

# **Capacity and Capability of Mills in the Idaho Panhandle National Forest Impact Zone**

**Submitted to:**

Krista Gebert, USDA Forest Service, Region One  
Purchase Order No. AG-03R6-P-12-0157

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**Revised  
August 15, 2012**

## Introduction

This report was prepared as a forest planning support document for the Idaho Panhandle National Forest as part of Purchase Order No. AG-03R6-P-12-0157 between the USDA Forest Service, Region One and The University of Montana's Bureau of Business and Economic Research (BBER). The report is part of a series of documents intended to be used in conjunction with a broader analysis of the geographic area and forest products facilities impacted by USFS Region One timber harvest. The broader region-wide report contains an expanded methods section and further interpretation and will be available from the Bureau of Business and Economic Research at The University of Montana in January 2013.

This individual report for the Idaho Panhandle National Forest (IPNF):

1. Examines the harvest of timber from the counties containing non-reserved timberland for the IPNF;
2. Analyzes the flow of that timber harvest and identifies the location of mills receiving that timber harvest; and
3. Describes the kinds of mills receiving timber, their capacity to process timber, as well as their capability to use timber of various sizes.

In this report, "capacity" refers to the total volume of timber (excluding pulpwood) that existing timber processors could utilize annually, and "capability" refers to the volume of trees of a certain size (diameter at breast height—dbh) class that existing timber processors can efficiently process annually. This analysis focuses on facilities that exclusively use timber in round form; this includes sawmills, plywood and veneer plants, and facilities processing timber into house logs/log homes, utility poles, posts and small poles, log furniture, and cedar products. Because the pulp and paper industry and industrial fuelwood users generally prefer mill residue as their primary raw material, typically use large volumes of roundwood only when mill residue is in short supply, and because the pulp and paper industry in the Region can draw from a very large area, the potential use of timber for pulpwood and fuelwood is analyzed separately in the broader Region One report.

## **Harvest from Counties Containing Idaho Panhandle National Forest Non-reserved Timberland**

The majority of Idaho Panhandle National Forest non-reserved timberland is located in five Idaho counties: Benewah, Bonner, Boundary, Kootenai, and Shoshone (Figure 1). The total harvest from all lands in these five counties was 134 million cubic feet (MMCF) in 2006 (Brandt and others 2012). The National Forest system accounts for 57 percent of the non-reserved timberland in the five-county area. Three percent (4.5 MMCF) of the timber harvest in this five-county area originated from the IPNF. Most (99 percent) of the timber harvested from these counties consisted of green (live) trees. The species composition of the harvested volume in this five-county area was: Douglas-fir 32 percent, true firs 29 percent, western redcedar 11 percent, and western larch 8 percent of the harvest volume. Western hemlock and lodgepole pine each accounted for 6 percent of the harvest, while western white pine, ponderosa pine, red alder, and Engelmann spruce combined for the remaining 8 percent. Sawmills and veneer/plywood plants received about 93 percent of the timber harvested from these counties. House logs, posts and small poles, and other mills received less than 3 percent of the timber harvest volume. Pulp and paper mills utilized 4 percent of the 2006 harvest from the five-county region.

The 2011 harvest in the five-county area was estimated to be approximately 76.5 MMCF. The IPNF contribution was estimated to account for approximately 6 percent of the total harvest by all ownerships.

### **Impact Zone**

The Idaho Panhandle National Forest identified a five-county area as the IPNF Impact Zone. The counties comprising the IPNF Impact Zone are: Benewah, Bonner, Boundary, Kootenai, and Shoshone counties in Idaho (Figure 1).



Map created by Chelsea P. McIver, Bureau of Business and Economic Research. Data courtesy of ESRI, Inc.; Montana Natural Resource Information System (NRIS); Bureau of Business and Economic Research. Created June 5, 2012.

Within the five-county Impact Zone there were 31 timber-processing facilities operating as of 2011: 14 sawmills, 7 log home manufacturers, 3 log furniture manufacturers, 3 cedar products manufacturers, 2 post and small pole plants, and 2 veneer and plywood facilities (Table 1).

<b>Table 1.</b> — Timber processing facilities in the Idaho Panhandle National Forest Impact Zone, selected years.		
<b>Type</b>	<b>2005</b>	<b>2011</b>
Sawmills	18	14
Log home	8	7
Log Furniture	1	3
Plywood	3	2
Cedar Products	5	3
Post and Pole	4	2
Utility Pole	2	0
<b>Total</b>	<b>41</b>	<b>31</b>
Sources: Spoelma and others 2008; Brandt and others 2012; McIver and others, In preparation; Simmons and others, in preparation)		

### **Timber Flow**

Of the 134 MMCF of timber harvested in the five-county area containing Idaho Panhandle National Forest non-reserved timberland, 32 percent was processed within the five counties of harvest. Furthermore, 87 percent was processed within the Impact Zone and the remaining 13 percent was processed outside the Impact Zone. Boundary County processed the largest proportion of the harvest originating within its borders, accounting for 57 percent of the total receipts in that county (Table 2). Nearly all of the harvest from Bonner and Boundary counties was processed within the five-county IPNF Impact Zone. Conversely, only 2 percent of the harvest from Shoshone County was processed within the county and 11 percent was processed outside the Impact Zone (Brandt and others 2012).

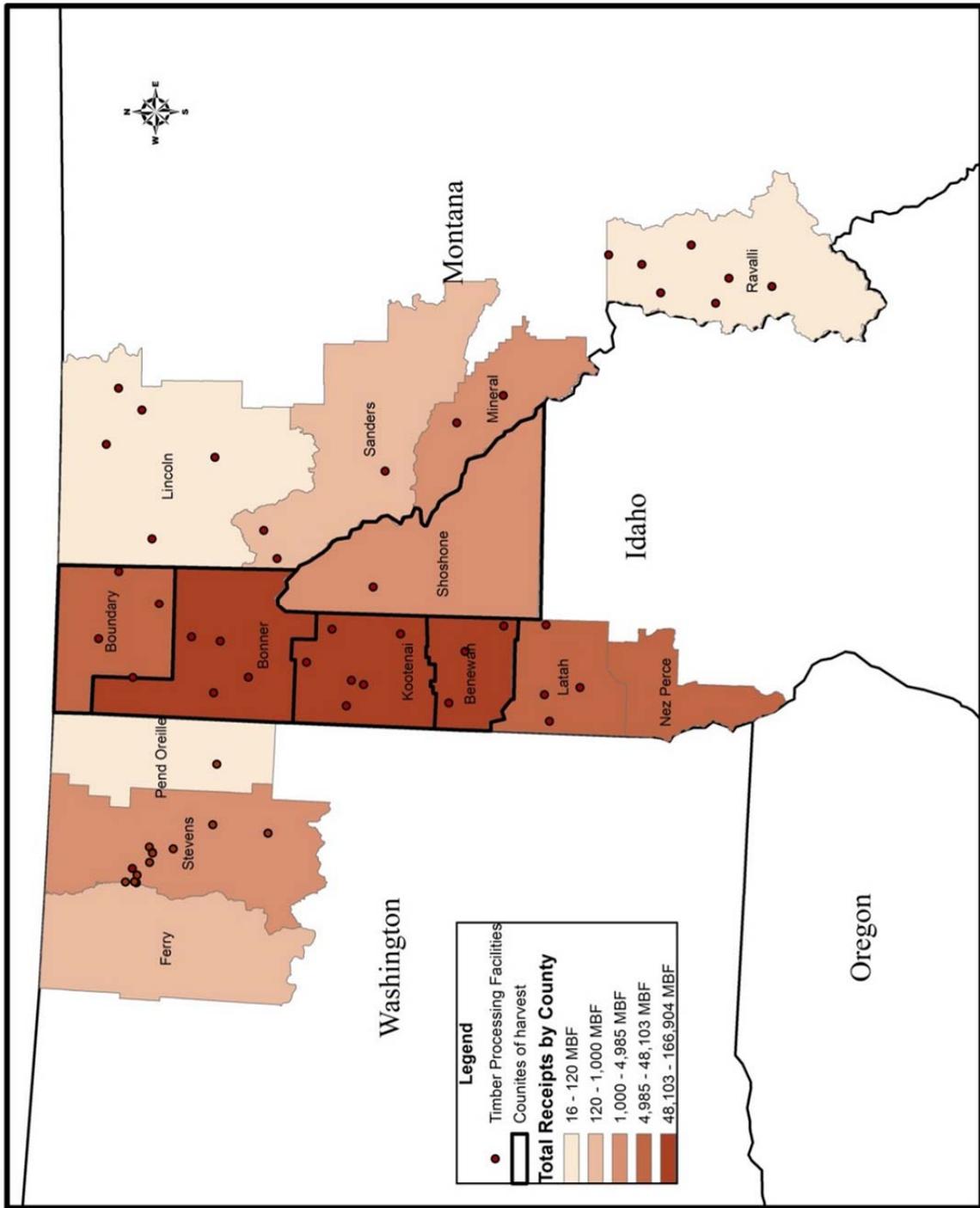
**Table 2** - Timber flow from the Idaho Panhandle National Forest five-county area to county of processing facility (excluding pulpwood), 2006.

County of Harvest	Processed within the county of harvest	Processed within the Impact Zone	Processed outside the Impact Zone
<i>-----percentage of harvest by county-----</i>			
Benewah	42%	71%	29%
Bonner	45%	98%	2%
Boundary	57%	99%	1%
Kootenai	41%	86%	14%
Shoshone	2%	89%	11%

Source: Brandt and others 2012.

In addition to the timber that flowed to facilities in the IPNF Impact Zone, an additional seven counties in three states received 13 percent of the timber harvest from the five counties containing IPNF non-reserved timberland (Figure 2). These counties include Latah and Nez Perce in Idaho; Lincoln, Mineral, Ravalli and Sanders in Montana; and Ferry, Pend Oreille, and Stevens in Washington.

Figure 2. Idaho Panhandle National Forest Timber Flow



Map created by Chelsea P. Melver, Bureau of Business and Economic Research.  
Data courtesy of ESRI, Inc.; Montana Natural Resource Information System (NRIS); and Bureau of Business and Economic Research.  
Map created August 9, 2012.

## Current Conditions and Capacity

The tables in this section are labeled 2011 and represent 2006 timber-flow and timber-use data adjusted to account for 2011 timber harvest and lumber and plywood production levels, as well as mill closures since 2006.

Capacity to process timber in the Impact Zone was estimated at 180 million cubic feet (MMCF), with 54 percent of capacity being used as of 2011. Capacity utilization by mills in the Impact Zone is down from 76 percent as documented in the 2005 capacity and capability report (Keegan and others 2005). Mills in the Impact Zone are currently using about 97 MMCF of timber annually (Table 3). Slightly less than 87 percent (84 MMCF) of the volume processed in the Impact Zone is composed of trees with diameter at breast height (dbh)  $\geq 10''$ . Just over 11 percent (11 MMCF) of the volume processed comes from trees 7.0 – m, 9.9'' dbh, and nearly 2 percent (1.8 MMCF) of processed volume comes from trees  $< 7''$  dbh.

**Table 3. Annual Volume of Timber Processed by Tree Size Class (Excluding Pulpwood) for the Idaho Panhandle National Forest Impact Zone, 2011.**

Thousand Cubic Feet of Timber		Thousand Board Feet Scribner of Timber	
Tree dbh	Volume Used	Tree dbh	Volume Used
< 7 in.	1,862	< 7 in.	1,862
7 - 9.9 in.	11,150	7 - 9.9 in.	42,817
10+ in.	84,319	10+ in.	396,302
Total	97,332	Total	440,981

Most facilities are designed to operate using trees of a given size class (e.g., veneer/plywood plants typically use trees  $\geq 10''$  dbh, and post manufacturers use trees  $< 7''$  dbh). Capacity at these facilities was readily classified as being capable of processing timber of just one of the size classes. This was true for some sawmills, but sawmills vary greatly in equipment, product output, and ability to process timber of various sizes.

Mills often process trees that are larger than the smallest tree sizes they are capable of processing. In other words, most mills capable of efficiently processing trees 7 – 9.9'' dbh are also capable of and prefer processing trees  $\geq 10''$  dbh; thus, these mills tend to process substantially more of the larger trees. However, some mills that process larger trees are not capable of processing smaller-diameter trees. For this reason, this report presents capability to

process trees  $\geq 10''$  dbh as the proportion of total capacity *not* capable of efficiently using trees  $<10''$  dbh. Whereas, capability to process trees  $< 7''$  dbh and  $7 - 9.9''$  dbh are presented as maximum volumes of trees of these size classes that can be processed efficiently.

About 64 percent (116 MMCF) of existing capacity in the Impact Zone is not capable of efficiently utilizing trees  $< 10''$  dbh (Table 4). Nearly 64 MMCF of timber-processing capacity is capable of utilizing trees  $< 10''$  dbh, and the majority of this is in the  $7 - 9.9''$  dbh class. The capability to efficiently utilize trees  $<10''$  dbh in the Impact Zone has increased from 19 to over 35 percent of total capacity since the previous study in 2005. And while overall capacity decreased between 2005 and 2011, capability in the  $< 7''$  and  $7-9.9''$  dbh classes increased from just under 40 MMCF to nearly 64 MMCF (Keegan and others 2005).

Thousand Cubic Feet of Timber		Thousand Board Feet Scribner of Timber	
Tree dbh	Capability	Tree dbh	Capability
< 7 in.	18,447	< 7 in.	18,447
7 - 9.9 in.	45,441	7 - 9.9 in.	174,492
10+ in.	116,068	10+ in.	545,519
Total Capacity	179,956	Total Capacity	738,459

\* Note: Capability in  $< 7$  and  $7 - 9.9$  in. classes is maximum volume capable of being used efficiently; capability in  $10+$  in. class is portion of total capacity NOT capable of efficiently using trees with dbh  $< 10$  in.

A substantial amount of the capacity capable of utilizing smaller diameter trees is being used to process larger trees or going unused. About 10 percent of capacity in the  $< 7''$  dbh category is currently utilized to process trees  $< 7''$  dbh, and slightly more than 24 percent of capacity in the  $7 - 9.9''$  dbh category is being used to process trees  $7 - 9.9''$  dbh. More than 11 MMCF of capacity capable of using trees  $7 - 9.9''$  dbh is used annually to process trees  $\geq 10''$  dbh. Recent (2007-2011) poor market conditions for lumber have reduced mill demand for smaller diameter logs used to make studs. When markets are poor it becomes more difficult to profitably produce lumber from small and low quality logs. The price of stud grade lumber—which is predominantly made from small logs—fell by a much higher percentage during the recent recession than many other dimensions and board and shop lumber grades (Random Lengths 2010). This reduced the profitability of sawing lower grades of lumber from small and

lower quality logs. As lumber markets recover, increased capacity utilization can be expected across all the size classes.

### **Future Outlook**

The period of 2007 – 2011 represents the worst operating environment experienced by the North American and Inland Northwest forest products industry since the Great Depression. It involved a two-year recession from 2007 – 2009, the related financial crisis, and a housing collapse with the lowest levels of new home construction in over 50 years (Keegan et al. 2012). Very low prices for lumber and other wood products have accompanied this broad economic downturn.

As of August 2012, there has been only a small increase in U.S. housing construction. Modest upticks are expected in domestic lumber markets during the remainder of 2012 and 2013, with substantial improvements not likely until 2014 or beyond, if U.S. home building recovers and global demand continues to increase.

Given the continued difficult conditions, additional mill closures are possible. However, with slightly over half of capacity utilized in recent years—versus a historic level of over 80 percent during good markets—the industry would be expected to process substantially more timber when markets improve, provided adequate timber supply is available.

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