

# **Post & Pole Survey Report**

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**Completed for:  
Western Wood Preservers  
Institute and Intermountain  
Roundwood Association**

**Completed by:**



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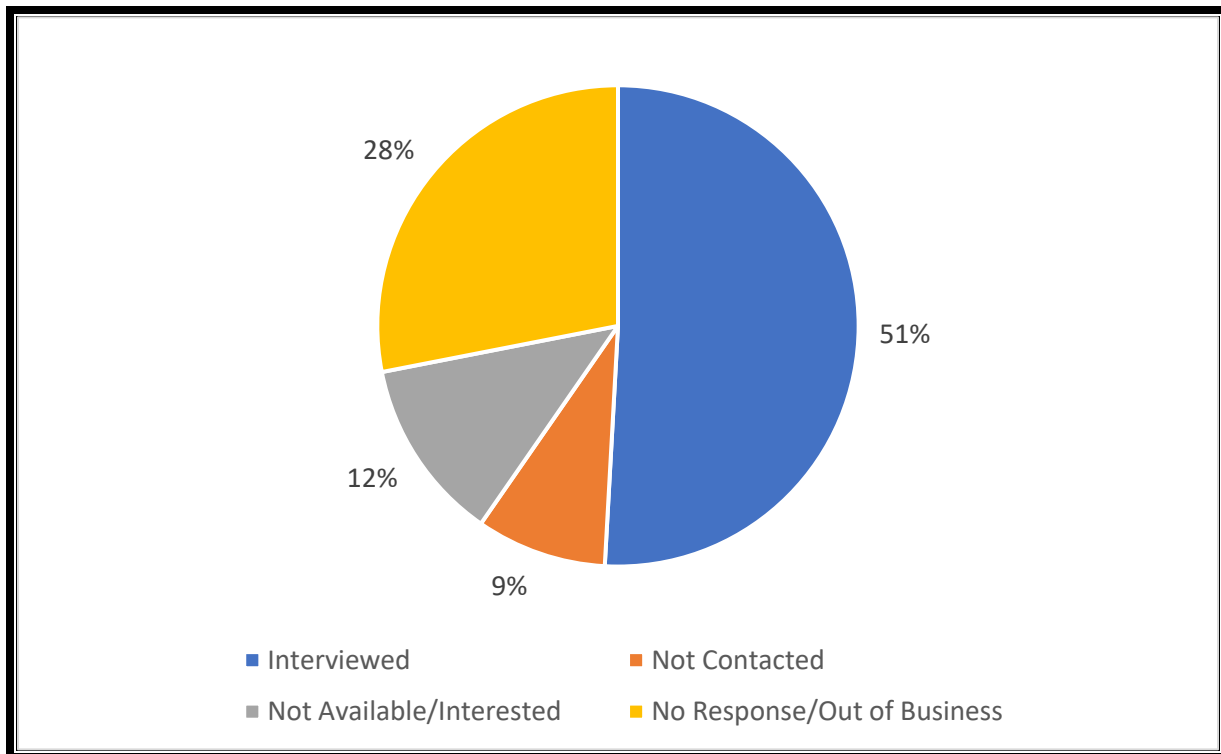
# CHAPTER 1 – EXECUTIVE SUMMARY

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## 1.1 OVERVIEW

The Intermountain Roundwood Association (IRA) and the Western Wood Preservers Institute (WWPI) are deeply rooted in the Western U.S. post and pole (P&P) industry. Both organizations believe that this sector, with a proven ability to utilize small diameter roundwood, can grow significantly in the future; however, future growth depends upon understanding the industry’s needs. Therefore, WWPI secured a Wood Innovation Grant and asked The Beck Group (BECK), a Portland, Oregon-based forest products planning and consulting firm, to visit P&P manufacturing sites across the Western U.S. As shown in **Figure 1**, of 58 operating P&P manufacturers identified, 29 agreed to participate in the survey.

**Figure 1 – Participation in the P&P Manufacturers Survey**



## 1.2 METHODOLOGY

The site visits gathered detailed insights and information about the current competitive position of the roundwood industry. The site visits also included attendance by public agency forest management and timber sale planning staff to improve their understanding of P&P manufacturers’ needs. The associations will use all the information gathered in this study to identify and implement strategies and policies aimed at enhancing the vitality of the Western U.S. roundwood manufacturing industry.

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The list below provides an overview of the data collected during the study about the current state of the P&P industry. Note that no plant-specific data gathered during the study are recorded in this or any other report, only industry averages:

- Raw material supply—types, sources, costs, usage, etc.
- Operational metrics—staffing levels, operating hours, production, productivity rate, yield, etc.
- Product data—product types, product sizes, market areas, values
- Chemical treatment—operating levels, types of chemicals used, types of products treated, etc.
- Equipment configuration—the types of equipment used in the manufacturing process

The data from the onsite interviews are summarized in this comprehensive report that definitively captures the current competitive position of the industry. This report's findings will allow industry leaders to develop a strategy for enhancing the Western U.S. roundwood industry. This may include formulating policy recommendations specific to the roundwood industry (e.g., policies affecting supply, labor, chemical treatment, manufacturing, and markets, including international trade-related issues).

### 1.3 RESULTS

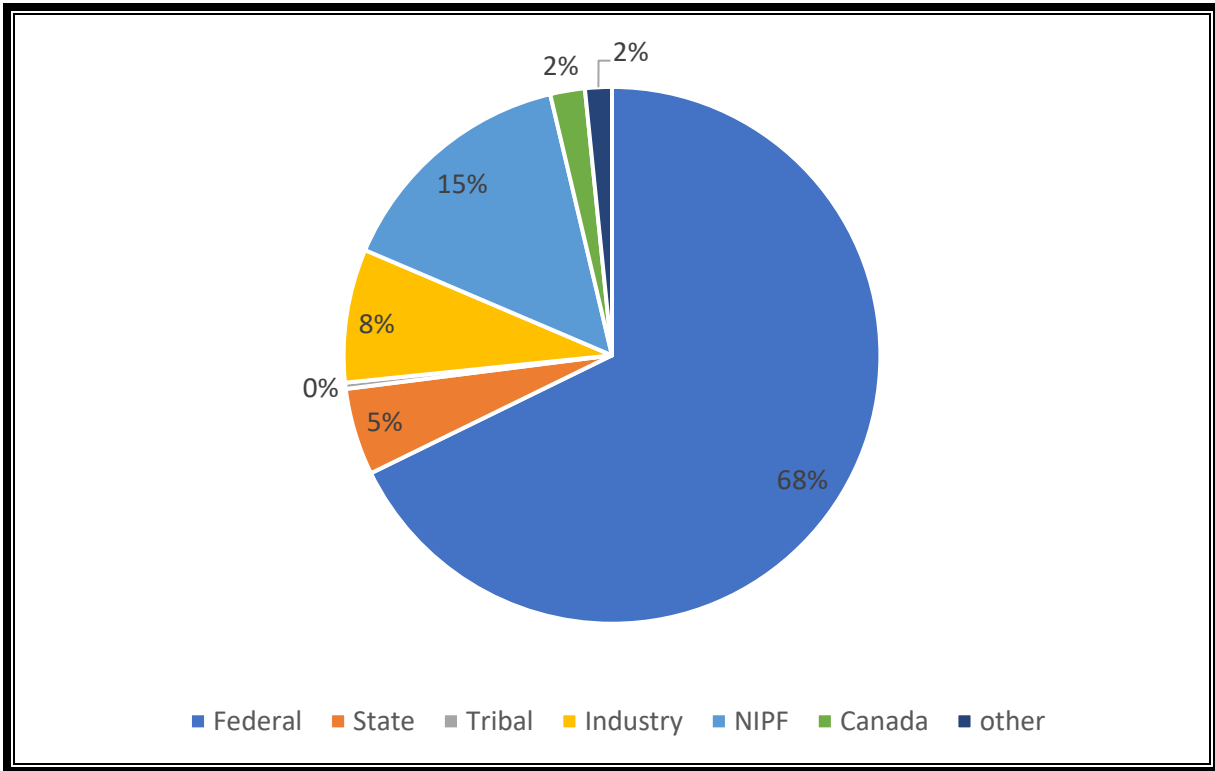
From this survey it is estimated that the 58 P&P producers identified in the Western U.S. consume nearly 790 thousand green tons of logs annually. These producers represent approximately \$120 million in annual gross revenue while employing about 515 people. Adding the suppliers, vendors, shippers, and other supporting industries magnifies the impact of the roundwood industry.

Another positive impact of the roundwood industry is the use of small diameter timber. The Western U.S. has many overstocked forests at high risk for fire. Much of the overstocking consists of smaller diameter trees that have little economic value outside of P&P manufacture. Removing the smaller trees reduces fire risk, stores the carbon for many years in posts and poles, and reduces the potential carbon emissions from fire. The impact to the economy, along with providing an outlet for small diameter timber, makes the roundwood industry extremely important to rural economies in the Western U.S.

#### 1.3.1 Raw Materials

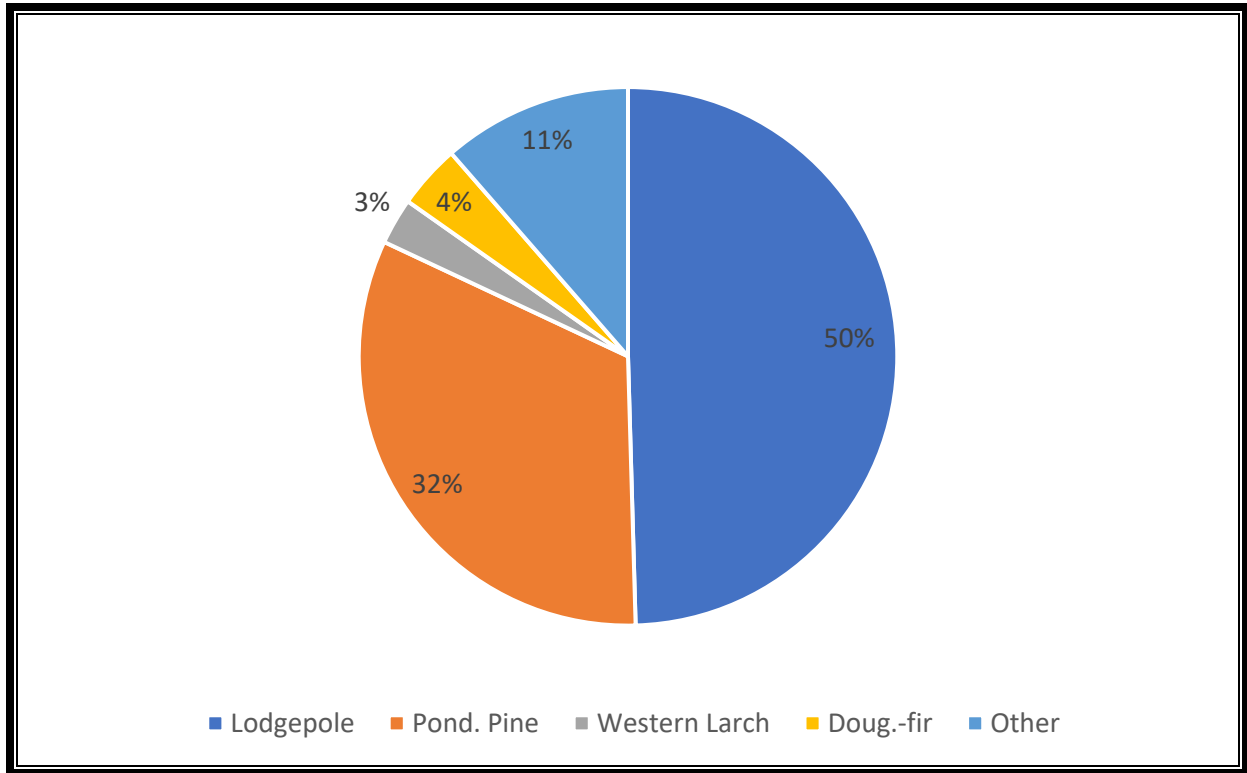
The survey identified raw material availability and labor issues as the primary limitations to P&P production. As shown in **Figure 2**, the U.S. Forest Service (USFS) is the leading supplier of logs for P&P manufacturing in the Western U.S. This is unsurprising given that USFS is the largest landowner in the Western U.S. Non-industrial private forest owners (NIPF) were the second largest supplier base. Private forest owners own significant acreage throughout the West. In many areas where a larger forest products industry infrastructure is not present such as sawmills and pulp and paper manufacturing, P&P producers and their connected businesses are the only significant consumers of logs resulting from private forest management (thinning and cyclical harvesting).

Figure 2 – Log Sources for P&P Manufacturing



As shown in **Figure 3**, lodgepole pine is the primary species used for P&P manufacture. The form and taper of lodgepole make it conducive to producing posts and poles with little waste. The next most utilized species for posts and poles in the West is ponderosa pine. This species is the most prominent across the West where the demand for posts and poles exists. The weaker strength properties and faster taper of ponderosa pine translate into slightly lower suitability than lodgepole for P&P production, but it absorbs chemical preservatives readily and these treatments make ponderosa products practical in P&P applications.

Figure 3 – Species Used in P&P Manufacturing



Given the preference for using lodgepole pine, P&P manufacturers tend to locate in areas near lodgepole pine sources as shown in **Figure 4**.

Figure 4 – Map of the Range of Lodgepole Pine



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Most P&P producers purchase their logs from other entities, such as timberland owners and loggers. A few have logging operations, or are closely aligned with loggers; for example, in one case part of a given family logs, and another part produces posts and poles. Producers procure these logs at an average range of 105 miles from their operations. The average delivered price for those surveyed is \$68.02 per green ton.

### 1.3.2 P&P Operations

A preponderance of P&P producers are owner operators. In this survey, 76% of those surveyed are owners that are involved in the daily operations. Sixteen of the companies had seven employees or less. The owners of these companies are often the buyers, managers, and salespersons.

These owner operators are a self-reliant lot who have the skills to maintain and even improve their equipment. Limited financial resources associated with smaller-scale operations and a “build-it-yourself” or “fix-it-yourself” mentality mean that capital expenditures for most producers consist of modifying some piece of equipment to meet the P&P business’s need. Expenditure on new equipment was rare; in-house design and manufacture is the norm.

The producers in this survey consumed an average of 15,450 green tons annually. This resulted in an average of just over ten employees per facility making an average of slightly more than 8,000 green tons of product. The average gross annual revenue from these operations was over \$2.4 million.

A key observation is that many of the operation sites visited have multiple processing facilities. For example, two common complementary processes are small sawmills and firewood manufacture. Producers will often mill larger logs, use smaller logs for posts and poles, and make firewood out of logs unsuitable for other products. Other producers may chip logs they find unsuitable for posts and poles. In other words, P&P producers very frequently employ a “biomass campus” approach to operating their businesses. In most cases, even the P&P manufacturing by-products of shavings and bark provide necessary income for producers. P&P producers fully utilize all the logs they receive when manufacturing primary products and by-products.

Most companies interviewed reported labor as a key production limitation. This issue has been common in all industries since the beginning of the COVID-19 pandemic in 2020 and the roundwood industry is no exception. The average attained production capacity in the survey was 85 percent, with limited labor and limited raw material supply restraining the average. Seen in other terms, markets for P&P products appear to be very strong—held back mainly by supply-side constraints such as limits on available labor, raw materials, and financial resources for capital expansion.

Post products are usually preserved prior to sale, yet only eight of the producers interviewed treat their own products. Treaters may preserve for several producers in their region. Producers may contract the preservation and sell preserved posts themselves; others will sell raw posts to preservers or brokers, who then sell the preserved product.

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A generational change is occurring in many of the P&P producers. Nine of the companies visited were transitioning leadership to the next generation. Another nine have owners that are retirement age or older without apparent heirs to leadership. This situation fosters concerns about future production from these companies. Three of the businesses have already transitioned to the next generation. This is typical of small, family-run operations, but does point to the benefits P&P manufacturers would gain from education and assistance in business planning.

### 1.3.3 Products

Fencing is the primary application for roundwood products. This includes posts (vertical components) and rails (horizontal) for various types of fencing applications. Agriculture applications such as posts and poles used in fruit orchards and hops farms were the next largest customer base for the producers.

The largest volume of P&P production is in the 3"-4.9" diameter class with 46% of the products by piece count being in this range. The next largest class of products is 5"-6.9", with 35% of products in this diameter range (piece count basis). Products in these diameter ranges are used in many applications and have a steady demand.

Smaller diameter ranges (<3") compose 14% of the production by piece count. These products have limited uses, such as fence stays or latillas. Products over 7" are often targeted at a specific application such as power poles, custom carved posts, or gate entry structures. In many areas, logs which are large enough to make 7" and larger posts are also in demand as sawlogs, so post products made from larger logs must have a finished product sales value that allows P&P manufacturers to compete with sawmills when purchasing those raw materials.

It is not uncommon for smaller producers to have niche products that provide higher margins than more common products. The niche products can vary in size from furniture-grade products to large entryways over roads. Most niche market producers have processes they consider unique and proprietary, and they guard that information against disclosure.

The culture of an area where posts and poles are produced has a significant influence on the products offered. In the Southwest U.S., latillas and vigas (see **Figure 5**) are popular. Latillas are smaller posts 2"-3" in diameter used in fencing and roofs. Vigas are larger posts 6" and larger, used as supports or truss-like structures.



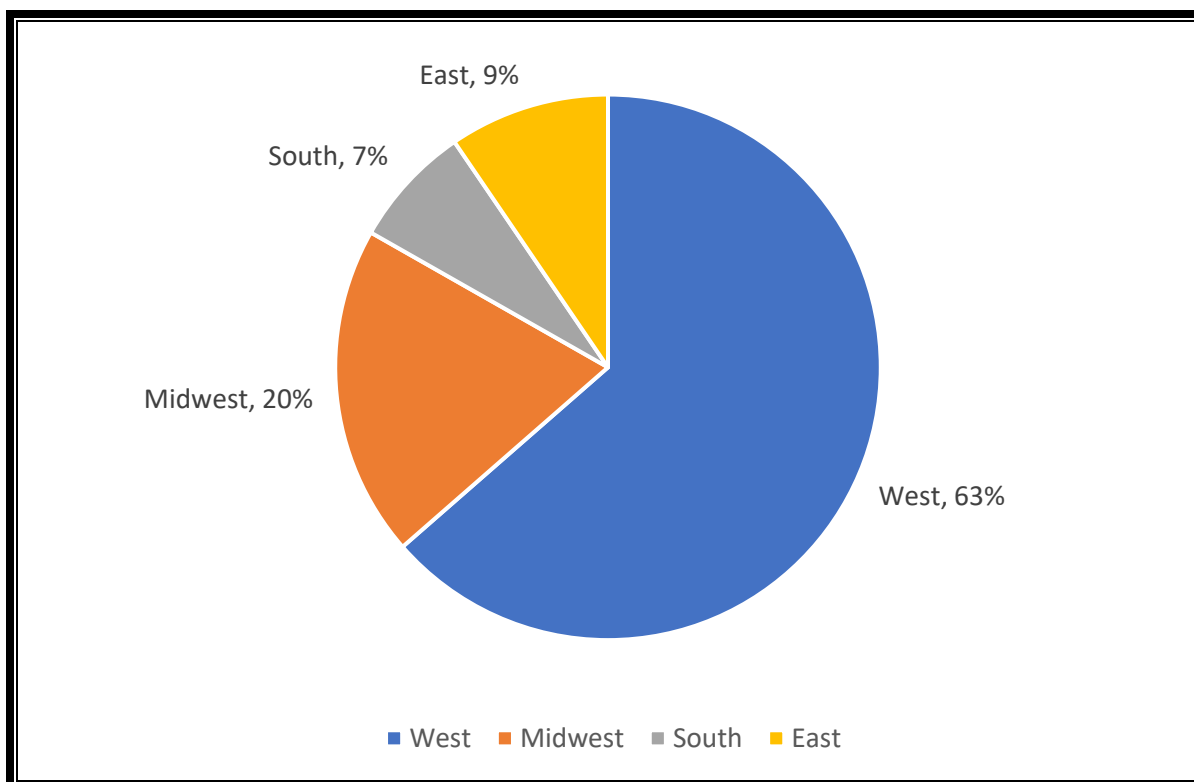
Figure 5 – Picture of a Latilla and Viga Roof



In Montana and Wyoming, wood fences with rails (full or split) are popular. Wooden stays to support wire fences between posts are popular in southeastern Idaho, but not in other areas. The industry's dynamics vary greatly by the species of trees available and the cultural preferences of the nearby area.

As shown in **Figure 6**, most of the P&P products from Western producers stay in the Western U.S. The proximity of the Midwest makes it the next largest destination for posts and poles. Outside these two regions, producers are opportunistic with products going to various regions of the U.S. Some products for specific applications are exported upon request.

**Figure 6 – Percent of P&P Products Sold by Region**



During the survey period, demand for P&P products was strong. This was fueled by changes in agricultural practices, demand for rural properties, and positive economic conditions in the U.S. While some sectors of the P&P market are cyclical, survey results indicated that producers expect overall demand to stay strong in the foreseeable future.

### **1.4 OPPORTUNITIES**

The roundwood industry should explore opportunities to demonstrate how its products can join the story of reducing fire risk by removing small trees and sequestering carbon in long-lived products. This is part of the ongoing worldwide discussion on global climate change due to greenhouse gas emissions. Trees absorb carbon through photosynthesis; when trees are made into forest products, that carbon becomes stored (sequestered, in industry terminology) in that product. Western forests are overstocked, usually with smaller trees suitable for P&P products. If these forests are not thinned, their fire risk is greater. Since fire emits tremendous amounts of greenhouse gases, the roundwood industry should promote itself as part of the solution, as consumers of thinning-derived sawlogs whose products sequester carbon.

Either the Intermountain Roundwood Association or the Western Wood Preservers Institute could shoulder the task of developing and delivering promotional materials to share this message. There is a longtime public misperception of the timber industry as adversarial to ecology. Much common benefit might be gained from the realization that conservationists, local residents, timber producers, and landowners have shared interests and benefits when it comes to addressing climate change and wildfire risk.

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The preceding positive P&P industry story is especially meaningful if one considers that the economics of P&P manufacturing support delivered raw material prices that average \$62 per green ton. Those values provide substantially more revenue to landowners than biomass power production—one of the few other markets currently widely available for small diameter trees in the Western U.S. Current biomass power prices average only about \$15 to \$20 per green ton in the Pacific Northwest. The prices paid by P&P manufacturers are also substantially higher than pulpwood prices, which average \$40 to \$50 per green ton in the second quarter of 2023 delivered in the Pacific Northwest and California according to Forisk’s *North American Wood Fiber Review*.

Building upon the carbon discussion, the Forest Service needs to provide access to supply where roundwood producers exist, rather than burning the wood or leaving it to rot. Across the West, the Forest Service desires to remove small diameter trees to reduce fire danger. This removal may be part of a larger timber sale or can comprise stand-alone fuels reduction projects. In many cases, trees removed from these projects are piled and burned. P&P producers expressed an interest in this material if made available to them, either through contracts to remove the material after a timber sale or through a direct contract where timber sales are not planned.

Communication between producers on industry practices across supply regions could help all regions. For example, in some regions of the Forest Service, log trucks can establish average tare (empty) weights so they save time by not weighing out each trip. Sharing information across regions about such practices could make the industry’s operations more efficient.

A broader market report for posts and poles is not readily available at present. Many producers publish price sheets that are available to the public, but these are not consolidated as a report similar to the *Random Lengths* reports for the lumber and panel markets. Since roundwood markets are not as volatile as those of lumber and panels, a quarterly market report or index might be appropriate. This would help producers understand trends and opportunities in different P&P products. BECK has discussed the concept of an index for roundwood producers with some of the surveyed producers, and their feedback was positive.

There is a risk that roundwood industry production may decline as the current generation of owners and managers leaves the business. Producers also face difficulties hiring labor, which limits production. Grants or incentives could help facilitate transitions in ownership. They could also help improve operations to reduce the need for labor. Many producers were not even aware that such grants existed; where they do exist, they should be more widely advertised in the roundwood industry.

## CHAPTER 2 – DETAILED METHODOLOGY & RESULTS

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### 2.1 GOALS

In 2019, WWPI asked BECK to perform a combination of “mail-in” and “online” surveys of P&P manufacturers. This process provided some insights, but the response rate was low and left many unanswered questions about the state of the industry. It was decided that the questions could best be answered with in-person visits to P&P producers. The on-site methodology allows the capture of detailed, high-quality, and insightful information about the current competitive position of the roundwood industry. WWPI applied for a U.S. Forest Service Wood Innovation Grant to gather further information on the roundwood industry across the West, with a goal of visiting 50 manufacturers.

One of the primary goals of the survey was to understand the roundwood industry’s supply chain. This would mean understanding the volume of raw material required to maintain the industry and the amount that could be used at industry capacity. This is further broken down by the size of materials required and the species desired by the industry. It is also necessary to understand how the raw materials are purchased, and which units of measure are commonly used.

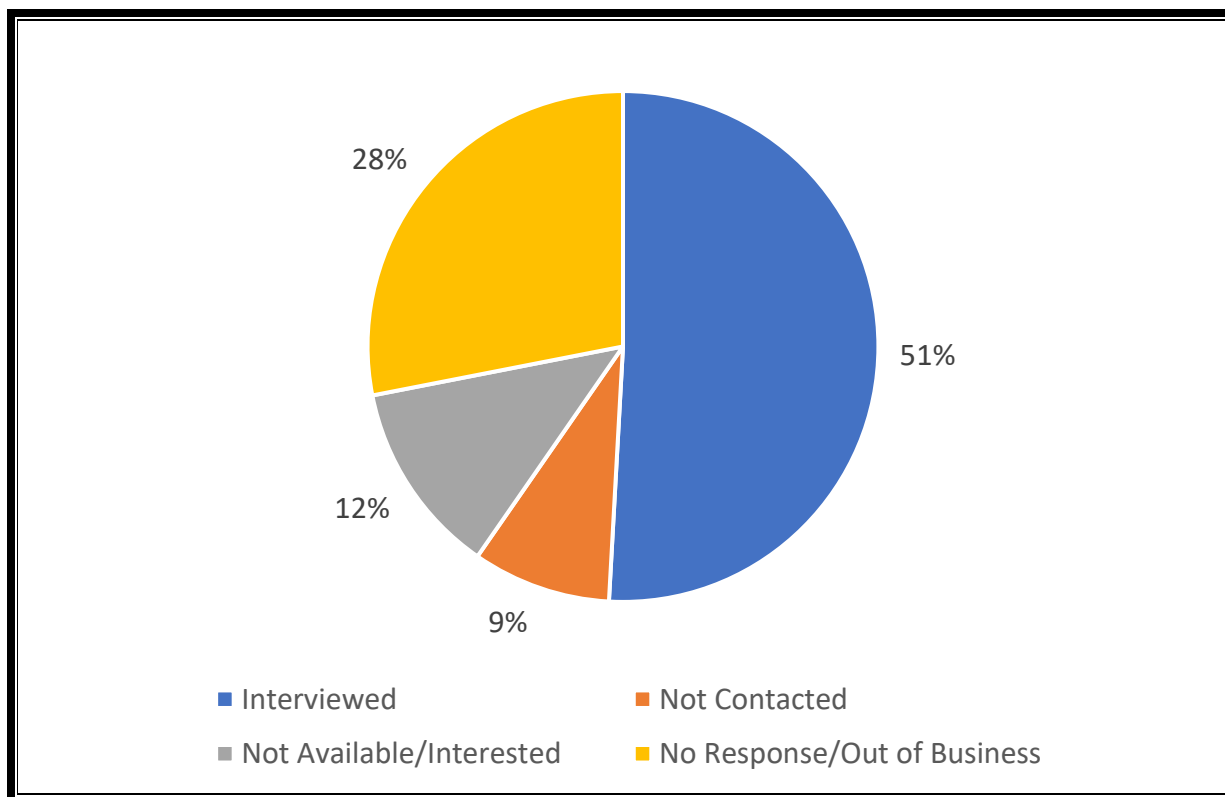
WWPI also wants to know more about the manufacturing processes and markets for roundwood products. This includes the size of the industry, types of products made, the demand for those products, and how they are marketed and sold.

Following collection of the survey information, WWPI and IRA seek strategies to enhance industry vitality. This requires the understanding of industry-related issues, identifying roadblocks to success, and listening to participants to identify success and ways to achieve it. Understanding producers’ issues is a key reason for conducting the surveys in person. The survey findings will be used to identify and implement strategies and policies aimed at enhancing the vitality of the Western U.S. roundwood manufacturing industry.

Surveys were conducted from September 2021 through March of 2023. The participants surveyed operate in the states of Idaho, Montana, New Mexico, Oregon, South Dakota, Utah, and Wyoming. Producers in Arizona were not contacted. Producers in Colorado declined to participate or did not respond to interview requests. No California producers were found that were not connected to those in other states. The Washington producers originally identified as a going concern were no longer in business at the time of the study.

The contacting and visiting process began with a list provided by WWPI and identified 58 P&P producers. Of these, eight are out of business or have ceased producing posts and poles. Another eight did not respond; seven responded but chose not to participate in the survey. As BECK representatives visited producers, they learned of other producers not previously identified, four of which they did not have time to contact prior to the end of the survey period. There were two producers with whom BECK did not arrange a visit; the remaining 29 producers were surveyed, with three being interviewed by phone due to logistical issues. The response rates are summarized in **Figure 7**.

Figure 7 – P&P Producer Response Rates



Another reason for the on-site visits was to serve as a platform for strengthening the industry's supply chain by inviting public and private forest managers to attend the on-site meetings. USFS personnel attended 12 of the 29 interviews. Representatives from state natural resources agencies where P&P manufacturers are located attended ten of the on-site visits. These visits with agency personnel allowed for a constructive interchange with P&P producers and their primary log suppliers. It also allowed agency personnel to share grants and other programs that might be helpful to producers.

### 2.2 RAW MATERIALS

Raw materials are of obvious importance to any manufacturing business. In the Western U.S. most of the P&P producers' raw material supply comes from lands managed by USFS; this equated to 68% in the survey (see **Figure 8**). The Forest Service mandate to manage for multiple uses results in changing policy for forest management, which results in changing supply levels from USFS lands for roundwood producers. This concern was often relayed during the survey visits.

Policy concerns about the removal of logs from approved USFS timber sales also received attention during the surveys. Designated operating periods, tare weight requirements, and whether small diameter logs should be required to be removed were all discussed during several visits. All operators of USFS timber sales would like to have more lenient operating seasons to provide the most flexibility to harvest and ensure adequate log inventory.

## CHAPTER 2—DETAILED METHODOLOGY & RESULTS

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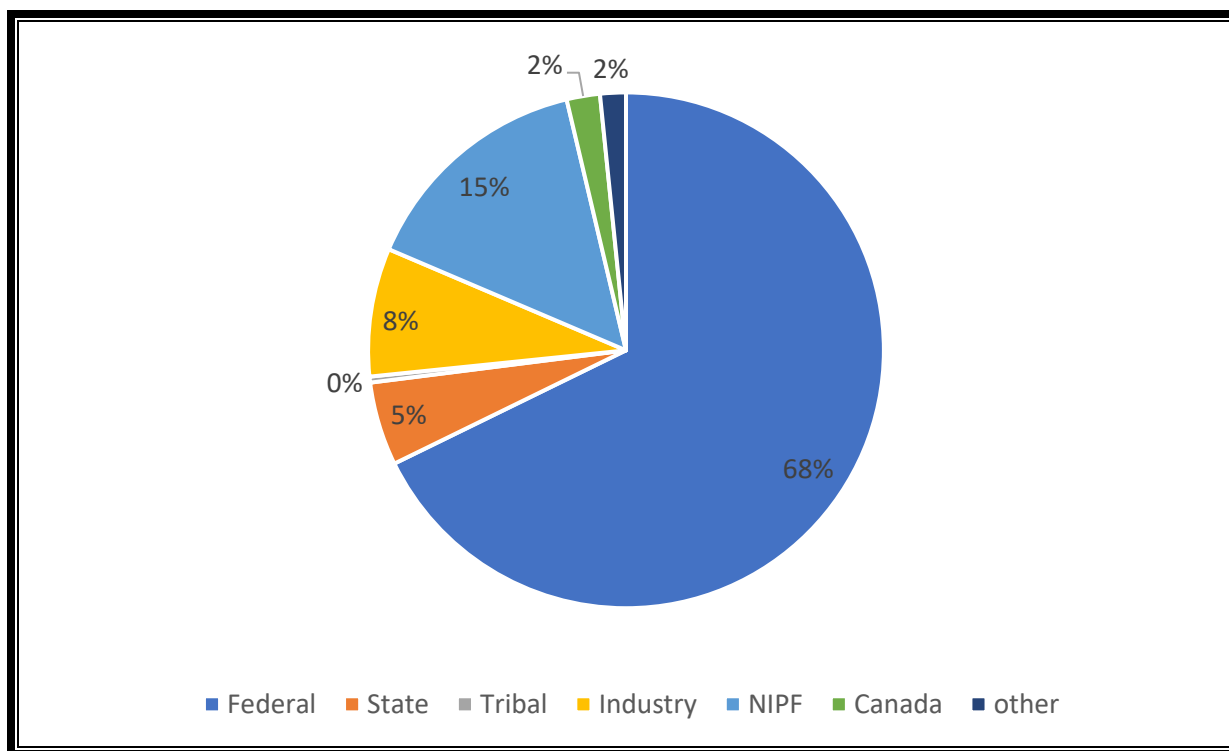
The issue with tare weights is the time and miles spent when a truck must retrace its path to an approved weigh scale, which most P&P producers do not have. In some cases, a truck must go as far as 20 miles to get back to the scale to determine their empty weight. This consumes available truck time in a period when trucks and truck drivers can be hard to find. Usually, the P&P producer must pay for this time in their delivered log cost. In some USFS regions, trucks are allowed to report an average tare weight. If this were available in all regions it would help the roundwood industry, which in some cases is currently hauling logs over 100 miles from the forest to the production site.

The required removal of small diameter logs on timber sales would bolster the supply for P&P producers; however, some timber sales do not require the removal of tops and small trees. As a result, that material—which P&P manufacturers could use—often ends up in a logging slash pile to be burned later because the logger or timber owner wants to focus on producing larger, more profitable materials. When allowed, many P&P producers dissect these piles to find usable materials; this is often more costly. Requiring the removal of small diameter materials helps ensure P&P producers get the material. Also, from a climate perspective, this puts the smaller material into products that store carbon for decades, as opposed to the logging slash piles that are usually burned (thus instantly emitting carbon).

Non-Industrial Private Forest (NIPF) owners are the next largest supplier grouping to the roundwood industry. Often these are local landowners who have been logging and providing materials to the P&P producers for many years. These landowners may also be good customers of the producer, buying fencing materials and other products.

Based on the survey responses, Canadian raw material supply has diminished in recent years. This is likely a product of reduced timber harvests in eastern British Columbia where lodgepole pine is prevalent. An increase in harvest from USFS Region 1 (Montana and Northern Idaho) likely has an influence as well. As a result, this survey found that imported Canadian raw materials for posts and poles have minimal effect on the supply available to Western U.S. P&P producers.

Figure 8 – Log Sources for P&P Manufacturing



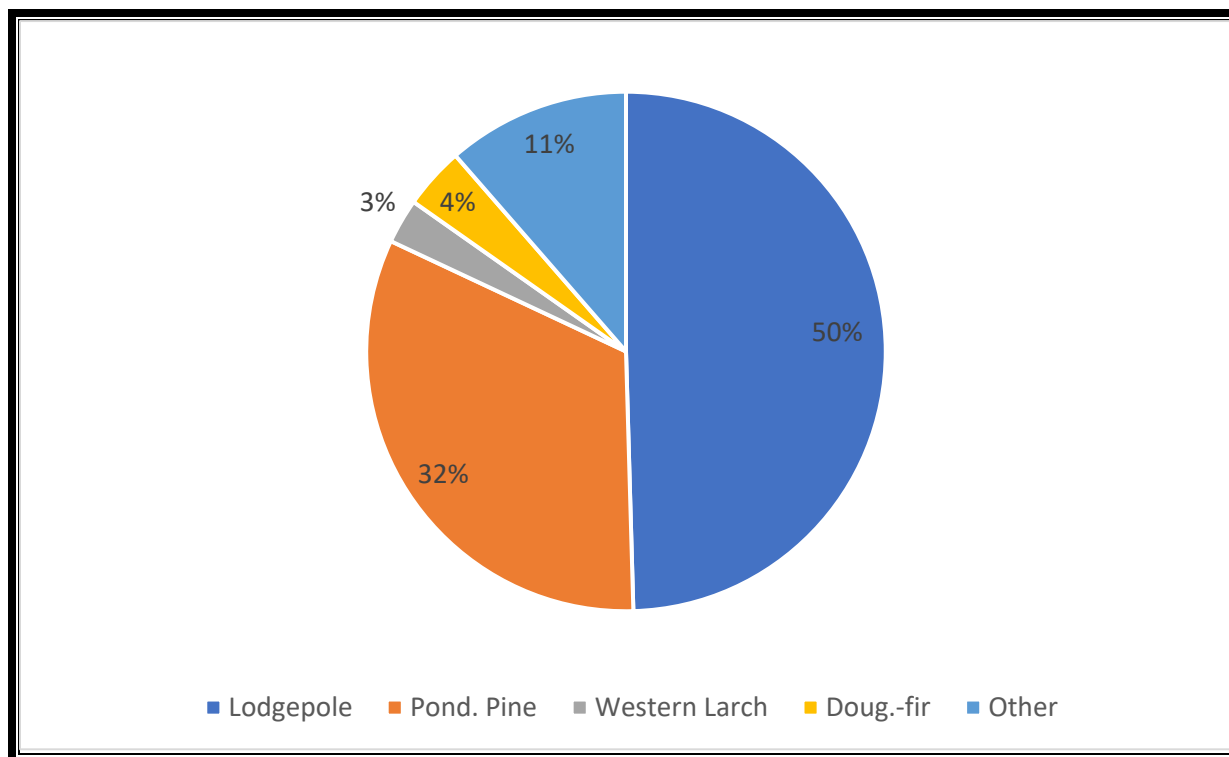
Lodgepole pine is the preferred and most utilized species for making posts and poles in the Western U.S (see **Figure 9**). This is because lodgepole has less taper throughout the tree stem’s length, making P&P products more uniform. If products need to be uniform from top to bottom, lodgepole produces less waste during processing.

Ponderosa pine is the next most common species for P&Ps. This is primarily due to the abundance of the species throughout the West where P&P products are in demand. Ponderosa is not as strong as lodgepole, so is a bit limited in its applications; the higher taper and tendency for the bole to be crooked also make ponderosa less desirable than lodgepole.

The category of other species includes white firs, spruce, and some hardwoods. Most of the species used in this category are chosen out of necessity as the species are available near the producers. Some hardwood species are good for specific applications such as horse corrals. Hardwoods are also used in some specific custom orders.

Douglas-fir and western larch are also used in some P&P applications. These species are naturally strong and durable, which makes them ideal for outdoor applications desiring natural wood. Their natural strength makes it more difficult to preserve these species, so they are usually reserved for specific applications.

Figure 9 – Species Used in P&P Production



Producers usually purchase logs for P&P manufacturing from other timber owners; however, P&P manufacturers will buy entire timber sales if most of the logs harvested will fit their business and the timber sales fit their budgets. As USFS has increased the size of their timber sales in recent years to increase efficiency, and USFS staff that handled small timber sales have been lost and not replaced, P&P producers mostly buy their logs from those who buy the larger timber sales for sawlogs, but then sort out the smaller diameter material for sale to P&P producers.

P&P producers will purchase logs from great distances to get the right material for their products. Haul distances of up to 300 miles were mentioned by a few producers during the survey. The average haul distance for producers in the survey was estimated at 105 miles. This does not include logs for custom orders, which can be hauled across several states to meet the customer's needs.

Discussions with producers indicate that many used to be more active in timber sale purchases. Many had their own logging companies or were closely affiliated with logging companies. This decline in sale purchases and logging by producers began as USFS timber outputs declined, and timber sales became larger as a matter of USFS policy.

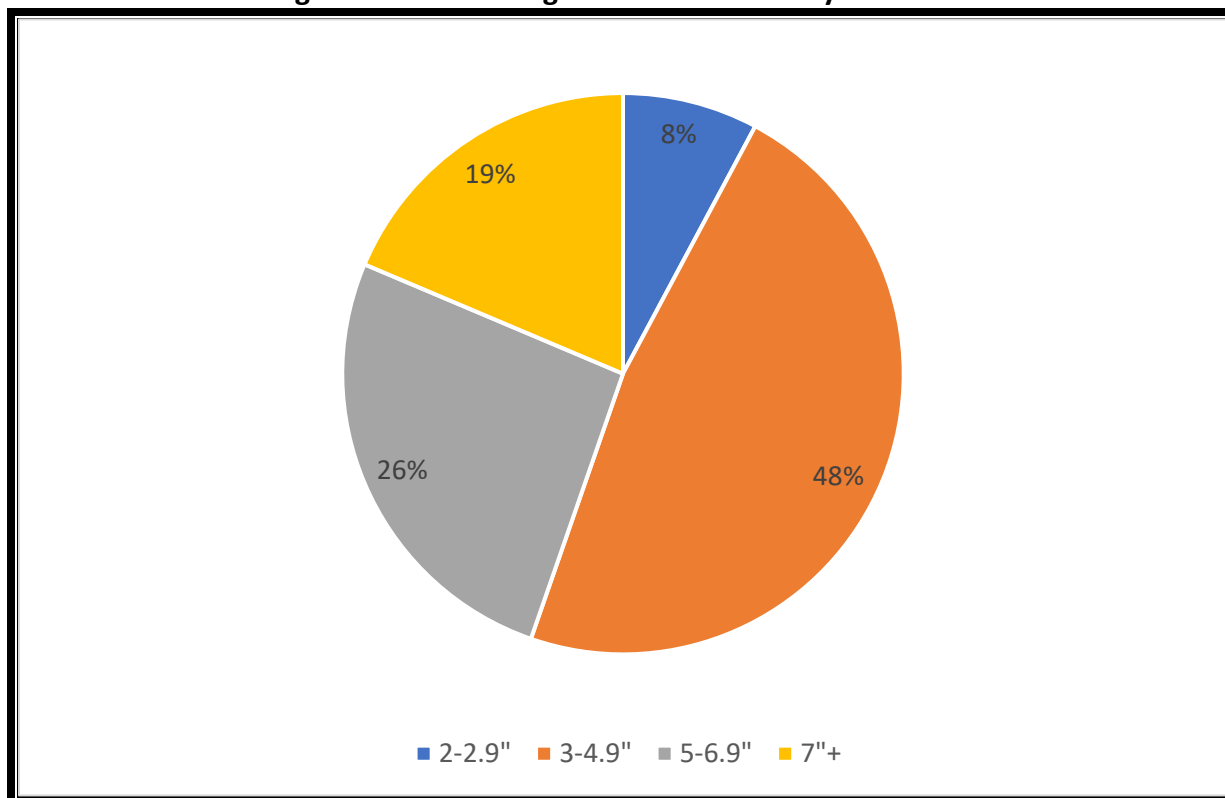
Prices for logs to produce P&P products varied, with a range from \$30 to \$90 per green ton. The variability is due to producers' proximity to the logs they desire, the volume of logs available, and the competition within their sourcing area. The desire for specific logs can increase price as producers go farther to find the size or species of logs they want. The average price that producers surveyed paid for delivered logs was \$68.02 per ton.



### 2.3 PRODUCTION

Roundwood producers offer a variety of products. Some are common products used throughout the West, while others may be custom-made for home applications or other uses such as tipi poles. These products can range from 2" in diameter to sizes as large as are available, depending on what the customer desires. Most of the production ranges from 3"-7", with 48% being in the 3"-5" range (see **Figure 10**).

**Figure 10 – Percentage of P&P Products by Piece Size**



Once producers receive logs, they are cut into blocks the length of the desired products. For instance, most posts are manufactured to an eight-foot length. To do this, many producers use a log processor head on a small excavator. The most common practice of this method entails processing tree-length logs to shorter lengths in the log yard, after which a machine such as a front-end loader moves the cut-to-length pieces to the peeling machines. Others utilize a log bucking line which debarks the tree length stems, bucks them to desired lengths, and delivers them to a bin based on the sort. Sorts are usually defined by length, diameter, and species.

After logs are blocked, they usually go to a post peeler which can remove bark and makes blocked logs into uniform cylinders (usually without removing taper). These products may be sent for treating to be used as posts, or have other value-added processes applied to them. In some cases, these raw posts are sent to other businesses for value-added processing.

Not all blocks are peeled. Some products such as fence rails and latillas will retain bark. These "barkies" are driven by regional cultural preferences. Nearly all the bark-on products observed during the survey were made of small diameter lodgepole pine.

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Pointing posts is common, as many posts are driven into the ground rather than put in pre-dug holes. This is done with a post pointing machine, which works much like a pencil sharpener. Often pointed posts also have chamfered tops, so that the post driver does not break the top of the post when it is driven into the ground. Chamfering also requires a machine to bevel the top of the post.

Producers may also add value by doweling posts and rails. The doweling process removes wood from products as they spin, making the post or pole a uniform diameter along its entire length. Uniformity can be a requirement for some customers, such as government entities.

Pre-drilling is also a value addition method. The producer pre-drills posts for rails to be inserted. Often the same producer will put a tenon on their rails and sell them as a package for post-and-rail fences.

Splitting rails is another method of adding value. This usually involves sawing the rail in half so that the flat side sits against the post, making the rail easier to fasten outside the post. These too can combine with posts in packages for customers wanting split-rail fencing.

There are other, less common methods of value addition. Many are unique to individual producers and therefore are not shared widely. Often these value-adding processes involve manual labor that other producers prefer not to do, such as hand peeling.

The percentages of products sold by product type are shown in **Figure 11**. This shows that 48% of the products are sold as peeled only. Producers dowel 47% of the products. Some of these products may also be peeled, but this percentage reflects those that are doweled. Products with bark on constitute 5% of the production.

Figure 11 – Percentage of Roundwood Products by Process

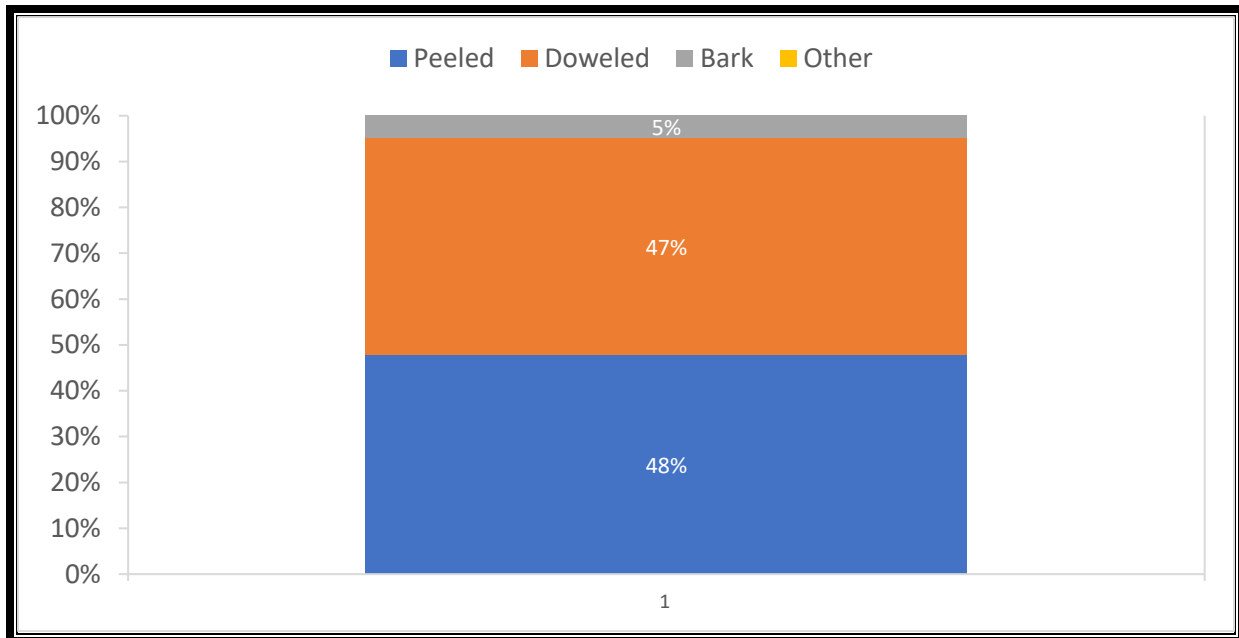
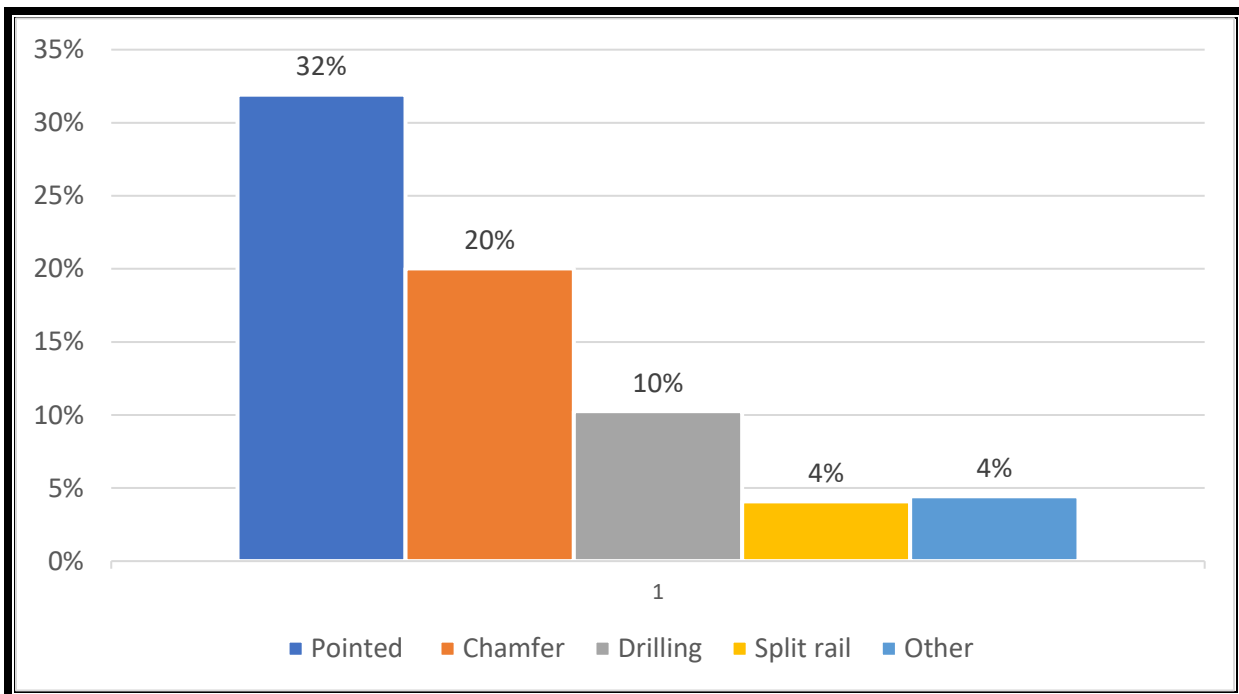


Figure 12 shows the percentage of products pointed, chamfered, drilled, and with split rails or other modifications. The other category is usually custom work performed with manual labor to meet customer needs. As illustrated, 32% of the products have pointed ends. Since all chamfered tops observed also included pointed ends, 63% of the posts with pointed ends were also chamfered.

Figure 12 – Percentage of Roundwood Products Receiving Additional Processing



## **CHAPTER 2—DETAILED METHODOLOGY & RESULTS**

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The producers surveyed averaged 42 production hours per week. Average capacity usage was 85%, with some at full capacity and the lowest at 50%. The most common constraints on production were shortages of labor and raw material supplies. For those on the lower end of the capacity percentages, limited raw material supplies are the issue.

Companies surveyed average just over ten people per production facility with a range of 2 to 35 employees. Most producers would like to hire one or two more employees. There are P&P producers that have long-term crews operating their facilities, while others have high turnover—particularly as other seasonal work is available. Those with longer-term employees have smaller crews who receive competitive wages. They also connect with the crew members to ensure good work and life balance.

### **2.4 CAPITAL EXPENDITURES**

The independent and innovative nature of most P&P producers does not lead to heavy capital expenditures. Nearly all the producers surveyed have designed or modified equipment used in their operations. Often, they will modify equipment used in other industries (such as lumber mills) to address situations. Many of the operations use equipment that was developed by the founder. In these situations, the primary peeler may have been purchased (often used), and the owner has built all the support equipment, conveyors, and buildings, buying and modifying or rebuilding additional equipment as necessary. It is rare to hear producers express a desire for replacement equipment; usually they are looking for additional equipment.

The oftenest mentioned wood handling equipment manufacturers serving the P&P industry were Morbark and Roundwood Systems. They usually build equipment to order for a specific application, often incorporating the customer's ideas. Other than log handling equipment, not one piece of new P&P production equipment was seen during the survey.

### **2.5 TREATING**

Posts for exterior use—the majority of the products produced—require preservation prior to sale, yet only 31% of the producers surveyed preserve their products. Many producers rely on others for preservation; one arrangement entails contract preservation, where the original producer pays for preservation and receives the product back to sell. The alternative is for the producer to sell the untreated product to the preserver, who then markets the preserved product to the end user.

Many producers that utilize others to preserve their products do so because the cost of permitting and building a preservation facility is expensive relative to production quantities. Most producers with preservation facilities have excess capacity relative to in-house production; the businesses have therefore evolved so that preserving capacity matches the demand in the regions where production is concentrated. In other areas, low producer density means that producers must send products significant distances to preservation facilities. There are also some preservation facilities that are underutilized due to their geographic isolation, which inspired the producers to develop preservation facilities for their own purposes.

The roundwood industry uses many types of wood preservatives, with the choice dependent upon the product's designed end use. Products used near residential areas are different than

those for exterior use in remote areas. Most preservers surveyed use preservatives for posts which will serve in remote areas.

These preservers often use chromated copper arsenate (CCA). It has been used for timber preservation since the mid-1930s and is marketed under many trade names. In 2003 the lumber industry voluntarily agreed to discontinue the use of CCA-preserved wood in most residential construction. This agreement was intended to protect human and environmental health by reducing exposure to the arsenic in CCA-preserved wood. As a result of this decision, CCA-preserved wood can no longer be used to construct residential structures such as playground equipment, decks, picnic tables, landscaping features, fences, patios, and walkways.

For roundwood products that will be used near residences and other areas people frequent, treaters use copper-based non-arsenic preservatives. Since the COVID-19 pandemic, copper azole has been popular for this application. Wide use of these preservatives began in light of concerns about possible environmental chromium and arsenic contamination from wood treated with CCA, whether through contact (especially in playgrounds), chemical migration, sawing and sanding, or burning. Roundwood products treated with these types of chemicals constituted about 6% of the treated volume.

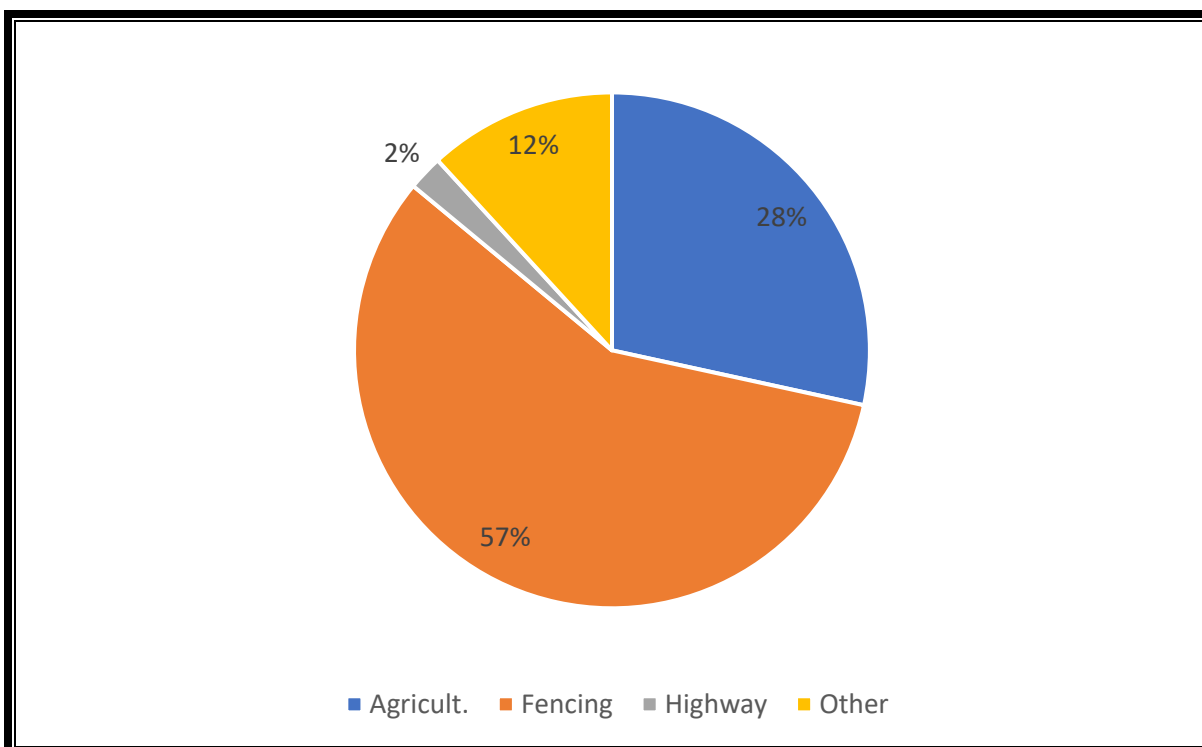
The previous preservations are applied at timber preservation plants by industrial vacuum-pressure impregnation. In this method, bunks of dried wood products are loaded into a long cylindrical container. The bunks ride on a rail system at the bottom of the cylinder. Once filled, the container is subjected to a hard vacuum, drawing all the air and removing any remaining moisture from the wood. Then the cylinder is filled nearly full of the preserving solution, and pressure is applied for several hours to force the compound completely into the wood. After the solution has been pumped out, another vacuum is applied to remove excess solution from the wood.

Most treating companies meet the standards of the American Wood Protection Association (AWPA) for preserving roundwood products. Most customers do not require a certification of preservation, so posts and poles are not inspected to ensure preservation meets the AWPA standards. Some government agencies, such as the Montana Department of Transportation, do require that products meet the standard. In such cases, the supplier may be checked to ensure standards compliance.

### 2.6 PRODUCTS & SALES

Survey participants produce a wide variety of products. **Figure 13** shows that furniture components, decorative posts for residential use, tipi poles, and power poles were among the offerings. Fencing components such as posts and rails were the largest portion of the production. Agricultural products for orchards, nurseries, and hops growing were the next largest segment produced.

Figure 13 – Applications for P&P Products



A producer often has a distinguishing competency for a unique product or type of product that adds value to their business. Examples include tipi poles, furniture stock, and products for residential and industrial uses. These competencies may be in the manufacturing process or due to a connection with a customer, and they allow the producer to have a core product with a good margin which allows the entire operation to succeed. Producers that rely on these core products usually do not have treating facilities. Those that do perform treatment view the process as a key business competency.

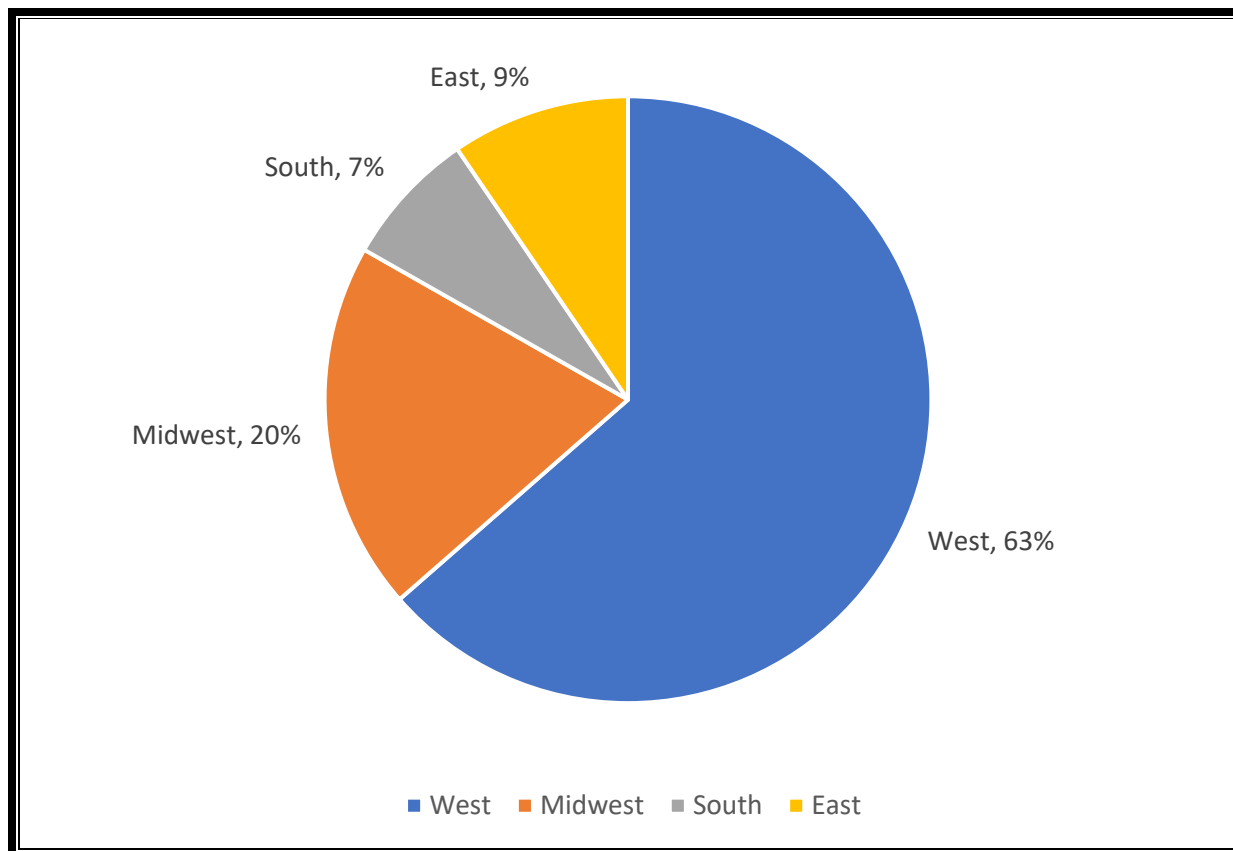
In addition to the roundwood products, producers also need markets for the process by-products. These include trimmed or rejected logs, shavings, and bark. If producers lack markets or destinations for these products, the materials will pile up around their facilities and create space issues.

The most common by-product of the roundwood operations was firewood. Nearly all producers sell firewood; some market it as a primary product where they package it in bundles or totes to sell to retail stores, while others sell it to the public just to get it away from their operations.

Some producers use brokers to deliver their products to market. It is difficult to ascertain the percentages of products that were sold through brokers, as producers were inconsistent in utilization of brokerage services. Some products, particularly raw posts, were consistently brokered out. Agricultural products also seemed to be sold through brokers for many producers. The decision to use brokers depends on products, market conditions, and producer relationships with consumers.

The producers included in the survey sell most (63%) of their products west of the Rocky Mountains (see **Figure 14**). The proximity of the Midwest makes it the next most popular region at 20%. Products shipped to the Eastern and Southern regions of the U.S. compose 9% and 7% respectively. The regional distribution varies due to producers' locations and regional cultures. For example, wood fences are popular in Western states, and this region also has many agricultural applications for roundwood products.

**Figure 14 – Regions Where P&P Products are Sold (% by Region)**



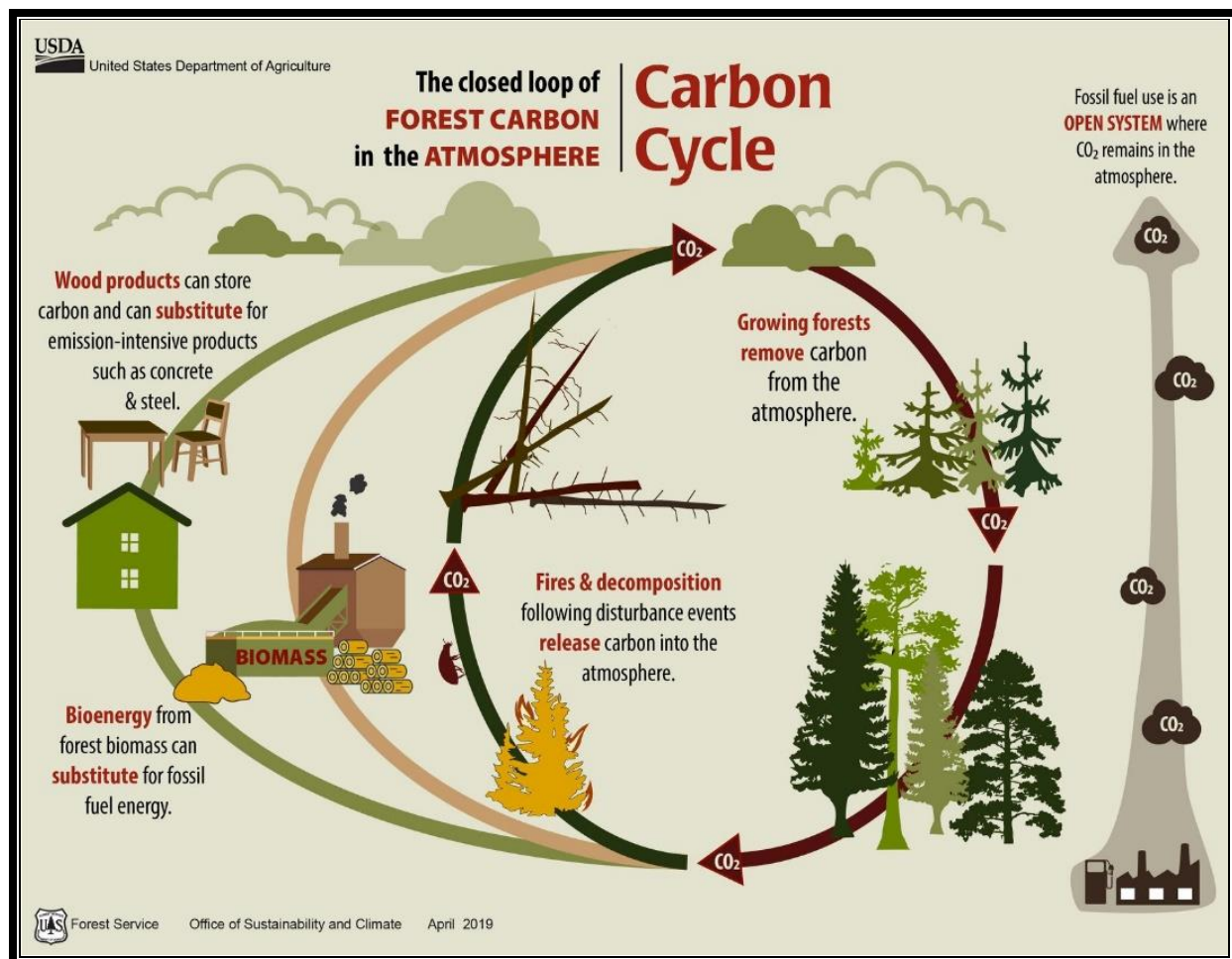
### 2.7 OPPORTUNITIES

Wood products are quickly becoming seen as a vital tool in the fight against climate change because properly preserved wood products can store sequestered carbon for generations. The use of wood in construction processes also produces fewer greenhouse gases than concrete and steel. Therefore, the wood products industry and many others are touting wood as the material of choice for consumers.

The roundwood industry should get more involved in this conversation. Preserved posts and poles typically store carbon for generations. The material removed for P&P production is usually small and of low value to any sector but the roundwood industry, whose activities make it economically worthwhile to remove as well as reducing the risk of wildfire. Failure to remove the material is likely to increase greenhouse gas emissions as it combusts in the increasingly likely event of a wildfire.

Raw material suppliers—particularly USFS, BLM, and other public entities—should embrace the opportunity to provide smaller material to P&P producers to increase storage in the carbon cycle. **Figure 15** below illustrates how wood products can help keep carbon out of the atmosphere. Since most forest management activities plan to remove this material, allowing it to be used in P&P manufacture could create additional carbon storage.

**Figure 15 – The Forest & Forest Products Carbon Cycle**



The independent nature of producers does not facilitate the flow of information regarding the industry. Many are not involved in associations such as Intermountain Roundwood Association, and do not exchange information with others in the industry. Many are members of their state logging associations, but the focus there is not on the production of posts and poles. Magazine subscriptions which discuss wood processing and handling are common among producers, though not all receive them. The industry could increase efficiency and production if there were an avenue to exchange ideas.

Good idea/discussion topics would include those about the manufacturing process. For example, the industry uses many methods of bucking and debarking logs. Understanding why one producer uses a small excavator with a processing head versus another that uses a log bucking line would be valuable knowledge for the industry.



## CHAPTER 2—DETAILED METHODOLOGY & RESULTS

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Another opportunity for sharing process information amongst producers is how USFS offers timber and determines measurement for payment. For example, the process for weighing trucks differs across the West. Some National Forests or USFS Regions allow an average tare weight for log trucks, while in other areas trucks must weigh out. This adds considerably to the cost of trucking when trucks visit the scale for a light weight each trip. Most P&P material is of low value to the Forest Service, so allowing less expensive methods would facilitate removal of the raw materials.

Producers of other wood products have access to weekly price information for commonly produced products, while roundwood producers do not. For example, there are a few publications which track lumber and wood panel prices across North America. This offers wood products vendors an indication of market prices for their products and enables them to follow the markets for competing products. Similar information does not exist for the roundwood business.

An ability to follow market trends helps businesses align production with expected demand and price. It also allows them to align raw material pricing with the market. The roundwood industry lacks the pricing volatility of lumber and wood panels, because a high proportion of their products are sold locally to longtime customers and community members.

That said, the customer base is changing. As society demands to live in more rural areas, new people are arriving in the communities where posts and poles are produced. These new customers have different values than the traditional customers, who are usually ranchers and farmers. To most of the new customers, the price of fencing material is minor relative to the cost of the properties and homes they have just purchased. Tracking roundwood prices, as well as substitute products, may give the P&P producers opportunities for greater profits.

Another opportunity for P&P producers is assistance with two issues observed during the survey: a shortage of labor and generational change. If producers are unable to resolve these issues, they will impact future production and the related consumption of small logs. Grants could help producers study opportunities to increase efficiency through automation or better business practices. Providing guidance on ways to transfer or sell businesses to the next generation would also be helpful.

## CHAPTER 3 – CONCLUSIONS

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### 3.1 LESSONS LEARNED

The P&P producers in the Western U.S. are an independent, resourceful group who have been meeting the needs of other businesses in the West for many decades. Primary customers for P&P products are those in the ranching and fruit growing businesses, which have also been in the West for many decades. Much P&P production has evolved with the needs of these industries in the West.

Logs are the limiting factor for many P&P producers in the West and, as the largest forestland owner, the USFS supplies most of those logs. The desired species for P&P production is lodgepole pine, although ponderosa pine and other species are used when they are the most available and fit the application. P&P producers primarily utilize logs from 2”-7” on the small end, with some larger logs used in special applications.

Fencing is the primary application for P&P products, followed by agricultural uses such as orchards and hops trellises. The culture of the producer’s region significantly influences the products they produce. For instance, latillas are rarely seen outside the Southwestern U.S. Producers also provide furniture stock, tipi poles, power poles, and many other specialty items.

Most of the products produced in the P&P industry require preservation to enhance their durability and extend their serviceability. Less than a third of producers perform preservation, as most rely on others who do maintain preservation facilities. This requires a good relationship between the producer and preserver, or between the producer and brokers who purchase raw P&P products and send them to preservers.

During the survey period, demand for P&P products was strong and most producers expected that demand to continue. New development in the West helped bolster demand, particularly as people left cities during the COVID pandemic. These new customers bring a different perspective on the value of wood products and might provide an opportunity to bolster margins in the P&P business. An index related to alternative wood products which covers P&P products, by-products, and competing products would be helpful for producers to identify opportunities.

The production of P&P products is a relatively simple process with margins lower than some other businesses. Therefore, capital investments in new equipment and new technology are rare. Producers often maintain, modify, and develop equipment to meet their needs rather than buying new equipment. Most operators are consumed with the procurement of raw materials, production, and sales; they rarely have time to explore new information or technologies. An opportunity exists for sharing information that may help the production of P&P products.

Based on those surveyed, a generational transition is underway for most of the P&P industry. Some businesses are now run by the second generation, while some are in the process of transitioning to the next generation. Many owners that have been in the business for several decades have not identified their successors. This is concerning for future production of P&P

## **CHAPTER 3—CONCLUSIONS**

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products. Helping those in the business with transition practices is an opportunity to maintain current production.

P&P producers also have an opportunity to offer their business models as part of the solution to climate change concerns. Their utilization of materials that would otherwise fuel greenhouse gas-emitting wildfires, along with storing sequestered carbon in long-lived wood products, aligns well with the USFS narrative of reducing wildfire risk and increasing carbon sequestration through thinning treatments. The P&P industry could espouse this concept to increase the availability of raw materials and acceptance of their products in the market.

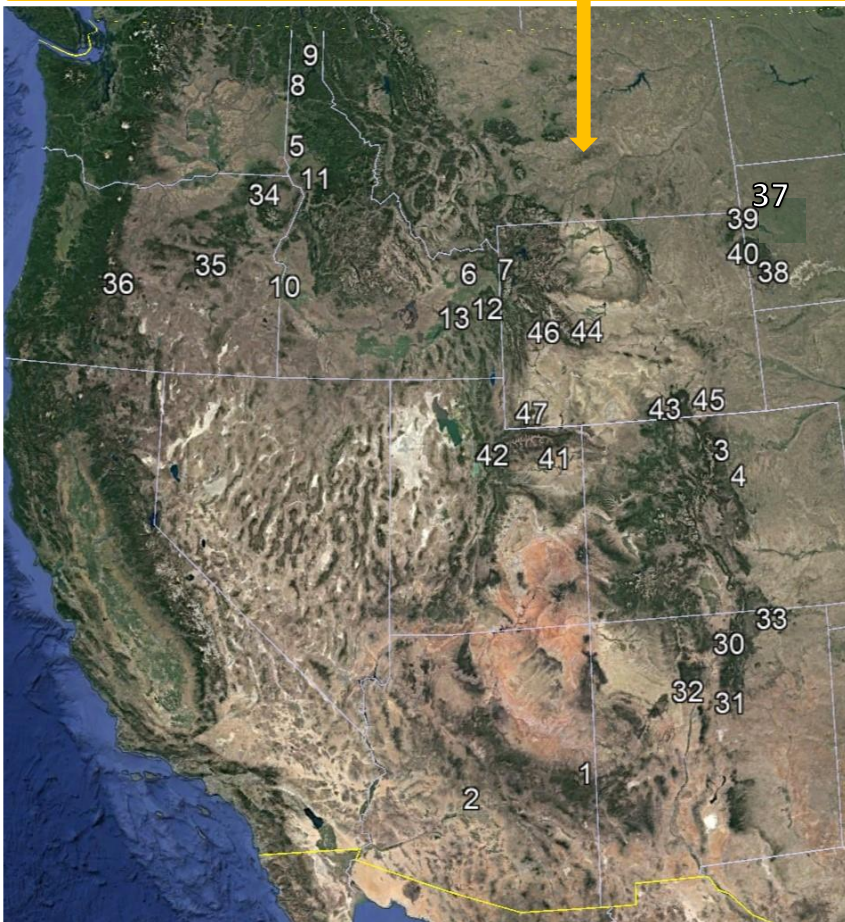
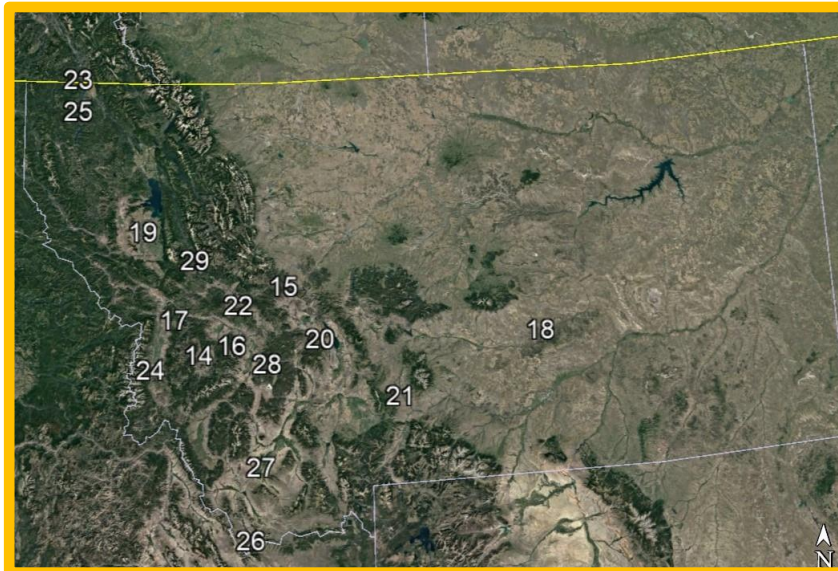
### **3.2 ACKNOWLEDGEMENTS**

BECK would like to thank the Western Wood Preservers Institute, Intermountain Roundwood Association, and USFS for their support of this project. The COVID pandemic prolonged the survey period, and those sponsors continued their support. Their patience resulted in a thorough understanding of the post and pole industry and its importance to the Western U.S.

The information in this report would not be available without the participation of those in the roundwood industry. BECK would like to thank those that participated in the survey, as well as those that provided information regarding the industry. Hopefully this report and its usages will bolster their businesses as a first step toward navigating this sector through the changing times.

# APPENDIX

Figure 16 – Post and Pole Producer Map: Western States & Montana Call Out



Legend	Company	Location
1	Arizona Log and Timberworks	Eagar, AZ
2	Bowen Poles	Phoenix, AZ
3	Morgan Timber Products	Fort Collins, CO
4	United Wood Products	Longmont, CO
5	Camas Post Yard LLC	Craigmont, ID
6	Cooley Brothers	Roberts, ID
7	Kaufman Timber	Driggs, ID
8	North Idaho Post and Pole	Hayden Lake, ID
9	Panhandle Forest Products	Cocolalla, ID
10	Parma Post and Pole	Parma, ID
11	Pineda Post and Pole	Grangeville, ID
12	Harrop Post and Pole	Rigby, ID
13	Pratt Logging	Blackfoot, ID
14	Boese Wood Fence	Phillipsburg, MT
15	Bouma	Lincoln, MT
16	Flint Cr	Hall, MT
17	Frontier Posts	Stevensville, MT
18	Gebhardt Post Plant & Sawmill	Round Up, MT
19	Hunt's Timbers Inc.	St. Ignatius, MT
20	Marks-Miller	Clancy, MT
21	Myrstol Post and Pole	Clyde Park, MT
22	Pfendler	Drummond, MT
23	River Country Wood Products	Eureka, MT
24	Small Diameter Log Co.	Hamilton, MT
25	Stillwater P&P	Eureka, MT
26	Stosich Inc	Lima, MT
27	Tash T-Diamond Post-N-Pole	Dillon, MT
28	Whispering Pines Pole	Deer Lodge, MT
29	Roundwood West Corp.	Seeley Lake, MT
30	Olguin Sawmill & Firewood	Taos, NM
31	Spotted Owl Timber	Santa Fe, NM
32	Walatowa Timber Industries	Jemez Pueblo, NM
33	Western Wood Products	Raton, NM
34	Heartwood	Wallowa, OR
35	Iron Triangle P&P	Seneca, OR
36	Quicksilver	La Pine, OR
37	Aker Woods	Whitewood, SD
38	Forest Products Distributors	Rapid City, SD
39	Hills Product Group	Whitewood, SD
40	Wheeler Lumber	Whitewood, SD
41	Huberwoods	Lapoint, UT
42	Wasatch Timber Products	Heber City, UT
43	Bockman Timber and Pole	Encampment, WY
44	Doubletree Logging & Construction	Lander, WY
45	Lodgepole Products, Inc.	Laramie, WY
46	Pickaroon Timber Products Inc.	Pinedale, WY
47	Ayres & Baker Pole & Post Inc.	Mountain View, WY