FOREST INDUSTRY RESEARCH PROGRAM
UNIVERSITY OF MONTANA

Timber Use, Processing Capacity, and Capability to Utilize Timber by Size Class within the USDA Forest Service Region One Timber-Processing Area

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Key Takeaways

- The timber-processing area (TPA) for NSF Region 1 (R1) consists of 45 counties: 22 in Montana, 16 in Idaho, 5 in Washington, 1 in Oregon and 1 in Wyoming.
- A total of 162 primary wood product facilities were actively operating as of May 2025 within the R1 TPA; 136 of which receive roundwood, and the remaining facilities only use mill residuals.
- Three of the 136 mills receiving roundwood are excluded from the capacity and capability analysis due to receiving mixed inputs (i.e. roundwood and mill residuals).
- Timber-processing capacity in the R1 TPA is 5,587,248 hundred cubic feet (CCF) or 2,359,260 thousand board feet, Scribner (MBF).
- Log consumption in the R1 TPA was 4,144,504 CCF or 1,801,880 MBF.
- The vast majority of available timber-processing capacity was in Idaho, Montana, and Washington (40 percent, 35 percent, and 22 percent, respectively).
- Twenty-six percent, 1,442,744 CCF or 557,380 MBF, of the R1 TPA timber-processing capacity went unused.
- Negative unused capability in the dbh ≥10” size class indicates mills received and used more dbh ≥10” timber in place of smaller diameter timber. It is generally economically preferable to process larger (i.e., dbh >10”) timber than smaller timber.

Introduction

Landowners, managers, and planners interested in selling timber have a need for information on the capacity and capability of the timber-processing industry in their region to use trees of various sizes. This information can help managers utilize timber removals in commercial timber harvests, forest restoration, or hazardous fuels reduction treatments and should enable them to better plan, appraise, advertise, and accomplish stated land management goals. This report is intended to help land managers better understand the availability of timber-processing capacity associated with the USDA National Forest Service Region 1 (R1), and the R1 Forests located in Montana and northern Idaho.

This report is a follow-up to a similar analysis performed for R1 in 2013 (McIver et al. 2013); however, comparisons between these should not be made as the TPA has expanded, in part, due to multiple mill closures across Montana and Idaho necessitating longer travel distances to reach timber processors. Please note that region-wide capacity and use information is not equal to the sum of all the individual forests since some of the same mills are included in multiple forest-level TPAs.

The data used to develop this report were collected and processed by the University of Montana's Forest Industry Research Program within the Bureau of Business and Economic Research (BBER) in cooperation with the USDA Forest Service's Forest Inventory and Analysis (FIA) Program at the Rocky Mountain Research Station (Hayes et al. 2021, Sampson et al. in prep, Simmons et al. in prep). Methods follow those of Keegan et al. 2004, McIver et al. 2013, and Simmons et al. 2020. Mill- or company-level data are confidential and cannot be released.

Methods and Definitions

This analysis focuses on facilities that exclusively use timber in round form; this includes sawmills, veneer mills, and facilities processing timber into house logs/log homes, posts, small poles, utility poles, cedar products (e.g., shakes and shingles, and fencing), and log furniture. Facilities (e.g., pulp mills, wood pellet manufacturers, and biomass energy facilities) that use a mix of roundwood and non-roundwood inputs (i.e., mill residuals such as chips, sawdust, shavings, and bark) are not included in the capacity analysis because the combination of roundwood and non-roundwood inputs can vary widely from year to year, potentially over- or under-estimating capacity and use of roundwood by substantial margins. Though mixed-input facilities are excluded from the analysis, they are included in the list of timber-processing facilities and in the map of facilities in the TPA.

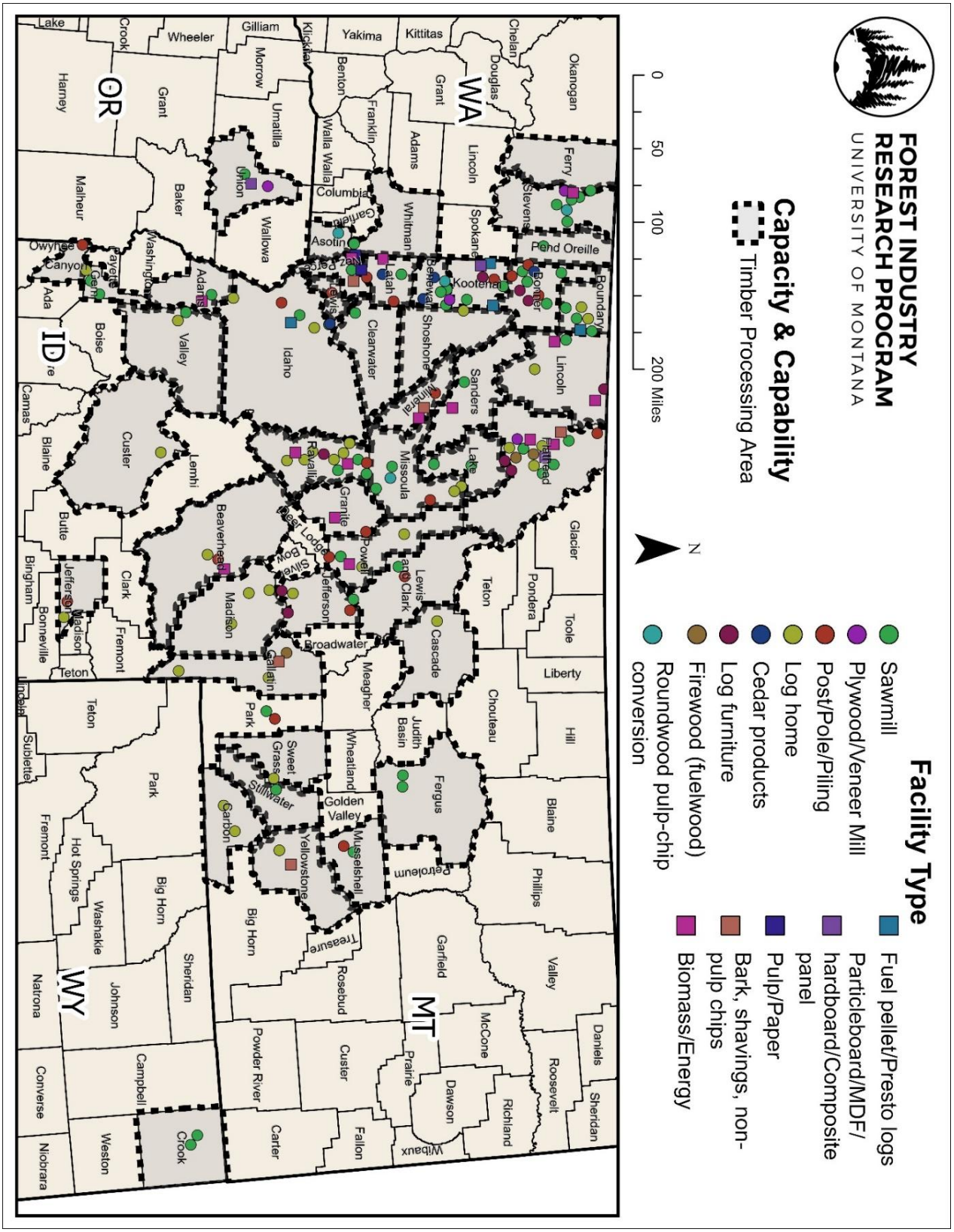
In what follows, "capacity" refers to the maximum total volume of timber (excluding pulpwood and fuelwood) that existing timber processors could utilize annually, given firm market demand for products, sufficient raw material, and ordinary downtime for maintenance. Also known as "timber-processing capacity", it is a measure of a facility's timber *input* capacity and is expressed in thousand board feet (MBF) Scribner and hundred cubic feet (CCF) per year. Input capacity is a useful measure when attempting to express the capacity of multiple types of facilities in a common unit of measure. It is estimated from production (output) capacity information provided by individual facilities. Capacity estimates in this report include the capacity of active facilities as well as temporarily idle (inactive) facilities with equipment still in place. Facilities that are permanently closed are not included.

"Capability" refers to the volume of trees of a certain size class, measured as diameter at breast height (dbh), that existing timber processors can economically process annually. Some facilities are designed to operate using only trees of a given size class (e.g., veneer/ plywood plants typically only use trees ≥10 inches dbh, and post manufacturers primarily use trees <10 inches

dbh). Capability at these facilities is readily classified in just one of the size classes. Many facilities can and do use timber from a variety of size (dbh) classes. The three dbh classes used in this report are <7", 7 to 9.9", and ≥10". It is important to point out that capability in the ≥10" dbh class represents the portion of a mill's overall capacity that cannot process smaller trees, and it is calculated as total capacity minus the sum of the two small-log capability classes.

"Use" refers to the volume of timber, both in total and by tree dbh class, that facilities are currently using.

Figure 1. Region 1 TPA



Region One Study Area

The counties within the R1 boundaries constitute the "study area" referred to in this report.

The R1 study area's harvest from all ownerships was 2,676,936 CCF (1,159,754 MBF) during 2022 and 2023 (Sampson et al. in prep, Simmons et al. in prep) (table 2). The majority (69 percent) of the harvest was from Idaho while 31 percent was harvested in Montana. Twenty-six percent of the harvest was from national forest lands.

Table 1. Region One timber harvest for all ownerships, selected years.

	ID 2015 & MT 2014			ID 2019 & MT 2014			ID 2023 & MT 2022		
Region 1	MBF	CCF	Percent	MBF	CCF	Percent	MBF	CCF	Percent
Idaho	1,051,156	2,459,410	69%	935,796	2,185,711	70%	837,631	1,849,900	**69%**
Montana	411,595	1,105,451	31%	376,255	942,033	30%	322,123	827,036	**31%**
Total Harvest	**1,462,751**	**3,564,862**	**100%**	**1,312,051**	**3,127,744**	**100%**	**1,159,754**	**2,676,936**	**100%**

Analysis of area timber flow indicates that timber harvested in the R1 study area is processed by facilities located both inside and outside the Region. All counties that contain one or more facilities that process timber harvested from any ownership in the R1 study area constitute the "Timber Processing Area" or TPA. The TPA for R1 consists of 45 counties throughout Montana, Idaho, Oregon, Washington, and Wyoming (table 2, figure 1).

Table 2 Region One TPA counties.

State	Montana	Idaho	Washington	Oregon	Wyoming
	Beaverhead	Adams	Asotin	Union	Crook
	Carbon	Benewah	Ferry		
	Cascade	Bonner	Pend Oreille		
	Fergus	Boundary	Stevens		
	Flathead	Canyon	Whitman		
	Gallatin	Clearwater			
	Granite	Custer			
	Jefferson	Gem			
	Lake	Idaho			
	Lewis & Clark	Jefferson			
	Lincoln	Kootenai			
	Madison	Latah			
	Mineral	Lewis			
	Missoula	Nez Perce			
	Musselshell	Shoshone			
	Park	Valley			
	Powell				
	Ravalli				
	Sanders				
	Stillwater				
	Sweet Grass				
	Yellowstone				
Total number of counties	**22**	**16**	**5**	**1**	**1**

Region One TPA

Available Capacity

The R1 TPA has a total of 162 active primary wood product facilities, of which, 136 receive roundwood. Three of the 136 facilities that receive roundwood also receive residual products (e.g. sawdust) and are not included in this capacity analysis.

Capacity to process timber in the R1 TPA is 5,587,248 CCF (2,359,260 MBF), with a recent consumption of 4,144,504 CCF (1,801,880 MBF) (table 3), constituting a 74 percent utilization rate. (table 4). Capacity within the R1 study area (3,599,703 CCF, or 2,560,712 MBF) accounts for 64 percent of total timber-processing capacity in the R1 TPA. The majority (94 percent) of the R1 TPA's capacity is located in Idaho, Washington, and Montana (49 percent, 26 percent and 19 percent, respectively) (table 4). The data in the subsequent tables are based on the Montana 2022 and Idaho 2023 mill censuses.

Table 3. Region One TPA capacity and consumption by dbh size class.

	Capacity to process timber		Timber Consumption		
Tree dbh	*Thousand board feet, Scribner (MBF)*	*Hundred cubic feet (CCF)*	*Thousand board feet, Scribner (MBF)*	*Hundred cubic feet (CCF)*	**Utilization percentage**
<7 in.	106,241	350,509	23,600	102,212	29%
7-9.9 in.	765,351	1,892,823	255,478	668,069	35%
≥10 in.	1,487,667	3,343,916	1,522,802	3,374,223	101%
TPA total	**2,359,260**	**5,587,248**	**1,801,880**	**4,144,504**	**74%**

Table 4. Region One TPA capacity by state and dbh size class.

	Hundred cubic feet (CCF)			
State	<7 in. dbh	7-9.9 in. dbh	≥10 in. dbh	**State total**
Idaho	134,111	951,634	1,651,786	**2,737,532**
Montana	115,333	396,438	558,332	**1,070,103**
Oregon	-	14,456	201,646	**216,102**
Washington	99,558	512,688	879,334	**1,491,581**
Wyoming	1,507	17,606	52,818	**71,931**
TPA total	**350,509**	**1,892,823**	**3,343,916**	**5,587,248**

	Thousand board feet, Scribner (MBF)			
State	<7 in. dbh	7-9.9 in. dbh	≥10 in. dbh	**State total**
Idaho	47,245	427,529	767,073	**1,241,846**
Montana	34,485	143,328	232,962	**410,775**
Oregon	-	5,869	91,998	**97,867**
Washington	23,715	179,329	367,747	**570,792**
Wyoming	796	9,296	27,888	**37,979**
TPA total	**106,241**	**765,351**	**1,487,667**	**2,359,260**

Unused Capacity

Twenty-six percent (1,442,744 CCF or 557,380 MBF) of the R-1 TPA's annual timber-processing capacity went unused during the study period. The 7-9.9" dbh class had the most unutilized capability, with 1,224,754 CCF (509,873 MBF or 65 percent) of capability. The majority (99 percent) of this available capacity can be found in Idaho, Montana, and Washington (40 percent, 35 percent, and 22 percent, respectively). Of note is the negative unused capability for the dbh ≥10" class. Despite some mills having the ability to process smaller diameter logs, mills within the R1 TPA processed more dbh ≥10" timber, reflecting the general preference for larger timber when available. Even if the mill is *capable* of processing timber 7-9.9" dbh or less, it is usually financially preferable for the mill to process larger logs. Negative unused capability in the ≥10" size class indicates the substitution of dbh ≥10" timber in place of smaller timber (table 5 and 6). These results suggest that mills with both small-log and large-log capabilities prefer to and do use more dbh ≥10" timber even though they have the capability to use smaller timber.

Table 5. Region One TPA unused capacity by dbh size class.

	Unused timber-processing capacity	
	Thousand board feet,	*Hundred cubic feet*
Tree dbh	*Scribner (MBF)*	*(CCF)*
<7 in.	82,641	248,297
7-9.9 in	509,873	1,224,754
≥10 in.	(35,135)	(30,307)
TPA total	**557,380**	**1,442,744**

Table 6. Region One TPA available capacity by state and dbh size class.

	Hundred cubic feet (CCF)			
State	<7 in. dbh	7-9.9 in. dbh	≥10 in. dbh	**State total**
Idaho	119,462	718,276	(254,894)	**582,845**
Montana	70,324	242,055	173,919	**486,297**
Oregon	-	(415)	34,920	**34,505**
Washington	57,361	250,453	15,743	**323,558**
Wyoming	1,149	14,384	6	**15,539**
TPA total	**248,297**	**1,224,754**	**(30,307)**	**1,442,744**

	Thousand board feet, Scribner (MBF)			
State	<7 in. dbh	7-9.9 in. dbh	≥10 in. dbh	**State total**
Idaho	45,374	321,925	(127,923)	**239,377**
Montana	22,572	85,622	75,399	**183,593**
Oregon	-	(1,120)	16,777	**15,656**
Washington	14,088	95,852	609	**110,549**
Wyoming	607	7,595	3	**8,205**
TPA total	**82,641**	**509,873**	**(35,135)**	**557,380**

Conclusion

As the Forest Service continues to implement fuel reduction and ecosystem restoration treatments as well as increasing timber production in response to the March Executive Order 14225, “Immediate Expansion of American Timber Production,” an understanding of the current industry composition, capacity, and constraints associated with processing trees of various sizes is essential. The existing capacity utilization levels presented in this report indicate that mills in the Region 1 TPA have capacity available to process more timber than they are currently using; however, the size, quality, and species affect the marketability of timber to mills. Likewise, demand for lumber and other finished product can influence the quantities and characteristics of timber that mills desire.

When planning forest-management activities that involve removing trees from the landscape, land managers should balance their need to remove small and/or dead trees with the local industry’s ability to profitably use that material. Regional and forest-level land managers should engage with their local industry stakeholders to understand where there is under-used capacity and where there is potential for industry expansion in ways that can help meet National Forest management needs.

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