

Plot Based Inventory (PBI) Companion Dataset

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To: DNR Forestry

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PBI Companion Dataset Overview

Plot Based Inventory (PBI) has been collected and will continue to be collected on State Administered lands through Fiscal Year 2023. Some Forestry Areas have completed PBI sampling, while others will be collecting data through June of 2023 to meet targets established using Lidar flight timing.

The companion dataset is comprised of a collection of variable radius plot (VR) measurements on the ground following the protocols established within the 4Trees Inventory Module. The data collection is meant to evaluate stand-level inventory estimates (and variations) based on PBI-lidar and 4Trees inventory methods. The companion dataset will provide a basis to establish confidence in the PBI-lidar based inventory. Additionally, DNR Forestry staff will have an opportunity to learn the newly designed 4Trees inventory mobile application for the data collection.

The data collected will be an integral part in better understanding inventory needs in terms of an overall strategy. A variety of data will be analyzed and compared to enhance the quality and usefulness of information that guides management decision making across the state.

Collection

The collection of these companion dataset plots is to be done using the 4Trees Inventory VR method.

Target stands will be selected, and Area staff will set up the inventory based on the instructions and guidance provided during 4Trees Inventory training sessions.

Completion priorities should be set by Area staff considering access season and existing workload balance, or any other considerations. Once the target stands are received, Area staff should review the locations for access, management activity that may have recently occurred, planned activities, etc. Target stands are selected randomly and contain an additional 20% added above each target to buffer the pool for replacements. If additional replacements are needed Resource Assessment will produce those at Area request.

During this time of training and testing of the application foresters are encouraged to test out various sampling intensities, plot grid generation, and plot collection options. This sampling is intended to provide an opportunity for staff to get familiar with collecting 4Trees Inventory data and the process behind it.

A variety of guidance and procedural documents will be made available to further define field collection processes and protocols. These will be made available ahead of training, with field training opportunities available following 4Trees training sessions.

Companion Dataset Collection Timeline

PBI companion data will be collected beginning in FY24 and concluding at the end of FY25. Area targets will be stand-based with an associated estimate of acreage determined.

See below for timeline of companion data collection...

FY23

Companion dataset collection is reliant upon training and implementation of the 4Trees Inventory Mobile Application and updated Inventory Module. Training and implementation will not take place until June, resulting in a need to adjust FY23 targets.

As a result, all FY23 targets have been reassessed and assigned for completion in FY24.

Development and distribution of additional FY24/FY25 targets and selected stands will be finalized prior to 4Trees training to allow for work planning and preparation.

FY24

Beginning in FY24, all areas will collect PBI companion data to establish familiarity with the updated process, review workflow and results, provide feedback or enhancement recommendations and determine reasonable levels of production for future inventory targets.

All targets that were initially assigned for FY23 will have a completion deadline of FY24 to provide a reliable comparison between datasets. Targets with a FY25 deadline may be completed in FY24 or FY25.

FY25

During FY25 collection of companion dataset will continue to conclusion, providing a reliable sample of stand level summary data that can be compared to PBI Stand summary data.

Beyond Companion Data Collection

Analysis of Stand Level Inventory Data Collection (4Trees) and Modeled Forest Inventory (PBI) will result in a better understanding of strengths, weaknesses and needs for each system. Collection of PBI companion data will play an important role in determining future stand inventory priorities and how we can use each system to best understand stand attributes.

With additional tools including remotely sensed data, growth modeling and change detection, the future of inventory in Minnesota will be dynamic. Integrating this innovative technology and field data collection together will provide opportunities for forest inventory in the state to address additional needs and priorities.