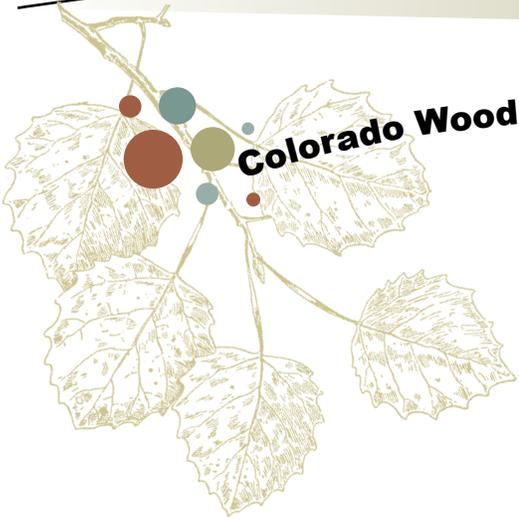


COLORADO WOOD UTILIZATION AND MARKETING ASSISTANCE CENTER



**2003/04 Annual Report
July 2004**

Colorado Wood Utilization and Marketing Assistance Center



The Colorado Wood Utilization and Marketing Assistance Center (COUMAC) is designed to provide relevant assistance to forest stewards and businesses involved in improving the condition of Colorado's forests. Colorado's wood consumption continues to grow along with wildfire risks, yet the state imports well over 90% of the solid wood products it uses. COUMAC is working to make linkages between forest health, loggers, sawmills, fuel mitigation companies, local governments, manufacturers, builders, and consumers.



COUMAC is a unique partnership between the Colorado State Forest Service, US Forest Service, and Colorado State University. The program evolved out of lessons learned from the Four Corners Sustainable Forests Partnership, Colorado State University (CSU) based Interior West Center, and traditional approaches to Utilization and Marketing Technical Assistance. Many of the program concepts were part of Dr. Denny Lynch's vision for a CSU based wood outreach center. The USDA Forest Service's Forest Products Laboratory in Madison, Wisconsin has been an ally to our efforts as well.

COUMAC was launched in July of 2003 and is just entering its second year. This report covers activity between July 2003 and July 2004. US Forest Service State and Private funding for fiscal years 2003 and 2004 has totaled \$1,087,000. Colorado State Forest Service (CSFS), CSU, and other partners are providing a dollar for dollar match, therefore doubling the funding impact.

COUMAC Provides:

- A small grants program focused on the utilization of wood products resulting from fuel reduction and restoration work
- Workshops, conferences, and field experiences
- Applied research and dissemination relevant to better utilization of small diameter and under utilized species
- Technical assistance through a team of experts assembled from the cooperating entities and other sources

Emphasis Areas:

- Biomass Innovations (energy, composting, shavings, mulch, chunk wood)
- Value-Adding
- Harvesting Efficiency
- Marketing
- Product Development

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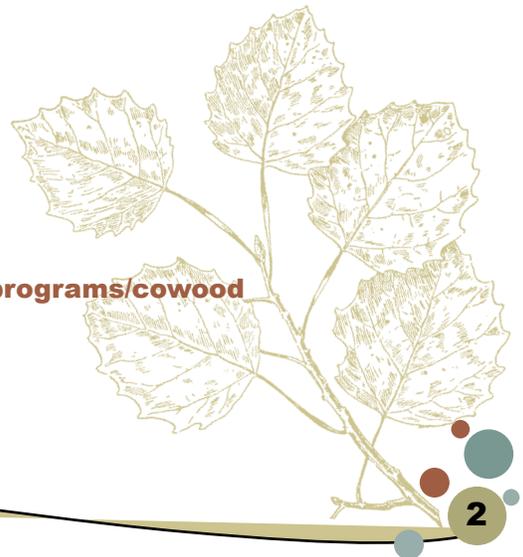
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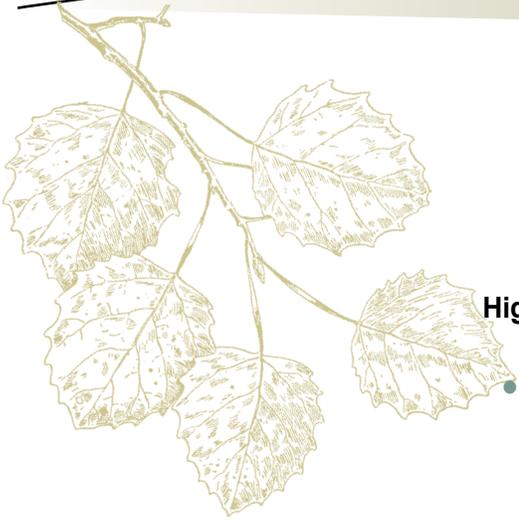
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Highlights



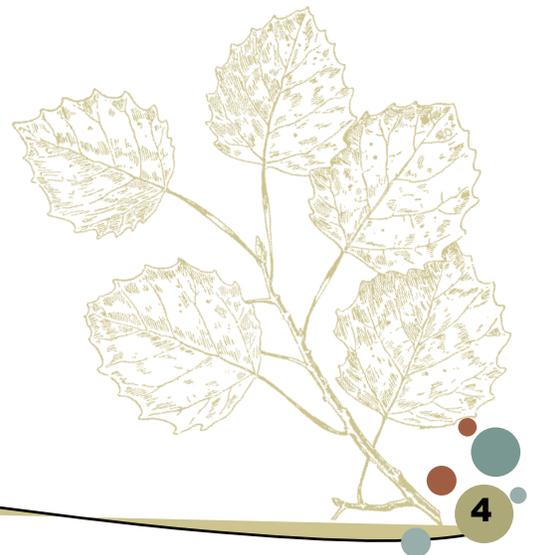
- 29 grant proposals for the Colorado National Fire Plan Community Assistance Grants Program were received with an approximate request of \$900,000. Eleven projects designed to improve the utilization and marketing of wood products were chosen totaling \$239,000.
- The Team made over 100 technical assistance contacts based on business requests.
- 27 applied research and/or publication efforts are completed or underway
- The COUMAC team sponsored the Western States Utilization and Marketing Meeting. Approximately 45 U&M specialists from around the West attended.
- Local materials, provided by local business, appear in a “Discovery House” designed by a prominent Front Range homebuilder. See it at http://www.mcstain.com/smart_growth/discovery_house.htm
- Piece-on-piece round wood construction will appear at an interpretive center on the San Juan National Forest.
- Forest Restoration and fuel reduction equipment demonstrations on the Front Range and Western Slope attracted over 100 attendees.
- A Wood Finishing and Adhesives Workshop drew 40 participants.
- A Colorado Wood Branding Campaign is underway with development of the Colorado Forest Products Logo (insert logo) and a partnership with the Colorado Department of Agriculture’s “Colorado Proud” program.
- A statewide tour exposed industry to wood/plastic composite technology and possibilities. A mobile extruder is under development.
- Staff was instrumental in bringing the Nederland Community Center wood fired boiler into operation.
- A comprehensive Wood Products Directory is available in both printed and CD format. An advanced

Highlights (continued)

database of businesses in the state will soon be available and regularly updated.



- Three workshops designed for US Forest Service project “Bidders” drew over 90 participants. Two more are planned along with a hands-on demonstration to help businesses register online with FedBiz and the State Forest Service.
- Technical and small business development support/assistance resulted in recent investments in new small diameter sawmilling technologies along the Front Range of Colorado.
- Technical and industrial support is moving businesses toward the development of innovative, environmentally friendly wood preservative facilities in Southwestern Colorado. ●●●



State of Colorado's Forest Products Industry and Outlook

The timber industry in Colorado and surrounding states has changed drastically over the last 30 years.

The current forest products sector is a “remnant industry” at best. The causes of this decline are numerous and include but not limited to unstable supply, external competition, skill loss, lack of local or regional markets, an increasingly hostile business climate and stakeholder polarization. The decline of local sawmills (primary breakdown) prevents moving Colorado wood into local secondary and tertiary production levels, where value is added. As a result, Colorado imports approximately 1.05 billion board feet (lumber) or 90% of the wood used in the state.

It is estimated that there are currently close to 100 small milling operations around the state. These primarily represent one or two person operations with local markets for rough sawn lumber and timbers, mine props, posts and poles, mulch, chips, animal bedding and firewood. Many of the more successful small operations are logging contractors displaced by sawmill closures who have bought small mills to stay in business. There are less than five mills with any capacity in the state to provide real employment or wood utilization options. Those mills with capacity to deal with low value, small

diameter material in quantity have all but disappeared.

Approximately 300,000 posts are used each year in Colorado for agricultural fencing. An additional 224,000 board feet of post and poles (about 25,000 to 30,000 posts and poles) are used annually for residential post and pole fencing. There are at least 7 mills that can produce post and poles along the Front Range (WY border to NM border). Combined capacity of these operations is estimated to be 125,000 to 150,000 posts. The preferred species (about 90% of the market) is lodgepole pine. There are two treatment plants on Colorado's Front Range, currently purchasing local material for treatment.

There are 9 animal bedding, mulch and compost producers in Colorado. Approximately 130,000 cubic yards of this material is used per year. It is estimated that approximately 80,000 cubic yards is imported to Colorado each year. We have been working to expand our market share here: for example through grants and technical assistance Renewable Fiber has installed a new processor and has created a demand for 70-100 cords per day of small pine for animal bedding.



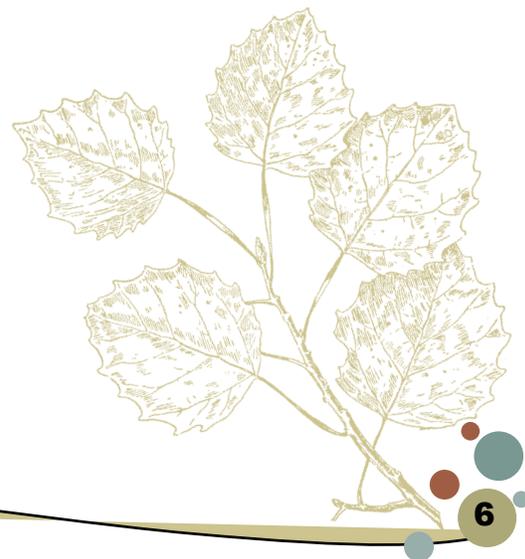


The small diameter dilemma in the mid-90s is now more of a crisis with the closure of US Forest Industries (studs) and Louisiana Pacific OSB both outlets for small material. Out of state mill closures have also reduced capacity; Rio Grande Lumber in Espanola, NM closed in early 2004 and LP Saratoga, WY closed in 2003.

Since Colorado imports over 90 % of the wood it uses, there are opportunities to penetrate certain markets. COUMAC is providing technical assistance to all sectors of the forest products industry. Future restoration and mitigation programs must be designed to provide a consistent supply and at a reasonable price. No single product will utilize all the small trees needed to be removed. Instead, a stable, diverse wood industry is most desirable.

It appears that 80-96% of the trees in need of removal to improve ecological conditions are between 5 and 11.9" in diameter. Approximately 4-18% are 12" and greater. These smaller diameter classes are a liability to the economics

of treatment and processing. In many situations cutting, skidding and sorting costs of this small material must be subsidized in order to meet financial expectations of final product value. The tradeoff is chipping and spreading back on the site or prescribed fire, both of which have a cost and environmental consequences. ●●●



Adding Value to Forest Products and Improving Product Marketing

Much of the raw material available in Colorado is small diameter (under 12 inch dbh) or low quality. Primary species targeted for restoration or fuels reduction include ponderosa pine, piñon juniper, and white fir. Aspen is currently one of the most marketable species in the state with many value-added possibilities. Despite being prolific in the state, producers have increasingly found access to aspen difficult. Management needs still exist in higher elevation spruce, fir and lodgepole pine species as well.

The cost for removal of the target species mentioned has continued to sky rocket with increases in fuel prices. Estimates compiled by researchers and land managers place the cost on a per acre basis on average at \$1,000. Most acceptable bids come in much lower, therefore creating a loss for operators. We have emphasized projects and research that add value to small diameter wood in an effort to increase profit margins and lower public costs for forest restoration.

Branding Campaigns

Raising consumer awareness about the availability of CO wood products as well as the potential impacts of their purchases on forest health is the focus of branding campaign efforts. We still

have a long way to go on this effort. Craig Jones has shown leadership in this program area.

- Front Range Colorado Christmas tree Promotion Campaign included website, point of sales posters and tags
- Front Range Fire Wood Marketing Program
- Colorado products Website development: www.forestproducts.org
- Colorado Forest Products logo development



- Partnership with Colorado Proud program through the Colorado Department of Agriculture. TV and radio spots will run healthy forest message and logo.

Winning Colorado Builders and Architects

Chris Koziol and Gailmarie Kimmel of the Interior West Center (IWC) have worked tirelessly for several





years making linkages between small diameter wood, forest health and builders/architects with their Forest (Re) Building program. CSU team members, Chris Jennings and Dave Bueche have also begun to support this effort through several projects designed to provide actual samples of products from local wood. Many of these efforts are starting to pay off through time and relationship building.



- McStain Neighborhoods connected with Mark Morgan, Morgan Timber Products, to place lodge pole timbers in their Front Range Discovery House. The timbers were used to announce the entryway. Printed brochure text says: “Small dimension wooden posts are from Colorado’s tree thinning program. So they not only hold up the porch roof, they contribute to the health of our state’s forests.” http://www.mcstain.com/smart_growth/discovery_house.htm
- Log panels built with small diameter pine using the piece-on-piece construction technique will be placed on the San Juan National Forest’s Chimney Rock Archeological Area. Efforts are under way to introduce this technique to local mills.

- Sample molding products made from local species were designed and presented to a gathering of local architects.
- Efforts are underway with local secondary wood-products manufacturers and fuel reduction contractors to evaluate machining and mechanical properties of beetle-killed piñon in southwest Colorado. Current research emphasis is on suitability of flooring applications.
- A custom door maker in Ault has worked with staff to experiment with local wood in his products.
- The National Association for Interpretation assisted with the development of a Forest (RE) Building plan targeted at architects.
- IWC coordinated a project with student architects from University of Colorado-Denver to design the EDUCO environmental education lodge near Red Feather Lakes with material sourced from EDUCO’s land.



- The publication “Overcoming Building Code-Related Challenges to Construction Uses of Locally-Sourced Forest Thinnings and Small Diameter Wood” was distributed at Partners in Stewardship Conference, the national gathering of seven public land agencies. <http://www.interiorwestwood.colostate.edu/program2.htm>

Solar Kiln Testing

Drying product adds value. Opportunities for the use of solar kilns are high in Colorado’s dry climate. Chris Jennings, CSU and Tim Reader, CSFS have worked with three businesses to incorporate drying technology such as solar kilns into their manufacturing process.

Improvements to Process and Financial Performance for Colorado’s Sawmills

A focused initiative is underway to affect improvements to industry processes and financial performance. The effort includes development of a short course curriculum on process improvements, the use of simple spreadsheet and computer modeling “tools”, as well as conducting improvement studies with individual sawmills. Partners in this effort include the Forest Products Laboratory, Colorado State University, CSFS, and local business development and engineering consultants. 



Biomass Innovations

Greater utilization of the lowest value wood for heating and power generation is a popular concept all over the West. Thirteen states now have renewable energy portfolio standards (REPS) which mandate a reduction in dependency on fossil fuels. Three have voluntary standards. Colorado currently relies heavily on fossil fuels for energy and does not have a REPS. Based on consumption statistics from the Department of Energy in 2000, Colorado uses fossil fuels in the form of coal, natural gas, and petroleum to provide almost 98 percent of the energy consumed in the state. Just over 2 percent of energy comes from renewable energy sources and less than 1 percent of energy consumed in Colorado is derived from wood and forest biomass. (Learn more in Kurt Mackes position paper: Assessing the Impact of the Colorado Renewable Energy

Portfolio Standard on the Use of Forest Biomass).

Kurt Mackes and Chris Jennings have compiled the following “biofuel” statistics for CO:

Firewood: Capacity limited primarily by demand. In 1999, 30,415 cords of firewood were consumed.

Pellets: In 1999, an estimated 50,000 to 60,000 tons of wood pellets were consumed. Colorado currently has no capacity to produce pellets.

Wood wastes and residues (including chips): A high percentage of these residues remain in the forest and use is currently limited by lack of demand (low prices paid for chips) and transportation costs. Although there are numerous biofuels projects at various stages of planning and





development, these are the only operations currently accepting wood (primarily chips):



- Nederland biofuels plant consumes 3 to 4 tons of wood chips daily during the winter (less in spring, fall, and summer).
- Walden biofuels project (CPC) consumes an estimated 150 to 200 tons (possibly less if unit is used intermittently) of wood chips annually.
- Holcim Cement Plant could co-fire up to 30,000 to 40,000 tons of wood chips annually with coal if the economics could be worked out.
- Aquila (W. N. Clark Power Plant) is willing to co-fire wood with coal if sources of wood that are price competitive with coal can be delivered to the plant. The plant is permitted to co-fire up to 5% of wood by weight (or about 25 tons per day) with coal.
- Possibility of wood fired boilers being placed in two new District Offices on the San Juan National Forest.

Projects

- A graduate student working under Kurt Mackes and in cooperation with Scott Golden

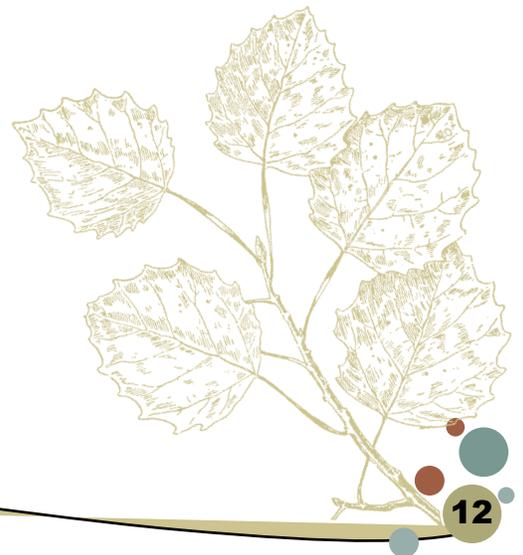
of Silva Logis is developing Biomass Formulas for Ponderosa Pine. A report will be available in 05.

- Craig Jones, CSFS has been instrumental in bringing the Nederland Community Center Biomass Project on-line including the development of a brochure, supply and delivery systems.
- A graduate student working under Kurt Mackes conducted a survey of Nederland residents to evaluate public perception of Nederland biofuel project.
- Discussions are underway with Forest Energy Corporation in Arizona to place a portable Pellet Operation on the Front Range.
- A great deal of support and technical assistance has been offered the Jefferson County Bioenergy Project.
- Kurt Mackes has worked for several years with the Fort Collins Holcim Cement Plant conducting trials to prove the efficiency of

utilizing wood waste to fire cement production. Holcim is capable of receiving wood waste but still relies on coal due to economics.



- Kurt Mackes and Craig Jones have both worked as advocates around the state for the heating of schools with wood fired boilers. Poudre School District in Fort Collins is pursuing wood gasification unit placement in some of their mountain schools. Craig pursued funding through the Fuels for Schools program to begin a CO Initiative. This funding did not come through. ●●●





Technical Assistance and Outreach

Technical Assistance and outreach are the heart and soul of COUMAC. Our staff and associated consultants spend a lot of time traveling the state meeting one-on-one with businesses and presenting at meetings and conferences. We have documented over 100 technical assistance contacts for staff. This does not count the numerous contacts made by Dawn Gardner and Randy Johnson of Rocky Mountain Home Based Business Association. We respond to requests for assistance as well as contact businesses to set up site visits.



- Dawn and Randy have conducted entrepreneurial site visits with 25 businesses around the state to provide technical assistance, review business plans as well as identify markets and access to capital. In addition they have developed a Small Business Check-Up Form to help identify areas businesses may need assistance with.
- Craig Jones led a tour of projects around the Front Range for the Western Forestry Leadership Coalition.
- SmallWood 2004 Poster Presentation: Biomass to Bioenergy: A Community Success Story by Craig Jones and U&M presentation by Chris Jennings.
- Booth space and poster at BioEnergy Conference in Denver.
- Chris Koziol, Gailmarie Kimmel, and Bob Dettmann with the USFS presented at the Partnerships in Stewardship conference in LA.
- Chris Koziol presented at Timber Framing Guild-Western Conference in Estes Park, CO.
- The first Colorado Forest Industries Directory published in over seven years was compiled by Chris Jennings. Available in print and CD.
- An industry database is being developed by Tim Reader. The database will allow for easy updates and sorts by a variety of parameters.
- Kurt Mackes and Chuck Smith, Department of Construction Management/CSU toured the state making site visits with mill owners to promote Wood/Plastic Composites. Efforts are underway to develop a portable extruder.



Training

Providing training and workshop opportunities around the state is an ongoing priority.

- Three “Bidders Workshops” have been held with over 90 participants. Two more are planned with a hands-on computer demonstration to show businesses how to register on-line. These workshops are designed to inform contractors how to access federal and state contracting opportunities. They are coordinated by Dawn Gardner and Randy Johnson.
- An Equipment Demonstration was coordinated by Stephan Reinhold, formerly CSU, with 100 participants in Fort Collins and Hesperus/Durango Colorado.
- Staff will continue to conduct state-wide workshops and investigations to improve sawmill process and financial performance.
- Partnership is forming between COUMAC, Colorado Timber Industry Association, and US Forest Service to introduce, adopt, and improve safety standards and compliance in our service, logging and sawmilling industries.





Research and Publications

COUMAC is continually looking for appropriate applied research projects. Our research is based on feedback from our clients in the business community.



- A MTS machine was refurbished and is operating. Testing of white fir and ponderosa pine strengths is expected to continue.
- Applied Research in Timber Harvesting by Mackes (Report Available).
- Determining the BTU Value of Standing Dead Trees Killed by Fire in CO by Mackes (testing under way/Report in 05).
- Using Wood/Plastic/Fly Ash Composites as an Alternative Fuel for Generating Electricity by Mackes (underway).
- Influence of Growth Rates on Small Diameter Ponderosa Pine Wood Properties (in publication Mackes with others).
- Sawmill Survey to evaluate program and tech assistance needs by Chris Jennings (71 mills in CO – 27 % response rate).
- Perceptions of Wood as a Building Material, a survey of Colorado Homebuilders by David Bueche.
- Piñon Materials Testing and Working Property Evaluations by Tim Reader
- Evaluation of Borate Treating Methods by Tim Reader
- Southwest Colorado Treated Wood Products, survey by Tim Reader, Clyde Church, Joe Keck and Randy Johnson
- Pittington Mill Drying Study by Chris Jennings
- Roper/Lankford Case Studies by Chris Jennings
- The Cost of Colorado Fires (Data has been collected from four different Colorado fires to determine associated costs by Mackes and Denny Lynch).
- USDA Forest Products Lab Wood Handbook converted to CD by Chris Jennings.



- Overcoming Building Code-Related Challenges to Construction Uses of Locally-Sourced Forest Thinnings and Small Diameter Wood by David Eisenberg of Development Center for Appropriate Technology
- An Assessment of the Potential for Large Scale Wood Utilization Projects along the Colorado Front Range by Mackes and Lynch
- Assessing the Impact of Colorado Renewable Energy Portfolio Standard on the Use of Forest Biomass: Position Paper Mackes
- Articles by Chris Jennings appeared in Independent Wood Lot, Biocycle, and Green Building
- Feasibility of Grading Lumber Produced by Independent Mills in the Interior West by Ron Anthony

Technical Bulletins by Chris Jennings

Small Business Financing Information compiled with help from the Colorado Office of Economic Development, outlining opportunities for small businesses to find answers to their financing needs

A Simple Profit Planning and Cost Management System for Small Sawmills Article written by Robert E. Pajala of Minnesota Department of Natural Resources.

How well does my air dry yard stack up?: CSU/CSFS U&M Technical Note #1, provides a checklist for mill owners to evaluate their air dry yard

Operating an Effective Air Dry Yard (Part I): CSU/CSFS U&M Technical Note #2, written by Dr. Fred Lamb, Professor of Wood Science and Forest Products at Virginia Tech

Operating an Effective Air Dry Yard (Part II): CSU/CSFS U&M Technical Note #3, written by Dr. Fred Lamb, Professor of Wood Science and Forest Products at Virginia Tech

Why are my boards warped and how do I prevent it from happening? CSU/CSFS U&M Technical Note #4, includes an article written by drying expert Gene Wengert of University of Wisconsin

Our Industry, our forests, and you. CSU/CSFS U&M Technical Bulletin #5, facts and myths about forest in Colorado, and business owner's opportunity to help spread correct, factual information.

Sawing Frozen Timber with Circular Headrigs CSU/CSFS U&M Technical Bulletin #5, technical report from 1974, written by sawmill expert Stan Lundstrom of the Forest Products Lab