

# FOREST REGENERATION MONITORING



## WISCONSIN'S FOREST REGENERATION MONITORING PROGRAM

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 also 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 (Figure 1). 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.



Figure 1. Counties currently sampled by the Forest Regeneration Monitoring Program.

2020 marked the third data collection period in the program's first, three-year reporting cycle. To date, over 16,000 plots have been collected in over 2725 stands on both public and private lands throughout the state. Partnerships with counties, the USFS, Ft. McCoy, private forestry, DMAP, and private landowners and resource managers have aided in the collection of a robust dataset. Data collected during this first cycle provides a snapshot of county-level and statewide regeneration composition and success across forested lands. Subsequent data collection cycles, set to begin in June of 2021, will both re-sample the same stands and initiate sampling in recently harvested or disturbed stands that have yet to be measured to provide time-series data that will strengthen the understanding of succession in forest regeneration.

## THE FOREST REGENERATION METRIC (FRM)

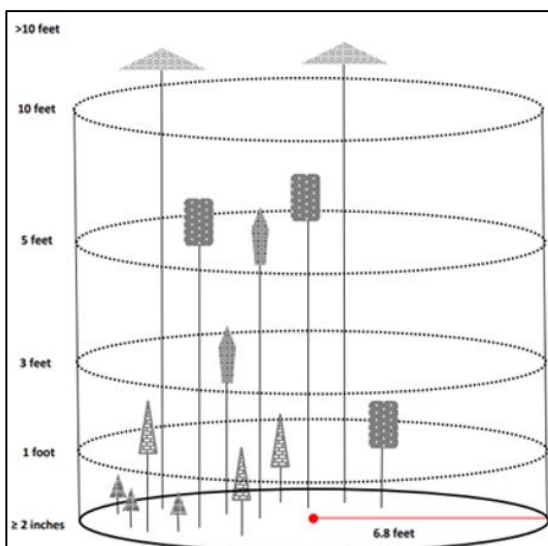


Figure 2. The Forest Regeneration Metric.

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 uses  $1/300^{\text{th}}$  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 will begin to use FRM to assess regeneration on State forests beginning in 2021.

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

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## FOREST REGENERATION MONITORING PROGRAM GOALS

- Provide county-level data on the effects and extent of deer browse, and associated factors, on forest regeneration to County Deer Advisory Councils (CDACs) and wildlife resource managers.
- Assist in the development of Wisconsin-specific regeneration standards by forest type group.
- Monitor long-term changes in the composition of Wisconsin's forests.
- Assess the sustainability and effectiveness of our forest policy and regeneration methods.
- Provide a metric for landowners and resource managers to more comprehensively assess stand-level regeneration and effectiveness of management strategies.
- Forecast trends to help stakeholders form economically and ecologically sustainable business plans.
- Keep the public informed on the status of Wisconsin's forests.

## WHAT HAVE WE LEARNED FROM FRM?

2020 marked the end of the first 3-year cycle. Data collected have already provided critical snapshots of regeneration across Wisconsin.

- Most counties have regeneration numbers below recommended levels
  - 33 of 46 counties have 40% or more of stands below regeneration density guidelines (Figure 3).
  - 5 of 46 counties had 70% or more of stands meeting regeneration density guidelines (Figure 3).
- When broken down by geographical region and forest type, swamp hardwood, hemlock hardwood, northern hardwoods, and oak, particularly in the NE, C, and SW portions of the state, face the most regeneration challenges. Pine and fir-spruce forest types display the greatest amount of regeneration success in all regions sampled (Figure 4).

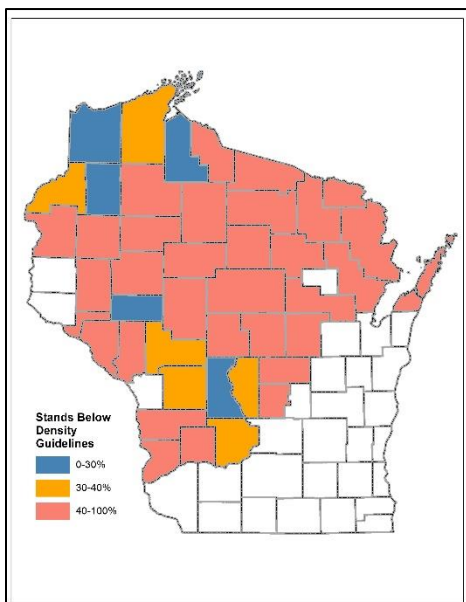


Figure 3. Percentage of stands below density guidelines by county.

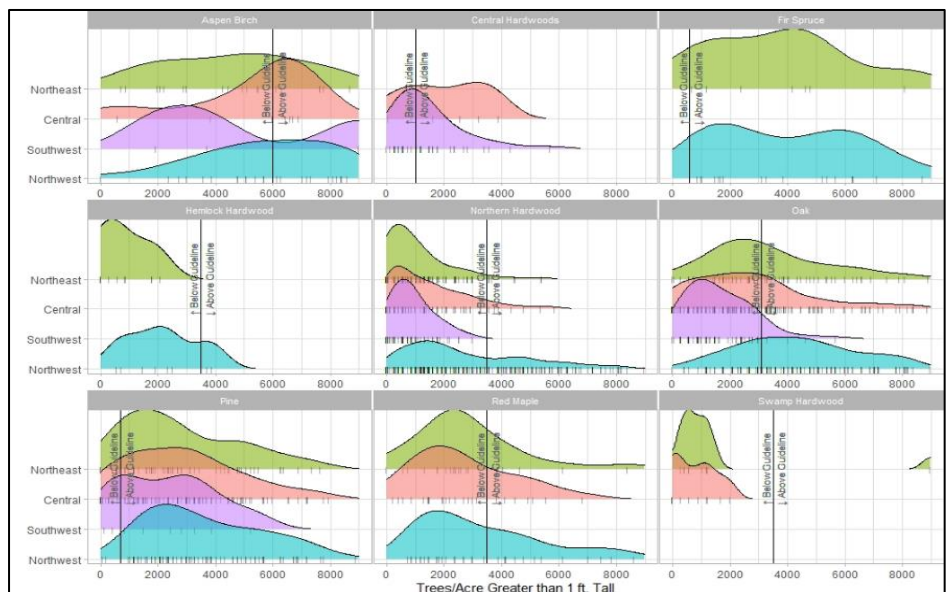


Figure 4. Regeneration density of stands by forest type and region.

## INTERESTED IN LEARNING MORE OR PARTICIPATING IN THE FRM PROGRAM?

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](mailto:DNRFRRegenerationMonitoring@wisconsin.gov).