



**ENVIRONMENTAL AND ECONOMIC RESEARCH AND DEVELOPMENT PROGRAM**

# An Assessment of Woody Biomass Harvests in Northern Wisconsin

Executive Summary  
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# EXECUTIVE SUMMARY

Increased public interest in utilizing alternative energy sources has spurred attention by those in industry and state agencies to explore greater utilization of wood material from timber harvests. Current forest management practices can be modified to include increased removal of post-harvest material, which has traditionally been left on the forest floor and can serve as regenerative material or habitat for biodiversity. As a result, many states, including Wisconsin, have developed guidelines to ensure that removal of additional woody material does not compromise the long-term productivity of forestland (Herrick et al. 2009). As biomass harvest becomes more common, additional tools will be needed to increase the ease of guideline implementation and monitoring. Moving forward, research is also needed to better evaluate the potential ecological and economic impact of such harvesting methods. To this end, this project includes three main objectives: 1) quantification and analysis of downed woody material from aspen stands of variable harvest types (Rittenhouse et al. 2012), 2) examination of small mammal response to woody debris levels (Rittenhouse et al. In prep), and 3) net potential revenue gained through harvest of residual woody biomass (Bakshi et al. In prep). We measured coarse and fine woody debris at aspen stands of variable harvest types and found that roundwood harvested stands contain the most downed wood ( $125.71 \pm 20.79 \text{ m}^3/\text{ha}$ ), followed by whole-tree harvest ( $75.54 \pm 23.70 \text{ m}^3/\text{ha}$ ), and mature, unharvested aspen stands ( $40.90 \pm 11.6 \text{ m}^3/\text{ha}$ ). We demonstrated that the volume of fine woody debris could be estimated from coarse woody debris, potentially making guideline implementation and monitoring significantly more efficient. In a subset of stands measured for biomass material, we sampled for small mammal abundance using Sherman and pitfall traps. We found evidence that downed wood is not equally important to small mammals targeted in this study. Only voles' abundance corresponds to volume of downed wood. Additional taxa specific data will be important to understand wildlife response to increased removal of woody material. As a management practice, maintaining brushpiles would provide habitat heterogeneity, supporting a diversity of mammal species. This project has resulted in a successful peer-reviewed publication (Rittenhouse et al. 2012), with additional manuscripts in preparation. Findings from this project will contribute to review and potential refinements of state agency standards.

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*All photographs credit T. A. G. Rittenhouse*

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