

FOREST REGENERATION MONITORING



PROGRAM OVERVIEW

Forest regeneration, the process of renewing tree cover by establishing young trees, is one of the most rudimentary and important elements of sustainable forest management. After a harvest or disturbance event, successful regeneration is crucial to the development of healthy, productive forests that can provide sustainable, economic and ecological functions. It is critically important that forest regrowth patterns are well understood to sustainably manage Wisconsin's forest resources.

The Forest Regeneration Monitoring Program was initiated in 2018 to better assess the status and investigate trends of naturally regenerating forests across the state and to further provide data reflecting forest regeneration success or failure to be used in Wisconsin's deer population goal-setting process. Information will be provided to County Deer Advisory Councils (CDACs) and data collected will be used as part of other research and assessment projects, such as those listed in the program goals section, below. The inventory utilizes a newly developed monitoring tool the Forest Regeneration Metric (FRM), to assess the regrowth of seedling and sapling trees after a harvest. Currently, the inventory covers the 46 counties that are more than 30% forested. Efforts have primarily focused on oak-hickory, northern hardwoods, and pine forest type groups with a smaller emphasis on fir-spruce, bottomland hardwoods, and aspen-birch forest types.

The 2022 field season marked the fifth data collection period. The upcoming 2023 field season will complete the second 3-year data collection cycle. To date, approximately 27,400 plots have been collected in 3,445 stands on both public and private lands throughout the state.

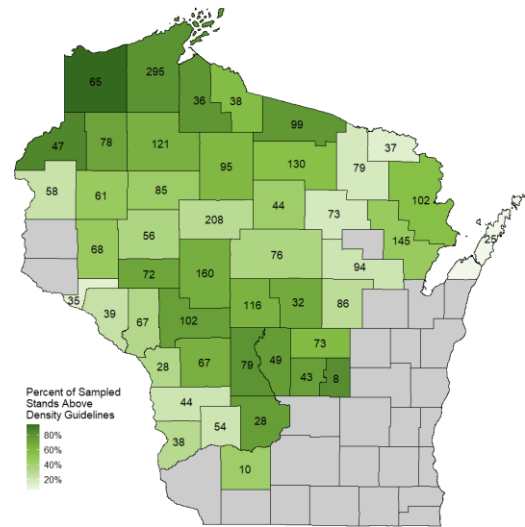


Figure 1. Counties shaded in green have had FRM data collected on the total number of stands indicated by the numbered label since 2018. Shading reflects the percentage of sampled stands that meet regeneration density guidelines and that have reached or exceeded the minimum regeneration period, as defined by the WI Silviculture Guide.

THE FOREST REGENERATION METRIC (FRM)

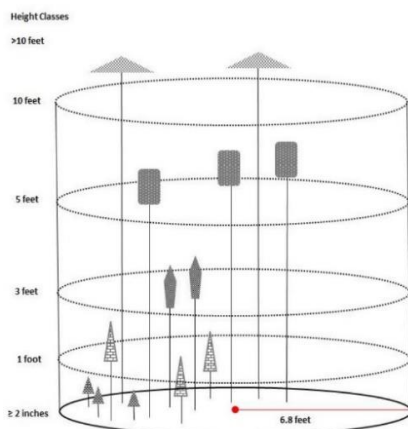


Figure 2. The Forest Regeneration Metric

The Forest Regeneration Metric is a monitoring tool used to assess the regrowth of seedling and sapling trees after a harvest (Figure 2). This plot-based assessment used 1/300th acre sample areas at a density of 1 plot per every 5 acres. Recently harvested sites are assessed for densities of tree species by height class, deer browse intensity, overstory shading, and plant competition.

The Forest Regeneration Monitoring Program uses FRM to evaluate forest regeneration across Wisconsin on both public and private lands, and state foresters began using FRM to assess regeneration on state forests in 2021.

Data can be collected using a variety of methods, including paper data sheets, Survey 123, and Forest Metrix.

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WHAT HAVE WE LEARNED SO FAR?

County and Regional Findings

- Half of the 46 counties have 50% or more of stands below regeneration density guidelines.
- Ten of the 46 counties have greater than 70% of stands above regeneration density guidelines.
- The majority of the sampled stands in the northeast did not meet regeneration guidelines; this is in large part due to over 80% and 60% of the sampled Northern Hardwood and Aspen-Birch stands, respectively, failing to meet requirements, the lowest among all regions.
- The southwest region had the lowest Oak stands meeting requirements at only 17%, whereas all other regions saw 60% or higher.
- Counties in the central and northwest regions saw the highest browse, with stands having approximately 70% of regeneration seedlings and saplings showing signs of browse.

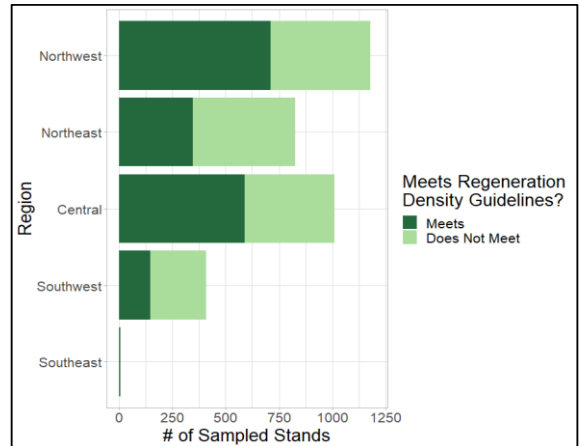


Figure 3. Stands that meet and do not meet regeneration requirements by Region.

Forest Type Summary

- Pine and Fir-Spruce forest types have the best regeneration success in monitored stands.
- Central Hardwoods, Oak and Aspen-Birch forest types also have some success with more than 50% of sampled stands above regeneration guidelines. However, success is variable across regions.
- Northern Hardwood forest type is the most frequently sampled stand type; however, only 30% of sampled stands meet regeneration guidelines.
- Although minimally sampled, Swamp Hardwood and Hemlock Hardwood forest types are failing to meet requirements in 80% of sampled stands.
- The heaviest browsed forest cover types are Pine, Oak, Aspen-Birch and Red Maple, each with about 70% of sampled seedlings and saplings showing signs of browse.
- The top five most common species found are red maple, red oak, sugar maple, black cherry and ironwood.

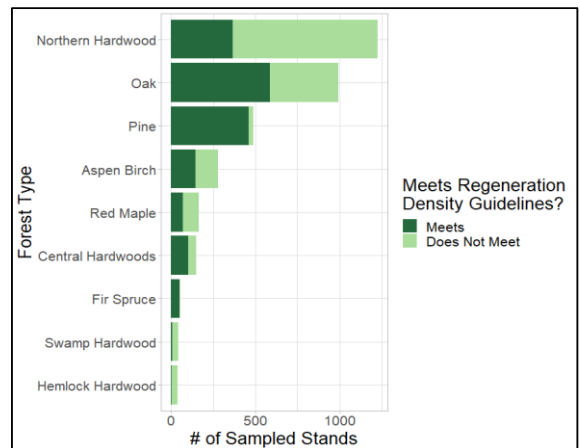


Figure 4. Stands that meet and do not meet regeneration requirements by Forest Type.

Ownership Results

- The majority of sampled stands are on private lands with 60% falling short of regeneration guidelines.
- Approximately 66% of sampled stands on public lands are above regeneration density guidelines.
- Browse percentage was constant across ownership groups with 60%-80% of regenerating seedlings and saplings showing signs of browse.

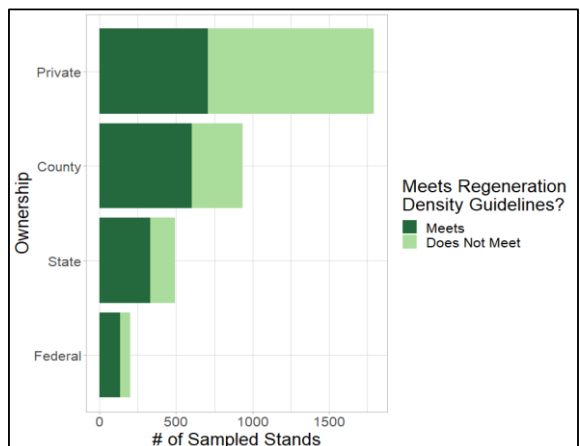


Figure 5. Stands that meet and do not meet regeneration requirements by Ownership.

The Forest Regeneration Monitoring Program is committed to increasing partner engagement and use of FRM throughout Wisconsin. FRM has been adopted as a required metric for state forest management and several counties have also implemented FRM into their forest management practices. Landowners and resource managers interested in participating or learning more about forest regeneration monitoring are encouraged to contact the Forest Regeneration Monitoring Program at:

DNRFRRegenerationMonitoring@wisconsin.gov