

Wisconsin's Woody Biomass Harvesting Guidelines

December 10, 2008

Presentation for
BMPs for Water Quality Advisory Committee

Outline

- Process
- Current Status
- Scope of Guidelines
- Current Draft of Guidelines
- Guidelines Referred to BMP Advisory Committee for Consideration
- Proposed Process for Referred Guidelines

Impetus for Guidelines

- Initiated by WI Council on Forestry to address:
 - Projected demand
 - Governor's initiatives such as *Clean Energy Wisconsin, a Plan for Energy Independence*
 - 2007 FSC CAR for the state to develop retention guidelines for coarse woody debris

Other Influencing Factors

- Other states have developed or are developing BHG
- Need to understand impacts of increased removal of woody biomass
- Wisconsin's policy is to sustainably manage forests, protecting soil, water and biological diversity

What is a Biomass Harvest?

- Harvest of woody material above and beyond traditional bolewood harvests
 - Whole tree harvest for chipping
 - Collection of tops and slash after traditional bolewood harvest
 - Harvest of traditionally “non-merchantable” timber, including small-diameter and poor form trees

BHG Process

- September 2007
 - Council initiated effort to develop BHG for Wisconsin’s forestlands
 - MN’s BHG’s identified as starting point for WI’s BHG
 - Complete by December 2008
- November 2007
 - Staff from WI DNR Division of Forestry assigned to Technical Team

BHG Process

- December 2007
 - Advisory Committee with 14 key stakeholders formed
 - Advisory Committee met in:
 - February 2008
 - April 2008
 - June 2008
 - August 2008
 - December 2008

Advisory Committee Members

- Jeff Barkley, WDNR
- Geoff Chandler, USDA Forest Service
- Matt Dallman, TNC
- Mark Fries, NewPage
- Earl Gustafson, WI Paper Council
- Dave Hvizdak, NRCS
- David Mladenoff, UW-Madison
- Ed Moberg, WWOA
- Neil Paisley, WDNR Wildlife
- Don Peterson, WI Consulting Foresters Assoc.
- Stacey Olson, Olson Bros. Enterprises
- Marshall Pecore, MTE
- Jane Severt, WCFA
- Gary Wyckoff, Plum Creek

BHG Process

- February 2008
 - Advisory Committee meets
 - Reviews scope of BHG
- April 2008
 - Advisory Committee meets
 - Reviews first draft of rationale and guidelines
 - Sent to Expert Reviewers for technical and scientific comments

Expertise of Expert Reviewers

- Wildlife ecology and management
- Endangered resources
- Silviculture
- Forest management
- Forest economics
- Harvest systems
- Wood utilization
- Forest health
- Forest hydrology
- Forest soils
- Microbiology
- Fire management

BHG Process

- May 2008
 - Technical Team revises BHG based on Expert Reviewers' comments
- June 2008
 - Advisory Committee meets
 - Reviews second draft of BHG
- July 2008
 - Subcommittee of forest soils experts provides recommendations for nutrient poor soils

BHG Process

- August 2008
 - Technical team revises BHG based on Advisory Committee comments
 - Advisory Committee meets
 - Reviews third draft of BHG

BHG Process

- September 2008
 - Technical team makes minor clarifications for a fourth draft of BHG
 - BHG presented to WI Council on Forestry
 - Approves public review of BHG

BHG Process

- October - November 2008
 - Fourth draft of BHG posted for public review
 - Public listening sessions held:
 - Oct. 27 – Spooner
 - Oct. 28 – Rhineland
 - Nov. 3 – Madison
 - Nov. 5 – Stevens Point
 - Technical team revises BHG based on ~60 public comments received

BHG Process

- December 2008
 - Advisory Committee meets
 - Reviews fifth draft of BHG
 - Technical Team revises BHG based on Advisory Committee comments for sixth draft
- December 16:
 - WI Council on Forestry will review sixth draft of BHG
 - May recommend to incorporate into FMGs

Scope of BHG

- Focus on sustainable harvest of woody biomass within the context of generally accepted forestry practices
- Protect soil, water and biodiversity that characterize sustainable forest ecosystems
- Rely on precautionary principle; when there is scientific uncertainty, be conservative in protecting resources
- Applicable at stand and site level

Concerns Addressed by BHG

- Wildlife Habitat; dead wood for shelter and foraging sites
- Dead wood for decomposition and nutrient cycling
- Nutrient loss through removal of additional product
- Increased vehicle traffic

Topics Not Addressed

- Initial guidelines targeted at the most significant current activity did not allow for addressing these additional topics at the same time
- May be addressed at a later date

Topics Not Addressed

- Woody biomass resource availability
- Economics and energy balances for harvesting, transporting, and processing woody biomass for energy
- Potential effects on carbon storage and climate change
- Short rotation intensive culture of woody biomass plantations
- Landscape planning and management
- Monitoring and training strategies
- Fertilization

BHG Structure

- **General Exception**
- **General Guidelines**
- **Site-Specific Guidelines**
- **Definitions**
- **List of Soil Map Units**

General Exception

- Applies to General and Site Specific Guidelines
- “Guidelines may be modified for specific site conditions, for specific operational issues, or to meet specific management objectives. Examples of where a modification may be warranted include site preparation to facilitate tree regeneration operations, control of invasive or exotic species, fuel reduction treatments, barrens/savanna restoration, or prescribed fire.”

General Guidelines

- Generally applicable to any site
- Recommended that BHG implemented in addition to any applicable silvicultural guidelines, FMGs, and BMPs
- Reminder: For tree and snag retention guidelines, refer to WDNR Silviculture Handbook, Ch. 24.

General Guideline 1.A

- Retain and limit disturbance to down coarse woody debris already present, except on skid trails and landings.
 - Exception: For complete salvage operations, follow Guideline 2.B

General Guideline 2.A

- Retain down fine woody debris (FWD) on site following harvest.
 - Fine woody debris on site following harvest is a combination of pre-existing down FWD, along with wood that was cut or broken during harvest operations and left on the ground.

General Guideline 2.A

- Retain down fine woody debris (FWD) on site following harvest.
 - Retain down FWD already present (before cutting), except on skid trails and landings, to the extent feasible.
 - Retain FWD from incidental breakage of tops and limbs in the general harvest area.
 - Retain and scatter tops and limbs (<4" diameter) from 10% of the trees in the general harvest area (e.g. one average-sized tree out of every ten trees harvested)

General Guideline 2.A

- Considerations
 - Some forests lack woody debris because of past management, consider retaining additional amounts of FWD and/or CWD in these areas.
 - If possible, leave most of the FWD well-distributed throughout the site to maintain nutrient cycles. Retaining some small slash piles may benefit some animals and plants.

General Guideline 3.A

- Do not remove the forest litter layer, stumps, and/or root systems.

Site Specific Guidelines

- Applicable only to sites which exhibit specific conditions
- Recommended that BHG implemented in addition to any applicable silvicultural guidelines, FMGs, and BMPs

Site Specific Guideline 1.B

- Protect and sustainably manage species of greatest conservation need and sensitive ecosystems
 - Do not harvest fine woody material (FWM) from sites where Federal or State Endangered or Threatened Species are known to exist or are discovered during operations
 - Exception: If harvest of FWM maintains or improves habitat for the species present, then follow appropriate management guidelines. Limit establishment of roads and landings in these areas.
 - and more...

Site Specific Guideline 2.B

- For complete salvage operations, following severe disturbance (e.g. crown fire or complete blowdown), implemented on areas >10 acres under one ownership, that include that harvest of FWM:
 - Retain at least 5% of the area in unsalvaged (no harvest) patches at least 0.1 acres in size.

Site Specific Guideline 3.B

- Do not harvest FWM on shallow soils where bedrock is within 20 inches of the surface.
 - Areas with shallow soils are identified by using the soil survey maps produced by the NRCS. A list of soil map units appears in App. 2. See the Web Soil Survey for soil maps:
<http://websoilsurvey.nrcs.usda.gov/app/>

Site Specific Guideline 4.B

- Do not harvest FWM on dry nutrient-poor sandy soils.
 - Dry nutrient-poor sandy soils are components of soil map units that meet certain criteria, such as low clay content.
 - Areas with dry nutrient-poor sandy soils are identified by using the soil survey maps produced by the NRCS. A list of soil map units appears in App. 2. See the Web Soil Survey for soil maps:
<http://websoilsurvey.nrcs.usda.gov/app/>

Site Specific Guideline 5.B

- Do not harvest FWM on soils classified as dysic Histosols. These are wetland soils with at least 16 inches of organic material that are nutrient poor with a low pH.
 - Areas with dysic Histosols are identified by using the soil survey maps produced by the NRCS. A list of soil map units appears in App. 2. See the Web Soil Survey for soil maps: <http://websoilsurvey.nrcs.usda.gov/app/>

Impact of Guidelines

- Harvest of FWM limited or partially limited on approximately 2.2 million acres
 - 14% of Wisconsin's 15.8 million forested land
 - 3% of total aboveground woody biomass in Wisconsin's forests
- Note that traditional (bolewood) harvest and jack pine FWM harvest is not limited on this acreage

Review BHG in Three Years

- Update the Guidelines, if needed, based on any new information that may result from research and monitoring
- Establish an appropriate review interval and if needed update of the Guidelines.
- If critical information is generated within the 3 years, earlier review and possible modification of the Guidelines is possible

Research Priorities

- Fine woody debris (FWD)
 - Amount of FWD to retain after a harvest
 - Role of FWD on biological diversity, wildlife habitat, nutrients returned to the soil
- Dry nutrient-poor sandy soils
 - Impacts of harvesting on ecosystem sustainability
 - Refinement of the soils included in the dry nutrient-poor sandy soils category

Other Research Needs

- Coarse and fine woody debris:
 - Variation by forest and site types, age
 - Deposition and decomposition rates
 - Effects of retention levels and patterns on habitat and biodiversity; soil nutrient cycling
- Tree and snag retention:
 - Effects on biodiversity, regeneration, stand growth and yield
- Information on nutrients removed by different harvesting systems, forest types, seasons
- Refine measurement protocols for amounts of down woody debris

Other BHG Issues

- Implementation and effectiveness monitoring needed
- Training and education effort needed, especially on dry nutrient poor sandy soils
- Development of tools to quantify removals and residuals of biomass

Referred to BMPs AC

- WI Council on Forestry has asked BMP AC to consider updating BMPs for water quality to address these issues:
 - Protecting erosion prone sites (based on soil and slope characteristics)
 - Establishing riparian management zones (RMZ) standards for retaining fine woody materials
 - Clarifying RMZ standards on dry washes
 - Utilizing filter strip around wetlands
 - Infrastructure concerns (new)

BHG Soil and Water Concerns

- Increased potential for soil erosion, soil compaction and rutting with:
 - Removal of FWM
 - Increased traffic on site
 - More extensive infrastructure
- Related wildlife and productivity concerns

Timeline for Request

- End of 2009 if only dealing with BHG concerns
- Longer timeframe acceptable if dealing with other BMP issues as well
- BMP AC meetings scheduled for
 - February 4
 - April 15
 - June 10

BMP Update Process (2001)

1. Solicit input - Why is a BMP of concern?
2. Request expert review based on input
3. Evaluate expert review and determine which BMPs to update
4. Public review and comment
5. Forward recommendations from BMP AC to Chief State Forester for approval
6. Implement

Proposed Steps in BMP Review

1. BMP AC members identify any outstanding general BMP concerns and share with Carmen by January 16, 2009
2. Review BHG & BMP concerns at February 4, 2009 meeting. Identify which concerns BMP AC will address.
3. Solicit expert review on concerns and draft BMPs

Proposed Steps in BMP Review

4. Review revisions of draft BMPs based on expert review at April 15, 2009 meeting
5. Solicit public comments on draft BMPs
6. Review revisions of draft BMPs based on public comments at June 4, 2009 meeting
7. Update BMP Manual by end of 2009 (currently out-of-print)

2008 BMP Monitoring: Non-Industrial Private Forests



ID Timber Sales

- Received information on timber sales from:
 - County Cutting Notices (5,185 sales)
 - Cooperating Foresters & Master Loggers (256 sales)
 - MFL Cutting Invoices (2,260 sales)

ID Timber Sales

- Office checked over 625 sales
 - Determined which sales “may” meet eligibility criteria
- Contacted nearly 250 landowners to get permission
 - Asked local foresters and loggers for more information to determine if sale met eligibility criteria

ID Timber Sales

- Received permission on 52 sales that met eligibility criteria
 - Took until October 2008 to identify 52 sales
 - Visited less than 5 sales that did not meet criteria
- Reasons for “no” included:
 - Didn't meet criteria
 - Not harvested yet
 - Landowner not interested
 - Landowner ill

Monitoring Teams

- ID team leaders
- Designate team members
- Have team leaders contact their member and confirm week to monitor

Summer 2008

- Complete field checks and assess eligible sales with FS BMP monitoring protocol
 - Expect 20%-30% to not meet criteria
 - Hoping for ~100 eligible sales (3x 30%)
- Finalize list of sales to monitor
 - Prefer a minimum of 30 MFL and 30 non-MFL sales to compare application of BMPs between landowners

Summer 2008

- Assign sales to teams
- Hold monitoring workshop
 - Give teams sale information at workshop
 - Allow teams time to coordinate monitoring logistics at workshop

Fall 2008/Winter 2009

- Monitor timber sales
 - BMP Program staff join teams on 1st day
- Enter data from monitoring teams
 - Teams will be using “new” worksheet format
- Analyze data
- Write report
- Distribute report

