass from forestland. Attention to Minnesota's guidelines will ensure a greater degree of consistency for individuals and institutions that work across the Wisconsin-Minnesota border. The guidelines will provide a tool to enable sustainable forest management.

Guideline Development

The initial guidelines will be drafted by a technical team comprised of WDNR staff using best available information and building on Minnesota's biomass harvesting guidelines. Once drafted, the guidelines will be submitted to a select panel of experts for technical review. Following revisions, the guidelines will be brought to a stakeholder advisory committee selected by the Wisconsin Council on Forestry. After review and approval by the Advisory Committee, the guidelines will be presented to the Wisconsin Council on Forestry. If the draft guidelines are accepted, the Council may solicit public input prior to final approval.

Technical Team

Guidelines will be drafted by a technical team comprised of WDNR Forestry staff. This team will gather relevant information, draft initial guidelines, take comments from expert reviewers and Advisory Committee members, and draft revisions based on those comments and discussions. Technical team members will work with the expert reviewers and Advisory Committee members to provide relevant background information, address concerns, and develop detailed guidelines for review and refinement.

Expert Review

After development by the technical team, the draft guidelines will be sent out for review by experts in various fields. The expert review process will solicit comments on the technical and scientific aspects of the guidelines; experts are not intended to be representative of particular interest groups. Comments generated by expert reviewers will be provided to the technical team. The technical team is responsible for reviewing comments and making decisions regarding revisions to the draft guidelines.

Experts will be selected with input from the Advisory Committee and will provide, at a minimum, expertise in the following fields:

- Wildlife Ecology and Management
- Endangered Resources (ETS)
- Silviculture
- Forest Management
- Forest Economics
- Harvest Systems
- Wood Utilization
- Forest Health
- Forest Hydrology
- Forest Soils
- Forest Vegetation Ecology
- Forest Microbiology
- Fire Management

Advisory Committee

The Advisory Committee will be selected by the Wisconsin Council on Forestry and will be comprised of representatives from affected stakeholder groups, including industry, government, landowners, conservation organizations, and non-profit groups. After expert review and technical team revision, the Advisory Committee will review the draft guidelines. Advisory Committee comments will be used by the technical team for further refinement of the guidelines. Upon approval by the Advisory Committee, the guidelines will be forwarded to the Wisconsin Council on Forestry.

Public Input

After the Wisconsin Council on Forestry receives the guidelines, they may solicit public input on the guidelines before their final approval.

Guideline Description

The guidelines will focus on the sustainable harvest of woody biomass from forested areas within the context of generally accepted forestry practices, while protecting soil, water, and biodiversity that are characteristic of sustainable forest ecosystems. The guidelines will provide considerations and recommendations applicable to stand and site-level management. They will facilitate operational analysis and informed decision-making regarding the harvest of woody biomass and potential impacts on other forest resources.

The guidelines will provide a tool to enable sustainable forest management. They will be easy to understand and implement, and present practical and reliable recommendations. Implementation of the forestland woody biomass harvesting guidelines will be voluntary. The guidelines are a “work-in-progress” based on best available information, and will be subject to periodic review and revision as better information becomes available.

Topics to be Addressed

Specific issues regarding woody biomass harvests on forestland and related strategies and practices to be considered are listed below. This list should not be considered exhaustive as additional topics may arise, and topics may be deleted or modified based on discussions during the guidelines development process.

1) Biodiversity

The guidelines will address the potential impacts of woody biomass harvesting on the sustainability of game and non-game wildlife, plants, endangered resources, and sensitive and exceptional sites. Specific topics to address may include:

- Slash (logging residues and salvage)
- Reserve trees and patches
- Coarse woody debris
- Fine woody debris
- Vertical structure and brush
- Mast producing trees and shrubs
- Cavity trees and snags

- Landings and access roads
- NHI and endangered, threatened, and special concern species
- Sensitive and exceptional sites
- Wildlife Habitat
- Endangered Resources

2) Soil Productivity

The guidelines will address the protection of long-term soil productivity, and changes in chemical, physical, and biological characteristics resulting from biomass harvesting. Potential topics include:

Site Variation:

- Productivity
- Limitations (exclusion of sites, e.g. organic, shallow)

Chemical:

- Nutrient budget
- Nutrient availability
- Nutrient removal
- Growth limiting nutrients

Physical:

- Compaction
- Rutting
- Erosion/sedimentation
- Infrastructure
- Hydrology
- Stockpiling
- Harvest methods and equipment
- Landings and access roads
- Multiple stand entries

Biological:

- Role of vegetation
- Role of microorganisms
- Nitrogen mineralization
- Nutrient uptake (fine roots, mycorrhizae)
- Decomposition and nutrient cycling
- Carbon sequestration and storage

3) Wetland and Water Quality Management

While recognizing Wisconsin's Forestry BMPs for Water Quality, the guidelines may also need to address water quality considerations as they relate to the harvest of biomass from forests. Additional considerations may be needed due to the increased level of traffic on stands, the potential for increased runoff or the possibility of swamping of stands. Topics to address may include:

- Increased traffic
- Forested wetlands
- Hydrologic alterations

4) Silviculture

The guidelines will address vegetation management considerations, silvicultural adaptations, and generally accepted practices as they relate to the harvest of biomass from forest stands. Topics to address may include:

- Sustainable forestry goals and generally accepted silvicultural practices
- Property goals and stand management objectives
- Silvicultural systems and methods
 - o Even-aged management systems
 - o Uneven-aged management systems
 - o Rotation lengths
 - o Regeneration
 - Natural
 - Artificial
 - Swamping
 - o Thinning and release
 - o Pruning
 - o Sanitation
 - o Salvage
 - o Season of harvest

5) Other Forest Management Objectives

- Aesthetics and recreation
- Fuel reduction
- Forest tree health
- Forest economics

6) Exceptions

During the course of guideline development, situations may or may not be identified which will require specific discussion under within the guidelines.

Topics Not to Be Addressed

The guidelines **will not** address:

- Short rotation intensive culture of trees for woody biomass (e.g. hybrid poplar plantations)
- Urban forests and trees
- Non-forest derived woody biomass (e.g. brushland, ROWs, shelterbelts, Christmas tree farms, orchards, agroforestry systems)
- Non-woody biomass
- Landscape level management issues
- Specific species or sites
- Education, training, or monitoring

Definitions

Woody Biomass: Wood materials, such as wood, bark, sawdust, timber slash, and mill scraps. **Note: The woody biomass harvesting guidelines refer to woody biomass that comes directly from forestland harvest, i.e. wood, bark, etc. This definition is for the purpose of this document and is not meant to supplant or conflict with the definition of sustainable woody biomass approved by the WI Council on Forestry.**

Forest: An ecosystem characterized by a more or less dense and extensive tree cover, often consisting of stands varying in characteristics such as species composition, structure, age class, and associated processes. Typically, tree cover will exceed 50% crown cover, except following a severe disturbance and during stand (re)establishment. Productive forest stands are capable of growing wood volume at an average rate of at least 20 cubic feet per acre per year.

Sustainable Forest Management (Sustainable Forestry): 1) WDNR: The practice of managing dynamic forest ecosystems to provide ecological, economic, social, and cultural benefits for present and future generations. 2) SAF – UN: The practice of meeting the forest resource needs and values of the present without compromising the similar capability of future generations. 3) SAF – EU: The stewardship and use of forests and forest lands in a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality, and potential to fulfill, now and in the future, relevant ecological, economic, and social functions at local, national, and global levels, and that does not cause damage to other ecosystems.

Appendix A – Advisory Committee Information

Specific responsibilities of Advisory Committee Members include:

- Support the charge of the Wisconsin Council on Forestry to develop site-level guidelines for the harvest of woody biomass on Wisconsin's forestlands by December 2008.
- Recognize the responsibility of the WDNR Division of Forestry to develop and implement programs that protect and sustainably manage the state's forest resources.
- Recognize that scientific information about the effects of biomass harvesting on forest ecosystems is limited. Uncertainty, resulting from a lack of knowledge or scientifically supported theories, particularly concerning long-term ecosystem dynamics, may necessitate the application of precautionary principles and practices.
- Act as a liaison between the Advisory Committee and constituencies. Share new information developed at meetings with the constituencies and work to develop understanding with these groups.
- Be respectful of other Committee members' viewpoints.
- Work with the Technical Team to resolve concerns and develop guidelines in a timely manner.
- Attend and be an active participant in meetings. Be prepared for meetings by having read or reviewed necessary materials or drafts.

Advisory Committee Meetings:

- Initial Meeting
 - Review background information and project scope
 - Agree to process for coordination and decision making
- Subsequent Meetings
 - Review draft guidelines following expert review and subsequent revision
 - Work with Technical Team to resolve concerns and develop guidelines
 - Reach key decisions through consensus
- Final Meeting
 - Review final document
 - Approve document to be sent to WI Council on Forestry

The WI Council on Forestry will have final of approval of the guidelines.

Decision-making Process:

The Advisory Committee will reach decisions via a system of team consensus, during which every member has the opportunity to express their views, divergent views are fully addressed, and, ideally, a satisfactory level of general agreement emerges.

- Advisory Committee consensus is an agreement, but not necessarily complete agreement. It is an outcome which is "close enough" to be acceptable. All or most team members can support it, and few or no members totally oppose it. Often,

- when a team achieves general agreement, no one is completely satisfied, but everyone accepts or "lives with" the group's prevailing view.
- Consensus is not a unanimous decision. Unanimity essentially gives each team member veto power.

It is The Advisory Committee's charge to reach consensus on guidelines for woody biomass harvest on Wisconsin forestland. However, in the event that the committee is unable to reach consensus on some issues. Those issues will be brought to the Wisconsin Council on Forestry for a decision.