



FOUR FORESTS RESTORATION INITIATIVE ACTIVE FOREST MANAGEMENT STRATEGY AREA

Introduction:

This document provides information about the Four Forests Restoration Initiative (4FRI) Active Forest Management Strategy Area (AFMSA). It was generated by the Forest Industry Research Program of the Bureau of Business and Economic Research (BBER) at the University of Montana - Missoula. The mill survey data underlying these analyses were collected under joint venture agreements with the USDA Forest Service's Forest Inventory and Analysis program at the Pacific Northwest Research Station (#21-JV-11261979-053) and Rocky Mountain Research Station (#20-JV-11221638-171). The landscape analyses and summary tables were developed under agreement #23-PA-11132400-368, and the residuals tables were developed under agreement #25-JV-11261936-106.

The data used in these analyses are the results of periodic censuses of each of the western states, as well as annual sample surveys of the same. Using data from both types of surveys allows us to provide time-series data, though it necessitates providing estimates as percentages rather than actual volume.

While BBER collects data at the mill level, mill-level data are confidential and will not be released.

Methods and Definitions:

The 4FRI AFMSA covers a defined area that includes pieces of several counties. The combined area of the counties "touched" by this area constitutes its "Study Area" (for details, see fig. 1 and table 1). Defining a Study Area that covers entire counties is necessary to enable analysis, as the county is the smallest geographic area of mill survey data by BBER and FIA-TPO.

Further, BBER analysis of timber flow indicates that timber harvested within the Study Area is processed by facilities located both inside and outside this specific area. All counties that contain one or more facilities that process timber harvested within the Study Area constitute the "Timber Processing Area" (TPA) (for details, see fig. 1 and table 4).

In these tables, "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 mills' 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 mills in a common unit of measure. It is estimated from production (output) capacity information provided by facilities.

Estimates in these tables include the capacity of active facilities as well as idle (inactive) facilities with equipment still in place. Facilities that are permanently closed are not included. 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), vigas, latillas, 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.




“Capability” refers to the volume of trees of a certain size class (measured as diameter at breast height, or dbh) that existing timber processors can economically process annually. The three dbh classes are <7”, 7” to 9.9”, and ≥10”. Some facilities are designed to operate using only trees of a given size class (e.g., veneer/plywood plants typically only use trees ≥10” dbh, and post manufacturers primarily use trees <10” dbh). The capability of these facilities is readily classified into just one size class. Many facilities can use timber from more than one size class.

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





4FRI AFMSA

AFMSA

-  4FRI
-  Study Area
-  Timber Processing Area

Facility type

-  Sawmill
-  Log home
-  Post/Pole/Piling
-  Firewood (fuelwood)
-  Bark, shavings, non-pulp chips
-  Fuel pellet/Presto logs
-  Biomass/Energy

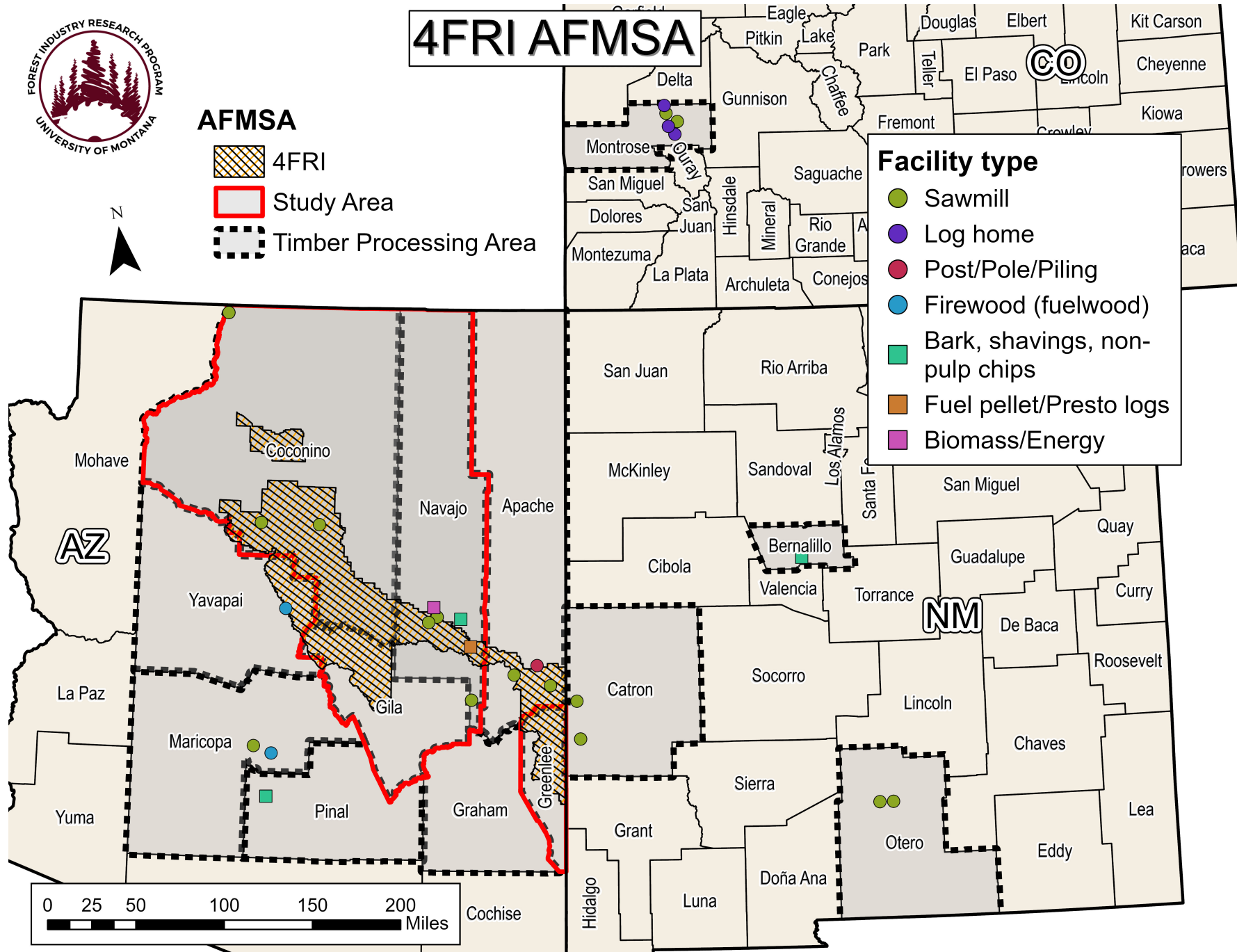


Figure 1. 4FRI AFMSA Landscape, Study Area, Timber Processing Area, and facility locations

4FRI STUDY AREA COUNTIES

Table 1. 4FRI Study Area counties

County	State
Coconino	AZ
Gila	AZ
Greenlee	AZ
Navajo	AZ

4FRI STUDY AREA HARVEST

Table 2. Timber harvest from 4FRI Study Area counties (all ownerships), percentage distribution by species (2020-2023)

Species group	2020	2021	2022	2023
Ponderosa pine	88%	93%	95%	92%
Douglas-fir	7%	5%	5%	6%
Juniper	2%	1%	0%	1%
Pinyon pine	1%	1%	0%	1%
Mesquite	1%	1%	0%	1%
Other species	0%	1%	0%	0%
All species	100%	100%	100%	100%

Table 3. Percentage of timber harvest from national forest lands within the 4FRI Study Area, by timber product type (2020-2023)

Timber product type	-----Percentage from national forests-----			
	2020	2021	2022	2023
Sawlog	100%	100%	100%	76%
Firewood	100%	100%	99%	100%
Energy wood chipped in woods	36%	n/a	n/a	n/a
House log	n/a	n/a	100%	100%
Fiber log	n/a	n/a	n/a	100%
Pulpwood log	n/a	100%	100%	100%
Energy wood/log	n/a	95%	95%	95%
Piling/utility pole	n/a	100%	100%	n/a
Study Area total	97%	99%	99%	81%

Note: "n/a" indicates that no timber of this product type was harvested within the Study Area.

4FRI TIMBER-PROCESSING AREA COUNTIES

Table 4. 4FRI Timber-processing Area (TPA) counties

County	State
Apache	AZ
Coconino	AZ
Maricopa	AZ
Navajo	AZ
Pinal	AZ
Yavapai	AZ
Montrose	CO
Bernalillo	NM
Catron	NM
Otero	NM

4FRI TIMBER-PROCESSING AREA FACILITIES LIST

Table 5. Timber-processing facilities within the 4FRI TPA (2025)

Facility name	Status	Facility type	State	County	Input size class	Included in capacity analysis
APC Lumber	Active	sawmill	AZ	Apache	250 TO 499 MCF	yes
Arizona Log & Timberworks	Active	post/pole/piling	AZ	Apache	1000 TO 4999 MCF	yes
Reidhead Bros Lumber Mill	Active	sawmill	AZ	Apache	500 TO 999 MCF	yes
AP Sawmill and Lumber Products, LLC	Active	sawmill	AZ	Coconino	<250 MCF	yes
Reidhead Forest Management	Active	sawmill	AZ	Coconino	250 TO 499 MCF	yes
Restoration Forest Products	Active	sawmill	AZ	Coconino	No data	no
Paul Bunyan's Firewood	Active	firewood (fuelwood)	AZ	Maricopa	250 TO 499 MCF	yes
Southwest Forest Products	Active	sawmill	AZ	Maricopa	1000 TO 4999 MCF	yes
Forest Energy Corporation	Active	fuel pellet/presto logs	AZ	Navajo	1000 TO 4999 MCF	no
Novo Biopower, LLC	Active	biomass/energy	AZ	Navajo	No Roundwood	no
Novo Star Wood Products	Active	sawmill	AZ	Navajo	1000 TO 4999 MCF	yes
White Mountain Apache Timber Company	Active	sawmill	AZ	Navajo	1000 TO 4999 MCF	yes
Winner's Circle Soil Products	Active	bark, shavings, non-pulp chips	AZ	Navajo	<250 MCF	no
GRO-Well	Active	bark, shavings, non-pulp chips	AZ	Pinal	No Roundwood	no
Canyon Wood	Active	firewood (fuelwood)	AZ	Yavapai	1000 TO 4999 MCF	yes
Colorado Wood Company Inc.	Active	sawmill	CO	Montrose	No Roundwood	no
Custom Log Crafting	Active	log home	CO	Montrose	<250 MCF	yes
Frontier Log Homes (Colorado)	Active	log home	CO	Montrose	<250 MCF	yes
JAMCo Woodworks	Active	log home	CO	Montrose	<250 MCF	yes
Montrose Forest Products, LLC.	Active	sawmill	CO	Montrose	5000 MCF or more	yes
Western Organics	Active	bark, shavings, non-pulp chips	NM	Bernalillo	No Roundwood	no
K&B Timber Works, Inc.	Active	sawmill	NM	Catron	250 TO 499 MCF	yes
Timber Tramp Logging LLC.	Active	sawmill	NM	Catron	<250 MCF	yes
M & J Woodsales	Active	sawmill	NM	Otero	<250 MCF	yes
New Mexico Ties & Poles	Active	sawmill	NM	Otero	<250 MCF	yes

TIMBER RECEIVED BY TIMBER-PROCESSING FACILITIES IN THE 4FRI TIMBER-PROCESSING AREA

Table 6. Timber received by facilities in the 4FRI TPA, percentage distribution by species (2020-2023)

Species group	2020	2021	2022	2023
Engelmann spruce	49%	32%	28%	30%
Ponderosa pine	37%	64%	60%	57%
Lodgepole pine	6%	1%	4%	5%
Other firs	4%	1%	4%	5%
Douglas-fir	3%	3%	4%	3%
Other species	2%	1%	0%	1%
All species	100%	100%	100%	100%

Table 7. Percentage of timber from national forests received by facilities in the 4FRI TPA, by timber product group (2020-2023)

Timber product type	-----Percentage from national forests-----			
	2020	2021	2022	2023
Fiber log	100%	100%	100%	100%
Firewood	100%	100%	99%	100%
Pilings/utility poles	99%	100%	100%	100%
Sawlogs	81%	83%	84%	87%
Energywood chipped in the woods	70%	n/a	n/a	n/a
House log	0%	100%	28%	43%
Post/pole	n/a	n/a	n/a	100%
Pulpwood log	n/a	100%	100%	100%
Energywood log	n/a	90%	90%	90%
TPA total	83%	85%	86%	88%

Note: "n/a" indicates that no timber of this product type was harvested.

TIMBER-PROCESSING CAPACITY AND CAPABILITY OF TIMBER-PROCESSING FACILITIES WITHIN THE 4FRI TIMBER-PROCESSING AREA

Table 8. Timber-processing capacity and capability by tree dbh class of facilities in the 4FRI TPA, by county or county group (2020, 2021)

Timber Processing Area	-----Thousand board feet, Scribner (MBF)-----			-----Hundred cubic feet (CCF)-----		
	<7 in. dbh	7 - 9.9 in. dbh	≥10 in. dbh	<7 in. dbh	7 - 9.9 in. dbh	≥10 in. dbh
Arizona	1,545	17,976	70,945	4,710	47,381	140,587
Apache	195	4,478	14,349	735	11,481	32,037
Coconino, Maricopa & Yavapai	1,004	8,942	12,482	3,313	27,190	24,202
Navajo	346	4,555	44,114	662	8,710	84,348
Colorado	-	39,307	73,441	-	83,524	156,028
Montrose	-	39,307	73,441	-	83,524	156,028
New Mexico	-	2,860	17,034	-	5,396	35,026
Catron & Otero	-	2,860	17,034	-	5,396	35,026
Total	1,545	60,143	161,420	4,710	136,301	331,641

Table 9. Timber-processing capacity and capability by tree dbh class of facilities in the 4FRI TPA, by timber product type (2020, 2021)

Timber product type	-----Thousand board feet, Scribner (MBF)-----			-----Hundred cubic feet (CCF)-----		
	<7 in. dbh	7 - 9.9 in. dbh	≥10 in. dbh	<7 in. dbh	7 - 9.9 in. dbh	≥10 in. dbh
Firewood & chipping logs	1,073	7,539	353	3,807	27,899	1,118
Saw logs	472	52,259	150,259	902	107,699	301,066
House & utility pole logs	-	345	10,809	-	703	29,457
Total	1,545	60,143	161,420	4,710	136,301	331,641

Table 10. Total timber-processing capacity, timber consumption, and capacity utilization of facilities in the 4FRI TPA, by dbh class (2020, 2021)

Tree dbh	----Capacity to process timber----		-----Timber consumption-----		Capacity utilization
	Thousand board feet, Scribner (MBF)	Hundred cubic feet (CCF)	Thousand board feet, Scribner (MBF)	Hundred cubic feet (CCF)	
<7 in.	1,545	4,710	376	718	15%
7 - 9.9 in.	60,143	136,301	20,061	52,122	38%
≥10 in.	161,420	331,641	94,988	190,133	57%
Total	223,108	472,651	115,425	242,973	51%

Table 11. Unused timber-processing capacity of facilities in the 4FRI TPA, by county or county group (2020, 2021)

Timber Processing Area	Thousand board feet, Scribner (MBF)	Hundred cubic feet (CCF)
Arizona	22,687	50,087
Apache	8,429	22,026
Coconino, Maricopa & Yavapai	4,595	9,584
Navajo	9,664	18,477
Colorado	69,736	148,005
Montrose	69,736	148,005
New Mexico	15,261	31,586
Catron & Otero	15,261	31,586
Total	107,683	229,678

Table 12. Unused timber-processing capacity of facilities in the 4FRI TPA, by timber product type (2020, 2021)

Timber product type	Thousand board feet, Scribner (MBF)	Hundred cubic feet (CCF)
Saw logs	96,915	199,229
House & utility pole logs	9,702	26,424
Firewood & chipping logs	1,067	4,025
Total	107,683	229,678

RESIDUALS GENERATED BY TIMBER-PROCESSING FACILITIES IN THE 4FRI TIMBER-PROCESSING AREA

Table 13. Mill residuals generated by timber-processing facilities within the 4FRI TPA (2020, 2021)

	BDUs ^a	Percent of total volume
Utilized residuals volume	170,961	99.9%
Unutilized residuals volume	105	0.1%
Total volume generated	171,066	100%

^a One bone dry unit (BDU) = 2,400 pounds of oven-dry wood or bark.

Table 14. Mill residuals generated by timber-processing facilities within the 4FRI TPA, by type of residual (2020, 2021)

Type of residual	BDUs ^a	Percent of total volume
Coarse ^b	102,534	60%
Fine ^c	40,162	23%
Bark	28,370	17%
Total, all residual types	171,066	100%

^a One bone dry unit (BDU) = 2,400 pounds of oven-dry wood or bark.

^b Includes slabs, edgings, and trimmings from lumber manufacturing; log ends; pieces of veneer not suitable for manufacturing plywood; and plywood peeler cores not sawn into lumber.

^c Includes sawdust, peelings and shavings.

Table 15. Mill residuals generated by timber-processing facilities within the 4FRI TPA, by type of utilization (2020, 2021)

Type of utilization	BDUs ^a	Percent of total volume
Fuel ^b	78,981	46%
Sold as raw material for other products	40,304	24%
Mulch/soil additives	20,675	12%
Animal bedding	19,724	12%
Decorative landscaping	11,278	7%
Used on-site for other products	-	0%
Fiber ^c	-	0%
Unused	105	0%
Total, all types of utilization	171,066	100%

^a One bone dry unit (BDU) = 2,400 pounds of oven-dry wood or bark.

^b Includes firewood, biomass, hogfuel, and pellets.

^c Includes pulp, composite panels, and MDF.