

REVISED REPORT

Wood Post Treatment Standards Awareness Campaign

Characterization of the Western U.S. Post-and-Pole Industry

December 13, 2002

Prepared by

Edwin J. Burke
School of Forestry
University of Montana

and

Larry Swan
U.S. Forest Service
Klamath Falls, Oregon

Prepared for

Montana Community Development Corporation, Missoula, MT

In Collaboration With

University of Montana School of Forestry
Intermountain Roundwood Association
Western Wood Preservers Institute
USDA Forest Service, Pacific Northwest, Northern, Intermountain, and Rocky Mountain
Regions, and Forest Products Laboratory (Madison, WI)

*This project was funded by a grant from the USDA Forest Service in support of the National Fire Plan and Rural Community Assistance Program objectives.

Wood Post Treatment Standards Awareness Campaign

Characterization of the Western U.S. Post-and-Pole Industry¹

By

Edwin J. Burke, University of Montana and
Larry Swan, U.S. Forest Service, Klamath Falls, OR²

Purpose

The purpose of this study is to enhance understanding of how the post-and-pole industry is structured in the Western United States (U.S.). The ultimate goal is to use the information collected through telephone and personal interviews to help maintain and expand markets for roundwood products that utilize forest thinnings.

Background

An informal study conducted by U.S. Forest Service marketing and utilization staff indicated that the Western U.S. post-and-pole (post/pole) industry market share, production, and employment levels steadily decreased during the 1990s. Many of those interviewed suggest that a contributing factor is that roundwood (i.e. unsawn) posts are often not treated in accordance with American Wood- Preservers Association Standard C-5 (AWPA 2000), potentially affecting long-term performance and competitive status vs. treated wood post substitutes, such as steel and plastic. Factors that reduce treated roundwood markets affect U.S. Forest Service efforts to defray costs of managing dense lodgepole stands by reducing the economic viability of thinning sales, and damage economies of numerous small Western U.S. rural communities where most post-and-pole manufacturers are located (Swan and Von Segen 2000).

The present report is part of a larger market research and information campaign about proper treatment standards for wood posts funded by the U.S. Forest Service in support of the National Fire Plan and Rural Community Assistance program. Another major report segment is an assessment and characterization of competition from Western U.S. imports of Canadian roundwood (Swan 2002). The ad hoc Steering Committee for the larger project sought assistance from the authors to better understand the nature and structure of the post-and-pole industry in the Western U.S. There are no known historic or recently

¹ For the purpose of this report, *posts* are considered shaped, peeled, doweled, or turned logs of various diameters, 16-feet or shorter. *Poles* are similar to posts, but greater than 16-feet in length (AWPA 2000).

² Contact information for authors:

Ed Burke, University of Montana, School of Forestry, Missoula, MT 59812, 406/243-5157, FAX 406/243-4845, email eburke@forestry.umt.edu; and
Larry Swan, U.S. Forest Service, 2819 Dahlia St., Klamath Falls, OR 97601, 541/883-6708, FAX 541/883-6709, email lswan01@fs.fed.us.

published accounts about the size and structure of the Western U.S. post-and-pole industry.

Methodology

Fifty telephone interviews in 12 Western U.S. states were conducted between November 2001 and March 2002 with representatives from the three basic groups that comprise the manufacturing sector of the Western U.S. post-and-pole industry (see **Appendix I** for companies contacted):

- 1) Manufacturers – This group is composed of companies that manufacture untreated peeled or doweled posts and poles from raw logs. Members are referenced in this report as “manufacturers”;
- 2) Manufacturers/Treaters – This group is composed of companies that manufacture untreated peeled or doweled posts and poles from raw logs, and apply wood preservative treatment (i.e. “treat”). Manufacturers in this group often purchase semi-processed roundwood from other manufacturers to treat, and also service treat for wholesalers and other manufacturers. Members of this group are referenced in this report as “manufacturers/treaters”; and
- 3) Treaters – This last group is composed of companies that primarily service treat for others. In some cases, these companies purchase untreated roundwood and sell treated products to wholesalers or retailers. Typically, post-and-pole products are a small portion of a commercial treater’s total production, most of which is lumber and other sawn wood products. Most manufacturers/treaters and treaters utilize pressure-treating equipment. The most common wood preservative used is chromated copper arsenate (CCA). A few also dip or pressure treat with pentachlorophenol or copper naphthenate.

Interviews also included a few “wholesalers”, who play a critical role in the Western U.S. post-and-pole industry. They purchase untreated material direct from manufacturers (U.S. and Canadian), arrange for transportation to and from treating facilities closer to end customers, prescribe treating standards, and find customers. “Brokers” play a minor role compared to the lumber industry.

Telephone interview questions were both qualitative and quantitative in nature. Examples of qualitative questions included company location, species used, availability and outlook for raw material, product lines, end users, general location of end users, ability to compete, and machinery. Examples of quantitative questions included employment, current production broken-out by diameter class (2.0-2.9-in.; 3.0-4.9-in.; 5.0-6.9-in.; and \geq 7-in.), estimated wholesale dollar value of products and services, and maximum-installed manufacturing capacity.

Questions were designed with the assistance of an ad hoc Steering Committee for the larger treated post market research project and Intermountain Roundwood Association

members. The questionnaire typically took 60 –90 minutes to administer (see **Appendix II** for a copy of the questionnaire). Responses and notes were then entered into a spreadsheet format for analysis and graphic representation. Charts were prepared to assist in analysis and depict quantitative aspects of the survey (see **Appendix III**).

Quantitative raw data used for this report are included in tabular form in **Appendix IV**. Tables are keyed to the charts in Appendix III. An electronic version of the tables and charts presented in Appendices III and IV (Microsoft Excel) is available from the authors. The formulas used to calculate the data presented are visible in the electronic version of the tables in Appendix IV.

Every attempt was made to include as many companies in the survey as possible, with the understanding that not all would be contacted or choose to participate. Company names and contact information were obtained from the Intermountain Roundwood Association’s (IRA), Western Wood Preservers Institute (WWPI), wholesalers, and from other companies participating in the survey. It is conservatively estimated that approximately 80% of current post-and-pole production of each state is represented by the interviews conducted. Quantitative results were adjusted upwards 20% on a state-by-state basis to reflect the assumed data gap.

Lack of up-to-date information regarding the post-and-pole industry became clear after initiating the telephone interview process. Several companies had gone out of business since industry association lists had been compiled and several new companies were identified.

Table 1 summarizes number, general category, and location of the companies interviewed.

Table 1. Location and Number of Companies Interviewed by Post-and-Pole Manufacturing Category

State	Manufacturers	Manufacturer/Treater	Treater
Arizona	2	0	1
California	1	0	3
Colorado	2	1	4
Idaho	2	1	1
Montana	5	4	0
Nevada	0	0	1
New Mexico	0	0	1
Oregon	3	0	2
South Dakota	0	3	0
Utah	0	0	1
Washington	1	2	0
Wyoming	2	2	0
TOTAL	18	13	14

Results and Interpretation

Estimated Untreated Production by Manufacturers and Manufacturers/Treaters

Total Western U.S. production of untreated post-and-pole products was approximately 60.0 million linear feet in 2001. Montana reported the highest total estimated production with about 21.0 million linear feet. Oregon was second with about 15.0 million linear feet and Wyoming third with about 8.7 million. Together these three states accounted for approximately two-thirds of total estimated Western U.S. post-and-pole untreated production.

Utah, Arizona, California, Nevada, and New Mexico have either a relatively small or non-existent post-and-pole untreated manufacturing base, ranging from an estimated 1.2 million linear feet for Utah to essentially zero for Nevada and New Mexico. Southwestern U.S. producers utilize almost exclusively ponderosa pine since they are outside the range of lodgepole pine (*Pinus contorta*), the normally preferred post-and-pole raw material.³ Remaining Western U.S. states (Colorado, Washington, Idaho, South Dakota, and Idaho) ranged between an estimated 4.5 (Colorado) to 2.3 million linear feet (South Dakota) (see **Table 2**).

Table 2. Untreated Post-and-Pole Manufacturer Production By State

State	Estimated Untreated Production (Million Linear Feet)
Montana	21.2
Oregon	15.0
Wyoming	8.7
Colorado	4.5
Washington	3.6
South Dakota	2.3
Idaho	2.6
Utah	1.2
Arizona	0.8
California	< 0.1
Nevada	0
New Mexico	0
TOTAL	59.8

³ Lodgepole pine is the preferred raw material for post and pole products because it has thin bark, high proportion of sapwood that accepts wood preservative treatment readily, grows in densely-stocked, nearly pure stands that can produce smaller-diameter, straight-stemmed trees with smaller branches and minimal taper, and has historically been ignored by the timber industry in favor of other species, such as ponderosa pine and various fir species.

Production is displayed graphically by state and diameter class in **Chart 1** (*Estimated Manufacturer and Manufacturer/Treater Post-and-Pole Untreated Production by State and Diameter Class*). Based on Chart 1, it is clear that two diameter classes, 3.0-4.9-in. and 5.0-6.9-in., account for the majority of production (82% of the total). The largest size class, ≥ 7 -in., represents a very small percentage of state and Western U.S. production. It is assumed this is because larger logs are more valuable as small sawlogs than as post-and-pole material.

According to those interviewed, the 2.0-2.9-in. diameter class occupied a significantly larger portion of the roundwood market in the early- to mid-1990s than currently (estimated in 2001 to be about 13% of total estimated Western U.S. production). Smaller diameter post-and-pole products include treated and untreated tree props and stakes, trellis supports, and “ranchette” post-and-pole fencing. Demand for tree props and stakes has dropped drastically due to foreign competition (fewer acres of orchards). Demand for trellis supports has dropped due to competition from alternate materials, such as plastic and steel, and possibly a leveling-off of market growth. Presently, Montana, Oregon, and Wyoming are the only states that report sizeable quantities of smaller-diameter products (e.g. 2.0-2.9-in.), primarily for tree props, stakes, railings, and roundwood furniture stock.

Roundwood furniture stock appears to be the one market segment that grew in the late 1990s. This product is commonly doveled rather than peeled, raw material specifications are more stringent, and air-drying is often needed to reduce shrinkage in-service. Nearly all of this product line is utilized in the untreated form. Some of those interviewed reported less growth in 2001 than previous years, but manufacturers of Douglas-fir roundwood furniture stock were more optimistic. No estimates were prepared specifically for roundwood furniture stock.

Relative Comparison of Production by Manufacturing Category and State

Estimated reported production by manufacturing category was totaled for each state. Data were duplicative for some manufacturing categories and can only be used for rough comparisons (e.g. domestic untreated post-and-pole production is shown as a separate category, but is also included in “treated” production).

California, Colorado, Idaho, South Dakota, Nevada, and New Mexico are primarily “treater only” states. This means that the majority of untreated posts are purchased from other states and Canada (see **Chart 2**, *Relative Comparison of Estimated Western U.S. Post-and-Pole Production by State and Manufacturing Category*). After treating, posts are then sold either in the general vicinity or shipped to higher volume use areas. As expected, there is a strong correlation between lack of lodgepole, the preferred post-and-pole raw material, and emphasis on “treating” rather than “manufacturing”. The one exception is Idaho, which has abundant lodgepole in the northern part of the state, but imports most of its raw material from Canada. One explanation is that the price of

Canadian roundwood is so competitive with domestic production that it makes economic sense to import rather than manufacture locally.

It is interesting to note that a significant proportion of total green production of Washington and Montana comes from plants that both manufacture and treat (64% and 26% respectively). The three other states with manufacturers/treaters, South Dakota, Wyoming, and Utah, report significantly smaller proportions (16%, 13% and 3% respectively).

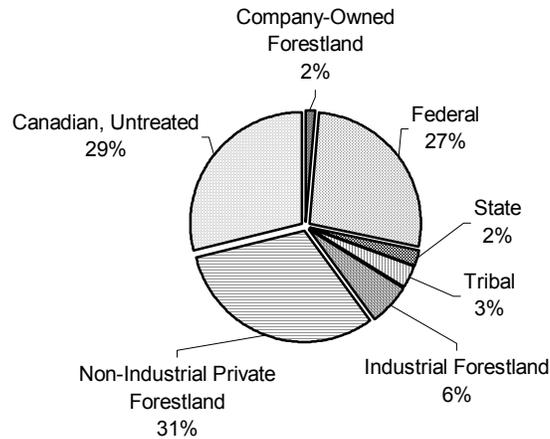
In addition to treating their own production, nearly all manufacturers/treaters report service treating lumber, poles, ties, and other products. The manufacturers/treaters interviewed appear to agree that the ability to provide treated and untreated posts of various sizes for local and regional markets allows them to customize product offerings, and helps them be more competitive with commodity roundwood imported from Canada and other states. This is contrasted with the dominant manufacturing and distribution paradigm in which small manufacturers produce “green” post-and-pole products that are purchased and shipped by a wholesaler to a treating plant closer to end markets.

Raw Material Sources for Untreated Post-and-Pole Material

There are three main sources of raw material for the Western U.S. post-and-pole industry, each accounting for close to 30% of consumption: Non-Industrial Private Forestland (31%); imports from Canada (29%); and Federal forestlands (27%). Imports from Canada reflect for the most part wholesaler activity (purchase untreated stock from Canadian firms and transport it to treating plants closer to end markets). Western U.S. manufacturers, manufacturers/treaters, and treaters also purchase an unknown portion of untreated imports from Canadian. Industrial, company-owned, tribal, and state forestlands together account for only about 13% of untreated raw material used by the Western U.S. post-and-pole industry. Generally, tribal timberlands are the sole raw material source for tribe-owned post-and-pole operations.

Pie Chart 1 is provided below to graphically display a relative comparison of post-and-pole raw material sources for the Western U.S. post-and-pole industry.

Pie Chart 1: Western U.S. Post-and-Pole Industry Sources of Untreated Raw Material



There are significant differences between states in regards to origin of raw material for post-and-pole manufacturing and treating operations (see **Chart 3**, *Relative Comparison of Untreated Raw Material Sources by State, Western U.S. Post-and-Pole Industry*). Federal forestlands supply over 90% of the manufacturing and treating stock in Utah, and over half in Arizona. Oregon, South Dakota, and Montana also report significant supply from Federal lands (44%, 45%, and 32% respectively). This is substantially different from 10 years ago when manufacturers and manufacturers/treaters reported obtaining over 90% of their raw material from Federal forestlands, mainly National Forests (Swan and Von Segen, 2000).

Non-industrial private forestlands contribute significantly to untreated raw material supply for manufacturers and manufacturers/treaters in Montana (51%), Colorado (46%), and Oregon (24%). Another major supply category for some states is Tribal forestlands, which provide significant amounts of raw material for Washington (87%) and Arizona (33%) (primarily for tribal enterprises). Industrial forestlands supply only minor amounts of raw material for two states, Montana (14%) and Oregon (12%), somewhat similar to the portion of company-owned timber in South Dakota (10%) and Wyoming (9%). State-owned timber is most significant in Colorado, and even that is minor (10%).

Western U.S. imports of untreated roundwood from Canada comprise the majority of raw material for the post-and-pole industry in Nevada (100%), California (98%), and Idaho (85%). Canadian imports are also a significant source of raw material in Colorado (46%) and South Dakota (31%). There are virtually no post-and-pole manufacturers in either Nevada or California. This means that post-and-pole raw material flow for these two states is managed by wholesalers and treaters.

Utilization of species other than lodgepole pine by the post-and-pole industry, such as Douglas-fir, increased during the past ten years, but relative quantities are minor. Best estimates indicate that this species accounts for about 2% of the total. Ponderosa pine is

more heavily utilized in the Black Hills of South Dakota, New Mexico and Arizona. This species accounts for an estimated 6% of the manufacturing total. The recently announced, re-registration of CCA wood preservatives by chemical companies may help Douglas-fir treated with ACZA (Ammoniacal Copper Zinc Arsenic) become more competitive by reducing the number of suppliers of CCA-industrial products.

Lack of raw material supply for domestic post-and-pole manufacturers is not a Western U.S. industry-wide issue. While several manufacturers reported difficulty obtaining sufficient raw material to maintain operations at current levels, others reported no problems. The latter usually rely on Federal timber for only a small portion of their raw material, and are able to obtain appropriate raw material from nearby private non-industrial or industrial lands during the course of other harvest operations.

Even if there was unlimited supply of raw material, most Western U.S. manufacturers, manufacturers/treaters, and treaters report that they would have difficulty selling their output if operating at maximum installed production levels. The primary reason is competition from treated and untreated Canadian imports. Service treaters offer a similar response. Another factor cited is loss of market share due to treated wood post substitutes, such as plastic and steel.

The majority of raw material for domestic manufacturers and manufacturers/treaters comes in tree-length form. This is a significant change from 10 years ago, when the industry relied primarily on “pole cutters”, who would bring in small truckloads of cut-to-length pieces. The main reason cited for the switch to tree-length size is that current harvest technology for small logs has become highly mechanized to improve economics (trees are cut and yarded to a log landing, delimbed, and transported tree-length). There is also a requirement on many Federal timber sales to yard “whole trees” to reduce slash left in thinning and other harvest units. Of the more than 35 manufacturing companies surveyed, only seven still had woods crews that supplied all or part of their raw material needs. Company crew-harvested material amounted to approximately 18% of the raw material used for manufacturing roundwood products.

Estimated Western U.S. Treated Post-and-Pole Production and Wholesale Value

Data obtained from telephone interviews were summarized on a state-by-state basis for estimated wholesale value of treated post-and-pole products. Data include production from manufacturers/treaters, treaters who buy untreated (U.S. and Canadian origin) and treat, and service treaters. Data do not include treated post-and-pole products imported from Canada.

Total Western U.S. production of treated post-and-pole products was about 88.8 million linear feet in 2001. Total wholesale value was estimated at about \$83.5 million. Interview results indicate about \$18.2 million of the total \$83.5 million represents Western U.S. imports of untreated Canadian post-and-pole products. California leads in production of treated post-and-pole products, followed by Idaho, Colorado, and South

Dakota. Together these four states represent 75% of total treated post-and-pole production in the Western U.S.

Table 3. Treated Post-and-Pole Production and Wholesale Value By State

State	Estimated Treated Production (Million Linear Feet)	Estimated Wholesale Value (Million U.S.)
California	22.9	\$21.6
Idaho	15.0	\$14.1
Colorado	15.0	\$14.1
South Dakota	13.8	\$13.0
Montana	7.4	\$7.0
Oregon	5.9	\$5.6
Washington	2.3	\$2.2
Nevada	2.0	\$1.9
Wyoming	1.6	\$1.5
New Mexico	1.4	\$1.3
Arizona	0.9	\$0.8
Utah	0.5	\$0.5
TOTAL	88.8	\$83.5

Based on interviews conducted, it appears that production and wholesale values generally reflect regions where there is greatest consumption. State-by-state comparisons are more difficult because where material is treated may or may not be the state where the treated products are consumed or installed. For example, although it is probably safe to assume that California is the largest consumer of treated post-and-pole products, Idaho is probably not the number two consumer and more likely is treating material destined largely for California markets. Colorado and South Dakota are probably similar to Idaho in that the post-and-pole products treated are destined for other markets, such as the Midwest or Southwest (see **Chart 4**, *Estimated Wholesale Value and Production of Western U.S. Treated Post-and-Pole Production by State*).

Estimated Western U.S. Untreated Post-and-Pole Wholesale Value and Employment

The wholesale value of Western U.S. untreated post-and-pole production was estimated at current production levels and for installed manufacturing capacity (see **Chart 5**, *Estimated Wholesale Value of Western U.S. Post/Pole Untreated Production at Current Levels vs. Installed Manufacturing Capacity*). Total capacity was estimated by including both idle machinery production and adding shifts, according to the surveyed company's response. Direct employment was estimated for the same benchmarks, but included treating (see **Chart 6**, *Estimated Western U.S. Post/Pole Direct Manufacturing Employment at Current Production Levels vs. Existing Capacity*). Employment

associated with raw material procurement, transportation (logs and finished products), and outside sales (e.g. wholesalers) was not estimated.

There is a large amount of under-utilized installed manufacturing capacity in the post-and-pole industry. Current estimated Western U.S. untreated post-and-pole wholesale production value is about \$39.8 million vs. \$77.1 million at or near estimated full installed capacity (estimated 45% utilization). Interview results indicate current direct jobs of about 560 vs. over a 1,000 projected if manufacturers operated at or near installed capacity (about a 45% potential increase). Approximately half the manufacturers and manufacturer/treaters interviewed report they are unable to obtain sufficient raw material to operate at installed capacity - the other half reports they could supply their operation running near or at full capacity. Most treaters state they could obtain the necessary raw material to run at installed capacity if sufficient market share was available.

According to the post-and-pole industry representatives interviewed for this report, the main issue preventing better utilization of installed capacity is competition with cheaper imports from Canada (treated Canadian post-and-pole imports appear to have substantial market share – see Swan [2002] for more details). A secondary issue is the erosion of market share by treated wood post substitutes, such as plastic and steel.

Table 4 presents summary data on a state-by-state basis for estimated wholesale value of untreated production, potential installed untreated manufacturing production, employment (includes both untreated manufacturing and treating), and projected employment at installed capacity. Current untreated production employment was calculated based on the plant's current production. Treating employment was also calculated on current treating production. Treater/Manufacturers show only the total employment for the facility for both current and maximum production values. The reason for lumping manufacturing and treating employment together for plants that do both is that employees are generally doing both jobs at the same time, and there are generally no employees dedicated to either function.

Significant employment differences are evident between states that primarily “manufacture” untreated post-and-pole products, such as Montana, and states which primarily “treat”, such as California.

Table 4. Estimated Wholesale Value of Western U.S. Untreated Post-and-Pole Production (Current and Installed Capacity) and Direct Manufacturing and Treating Employment (Current and Installed Capacity)

State	Estimated 2001 Wholesale Value of Untreated Production (Million U.S. Dollars)	Estimated Wholesale Value of Installed Capacity (Million U.S. Dollars)	Estimated 2001 Direct Manufacturing and Treating Employment (Full-Time Equivalent)	Estimated Direct Manufacturing and Treating Employment, Installed Capacity (Full-Time Equivalent)
Montana	\$13.1	\$26.4	68	196
Oregon	\$10.6	\$14.4	83	124
Wyoming	\$5.2	\$10.3	49	60
Colorado	\$3.1	\$5.1	55	110
Washington	\$2.9	\$6.3	14	58
Idaho	\$1.7	\$6.3	14	58
South Dakota	\$1.8	\$1.4	69	84
Utah	\$0.9	\$1.4	34	78
Arizona	\$0.4	\$1.3	16	35
California	\$0.1	\$0.6	120	161
Nevada	\$0	\$0	31	31
New Mexico	\$0	\$0	9	19
TOTAL	\$39.8	\$77.1	562	1014

Trends and Implications

Raw Material Supply

The Western U.S. post-and-pole industry has historically been located near or adjacent to easily accessible lodgepole pine stands. Due to drastic reductions in Federal timber sales in the 1990s, lodgepole pine is now less accessible and often more expensive for many post-and-pole manufacturers. This situation, combined with an increase in cheaper imports from Canada, has reduced the number of post-and-pole businesses over the last 10 years an estimated 15%-20 %, as anecdotally reported by respondents. Although an increasing portion of post-and-pole products are made from Douglas-fir, ponderosa pine, and other species, it is assumed because of the superior characteristics of lodgepole pine for most post-and-pole products, that the total proportion of non-lodgepole pine post-and-pole products will remain small - probably under 15%-20 % of total Western U.S. production.

Employment

Over the last 10 years, a significant drop in post-and-pole industry employment has occurred, both in manufacturing as well as harvest operations. One manufacturer estimated it took four to five “post cutters” to produce 100,000, 8-foot pieces ten years ago. Trees are often now harvested, delimbed, and transported in “tree length” form due

to increasing mechanization. This means it may only take 10 production days for a mechanized logging operation to supply enough material for the same facility previously mentioned to operate for an entire year. The downside to this type of delivery system is that post-and-pole manufacturers no longer have as tight of control over size of logs purchased, and must be able to market products in a wide range of diameters as well as residuals.

Installed Manufacturing Capacity vs. Current Production

Installed manufacturing capacity is significantly higher than current utilization (approximately 50% of installed capacity). Minimal increases in production are projected unless there is a significant downturn in Canadian imports or domestic raw material prices plunge, which would help Western U.S. manufacturers better compete with imports from Canada.

Furniture Stock Niche Market

Steadily increasing sales of roundwood furniture stock experienced over the last three to five years is expected to level off in the near future. Although never a large portion of total production, furniture stock nonetheless offered a niche market for some manufacturers. The total amount of furniture stock production is difficult to determine because poles can be resorted for furniture grade stock after purchase by another user, such as a treating plant that also sells specialty items.

Imports from Canada

Imports of Canadian treated and untreated post-and-pole products are reported to have increased significantly during the past 10 years. These imports generally cost less than domestic post-and-pole production and are a significant force in the marketplace. Western U.S. manufacturers have a difficult time competing on price due to favorable exchange rates and other factors. According to Swan (2002), there appears to be a leveling off of some imported post-and-pole products, which in his opinion may indicate that the Western U.S. market is becoming saturated. Western U.S. post-and-pole businesses that maintained their production levels and flourished have found local or regional niches in specialty roundwood products for a substantial portion of their production, such as furniture stock, mortise and tenon post-and-pole fences, and government contracts. Long-term local presence and a quality reputation are reported essential.

CCA Re-Registration

The three main chemical suppliers of CCA recently announced their intent to re-register CCA for more limited applications (“industrial” rather than “industrial and residential”). It was unknown at the time this report was written how this will affect the post-and-pole industry. It is clear from conversations with manufacturers, especially “manufacturers/treaters”, that CCA re-registration parameters may result in loss of a

significant percentage of their business, depending on what is eventually defined as “industrial” vs. “residential” use. Substitute wood preservatives for “residential” applications apparently will increase the cost of treated products 20% or more. This may make treated roundwood substitutes, such as plastic and steel, more attractive to some customers.

Summary

The Western U.S. post-and-pole industry consists of many small manufacturers of mostly untreated products, a few manufacturers who also treat, and a distinct segment that treats post-and-pole products, but for the most part devotes its attention to other commodities, such as lumber and panel products. “Wholesalers” play a critical role in the post-and-pole distribution system by purchasing untreated material from manufacturers (U.S. and Canadian), arranging for transportation to and from treating facilities closer to end customers, prescribing treating standards, and finding customers. “Brokers” play a minor role compared to the lumber industry. Larger post-and-pole operations, such as manufacturers/treaters, tend to have significant local and regional customer bases because they can provide both treated and untreated products, and have a long-term local business presence and reputation.

The majority of Western U.S. post-and-pole untreated manufacturing production occurs in Montana, Oregon, and Wyoming, comprising about two-thirds of total Western U.S. manufacturing production. The majority of Western U.S. post-and-pole treating occurs in California, Colorado, Idaho and South Dakota, comprising about 75% of total Western U.S. post-and-pole treated production.

Approximately 60 million linear feet of treated and untreated post-and-pole products were produced by Western U.S. manufacturers. Total estimated wholesale value was over \$65 million in 2001. An estimated additional \$18 million of untreated post-and-pole products were treated that were imported from Canada. Total Western U.S. market for post-and-pole products is assumed well over \$83 million (sum of U.S. and Canadian origin raw material - note that treated post-and-pole products imported from Canada were not estimated or included).

Over 550 people are currently directly employed in the manufacturing and treating phases of the Western U.S. post-and-pole industry. Post-and-pole industry employment has decreased over the past 10 years due to a variety of factors, including loss of market share to imports from Canada and treated wood substitutes (e.g. steel and plastic), increasing mechanization of smaller-diameter tree harvest, and reduction in supply of lodgepole pine thinnings from Federal forestlands. There is substantial underutilized installed manufacturing capacity (about 50%) due in large part to Canadian competition. It is postulated that the commodity post-and-pole market may be saturated and future growth will come at the expense of imports and other manufacturers.

All 12 Western U.S. states included in this survey have at least one treating facility. More manufacturers and manufacturers/treaters are associated with proximity to

lodgepole pine, the preferred post-and-pole industry raw material. A few small manufacturers in the Southwest U.S. use ponderosa pine and there is limited use of Douglas-fir, larch, and grand fir. The majority of volume and value of post-and-pole products fall into two diameter classes: 3.0-4.9-in. and 5.0-6.9-in. CCA is the primary wood preservative and pressure treating is the principal treatment process. This is expected to change somewhat over the next couple of years due to the decision by chemical supply companies to re-register CCA for more restricted applications. The impact of this decision is unknown at this point.

Trends and outlook expressed by industry include a decrease or leveling in the loss of market share, optimism regarding possible increase in availability of smaller-diameter trees from a national fuels treatment program, and continued struggle with rules about the re-registered applications for CCA and cost of alternative wood preservatives.

References

American Wood-Preserver's Association

2000 *Book of Standards*. American Wood-Preserver's Association. Granbury, TX.

Swan, Larry

2002 Western United States Imports of Roundwood Posts From Canada: 1991 – 2001, Seattle and Great Falls Customs Districts. Prepared for the Oregon Economic and Community Development Department (Salem, OR) and Montana Community Development Corporation (Missoula, MT). Unpublished report available from USDA Forest Service, State and Private Forestry, Cooperative Programs, Portland, OR.

Swan, Larry and William Von Segen

2000 Potential Impact of Federal Funding for Fencing Replacement on the Intermountain West and Pacific Northwest Post and Pole Industry. Unpublished report available from USDA Forest Service, State and Private Forestry, Cooperative Programs, Portland, OR.

APPENDIX I

**LIST OF COMPANIES
INTERVIEWED**

List of Post-and-Pole Companies Interviewed By State Fall, 2001 – Winter, 2002			
<i>Company</i>	<i>Category</i>	<i>City</i>	<i>State</i>
ARIZONA			
Mountain Top Wood Products	Manufacturer	Show Low	AZ
Fort Apache Timber	Manufacturer	White River	AZ
Pacific-Arizona	Treater	Eloy	AZ
CALIFORNIA			
Watershed Res. & Trng.	Manufacturer	Hayfork	CA
Coast Wood Preserving	Treater	Ukiah	CA
Pacific Wood Preserving	Treater	Bakersfield	CA
Alamo Forest Products	Wholesaler	Santa Rosa	CA
Mendocino Wood Specialties	Treater		CA
California-Cascade Treating	Treater	Sacramento	CA
COLORADO			
Universal Forest Products	Treater	Windsor	CO
Allweather Wood Treaters	Treater	Loveland	CO
Allweather Wood Treaters	Treater	Ft. Collins	CO
Koppers, Co.	Treater	Denver	CO
Leonard's Peeling	Manufacturer	Fraser	CO
United Wood Products	Manufacturer/Treater	Longmont	CO
Ranch Creek Post and Pole	Manufacturer	Granby	CO
IDAHO			
Panhandle Forest Products	Manufacturer	Cocolalla	ID

List of Post-and-Pole Companies Interviewed By State Fall, 2001 – Winter, 2002			
<i>Company</i>	<i>Category</i>	<i>City</i>	<i>State</i>
Call Forest Products	Manufacturer	Idaho Falls	ID
Fulton and Lighty Treating (*Declined to Participate)	Treater	Hayden Lake	ID
North Idaho Wood Preserving	Treater	Rathdrum	ID
MONTANA			
Big Sky Forest Products	Manufacturer	St. Regis	MT
Dixon and Dixon Post & Pole	Manufacturer	White Sulphur Spgs.	MT
Pfendler Post & Pole	Manufacturer	Drummond	MT
Stevensville P & P	Manufacturer	Stevensville	MT
Bouma Post Yards	Manufacturer/Treater	Lincoln	MT
Marks-Miller	Manufacturer/Treater	Clancy	MT
Porterbilt Co.	Manufacturer/Treater	Hamilton	MT
Gebhart Post Yard	Manufacturer/Treater	Roundup	MT
Sullivan and Mann Post and Pole (Lincoln Lodgepole Products)	Manufacturer/Treater	Phillipsburg	MT
NEVADA			
Pacific-Nevada	Treater	Silver Springs	NV
NEW MEXICO			
Shollenbarger Wood Treating	Treater	Bernalillo	NM
Barela Forest Mgt.	Manufacturer	Las Vegas	NM
OREGON			
All American Timber	Manufacturer	La Pine	OR
M&L Forest Products	Manufacturer	Sun River	OR

List of Post-and-Pole Companies Interviewed By State Fall, 2001 – Winter, 2002			
<i>Company</i>	<i>Category</i>	<i>City</i>	<i>State</i>
Northwest Fir Products	Manufacturer	Crestwell	OR
All Weather Wood Treating	Treater	White City	OR
Royal Pacific	Treater	McMinnville	OR
SOUTH DAKOTA			
Hills Products Group	Manufacturer/Treater	Whitewood	SD
Forest Products Distributors	Manufacturer/Treater	Rapid City	SD
Wheeler Lumber	Manufacturer/Treater	Whitewood	SD
UTAH			
Utah Wood Preserving	Treater	Salt Lake City	UT
Roundtop Products	Manufacturer	Vernal	UT
Kilfoyle Crafts	Treater	Price	UT
WASHINGTON			
Jasper Enterprises	Manufacturer	Chattaroy	WA
Colville Post and Pole	Manufacturer	Colville	WA
Inchelium Tribal Wood Prods	Manufacturer/Treater	Inchelium	WA
WYOMING			
Western Wood Products	Manufacturer	Mountain View	WY
Lodgepole Products	Manufacturer	Laramie	WY
Cowboy Timber	Manufacturer/Treater	Manderson	WY
Ayres and Baker	Manufacturer/Treater	Mountain View	WY

APPENDIX II

SURVEY QUESTIONNAIRE

Western U.S. Post/Pole Industry Characterization Study

(Conducted In Cooperation with Intermountain Roundwood Association, U.S. Forest Service, and Montana Forest and Conservation Experiment Station.)

Edwin J. Burke, School of Forestry
University of Montana Missoula, MT 59803
(406) 243-5157 FAX (406) 243-4845 Email: eburke@forestry.umt.edu

COMPANY BACKGROUND

Company Name _____ Date of Contact _____

Contact's Name _____ Position _____

Phone (____) _____

Street, PO Box or RD# _____

City _____ State _____ Zip _____

Phone (____) _____ FAX (____) _____

Mobile (____) _____ email _____

Web Page Address _____

Owner's Name _____

How long have you been in business? _____ How Many Manf. Locations? _____

PRODUCTION AND LABOR

Breakdown size classes of roundwood products and services, and obtain estimate of percentage of gross sales:

Do you have treating facilities? _____. Type _____. Assayed? _____

Service treating only _____ - _____% Manufacture and Treat _____ - _____%;

Manufacture, untreated _____ - _____% Buy White and Treat _____ - _____%

Broker Only _____ - _____% Wholesale Only _____ - _____%

Number of Shifts/Week: Currently _____ @Max. Capacity. _____

Number of Employees/Shift: Currently _____ @Max. Capacity. _____

Estimated Number of 2-7” Roundwood Pieces Manufactured/yr. (8-ft. Equivalent)

Treated: Currently _____ pcs/yr, _____% total production of facility

@ Max. Capacity _____ pcs/yr, _____% total production of facility

Untreated: Currently _____, _____% @ Max. Capacity _____, _____% total production of facility

Gross Sales/yr. (include all products including roundwood) \$ _____ ; broken down as....

1. Products (Lumber, Poles, posts, rails, props etc.) (% gross) _____ - _____%
2. Service Treating all products (% gross) _____ - _____%

What percentage of the above-listed Company gross sales are 2-7” roundwood (posts, tree props and rails)? _____%

What trends do you see in production and labor?

RAW MATERIALS

How is Raw Material Purchased?

What % mix is your raw material: Federal _____ - _____ State _____ - _____ Tribe _____ - _____

Industrial _____ - _____ Private non-Industrial _____ - _____ Canada _____ - _____

How do you obtain your raw material for posts?

Does your company own timberland that it harvests for posts? _____.

What % of your company's total post production comes from this land? _____.

Do you sell posts harvested from this land to other manufacturers? _____.

Do you purchase timber sales? _____

If you do purchase timber sales, what % of your raw material comes from purchased sales? _____.

If you do purchase timber sales, do company crews do the harvesting? _____

Do you purchase material from other processors? Approximate % of total _____ - _____%

Do you purchase material from brokers? _____ - _____%

Do you purchase material from independent contractors at the gate? _____ - _____
_____ % of production

Do You Utilize?

Whole trees? _____ - _____% of 2-7" roundwood production

Cut-to-length posts, delivered bark on? _____ - _____% of 2-7" roundwood production

Cut-to-length posts, delivered bark off? _____ - _____% of 2-7" roundwood production

What trends do you see in raw materials?

SPECIES USED

1. Spp. #1 _____ = _____ - _____% of 2-7" roundwood production:

Source ⁴: _____, _____ - _____% of spp.; _____, _____ - _____% of spp.; _____, _____ - _____% of spp.

2. Spp. #2 _____ = _____ - _____% of 2-7" roundwood production

Source: _____, _____ - _____% of spp.; _____, _____ - _____% of spp.; _____, _____ - _____% of spp.

⁴ Use state or province abbreviation and list % of total for that species

3. Spp.#3 _____ = _____ - _____ % of 2-7" roundwood production

Source: _____, _____ - _____ % of spp.; _____, _____ - _____ % of spp.; _____, _____ - _____ % of spp

MANUFACTURING AND PRODUCTS

What approximate percentage of 2-7" roundwood production is treated at your facility?
_____ %.

What approximate percentage of roundwood production is: 2.0"-2.9" _____ - _____ %, 3.0"-4.9" _____ - _____ %, 5.0"-6.9" _____ - _____ %, 7"+ _____ %

How do you produce your posts (Morbark, doweler, sizes, etc)?

Do you do anything else to add value to posts (point ends, chamfer top, dowel, drill, split rails etc.)?

What trends do you see in manufacturing and products?

MARKET AND END USE

To whom are you selling? (Include state or geographic location of buyers)

Who are the end users and what are they using the roundwood for? (Please give details if answer is "Ag. industry" e.g. grape trellises, berry trellises, highway ROW posts, etc.)

Do you foresee any expansions or changes in the manufacturing or product mix?

What trends do you see in markets and end uses?

How do you obtain news about your industry?

Organizations you belong to: (WWPI, Intermountain Roundwood, AWWPA etc.)

Is there anything that you think would be relevant for us to not address?

SUMMARY QUESTIONS:

1. Could you get enough raw materials to run a maximum capacity?
2. Could you sell it if you could make it?

If you could not sell it, what is responsible for not being able to sell it all?

Do you see an influence on the supply or market demand by Canadian or Southern Pine imports?

Please list the name and phone number of other roundwood manufacturers in your state that can participate in this survey.

Would you like to be put on the list to receive a copy of the final report? _____

THANK YOU
Ed Burke
School of Forestry
University of Montana
Missoula, MT 59803
(406) 243-5157
FAX (406) 243-4845
Email: eburke@forestry.umt.edu

APPENDIX III

CHARTS

Chart 1 – Estimated Manufacturer and Manufacturer/Treater Post-and-Pole Untreated Production by State and Diameter Class

Chart 2 – Relative Comparison of Western U.S. Post/Pole Production By State and Manufacturing Category

Chart 3 – Relative Comparison of Western U.S. Post/Pole Untreated Sources of Raw Material By State

Chart 4 – Estimated Western U.S. Treated Post-and-Pole Wholesale Value and Production by State

Chart 5 – Estimated Wholesale Value of Western U.S. Post/Pole Untreated Production at Current Levels vs. Installed Manufacturing Capacity

Chart 6 – Estimated Western U.S. Post/Pole Direct Manufacturing Employment at Current Production Levels vs. Installed Capacity

See Separate Electronic Excel Spreadsheet File for Charts

APPENDIX IV

**QUANTITATIVE DATA USED FOR
CHARTS AND ANALYSIS**

Chart 1: Estimated Manufacturer and Manufacturer/Treater Post-and-Pole Untreated Production by State and Diameter Class (Linear Feet), Western U.S. Post-and-Pole Industry

*Data adjusted upwards to show total estimated production by state given assumption that the telephone survey captured 80% of each state's production of post-and-pole products.

<i>Diameter Class</i>	<i>W. US Total</i>	<i>MT</i>	<i>OR</i>	<i>WY</i>	<i>CO</i>	<i>WA</i>	<i>ID</i>	<i>SD</i>	<i>UT</i>	<i>AZ</i>	<i>CA</i>	<i>NV</i>	<i>NM</i>
2.0-2.9 in.	7,845,675	4,022,450	1,400,000	1,540,625	245,400	74,400	100,000	102,300	57,500	300,000	3,000	0	0
3.0-4.9 in.	33,744,410	12,166,250	7,720,000	5,465,000	2,982,000	1,658,160	1,747,500	1,171,500	517,500	292,500	24,000	0	0
5.0-6.9 in.	15,514,000	3,926,180	5,440,000	1,221,250	1,000,500	1,743,570	547,500	907,500	552,000	142,500	33,000	0	0
7.0+ in.	2,758,715	1,031,750	460,000	460,625	302,100	168,240	155,000	143,000	23,000	15,000	0	0	0
Total Untreated Production	59,862,800	21,146,630	15,020,000	8,687,500	4,530,000	3,644,370	2,550,000	2,324,300	1,150,000	750,000	60,000	0	0

Chart 2: Relative Comparison of Estimated Western U.S. Post-and-Pole Industry Production By State and Manufacturing Category (Linear Feet)

*Data adjusted upwards to show total estimated production by state given assumption that the telephone survey captured 80% of each state's production of post-and-pole products.

<i>Manufacturing Category</i>	<i>W. US Total</i>	<i>CA</i>	<i>MT</i>	<i>OR</i>	<i>CO</i>	<i>ID</i>	<i>SD</i>	<i>WY</i>	<i>WA</i>	<i>NV</i>	<i>UT</i>	<i>AZ</i>	<i>NM</i>
Manufacture Only	47,854,500	60,000	15,155,000	15,000,000	4,500,000	2,550,000	80,000	7,537,500	1,122,000	0	1,100,000	750,000	0
Manufacture & Treat	11,620,000	0	5,970,000	0	30,000	0	2,230,000	1,150,000	2,190,000	0	50,000	0	0
Purchase Untreated & Treat	32,045,500	2,890,000	650,000	4,500,000	11,840,000	0	11,320,000	437,000	0	0	158,500	250,000	0
Service Treat Only	45,153,500	20,050,000	820,000	1,430,000	3,112,500	15,000,000	280,000	0	126,000	2,000,000	305,000	600,000	1,430,000
Total (for % calc only)	NA	23,000,000	22,595,000	20,930,000	19,482,500	17,550,000	13,910,000	9,124,500	3,438,000	2,000,000	1,613,500	1,600,000	1,430,000
Percent Manuf. & Treat	NA	0%	26%	0%	0%	0%	16%	13%	64%	0%	3%	0%	0%

**Chart 3: Relative Comparison of Sources of Raw Material By State,
Western U.S. Post-and-Pole Industry (8-ft. Pieces)**

*Includes domestic untreated production and untreated raw material of Canadian origin purchased by wholesalers and service treaters.

**Data are for Manufacturers, Manufacturers/Treaters, Wholesalers (who pay for treating services), and Service Treaters.

<i>Source</i>	<i>W. US Total</i>	<i>MT</i>	<i>OR</i>	<i>ID</i>	<i>WY</i>	<i>CO</i>	<i>SD</i>	<i>CA</i>	<i>WA</i>	<i>UT</i>	<i>NV</i>	<i>AZ</i>	<i>NM</i>
Company-Owned Forestland	156,954	0	0	0	98,516	0	58,438	0	0	0	0	0	0
Federal	2,754,882	837,819	1,031,250	200,000	182,188	72,500	210,375	7,500	19,500	143,750	0	50,000	0
State	233,150	54,650	12,500	68,750	0	87,500	0	0	9,750	0	0	0	0
Tribal	331,250	0	0	0	0	0	0	0	300,000	0	0	31,250	0
Industrial Forestland	649,063	367,813	281,250	0	0	0	0	0	0	0	0	0	0
Non-Industrial Private Forestland	3,182,482	1,335,856	550,000	0	802,188	406,250	58,438	0	17,250	0	0	12,500	0
Canadian, Untreated	2,972,777	5,763	464,375	1,500,000	1,639	319,375	144,500	439,125	0	10,500	87,500	0	0
Total (for % calc only)	10,280,558	2,601,901	2,339,375	1,768,750	1,084,531	885,625	471,751	446,625	346,500	154,250	87,500	93,750	0
Percent Break-Out, Significant Categories													
Percent Federal Origin		32%	44%	11%	17%	8%	45%	2%	6%	93%	0%	53%	0%
Percent Canadian Origin		0%	20%	85%	0%	36%	31%	98%	0%	7%	100%	0%	0%
Percent Non-Industrial Prvt. Origin		51%	24%	0%	74%	46%	12%	0%	5%	0%	0%	13%	0%
Percent Industrial Origin		14%	12%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Percent Tribal		0%	0%	0%	0%	0%	0%	0%	87%	0%	0%	33%	0%
Percent Company-Owned		0%	0%	0%	9%	0%	12%	0%	0%	0%	0%	0%	0%
State-Owned		2%	1%	4%	0%	10%	0%	0%	3%	0%	0%	0%	0%

Chart 4: Estimated Wholesale Value and Production of Treated Post-and-Pole Products by State

*See Tables 4a – 4d below for source data.

Y-Axis	CA	ID	CO	SD	MT	OR	WA	NV	WY	NM	AZ	UT
Wholesale Value, Treated Post/Pole Production	\$21,563,600	\$14,100,000	\$14,083,550	\$13,000,200	\$6,993,600	\$5,574,200	\$2,177,040	\$1,880,000	\$1,491,780	\$1,344,200	\$799,000	\$482,690
Linear Feet, Treated Post/Pole Production	22,940,000	15,000,000	14,982,500	13,830,000	7,440,000	5,930,000	2,316,000	2,000,000	1,587,000	1,430,000	850,000	513,500

Table 4a (Source Data for Chart 4): Estimated Production of Treated Post-and-Pole Products by State (Linear Feet)

*Data adjusted upwards to show total estimated production by state given assumption that the telephone survey captured 80% of each state's production of post-and-pole products.

Manufacturing Category	W. US Total	CA	ID	CO	SD	MT	OR	WA	NV	WY	NM	AZ	UT
Manufacture & Treat	11,620,000	0	0	30,000	2,230,000	5,970,000	0	2,190,000	0	1,150,000	0	0	50,000
Purchase Untreated & Treat	32,045,500	2,890,000	0	11,840,000	11,320,000	650,000	4,500,000	0	0	437,000	0	250,000	158,500
Service Treat Only	45,153,500	20,050,000	15,000,000	3,112,500	280,000	820,000	1,430,000	126,000	2,000,000	0	1,430,000	600,000	305,000
Total	88,819,000	22,940,000	15,000,000	14,982,500	13,830,000	7,440,000	5,930,000	2,316,000	2,000,000	1,587,000	1,430,000	850,000	513,500

Table 4b (Source Data for Chart 4): Estimated Wholesale Value (U.S.) of Treated Post-and-Pole Production by State

*Weighted avg. used to estimate wholesale value. Derived by multiplying Western U.S. avg. treated price/linear foot for each diameter class by Western U.S. avg. percent share per diameter class (treated and untreated).

**Data adjusted upwards to show total estimated production by state given assumption that the telephone survey captured 80% of each state's production of post-and-pole products.

Manuf. Cat.	W. US Total	CA	ID	CO	SD	MT	OR	WA	NV	WY	NM	AZ	UT
Manuf. & Treat	\$10,922,800	\$0	\$0	\$28,200	\$2,096,200	\$5,611,800	\$0	\$2,058,600	\$0	\$1,081,000	\$0	\$0	\$47,000
Purchase Untreated & Treat	\$30,122,770	\$2,716,600	\$0	\$11,129,600	\$10,640,800	\$611,000	\$4,230,000	\$0	\$0	\$410,780	\$0	\$235,000	\$148,990
Service Treat Only	\$42,444,290	\$18,847,000	\$14,100,000	\$2,925,750	\$263,200	\$770,800	\$1,344,200	\$118,440	\$1,880,000	\$0	\$1,344,200	\$564,000	\$286,700
Total	\$83,489,860	\$21,563,600	\$14,100,000	\$14,083,550	\$13,000,200	\$6,993,600	\$5,574,200	\$2,177,040	\$1,880,000	\$1,491,780	\$1,344,200	\$799,000	\$482,690

Table 4c (Source Data for Chart 4): Derivation of Western U.S. Weighted Wholesale Value Average by Diameter Class

*Relevant values adjusted upwards for survey's assumed 80% data capture.

**Chart 1 data used for untreated linear feet estimates; Western U.S. avg wholesale price by diameter class (see below) used to obtain untreated wholesale values.

***Western U.S. Wholesale Price Avg. Assumptions:

	Diam.Class	Treated/Ft.	Untreated/Ft.										
	2.0-2.9 in.	\$0.36	\$0.33										
	3.0-4.9 in.	\$0.60	\$0.49										
	5.0-6.9 in.	\$1.12	\$1.02										
	7.0 and up	\$1.84	\$1.75										

<i>Diameter Class</i>	<i>W. US Total</i>	<i>MT</i>	<i>OR</i>	<i>WY</i>	<i>CO</i>	<i>WA</i>	<i>SD</i>	<i>ID</i>	<i>UT</i>	<i>AZ</i>	<i>CA</i>	<i>NV</i>	<i>NM</i>
2.0-2.9 in. Treated	\$344,713	\$278,226	\$0	\$29,993	\$181	\$0	\$36,313	\$0	\$0	\$0	\$0	\$0	\$0
2.0-2.9 in. Untreated	\$2,589,073	\$1,327,409	\$462,000	\$508,406	\$80,982	\$24,552	\$33,759	\$33,000	\$18,975	\$99,000	\$990	\$0	\$0
3.0-4.9 in. Treated	\$2,853,549	\$1,627,200	\$0	\$338,850	\$15,120	\$188,784	\$683,595	\$0	\$0	\$0	\$0	\$0	\$0
3.0-4.9 in. Untreated	\$16,534,761	\$5,961,463	\$3,782,800	\$2,677,850	\$1,461,180	\$812,498	\$574,035	\$856,275	\$253,575	\$143,325	\$11,760	\$0	\$0
5.0-6.9 in. Treated	\$4,919,222	\$2,184,560	\$0	\$418,110	\$12,348	\$1,323,840	\$980,364	\$0	\$0	\$0	\$0	\$0	\$0
5.0-6.9 in. Untreated	\$15,824,280	\$4,004,704	\$5,548,800	\$1,245,675	\$1,020,510	\$1,778,441	\$925,650	\$558,450	\$563,040	\$145,350	\$33,660	\$0	\$0
7.0+ in. Treated	\$2,248,561	\$1,505,120	\$0	\$162,783	\$49,266	\$268,272	\$263,120	\$0	\$0	\$0	\$0	\$0	\$0
7.0+ in. Untreated	\$4,827,751	\$1,805,563	\$805,000	\$806,094	\$528,675	\$294,420	\$250,250	\$271,250	\$40,250	\$26,250	\$0	\$0	\$0
Total	\$50,141,910	\$18,694,243	\$10,598,600	\$6,187,761	\$3,168,262	\$4,690,808	\$3,747,086	\$1,718,975	\$875,840	\$413,925	\$46,410	\$0	\$0

<i>Diam. Class % of Total Wholesale Value</i>	<i>W. US Total</i>	<i>MT</i>	<i>OR</i>	<i>WY</i>	<i>CO</i>	<i>WA</i>	<i>SD</i>	<i>ID</i>	<i>UT</i>	<i>AZ</i>	<i>CA</i>	<i>NV</i>	<i>NM</i>
2.0-2.9, Treated and Untreated	6%	9%	4%	9%	3%	1%	2%	2%	2%	24%	2%	0	0
3.0-4.9, Treated and Untreated	39%	41%	36%	49%	47%	21%	34%	50%	29%	35%	25%	0	0
5.0-6.9, Treated and Untreated	41%	33%	52%	27%	33%	66%	51%	32%	64%	35%	73%	0	0
7.0+, Treated and Untreated	14%	18%	8%	16%	18%	12%	14%	16%	5%	6%	0%	0	0

Table 4c – Continued			
<i>Diam. Class</i>			
<i>Weighted Avg. Calculation</i>	<i>Avg. Share</i>	<i>Treated/LF</i>	<i>Weighted Avg/LF</i>
2.0-2.9, Treated and Untreated	0.06	\$0.36	\$0.02
3.0-4.9, Treated and Untreated	0.39	\$0.60	\$0.23
5.0-6.9, Treated and Untreated	0.41	\$1.12	\$0.46
7.0+, Treated and Untreated	0.14	\$1.84	\$0.26
Total Weighted Wholesale Average Per Linear Ft.			\$0.98

<i>Percent Treated and Untreated</i>		<i>Estimated Untreated Canadian Imports Breakout Based on US Production (assume no 7.0+ in. material and split contribution b/t 2.0-2.9 and 3.0-4.9)</i>	
2.0-2.9 in. Treated	1%		0%
2.0-2.9 in. Untreated	5%		13%
3.0-4.9 in. Treated	6%		0%
3.0-4.9 in. Untreated	33%		51%
5.0-6.9 in. Treated	10%		0%
5.0-6.9 in. Untreated	32%		37%
7.0+ in. Treated	4%		0%
7.0+ in. Untreated	10%		0%
Total	100%		100%

Table 4d - Calculations for Estimated Untreated Canadian Roundwood Import Contribution to Western U.S. Post/Pole Industry Wholesale Production Values

*Weighted averages for diameter classes calculated by using U.S. untreated production proportions and value, and adding 7.0+ in. material contribution to two smaller diameter classes. (Assume that insignificant amount of 7.0+ in. material imported from Canada due to value as sawlog and that proportion represented would be in smaller diameter roundwood [based on U.S. manufacturer interviews].)

	W. US Total	ID	OR	CA	CO	SD	NV	MT	UT	WY	WA	NM	AZ
2.0-2.9" @\$0.36/ft (13% of tot.)	\$1,113,008	\$561,600	\$173,862	\$164,408	\$119,574	\$54,101	\$32,760	\$2,158	\$3,931	\$614	\$0	\$0	\$0
3.0-4.9" @\$0.60/ft (51% of tot.)	\$7,277,358	\$3,672,000	\$1,136,790	\$1,074,978	\$781,830	\$353,736	\$214,200	\$14,108	\$25,704	\$4,012	\$0	\$0	\$0
5.0-6.9" @\$1.12/ft (37% of tot.)	\$9,855,350	\$4,972,800	\$1,539,496	\$1,455,787	\$1,058,792	\$479,046	\$290,080	\$19,105	\$34,810	\$5,434	\$0	\$0	\$0
Total	\$18,245,716	\$9,206,400	\$2,850,148	\$2,695,174	\$1,960,196	\$886,883	\$537,040	\$35,371	\$64,445	\$10,060	\$0	\$0	\$0

Chart 5: Estimated Wholesale Value of Western U.S. Post-and-Pole Untreated Production at Current Levels vs. Installed Manufacturing Capacity

*Does not include wholesale value of additional domestic-treated volume.

**Estimated wholesale value of current untreated manufacturing production obtained from Chart 4 background data tables. Installed manufacturing capacity estimates obtained directly from telephone interviews.

	W. US Total	MT	OR	WY	CO	WA	ID	SD	UT	AZ	CA	NV	NM
Est. Wholesale Value Current Untreated Manuf. Production	\$39,775,865	\$13,099,137	\$10,598,600	\$5,238,025	\$3,091,347	\$2,909,912	\$1,718,975	\$1,783,694	\$875,840	\$413,925	\$46,410	\$0	\$0
Est. Additional Wholesale Value Installed Manuf. Capacity	\$37,334,929	\$13,312,358	\$3,792,280	\$5,102,962	\$2,013,315	\$3,362,724	\$4,553,661	\$3,319,840	\$525,504	\$841,775	\$510,510	\$0	\$0
Total Manufacturing Capacity	\$77,110,794	\$26,411,495	\$14,390,880	\$10,340,987	\$5,104,662	\$6,272,636	\$6,272,636	\$5,103,534	\$1,401,344	\$1,255,700	\$556,920	\$0	\$0
Percent Utilization of Installed Manuf. Capacity	52%	50%	74%	51%	61%	46%	27%	35%	63%	33%	8%	0	0

Chart 6: Estimated Western U.S. Post/Pole Manufacturing Employees at Current Production Levels vs. Existing Capacity

	<i>W. US Total</i>	<i>MT</i>	<i>CA</i>	<i>OR</i>	<i>CO</i>	<i>SD</i>	<i>UT</i>	<i>WY</i>	<i>WA</i>	<i>ID</i>	<i>AZ</i>	<i>NV</i>	<i>NM</i>
Estimated Current Post/Pole Manufacturing Employment	562	68	120	83	55	69	34	49	14	14	16	31	9
Additional Manuf. Employment at Full-U	452	128	41	41	55	15	44	11	44	44	19	0	10
Total Employment at Full-Utilization of Existing Capacity	1014	196	161	124	110	84	78	60	58	58	35	31	19