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Utah's Forest Products Industry: A Descriptive Analysis, 1992

Charles E. Keegan III
Daniel P. Wichman
Dwane D. Van Hooser

The Authors

Charles E. Keegan III is the director of Forest Industry Research, Bureau of Business and Economic Research, and associate professor of management, School of Business Administration, University of Montana, Missoula, MT. He holds a B.S. degree in business administration from Georgetown University and an M.S. degree in forestry from the University of Montana.

Daniel P. Wichman is a research assistant for the Bureau of Business and Economic Research, University of Montana, Missoula, MT. He holds a B.S. degree in forestry and an M.B.A. degree from the University of Montana.

Dwane D. Van Hooser is Program Manager of the Interior West Resource Inventory, Monitoring, and Evaluation Program at the Intermountain Research Station. He holds a B.S. degree in forestry and an M.S. degree in forestry and business management from Southern Illinois University, Carbondale, IL. He began his Forest Service career in 1964 with the Southern Forest Experiment Station, New Orleans. Before coming to Ogden, he held a staff position at the Forest Service National headquarters in Washington, DC.

Research Summary

In 1992, Utah's primary wood-using industry consisted of 51 active operations including 34 sawmills and 13 house log and log home manufacturers. Nearly all of the 65 million board feet of trees harvested were utilized by these plants. Nearly four-fifths of the harvest came from National Forest System administered lands. Lodgepole pine and spruce were the most favored species. The industry produced $27.4 million in sales, and employed 517 full-time equivalents, to whom were paid $10.2 million in wages.

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Intermountain Research Station
324 25th Street
Ogden, UT 84401

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Introduction

This monograph presents results of a census of Utah's primary forest products industry for the calendar year 1992, with some comparisons to past years. Primary forest products manufacturers in Utah are firms processing timber into manufactured wood products, such as lumber.

Cooperators on this project are the University of Montana, Bureau of Business and Economic Research, and the Intermountain Research Station's Interior West Resource Inventory, Monitoring, and Evaluation Program in Ogden, UT. The cooperators developed a system to collect, compile, and make available State-level and county-level information on forest products industry operations—the Forest Industries Data Collection System.

The Forest Industries Data Collection System is based on a census of primary forest products manufacturers located in a given State. Through a written questionnaire or phone interview, manufacturers provide the following detailed information for each plant for a given calendar year:

- Production employment
- Plant production capacity
- Volume of raw material received, by county and ownership
- Species of timber received
- Finished product volume, types, sales value, and market locations
- Utilization and marketing of manufacturing residue
- Beginning and ending inventory levels for raw materials and finished products

Utah manufacturers were identified through National Forest bidder lists, the Directory of the Forest Products Industry (Miller Freeman Inc. 1992), telephone directories, and information provided by industry personnel.

This effort to collect 1992 data is the first application of the Forest Industries Data Collection System in Utah. Similar censuses have been conducted by the Bureau of Business and Economic Research in Montana for 1976, 1981, and 1988; in Idaho for 1979, 1985, and 1990; and in Wyoming for 1976. The Intermountain Research Station has collected similar but more limited data in other Rocky Mountain States for other years and reported on Utah's timber products for 1966, 1969, 1970, and 1974. Earlier Utah studies provided some comparisons for the 1992 Utah census findings.

Firms cooperating with the 1992 Utah census processed virtually all of that State's nonfuelwood timber harvest. Published sources and data from various land management agencies were used to make estimates of the few nonrespondent firms. Firms in other States, identified through various directories and records of land management agencies, were contacted to track timber that left Utah for processing.

Information collected through the Forest Industries Data Collection System is stored at the University of Montana's Bureau of Business and Economic Research. Additional information is available by request. Individual firm-level data are confidential and will not be released.

Overview

Structure and Distribution

Utah's primary forest products industry includes plants processing timber into lumber and other sawn products; house logs and log homes; and posts, small poles, and roundwood furniture parts.

The 1992 Utah census identified 51 active timber processing plants in the State (table 1). These include 34 sawmills, 13 house log and log home manufacturers, three post and pole manufacturers, and one manufacturer of roundwood furniture parts. Eight firms manufactured more than one product type and were counted more than once.

In 1992, timber processing facilities operated in 13 of Utah's 28 counties; timber was harvested in 18 counties. Facilities tend to locate near the forest resource, with concentrations in northeastern and south-central Utah (fig. 1).

Sales Value of Primary Wood Products

The 1992 estimated total sales of Utah's primary forest products industry were about $27.4 million free on board (f.o.b.) the producing mill (table 2). Lumber, mine timbers and associated products, and the sale of associated mill residues accounted for 73 percent of sales, or about $20.0 million. House log and log home sector sales were $6.7 million, or 24 percent of Utah's primary forest products sales. These are sales by Utah firms that process timber into house logs. Post, small pole, and roundwood furniture part sales were $716,000, or 3 percent of sales.

Table 1—Number of active primary wood products facilities by county, Utah, 1992 (FIDACS 1992).

County	Lumber	Log homes and house logs	Posts, poles, and roundwood furniture parts	Total
Beaver	1	—	—	1
Duchesne	3	2	—	5
Garfield	1	—	—	1
Iron	1	—	—	1
Salt Lake	—	1	1	2
San Juan	1	—	—	1
Sanpete	2	—	—	2
Sevier	1	—	—	1
Summit	5	1	—	6
Uintah	6	4	2	12
Wasatch	3	1	1	5
Wayne	8	1	—	9
Weber	2	3	—	5
Total	34	13	4	51

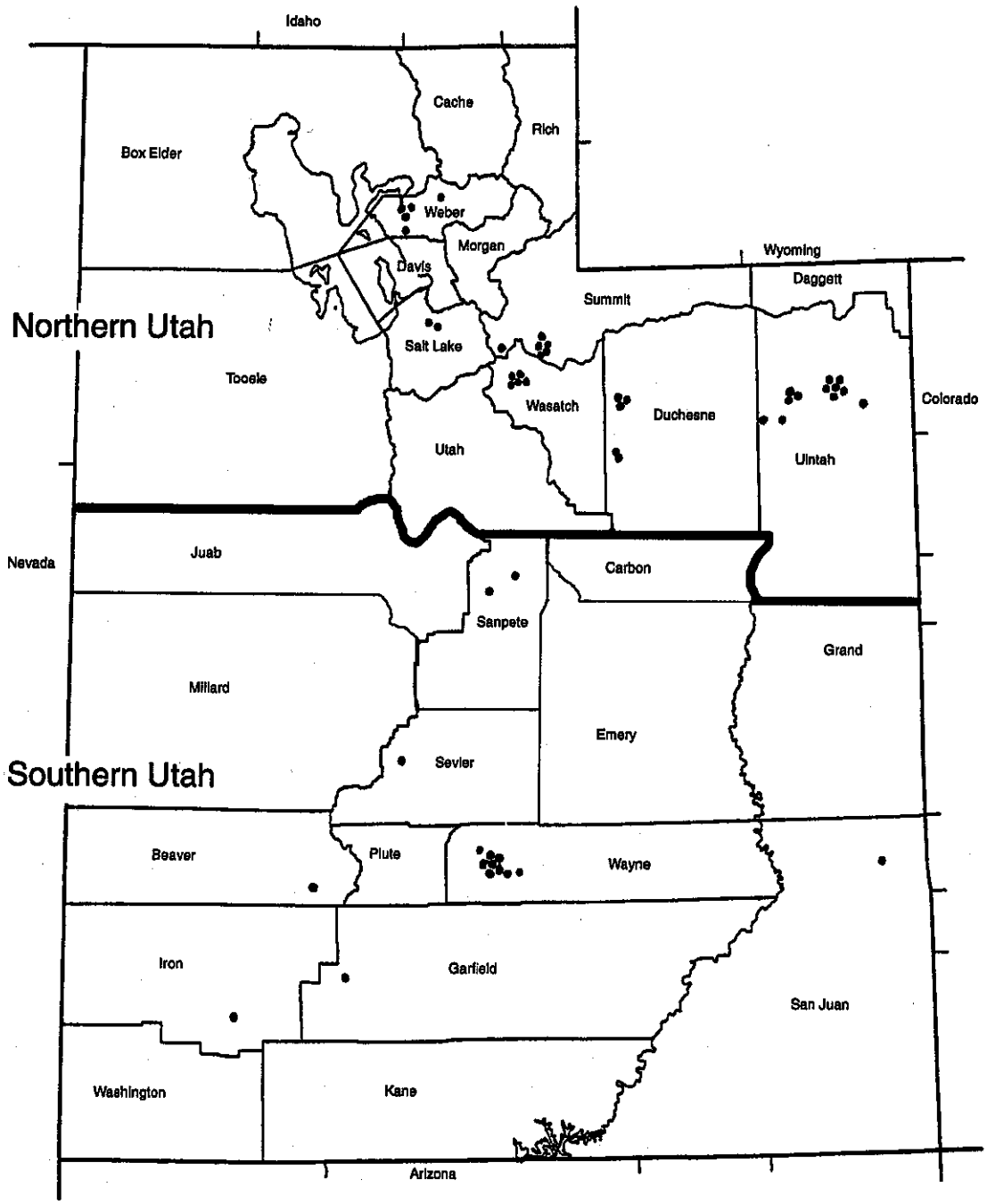

Figure 1—Distribution of active primary wood products plants, Utah, 1992.

Table 2—Sales value of primary wood products, Utah, 1992 (FIDACS 1992).

Product	Sales[1]	Percent of total industry sales
Lumber, mine timbers, and associated products	$19,977,270	73
House logs and log homes	6,716,150	24
Posts, poles, and roundwood furniture parts	716,000	3
Total 1992 industry sales	$27,409,420	100

[1]All sales are reported f.o.b. the manufacturer's plant. Sales value of manufacturing residue is included in sales of primary products.

Table 3—Number of sawmills and percentage of lumber produced by production size class, Utah, 1966 and 1992 (FIDACS 1992; Setzer and Wilson 1970).

Year	Production size class		Total
	Under 1 MMBF[1]	Over 1 MMBF[1]	
	Number of sawmills		
1992	25	9	34
1966	37	13	50
	Percent of lumber output		Lumber output (bf)
1992	13	87	63,637,000
1966	10	90	72,000,000

[1]Size class is based on reported lumber production. One million board feet is designated by the symbol MMBF.

Major Processing Sectors

Sawmill—Utah sawmills produced about 63.6 million board feet (MMBF) of lumber and other sawn products in 1992. About 61 percent was dimension and stud lumber; mine timbers and associated lumber made up about 33 percent; board, shop, and better lumber made up about 6 percent.

Utah sawmills produced approximately 1.26 board feet of lumber for every board foot Scribner of timber processed for an average overrun of 26 percent. For mills that sawed only mine timbers and associated lumber products, the average overrun was just 4 percent. Mills that produced more than 75 percent dimension and board lumber averaged a 36 percent overrun.

Utah sawmills declined in number between 1966 and 1992, but the average output has risen. In 1966, the State had 50 active sawmills (table 3); the 1992 census identified only 34. However, over the same period, output per mill rose from 1.4 MMBF to 1.9 MMBF (table 4).

The average size of Utah sawmills has increased since 1966, but the ratio in each size class remained relatively constant. In 1966 and 1992, 74 percent of the sawmills produced less than 1 MMBF each (table 3). Nine sawmills produced more than 1 MMBF each, and 25 mills produced less than 1 MMBF each in 1992, compared to 13 mills and 37 mills, respectively, in 1966 (Setzer and Wilson 1970). In 1992, the nine large sawmills produced about 56 MMBF, or 87 percent of Utah's lumber output, while the 25 small sawmills produced about 8 MMBF, or 13 percent (table 4). In 1966, the 13 large mills produced 90 percent of the lumber, and 37 small mills produced 10 percent.

Table 4—Lumber production and average production/mill by production size class, Utah, 1992 (FIDACS 1992).

Production size class[1]	Volume board feet	Percent of total	Average per mill (bf)
Over 1 MMBF	55,680,000	87	6,186,667
Under 1 MMBF	7,957,000	13	318,280
Total	63,637,000	100	1,871,676

[1]Size class is based on reported lumber production. Board foot lumber tally is designated by bf.

Sales of lumber, mine timbers and associated products, and sales of mill residues generated from manufacturing lumber products, totaled about $20.0 million in 1992. Board and dimension lumber alone accounted for $12.7 million (64 percent), while mine timbers and associated products accounted for $6.3 million (31 percent). Mill residues from lumber manufacturing generated about $1 million in sales for the year.

House Log, Log Home, and Other Roundwood Product Manufacturers—The 1992 census identified 13 house log and log home manufacturers in Utah. This group included only firms processing timber, not distributors of homes. They ranged from manufacturers selling house logs to those selling complete assembled shells. These 13 firms processed about 7.6 MMBF of timber to manufacture 2.9 million lineal feet of house logs. This sector generated about $6.7 million in sales, or 24 percent of total primary industry sales.

The census also identified four firms manufacturing roundwood products such as posts, corral poles, and furniture parts. These four firms processed about 1 MMBF Scribner of timber, produced about 731,000 pieces, and generated about $716,000 in sales.

Timber Source, Use, and Movement

This section examines Utah's timber harvest and the industry's use of timber. It focuses on ownership and geographic sources of timber, types of timber, products harvested and processed, species composition, and movement of timber products. The ownership categories of timberland in Utah are: National Forest; State of Utah; Bureau of Land Management; tribal; and private. All of the private timberland would be classified as nonindustrial private. Utah has no large tracts of industrial timberlands, which are lands owned by individuals or companies operating primary wood processing plants.

Timberland

Table 5 shows the distribution of timberland by ownership as it existed in 1978. About 83 percent of Utah's timberland is administered by public agencies, with Federal agencies responsible for most of it (Van Hooser and Green 1983).

Table 5—Area of timberland by ownership class, Utah, 1978 (Van Hooser and Green 1983).

Ownership class	Thousand acres	Percent
National Forest	2,277.0	72.3
Other public and tribal	361.5	11.5
Forest industry	—	—
Nonindustrial private	512.8	16.2
Total	3,151.3	100.0

Source

Harvest by Ownership—Most (83 percent) of Utah's 1992 harvest came from public and tribal timberlands (table 6 and fig. 2). Although the percentage has declined from earlier years (94 percent in 1966, 88 percent in 1970), National Forests were still the single largest source, providing 50 MMBF, or 77 percent (Green and Setzer 1974; Setzer and Wilson 1970). The proportion of harvest from private timberlands has risen from 6 percent in 1966 and 12 percent in 1970 (Green and Setzer 1974; Setzer and Wilson 1970) to a 1992 level of 17 percent.

Harvest by Product Type—Timber used in the direct manufacture of products is the focus of this report. Timber harvested for fuelwood is not included. This section focuses on three general product categories: (1) sawlogs—timber products sawn to produce lumber, mine timbers, and the like; (2) house logs—timber products used to manufacture house logs; and; (3) other timber products—which in Utah include timber products used to manufacture posts, small poles, and other small roundwood products, and timber used to manufacture excelsior.

Table 6—Timber harvest by ownership source, Utah, 1992 (FIDACS 1992).

Ownership source	Harvest	
	Board feet, Scribner	*Percent*
Public and tribal timberland	53,931,000	83
National Forest	49,989,000	77
Other public and tribal	3,942,000	6
Private timberland	10,735,000	17
All sources	64,666,000	100

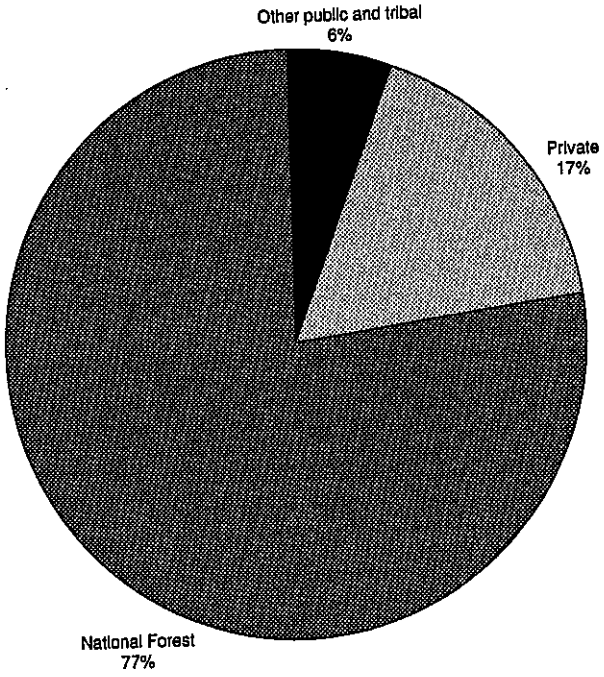

Figure 2—Timber harvest by ownership source, Utah, 1992.

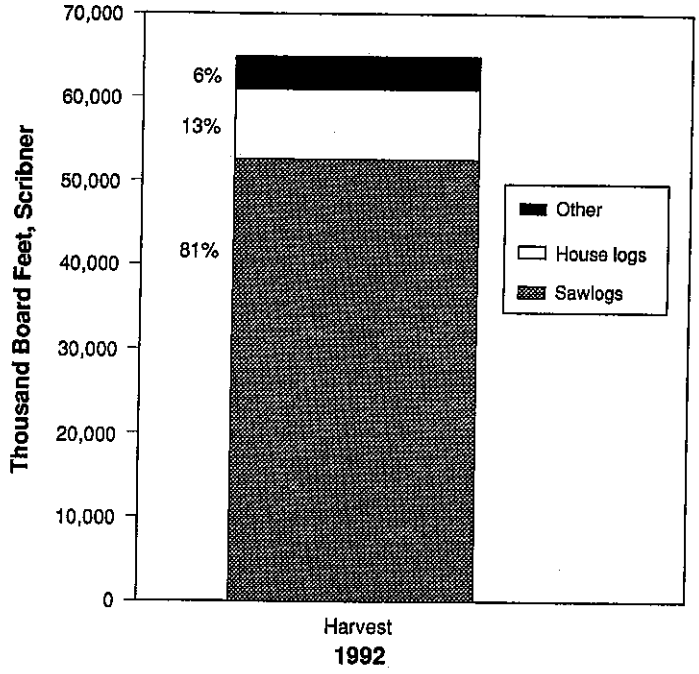

Figure 3—Timber harvest by product type, Utah, 1992.

As figure 3 shows, sawlogs were the primary product manufactured from Utah timber in 1992, accounting for 81 percent (52.5 MMBF) of the total harvest. House logs accounted for about 13 percent (8.2 MMBF); all other timber products consumed 6 percent or 4 MMBF.

By contrast, sawlogs composed about 87 percent of the 1966 harvest and about 93 percent of the 1970 timber harvest (Green and Setzer 1974; Setzer and Wilson 1970). House logs were reported in combination with other products in 1966 and 1970, and composed less than 5 percent of Utah's harvest for those years.

Ownership Source by Product Type—As shown by table 7, National Forests supplied 79 percent (41.4 MMBF) of Utah's 1992 sawlog harvest,

Table 7—Timber products harvested by ownership source and product, Utah, 1992 (FIDACS 1992).

Ownership source	Products			All products
	Sawlogs	House logs	Other	
	Board feet, Scribner			
Public and tribal timberland	42,125,000	7,850,000	3,956,000	53,931,000
National Forest	41,426,000	7,607,000	956,000	49,989,000
Other public and tribal	699,000	243,000	3,000,000	3,942,000
Private timberland	10,385,000	339,000	11,000	10,735,000
All sources	52,510,000	8,189,000	3,967,000	64,666,000
	Percentage of total harvest			
Public and tribal timberland	80	96	100	83
National Forest	79	93	24	77
Other public and tribal	1	3	76	6
Private timberland	20	4	[1]a	17
All sources	100	100	100	100

[1]a = less than 0.5 percent.

while other public and tribal lands supplied 1 percent (0.7 MMBF), and private timberlands supplied the remaining 20 percent (10.4 MMBF). By contrast, National Forests provided 91 percent of Utah's 1966 sawlog harvest, other public lands provided about 5 percent, and private lands provided about 4 percent.

National Forests were also the primary source of house logs, providing 93 percent (7.6 MMBF) of Utah's 1992 house log harvest. Other public and tribal lands supplied 3 percent, and private lands 4 percent. (Because house logs were combined with other products in earlier studies, a comparison is not available.)

Other public and tribal lands were the major source for other timber products in 1992, providing about 76 percent (3 MMBF). National Forests provided 24 percent (1 MMBF). Less than 0.5 percent was reported harvested on private lands.

Harvest by Geographic Source—Table 8 shows the 1992 timber harvest by county. Uintah County led the State with 16.6 MMBF, or about 26 percent of the total harvest. Summit County produced 10.0 MMBF; Garfield, 7.0 MMBF; San Juan, 4.5 MMBF; and Kane, 4.1 MMBF. These five counties together supplied 65 percent of Utah's 1992 timber harvest. The same five counties have been major timber producers for many years, providing 64 percent of the State's 1974 sawlog harvest, 74 percent of its 1969 sawlog harvest, and 78 percent of the 1966 sawlog harvest (Setzer 1971; Setzer and Throssell 1977; Setzer and Wilson 1970).

Table 8—Timber products harvest by county, Utah, 1992 (FIDACS 1992).

Counties	Harvest	
	Board feet, Scribner	*Percent*
Northern Utah		
Uintah	16,624,000	26
Summit	10,000,000	15
Wasatch	2,908,000	4
Daggett	2,850,000	4
Duchesne	1,767,000	3
Cache	175,000	[1]a
Morgan	25,000	[1]a
Weber	20,000	[1]a
Total Northern Utah	34,369,000	53
Southern Utah		
Garfield	7,047,000	11
San Juan	4,503,000	7
Kane	4,117,000	6
Sanpete	3,750,000	6
Sevier	3,663,000	6
Beaver	2,952,000	5
Wayne	2,110,000	3
Iron	1,435,000	2
Piute	620,000	1
Carbon	100,000	[1]a
Total Southern Utah	30,297,000	47
Total Utah	64,666,000	100

[1]a = less than 0.5 percent. Percentage detail may not add due to rounding.

Table 9—Timber harvest by species, Utah, 1992 (FIDACS 1992).

Species	Harvest	
	Board feet, Scribner	*Percent*
Lodgepole pine	29,556,000	46
Spruce	22,806,000	35
Ponderosa pine	3,528,000	5
Aspen	3,202,000	5
True firs	3,087,000	5
Douglas-fir	2,485,000	4
Pinyon pine	2,000	[1]a
All species	64,666,000	100

[1]a = less than 0.5 percent.

Other major timber producers in 1992 were Sanpete, Sevier, Beaver, Wasatch, Daggett, Wayne, and Duchesne Counties. Together they provided about 31 percent of Utah's harvest. Earlier studies show these seven counties combined provided over 15 percent of Utah's sawlog harvest in 1966, 1969, and 1974.

Harvest by Species—Lodgepole pine (*Pinus contorta*) was Utah's most harvested species in 1992, accounting for 29.6 MMBF, or 46 percent of the total, followed by spruce (*Picea* spp.) with 35 percent, or 22.8 MMBF (table 9 and fig. 4). The remaining harvest by species was ponderosa pine (*Pinus ponderosa*) with 5 percent; aspen (*Populus tremuloides*) with 5 percent; true firs (*Abies* spp.) with 5 percent; and Douglas-fir (*Pseudotsuga menziesii*) at 4 percent. Pinyon (*Pinus edulis*) accounted for less than 0.5 percent of the harvest.

As shown in table 10 and figure 5, ponderosa pine accounted for a much higher proportion—as much as 50 percent—of Utah's timber harvest in earlier years. Conversely, only spruce and lodgepole pine have increased in their percentage of total harvest from those earlier studies. The proportion of other species harvested has changed little from earlier studies.

Product Type by Species—Softwood or coniferous tree species were the predominant species used to produce lumber in 1992. Spruce made up

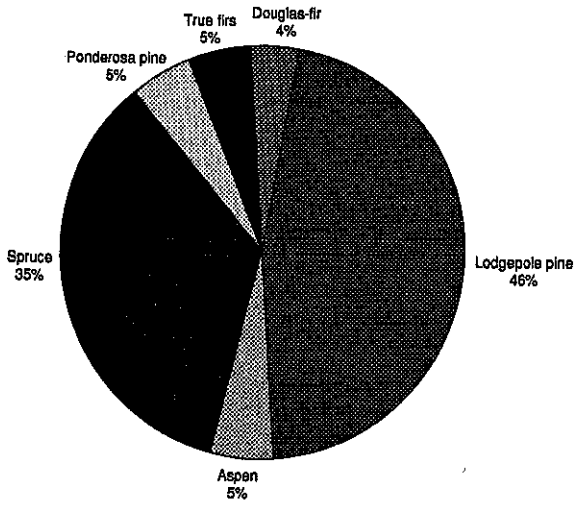

Figure 4—Timber harvest by species, Utah, 1992.

Table 10—Timber harvest by species, Utah, 1966, 1969, 1974, and 1992 (FIDACS 1992; Green and Setzer 1974; Setzer 1971; Setzer and Throssell 1977; Setzer and Wilson 1970).

Species	Harvest			
	1966	1969	1974	1992
	Percent			
Lodgepole pine	18	18	27	46
Spruce	19	13	22	35
Ponderosa pine	50	43	33	5
Aspen	[1]b	[1]b	4	5
True firs	4	7	3	5
Douglas-fir	3	11	8	4
Other species	6	8	3	[2]a
All species	100	100	100	100

[1]b = included with other species. Other species include pinyon pine, limber pine, juniper, aspen, and cottonwood (aspen is separate in 1974 and 1992).
[2]a = less than 0.5 percent.

22.4 MMBF, or 43 percent, of the sawlog harvest (table 11). Lodgepole pine was close behind, accounting for 21.1 MMBF, or 40 percent. The remaining sawlog harvest was 7 percent ponderosa pine, 6 percent true firs, 4 percent Douglas-fir, and small volumes of pinyon pine and aspen. By comparison, the 1966 sawlog harvest was mainly ponderosa pine (57 percent), with spruce making up 19 percent and lodgepole pine making up 12 percent (Setzer and Wilson 1970).

Four species were harvested in 1992 to manufacture house logs. Lodgepole pine made up 92 percent of Utah's harvest that year; spruce accounted for about 4 percent; Douglas-fir accounted for about 3 percent; and ponderosa pine accounted for 1 percent.

Aspen comprised about 76 percent of the 4 MMBF harvested for all other timber products in 1992, while lodgepole pine accounted for 23 percent, and spruce 1 percent.

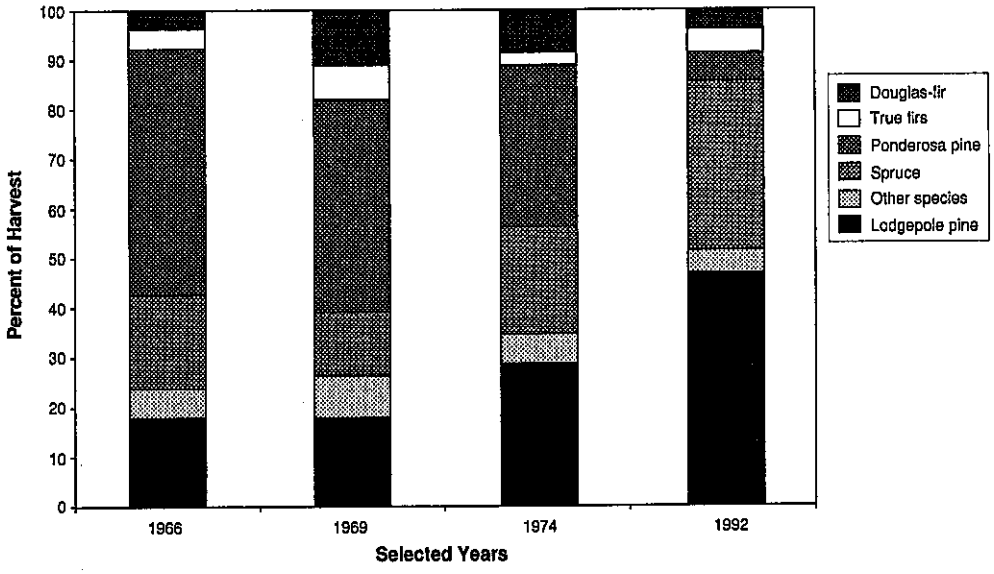

Figure 5—Timber harvest by species, Utah, 1966, 1969, 1974, and 1992. (Percent of harvest.)

Table 11—Timber harvest by species and product type, Utah, 1992 (FIDACS 1992).

Species	Products			All products
	Sawlogs	House logs	Other	
	Board feet, Scribner			
Lodgepole pine	21,107,000	7,542,000	907,000	29,556,000
Spruce	22,427,000	319,000	60,000	22,806,000
Ponderosa pine	3,419,000	109,000	—	3,528,000
Aspen	202,000	—	3,000,000	3,202,000
True firs	3,087,000	—	—	3,087,000
Douglas-fir	2,266,000	219,000	—	2,485,000
Pinyon pine	2,000	—	—	2,000
All species	52,510,000	8,189,000	3,967,000	64,666,000
	Percentage of total harvest			
Lodgepole pine	40	92	23	46
Spruce	43	4	1	35
Ponderosa pine	7	1	—	5
Aspen	[1]a	—	76	5
True firs	6	—	—	5
Douglas-fir	4	3	—	4
Pinyon pine	[1]a	—	—	[1]a
All species	100	100	100	100

[1]a = less than 0.5 percent.

Timber Flow

Although Utah's intrastate timber flow was examined, county-level data are not discussed because that would reveal proprietary information about the State's relatively few mills. Instead, timber flows are discussed in more general terms and for large geographic areas, namely northern and southern Utah (fig. 1).

Just over half of Utah's timber was processed in the county of harvest in 1992; another 24 percent was processed in adjacent Utah counties. Only 23 percent of the 1992 harvest was transported more than one Utah county away or to another State for processing.

Northern Utah—Northern Utah's 1992 timber harvest amounted to 34.4 MMBF. About 71 percent (24.5 MMBF) was processed in the county of harvest, and 11 percent was processed in adjacent counties. There was no report of timber flow from northern Utah to southern Utah.

Southern Utah—Southern Utah's 1992 timber harvest was 30.3 MMBF, of which 9.5 MMBF (31 percent) was processed in the county of harvest. Another 39 percent was hauled to adjacent counties for processing; 29 percent was hauled more than one county away or to other States. Two MMBF of timber flowed from southern Utah to northern Utah for processing.

Utah's forest products industry is not restricted by county or State boundaries. Table 12 depicts the interstate movement of Utah timber.

Utah manufacturers received 59 MMBF of timber for processing in 1992. Because the year's harvest was just under 65 MMBF, Utah was a net exporter to other States of about 6 MMBF.

Mills in Colorado, Idaho, and Wyoming received 8.5 MMBF of timber from Utah in 1992, while Utah mills imported 2.6 MMBF of timber from

Table 12—Timber product exports and imports to other States, Utah, 1992 (FIDACS 1992).

Timber products	Imports	Exports	Net imports (net exports)
	Board feet, Scribner		
Sawlogs	1,950,000	4,363,000	(2,413,000)
House logs	595,000	1,178,000	(583,000)
Other products	83,000	3,000,000	(2,917,000)
All products	2,628,000	8,541,000	(5,913,000)

Arizona, Colorado, Idaho, Montana, and Wyoming (table 12). In 1966, Utah was a net exporter of about a million board feet of timber. About 1.3 MMBF of Utah's timber went to Wyoming for processing, and Utah's mills received about 10,000 board feet from Nevada (Setzer and Wilson 1970).

Sawlogs was the major timber product flowing in and out of Utah in 1992. In that year, Utah mills imported 2 MMBF of sawlogs, while 4.4 MMBF were exported. House log imports amounted to 595,000 board feet, and exports were 1.2 MMBF. Other miscellaneous timber products also moved across Utah State lines in 1992; 83,000 board feet of such products were imported, 3 MMBF exported.

Timber Use

Figures of Utah's total timber harvested and its timber processed are different because about 8.5 MMBF of timber (13 percent of Utah's 1992 harvest) was processed by mills outside the State. Conversely, about 2.6 MMBF (4 percent of Utah mill receipts) came from other States (table 12).

Use by Ownership Source—As shown in table 13, public and tribal timberlands contributed 81 percent (47.6 MMBF) of the timber received by Utah mills in 1992. National Forest lands supplied about 79 percent; other public and tribal lands contributed only 2 percent. Private timberlands supplied 18 percent of the timber received by Utah's industry, and 1 percent came from unknown ownership.

To a degree, different industry sectors rely on different land owners for their timber. For instance, Utah sawmills received 50.1 MMBF of sawlogs in 1992 (table 14). Seventy-nine percent of that volume came from public and tribal lands, 78 percent from National Forests alone. The remaining 21 percent of sawlogs came from private land.

Table 13—Source of timber products received by mills, Utah, 1992 (FIDACS 1992).

Ownership source	Receipts	
	Board feet, Scribner	*Percent*
Public and tribal timberlands	47,577,000	81
National Forest	46,595,000	79
Other public and tribal	982,000	2
Private timberland	10,691,000	18
Unknown ownership	485,000	1
All sources	58,753,000	100

Table 14—Ownership source of timber products delivered to forest products industry sectors, Utah, 1992 (FIDACS 1992).

Ownership source	Products			All products
	Sawlogs	House logs	Other	
	Board feet, Scribner			
Public and tribal timberland	39,715,000	6,823,000	1,039,000	47,577,000
National Forest	39,016,000	6,580,000	999,000	46,595,000
Other public and tribal	699,000	243,000	40,000	982,000
Private timberland	10,382,000	298,000	11,000	10,691,000
Unknown source	—	485,000	—	485,000
All sources	50,097,000	7,606,000	1,050,000	58,753,000
	Percentage of total harvest			
Public and tribal timberland	79	90	99	81
National Forest	78	87	95	79
Other public and tribal	1	3	4	2
Private timberland	21	4	1	18
Unknown source	—	6	—	1
All sources	100	100	100	100

House log and log home manufacturers received 90 percent of their 1992 timber from public and tribal timberlands, 87 percent from National Forests alone. Four percent of house logs came from private land, and 6 percent from unknown sources.

All other timber products were supplied almost totally by public and tribal timberlands. In 1992, 95 percent of this timber came from National Forests, 4 percent from other public and tribal lands, and 1 percent from private lands.

Use by Geographic Source—Northern Utah mills received 31.6 MMBF of timber in 1992. About 88 percent came from public and tribal lands, 10 percent from private lands, and 2 percent from unknown sources (table 15). National Forests alone supplied 86 percent of this region's timber.

Southern Utah mills relied on public and tribal lands for 72 percent of their 27.2 MMBF of 1992 timber (table 15). National Forests alone supplied

Table 15—Timber receipts by county group and ownership source, Utah, 1992 (FIDACS 1992).

County group	Timber received				Timber volume
	National Forest	Other public and tribal	Private	Unknown	
	Percent				*Board feet, Scribner*
Northern Utah					
Duchesne, Salt Lake, Summit, Wasatch, Weber	86	2	10	2	31,570,000
Southern Utah					
Beaver, Garfield, Iron, San Juan, Sanpete, Sevier, Wayne	71	1	28	—	27,183,000
All counties	79	2	18	1	58,753,000

71 percent of the timber; other public and tribal land supplied 1 percent. The remaining 28 percent came from private lands.

Utilization of the Log

The Scribner log scaling system was designed to measure large sawlog-size material. It accounts only for the volume of lumber recovered; it is not a good measure for describing the total volume or various uses of a log's wood fiber. To fully illustrate volume and use of wood fiber, timber products were converted to cubic feet, using the following conversion factors, derived by the Bureau of Business and Economic Research: for sawlogs and house logs, 5.6 board feet Scribner equals 1.0 cubic foot of wood fiber; for timber used to manufacture excelsior, 5.0 board feet Scribner equals 1.0 cubic foot, and for posts and poles and roundwood furniture pieces, 1.0 board foot equals 1 cubic foot.

Utah's 1992 timber harvest was approximately 12,807 thousand cubic feet (MCF), exclusive of bark (fig. 6). Of this volume, 9,377 MCF went to sawmills, 1,462 MCF went to house log manufacturers, and 1,967 MCF went to other primary product manufacturers.

Of the 9,377 MCF received by sawmills for manufacturing, only 4,180 MCF (45 percent) actually became finished lumber or other sawn products. The remaining 5,197 MCF (55 percent) became mill residue. About 4,392 MCF of sawmill residue was used in some fashion; only 805 MCF remained unused in 1992.

House log manufacturers received 1,462 MCF of wood fiber for processing. The percentage of timber volume that becomes a finished product in the log home sector varies, but firms indicated that an average of roughly 75 percent of timber volume becomes a finished product. Using this estimate, about 1,097 MCF became finished product and 365 MCF, or 25 percent, was residue. All but 4 percent of the residue was used in some fashion. Other primary manufacturers received about 1,967 MCF of timber products, processing about 1,772 MCF, or 90 percent, of the wood fiber into finished product. The remaining 10 percent, or 195 MCF, was residue.

Mill Residue Quantity, Type, and Use

As indicated, a substantial portion of the wood fiber processed by primary forest products plants ends up as mill residue. Mill residue from primary wood products manufacturers can present difficult and expensive disposal problems or can be used to produce additional products and generate revenue. This section details the volume and use of mill residues generated by Utah's primary forest products industry in 1992.

Sawmills

Sawmills are the main residue producers in Utah; basically, three types of wood fiber residue are generated by sawmills: (1) coarse or chippable residue consisting of slabs, edging, trim, and log ends from lumber manufacturing; (2) fine residue consisting of planer shavings and sawdust; and (3) bark.

The 1992 census gathered information on volumes and uses of mill residue. Actual residue volumes were obtained from a few large sawmills who sold all or most of their residues. For the other manufacturers, residue volume

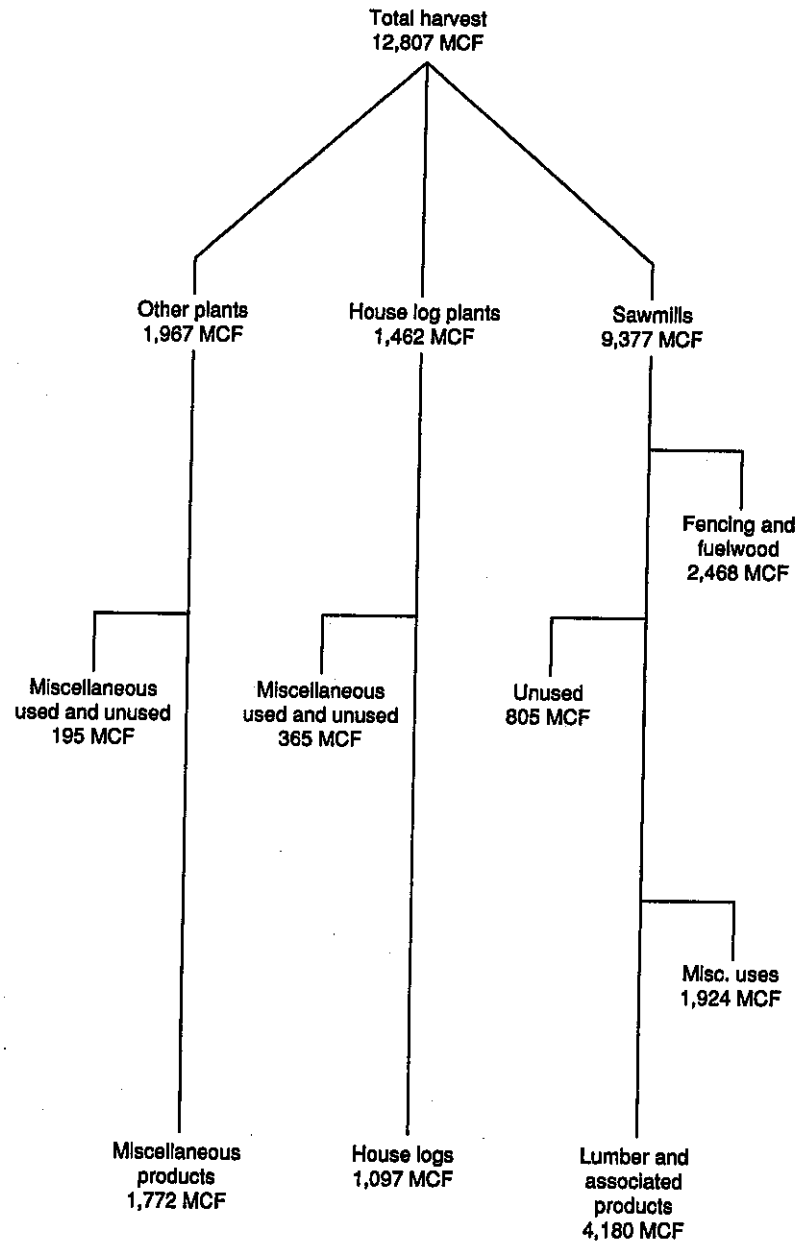

Figure 6—Utilization of timber harvest, Utah, 1992.

factors, which express mill residue generated per unit of lumber produced, were used to estimate total residue volumes. These residue factors were derived in part from numbers reported by large firms and from product recovery and log descriptions obtained from the mills. All mills reported, on a percentage basis, how their residues were used. The sawmill residue factors are shown in table 16, and represent Statewide averages.

Primary forest products firms in Utah generated 6,991.4 MCF of mill residue and utilized 82 percent (table 17). Utah sawmills are not close to pulp mills or particleboard plants that typically utilize mill residue as raw material for manufacturing. Therefore, most of Utah's sawmill residues are used locally and not manufactured into other products.

Table 16—Sawmill residue factors, Utah, 1992 (FIDACS 1992).

Type of residue	Cubic feet per thousand board feet lumber tally
Coarse	53.8
Sawdust	18.2
Planer shavings	5.8
Bark	26.9
Total	104.7

Table 17—Estimated volume of wood residue generated by sawmills and utilization of residue, Utah, 1992 (FIDACS 1992).

Residue type	Utilized	Unutilized	Total	Utilized	Unutilized	Total
	Thousand cubic feet			*Percent*		
Coarse	2,813.8	787.6	3,601.4	78	22	100
Fine[1]	1,579.4	17.2	1,596.6	99	1	100
Bark	1,316.2	477.2	1,793.4	73	27	100
Total	5,709.4	1,282.0	6,991.4	82	18	100

[1]Fine residues include sawdust and planer shavings.

Coarse residue was the State's largest residue component in 1992. Utah mills produced 3,601.4 MCF of coarse residue, 78 percent of which was utilized for some purpose. Slabs (the exterior portions of logs removed by the saw, having one flat side and one curved surface) are a major component of the coarse material produced by sawmills. About 2,467.8 MCF of slabs were used as firewood or fencing material, mostly for animal shelters and wind breaks (table 18). Another 346.0 MCF of coarse residue were used for other purposes, mostly hogfuel; 787.6 MCF were unused.

Fine residues such as sawdust and planer shavings made up the second largest component of sawmill residues, 1,596.6 MCF in 1992. All but 1 percent of these residues were utilized in some fashion, primarily animal bedding or hogfuel.

The use of bark from sawmills in Utah is closely tied to the use of slabs. Most Utah sawmills do not remove bark from logs before running them through the sawmill, so it remains on the slabs. Thus, much bark residue was used as firewood and fencing along with the slabs. Some bark was

Table 18—Production and disposition of sawmill residues, Utah, 1992 (FIDACS 1992).

Residue type	Total utilized	Fencing/ firewood	Animal bedding	Other uses	Unutilized	Total
			Thousand cubic feet			
Coarse	2,813.8	2,467.8	—	346.0	787.6	3,601.4
Fine						
Planer shavings	404.5	—	404.5	—	.8	405.3
Sawdust	1,174.9	—	584.1	590.8	16.4	1,191.3
Bark	1,316.2	634.8	—	681.4	477.2	1,793.4
Total	5,709.4	3,102.6	988.6	1,618.2	1,282.0	6,991.4

also used as hogfuel, garden mulch, and livestock bedding. Seventy-three percent of the 1,316.2 MCF of bark generated by Utah sawmills was used in 1992 (table 17).

Other Manufacturers

House log, post and pole, and furniture part manufacturing generates several types of residue, including bark, shavings and peelings, log ends, and slabs. Most of this residue was used as livestock bedding, garden mulch, or firewood in 1992. About 729.6 MCF of these residues were produced; only 28.8 MCF remained unused.

Plant Capacity

This section focuses on production capacity and capacity utilization in Utah's sawtimber processing plants—sawmill and house log plants. Sawtimber is logs of "sufficient size and quality to be suitable for conversion into lumber" (Random Lengths 1993). Respondent mills were asked to specify their annual product output capacity (production capacity), assuming sufficient supplies of raw materials, and a firm market demand for their products.

Sawmills reported their capacity in thousand board feet, lumber tally; house log manufacturers reported capacity in lineal feet of house logs. Product recovery ratios were calculated for each firm using timber input and product output. An input capacity was calculated for each firm using product recovery ratios and product output capacity. This estimate is expressed in units of raw material input (board feet, Scribner) and called "capacity to process timber" or "processing capacity."

Overall Capacity and Capacity Use

Utah's total estimated capacity to process sawtimber in 1992 was 100 MMBF Scribner (table 19). Overall, only 58 percent of this capacity was used. For the sawmill sector alone, total capacity to process sawtimber was 82 MMBF; sawmills actually processed about 51 MMBF, utilizing 61 percent of their capacity. House log and log home manufacturers had the capacity to process about 18 MMBF of sawtimber and used 42 percent of their capacity.

Capacity and Capacity Use by Geographic Area

Northern Utah sawtimber processing mills accounted for 64 percent of the State's total processing capacity; southern Utah mills accounted for

Table 19—Estimated sawtimber processing capacity and capacity utilized by facility type, Utah, 1992 (FIDACS 1992).

Plant type	Capacity to process sawtimber	Actual volume processed	Capacity unutilized	Capacity utilized
	Board feet, Scribner			*Percent*
Sawmills	82,302,000	50,562,000	31,740,000	61
House log plants	17,897,000	7,606,000	10,291,000	42
Total	100,199,000	58,168,000	42,031,000	58

Table 20—Estimated sawtimber processing capacity and capacity utilized by geographic area, Utah, 1992 (FIDACS 1992).

Region	Volumes			
	Capacity to process sawtimber	Actual volume processed	Capacity unutilized	Capacity utilized
	Board feet, Scribner			*Percent*
Northern Utah				
Duchesne, Salt Lake, Summit, Uintah, Wasatch, and Weber Counties	63,635,000	30,520,000	33,115,000	48
Southern Utah				
Beaver, Iron, Garfield, San Juan, Sanpete, Sevier, and Wayne Counties	36,564,000	27,648,000	8,916,000	76
All counties	100,199,000	58,168,000	42,031,000	58

36 percent (table 20). Forty-eight percent of northern Utah's and 76 percent of southern Utah's sawtimber processing capacity was used.

Product Markets

Respondent mills summarized their 1992 shipments of finished wood products, providing information on volume, sales value, and geographic destination. Figure 7 illustrates shipment destinations.

Mills usually distributed their products in two ways: (1) through their own distribution channels; or (2) through independent wholesalers and selling agents. Because of subsequent wholesaling transactions, the geographic destination reported here may not precisely reflect final delivery points of shipments. Figure 7 shows the regions where Utah's manufactured forest products and mill residues were distributed in 1992.

Utah's primary forest products industry generated sales of $27.4 million in 1992. The major market area for these products was in Utah. Forty-eight percent ($13 million) of all primary forest product sales were within Utah (table 21). Another 30 percent ($8.2 million) were sold in other Rocky Mountain States. Thus 78 percent of Utah's forest products were sold within the Rocky Mountain Region. The Far West States accounted for $2.5 million of sales (9 percent); the North-Central States accounted for $2.2 million (8 percent); and the South accounted for $1.4 million (5 percent). Utah mills reported no 1992 sales to Northeast States and no sales to foreign markets.

Sales of lumber, mine timbers, and associated products (including residue from the manufacture of these products) totaled about $20 million in 1992. Utah buyers purchased 54 percent or $10.7 million of Utah's output of these products (table 21). The Rocky Mountain States accounted for $4.3 million in sales, or 21 percent of output. The remaining sales went to North-Central States (11 percent); Far West States (10 percent); and the South (4 percent).

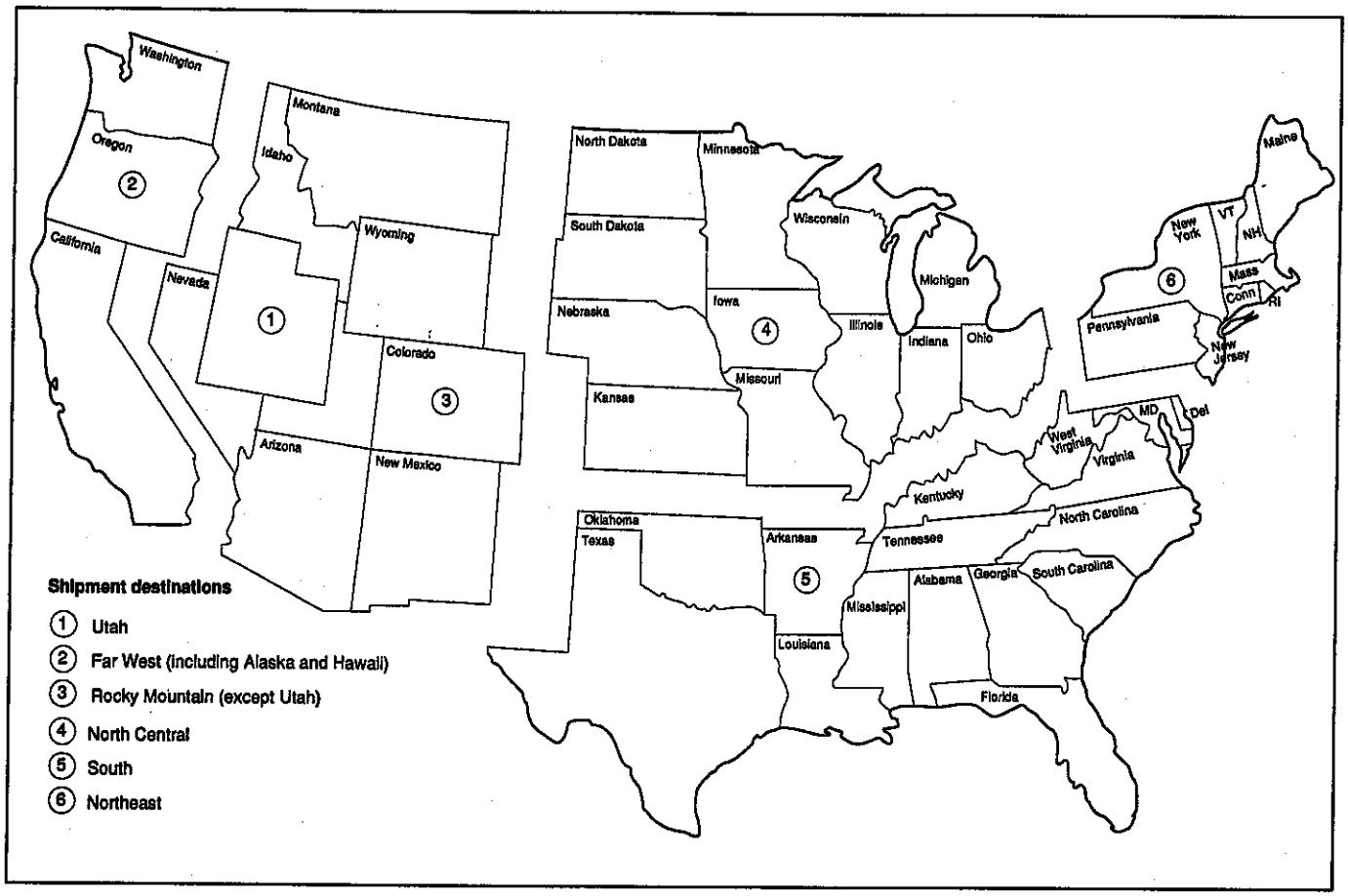

Figure 7—Market areas for primary forest products, Utah .

Table 21—Destination and value of primary wood products sales, Utah, 1992 (FIDACS 1992)[1].

Product	Destination					All destinations
	Utah	Rocky Mountain	Far West	North Central	South	
	1992 dollars					
Lumber, mine timbers, and associated products	$10,738,270	$4,268,000	$1,904,000	$2,198,000	$869,000	$19,977,270
House logs	1,954,150	3,811,000	522,000	9,000	420,000	6,716,150
Roundwood products	352,000	145,000	94,000	—	125,000	716,000
Total	$13,044,420	$8,224,000	$2,520,000	$2,207,000	$1,414,000	$27,409,420
	Percentage of sales by region					
Lumber, mine timbers, and associated products	54	21	10	11	4	100
House logs	29	57	8	[2]a	6	100
Roundwood products	49	20	13	—	17	100
Total	48	30	9	8	5	100

[1]No primary products were reported sold to Northeast States or to foreign markets in 1992.
[2]a = less than 0.5 percent.

The major market for Utah's $6.7 million in sales of house logs and log homes, in 1992, was the Rocky Mountain Region, accounting for 86 percent of total sales. Twenty-nine percent were sold in Utah and 57 percent in other Rocky Mountain States. The remainder were sold in Far West States (8 percent) and the South (6 percent).

About half of Utah's $716,000 of small roundwood products sales were in Utah (49 percent). Other major markets were Rocky Mountain States (20 percent), South (17 percent), and Far West (13 percent).

Forest Industry Employment and Wages

Individual firms were asked to report the number of production workers, administrative and clerical workers, and the number of months the firm operated in calendar year 1992. From this, the number of full-time equivalent mill workers was calculated. Several firms reported average hourly wage rates for their workers, thus providing a basis for estimating wages per full-time equivalent worker. The basis for estimating harvest employment came from information provided by mills employing their own logging crews, and yielded an estimated 3.0 workers per million board feet of timber harvested.

Employment

An estimated 517 full-time equivalent forest industry workers were employed in harvesting and processing timber in Utah in 1992. About 194 workers harvested Utah's timber, and 323 workers manufactured primary products from that timber. Adding workers employed in processing Utah timber outside the State brings the estimated 1992 industry total to 566 full-time equivalent forest industry workers. The actual count would be even higher if transport workers (hauling raw logs and finished products) and public sector timber management workers were included.

Wages and Value of Products

Counting only Utah's in-State industry workers, 517, the 1992 timber harvest provided about $9.3 million in wages. Counting the non-Utah workers as well, 566, Utah's timber harvest provided an estimated $10.2 million in 1992 wages, or about $158,000 per million board feet of timber harvested (table 22).

In-State and out-of-State processers of Utah's 1992 timber harvest had a combined estimated product sales total of $31 million f.o.b. the mill in 1992. This is an average sales value of $479,000 per million board feet of timber harvested.

Employment and Wages Supported by Timber Ownerships

Timber harvest from Utah's National Forests alone provided employment for about 411 full-time forest industry workers in harvesting and milling (table 22). Wages earned by these workers totaled about $7.4 million, while sales of products manufactured from National Forest timber, f.o.b. the timber processing mill, were about $23 million in 1992. Private timber harvest provided employment for 112 full-time forest industry workers earning over $2 million. Product sales were about $5 million. Timber harvest from

Table 22—Economic impacts of timber harvest by land ownership, Utah, 1992 (FIDACS 1992).

Ownership source	Private sector employment	Payrolls	Product sales f.o.b. producing mill
National Forests	411	$7,398,000	$22,848,000
Ashley	149	2,684,000	9,919,000
Dixie	88	1,584,000	5,475,000
Fishlake	36	645,000	1,252,000
Manti-LaSal	28	511,000	1,033,000
Uinta	20	361,000	984,000
Wasatch	90	1,613,000	4,185,000
State and Bureau of Land Management lands	33	591,000	2,680,000
Tribal lands	10	179,000	457,000
Private lands	112	2,020,000	4,977,000
All ownerships	566	$10,189,000	$30,962,000

State and Bureau of Land Management lands provided for 33 full-time equivalent forest industry jobs, wages of about $591,000, and manufactured product sales of $2.7 million. Tribal timber harvest provided jobs for about 10 full-time equivalent workers earning about $179,000, and product sales of about $457,000.

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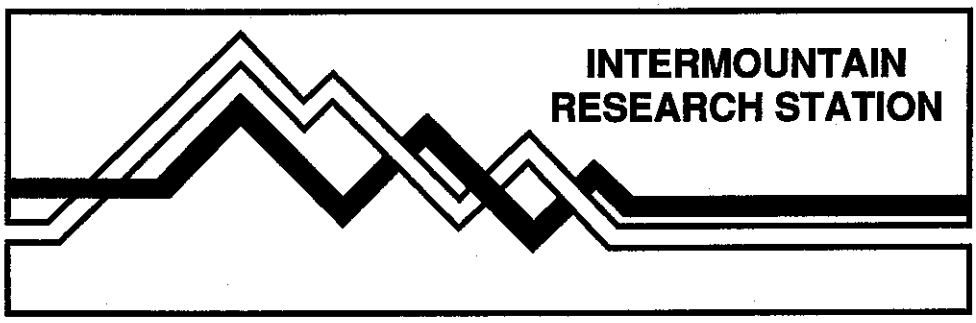
Using the Forest Industries Data Collection System (FIDACS), the Utah primary forest products industry was censused for the year 1992. Detailed data, at the State and county levels, are presented in this paper for employment, production, volume of raw material, species use, finished product, residue utilization, and inventory.

Keywords: sawmills, sawlogs, house logs, residue, wages, employment, FIDACS



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