

# Utah Forest News

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## Cross-Laminated Timber in Utah: A Potential Home Run for Industry and Forests

Developed in Europe in the 1990s, cross-laminated timber (CLT) technology is slowly gaining a foothold in North America as improvements are made in fabrication efficiency and utilization capacity. Cross-laminated timber walls are constructed from pieces of wood that are joined together using glues, hardware, or wood joinery. Large planks of wood can also be used by butting them together into sheets that are then laminated at 90 degrees to each other. Typical panels consist of three, five or seven layers of dimensional boards. Using these methods, panels of almost any size can be created. This type of construction offers a long list of benefits:

- Decrease in dependence on carbon-intensive practices such as concrete and steel toward a more sustainable building design with CLT.
- Reduction in wildfire hazard by using wood that is substandard for traditional lumber products due to insect damage. This wood would have been traditionally left in forests, slowly decaying and emitting CO<sub>2</sub> over time.
- Decrease of energy consumption and cost for heating and cooling due to the high **energy efficiency** of CLT.
- Increased efficiency in construction time: prefabricated CLT walls go together quickly and reduce **construction costs**. *(continued on page 4)*

*Cross-laminated timber construction is a potential game changer in the timber utilization industry. This construction allows for the use of “waste wood”, making CLT walls an efficient and sustainable alternative to traditional frame construction.*



Cross-laminated timber panels. | Photo credit: National Research Council Canada.

### In This Issue

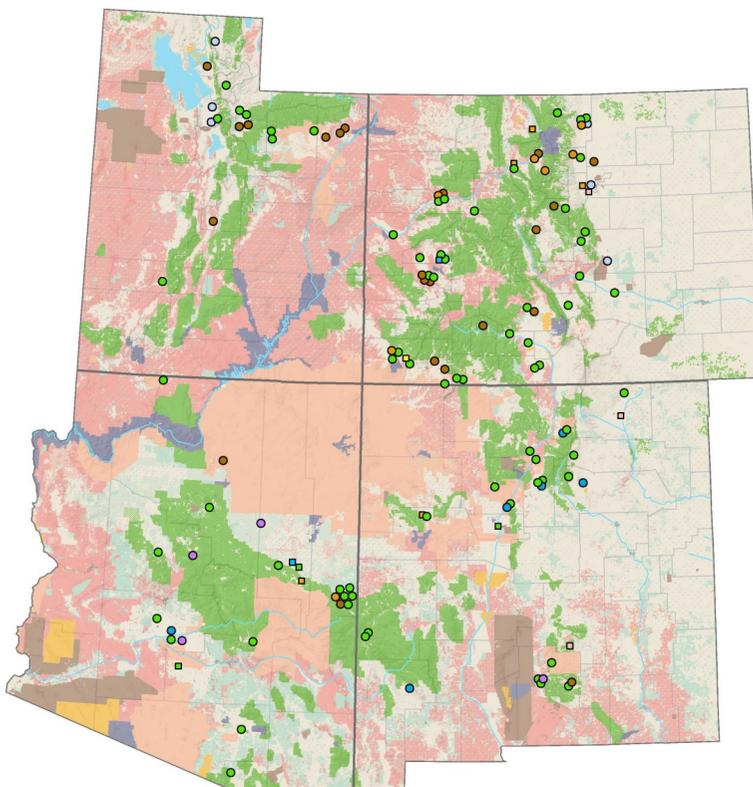
- Four Corners Timber Harvest: An Overview.
- Jason Barto named Arborist of the Year by ISA.
- Making essential oils from pinyon-juniper trees? One Utah company is doing just that.

# Four Corners Timber Harvest: An Overview

Active timber harvesting and utilization is documented in a recently published report titled “The Four Corners Timber Harvest and Forest Products Industry, 2012”. The four corner states include Utah, Colorado, Arizona and New Mexico. The following information was gathered for each active sawmill facility:

- Plant production, capacity, and employment.
- Volume of raw material received, by county and ownership.
- Species of timber received and live/dead proportions.
- Finished product volumes, types, sales value, and market locations.
- Utilization and marketing of manufacturing residue.

This report is the result of a partnership between the University of Montana’s Bureau of Business and Economic Research and the USDA Forest Service, Interior West Forest Inventory and Analysis Program. These two entities have been conducting mill censuses in the Rocky Mountains since the 1970s. Key findings include:



### Mill Types

- Sawmill
- Post/pole
- House log
- Firewood
- Log furniture
- Vigas/latillas

- Biomass
- Bark products
- Fuel pellets/energy logs
- Excelsior
- Shavings

### Selected Ownerships

- Tribal
- State/Local
- National Park Service
- Bureau of Land Management
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- Other Federal

Four Corners Active Wood Processing Facilities, 2012.

## Upcoming Learn at Lunch Webinar Schedule

**March 22:** Options for Reducing Wood Smoke in Utah and Results from the Northern Utah Wood Smoke Survey.

**Speaker:** Joel Karmazyn (DEQ) and John Ackerly (forgreenheat.org).

**April 19:** Maple Dieback and Decline in Michigan & Evolving Paradigms of Aspen Ecology and Management.

**Speaker:** Tara Bal (FS-Michigan) and Kevin Krasnow (Teton Science School).

**May 11:** An Approach to Pruning You Won't Forget.

**Speaker:** Dr. Ed Gilman (Professor, Urban Trees and Landscape Plants, University of Florida).

**June 14:** Recent U.S. Forest Health Status and Trends & Tree Sleuths and Why are Trees Dying in Vermont?

**Speaker:** Kevin Potter (Research Associate Professor, North Carolina State University) and Sandy Wilmont (Forest Health Specialist & Climate Change Coordinator).

**July 12:** Ancient Aspen Abundance as Shown in the Pollen Record of the West

**Speaker:** Vachel Carter (Ph.D. Candidate, University of Utah, Department of Geography).

**August 30:** Estimating How Projected Increases in Wildfires Would Change Erosion Throughout the West

**Speaker:** Joel Sankey (USGS, Flagstaff, AZ).

**September 20:** Lands, Fire and Everything in Between, LANDFIRE Data and Models Characterize Your World

**Speaker:** Jeannie Patton, Randy Swaty, The Nature Conservancy.

For more information, visit our website: <http://forestry.usu.edu/html/video/Webinars>.

# Sagebrush Ecosystem Conference Report

A conference tackling the conservation of the imperiled sagebrush ecosystems of the West drew unprecedented numbers to Salt Lake City this February. The conference titled [Sagebrush Ecosystem Conservation: All Lands, All Hands](#) was attended by more than 500 people (from over 20 states and one Canadian province) and drew attendees from federal, state, non-profit and academic sectors as well as private landowners.

Over this 3-day conference, participants learned about existing cooperative partnerships that seek a balance between managing suitable habitat for the species of concern, greater sage-grouse, while simultaneously managing for fire, invasive species, and grazing across the West. One takeaway from the conference was apparent: continued collaboration between all parties where the most recent science is shared and discussed is imperative.

Fragile sagebrush ecosystems can only be resilient in the face of growing threats (i.e. climate change, overgrazing, fire, and invasive species) when scientists and citizens commit to communicating and listening to each other.

Recordings of all the speakers' presentations will be available at <http://sagebrushconference2016.org/> in mid-May, 2016.

(continued from page 2)

- 201.7 million board feet (MMBF) of timber was harvested from the Four Corners Region during 2012. The harvest in Utah was 19.4 MMBF.
- Timber-processing capacity was 451 MMBF, up 30% from 2007; increase was due to new or reconfigured mills designed to generate electricity or produce energy products, i.e., fuel pellets.
- 129 primary timber-processing facilities were active in the region: 70 sawmills, 22 log home manufacturers, 7 post and pole facilities, 6 log furniture producers, 6 viga and latilla (products used in roof or ceiling construction) producers, and 18 other facilities.
- 76.3% of the harvested volume came from public lands, 23.7% came from nonindustrial private forest and tribal timberlands.
- Four corners timber processors produced 278,000 bone dry tons (BDT) of residue during 2012, of which just 3 percent went unused. Sawmills generated 83 percent of all mill residue in the region.

## In Utah:

| Year | Million board feet harvested | Active manufacturers |
|------|------------------------------|----------------------|
| 2012 | 19.4                         | 18                   |
| 2007 | 30.3                         | 27                   |
| 2002 | 41.3                         | 49                   |
| 1992 | 64.7                         | 51                   |
| 1974 | 62                           | n/a                  |

## Processing:

- 58% of Utah's 2012 timber harvest (11.25 MBF) was processed in Utah; 7.9 MMBF was processed in neighboring states (WY, CO, ID).
- 167 MBF was imported for processing in Utah mills from CO, ID, and Canada.
- Primary reason for manufacturing decline in Utah is similar to other states' experiences: sawmill numbers are decreasing while other kinds of manufacturing sectors are increasing. National Forests still supply over half of the timber that mills in Utah use, but the volume is much smaller than it was in the past.
- Sales from Utah primary wood products producers totaled \$15.1 million in 2012, down 49% from 2007 sales (\$29.8 million, adjusted for inflation).
- Of the timber harvested in Utah, 37% was live and 63% was from salvage or standing dead wood.

## Sawmill Sector:

- Lumber production in 2012 was 58% lower than in 2007, small mills have been hit the hardest during this decline.
- Sales from sawmills accounted for just 23% (\$3.4 million) of Utah timber processors' finished products sales in 2012. This proportion of sales from sawmills was the smallest of the Four Corners States.
- Lodgepole pine was the leading species harvested in Utah, accounting for 41% of the harvest; this represents a shift from 2002 where spruce was the leading species harvested.
- Approximately 5,600 jobs were supported by Utah's primary and secondary forest industry, this represents a 32% decline from the 8,200 jobs that existed in the industry in 2007.

By: Colin Sorenson (USFS), Steven Hayes (University of MT), Todd Morgan (University of MT), Chelsea Mclver (University of MT). Contact author: [colinsorenson@fs.fed.us](mailto:colinsorenson@fs.fed.us)

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Cross laminated timber blocks. | Photo credit: Oregon Department of Forestry.

## Carbon Sequestration

Wood is a renewable resource, and when managed effectively, forests may provide a lasting supply of timber resources. When fallen or diseased trees are utilized and made into CLT walls, carbon that previously would have been emitted by microbes breaking down decaying wood instead remains sequestered, or stored.

## Sustainability

Traditional building materials like steel and concrete require energy intensive manufacturing processes. Wood has a lighter carbon footprint because even after it is harvested, it continues to store carbon. Wood manufacturing requires less energy and emits less greenhouse gasses than the manufacturing of concrete or steel.

## Fuels Reduction

Forest fires continue to be a major threat to urban and wildland areas across the West. Climate change leaves forests vulnerable to insects, drought, and catastrophic fires. Threats from climate and insects leave in their path large swaths of dead, decaying, or diseased stands of trees. Removing these trees may be positive for reducing potential fuel loads. There is potential for both economic and environmental benefits from removing beetle-killed timber from national forests to create CLT panels.

## Efficiency

- CLT homes use approximately 1/3 less energy for heating and cooling than a traditional framed house; CLT walls insulate 10 times better than concrete and masonry, and 400 times better than steel.
- CLT buildings can be joined on site with simple and rapid connections, expediting assembly time anywhere from 10 to 50%.

## Fire Resistance

Multi-layered CLT walls will burn slower than traditional walls built with two-by-fours. In the event of a fire, the outer layer sustains most of the damage while the internal wood remains protected. A home constructed from CLT will burn at a slower and more predictable rate than a typical conventional single-family home.

Increasingly consumers seek sustainable building products that are renewable, aesthetically pleasing, and efficient. Cross laminated timber can be a part of the answer. The challenge is getting the product to the consumer at a reasonable price. To do that the right combination of resource presence, construction, fabrication and utilization capacity must converge.

To learn more about CLT market and production, visit <http://utahbiomassresources.org/interconnected-cross-laminated-timber>.

*Megan Dettenmaier* USU Forestry Extension Educator,  
*Darren McAvoy*, USU Forestry Extension Associate

## Jason Barto, 2015 Arborist of the Year

Utah's chapter of the International Society of Arboriculture has named Jason Barto, the founder of Wasatch Back Trees, Utah Arborist of the Year. Barto launched the nonprofit Wasatch Back Trees in 2012 to increase the number of trees planted and cared for in Summit and Wasatch Counties. While planting trees remains a key goal, he is also dedicated to educating the community about the importance of tree maintenance. Barto has co-organized a forestry tour which takes educators, loggers, environmentalists, and home owners deep into the Uinta forests to see firsthand what responsible forest care looks like.

Now board chairman for the Utah Community Forestry Council, Barto has spearheaded the charge to restore the antique apple orchards at the heart of Wasatch Mountain State Park with the help of local middle school students. The [Wasatch Back Trees Fruit Nuts program](#) has helped harvest thousands of pounds of apples and distributed the food to local food banks.

Through hard work, dedication and service, Barto plans to continue to increase tree awareness and improve tree health in Summit and Wasatch Counties for years to come. He hopes that all of this community collaboration will create a healthier community and the increased availability of fresh, organic fruit and fun, productive activities.

*This article was edited for length and used with permission from [Wasatch Back Trees](#)*

## Finding the Silver Lining in a Pinyon-Juniper Woodland

Pinyon and juniper (PJ) woodlands have expanded up to 10 fold during the past 130 years and currently occupy over 44 million acres across the Intermountain West. This increase can be linked to fire exclusion, over-grazing, climate change, and recovery from historical harvesting practices. It's common for PJ removal projects to take place across Utah's forests, and local logger and business owner, Travis Childers (Wildland Forestry LLC), has managed to make a business out of this opportunity.

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*Juniper contains large quantities of aromatic, oily extracts. This operation allows for the harnessing of these valuable oils, while simultaneously removing encroaching juniper where removal is needed most.*

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Central Area Forester, Nick Mustoe ([nmustoe@utah.gov](mailto:nmustoe@utah.gov)) put Childers in touch with landowners that needed PJ removed from their property. An operator registered with the Division of Forestry, Fire and State Lands, Childers uses a Morbark 3600 horizontal grinder to process the harvested PJ. The low ground pressure applied by this grinder allows the processing to occur with minimal environmental impact. When in full operating mode, Childers uses a skid steer and turbo saw to remove 400-600 trees/day. The chipped PJ is then shipped to Utah-based Young Living Farms™ for oil extraction. Childers continues to work closely with Young Living Farms to determine what size, location, density, and juniper age class/stage offers



Pinyon-Juniper chips undergo steam distillation at Young Living Farms™. | Photo credit: Nicholas Mustoe.

the best oil content and quality. So far, stage II juniper (a mix of PJ and shrubs on the land) offers the best oil extraction yield. Following the oil extraction process, the PJ byproduct (which resembles mulch) is used by a local landscaping company for various garden applications. Some of the PJ is also made into pellets.

## Oil Distillation

At the farm, the PJ chips are placed in large containers where they undergo gentle, low-pressure (proprietary) steam distillation. Oil extraction (for select oils) also occurs with cold press resin tapping methods. Juniper contains large quantities of aromatic, oily extracts. This operation allows for the harnessing of these valuable oils, while simultaneously removing encroaching juniper where removal is needed most. Juniper essential oil is used to promote skin health and create a peaceful aroma, however the physical and chemical properties of this oil is largely unknown.

## WANTED: Pinyon-juniper

Wildland Forestry LLC is currently looking for landowners living within 250 miles of Nephi that have 100-500 acres of phase II or phase III (dominated by PJ) PJ woodlands on their property. If you meet this criteria and are interested in having PJ removed or thinned (free of cost), contact Travis Childers, (435) 633-0407, [wildlandz@live.com](mailto:wildlandz@live.com).

Save the date:

15th Annual Timber Harvest and Prescribed Fire Tour

July 21, 2016  
Monroe Mountain

To register, email:

[darren.mcavoy@usu.edu](mailto:darren.mcavoy@usu.edu)  
or [nmustoe@utah.gov](mailto:nmustoe@utah.gov)



Pinyon-juniper being fed through grinder for essential oil extraction. | Photo credit: Nicholas Mustoe.

# Growing Aspen in Cultivated Landscapes

Quaking aspen (*Populus tremuloides*) is a beautiful tree when it is growing on native sites, which in the West is normally at a fairly high elevation. In native locations trees are exposed to less heat and have greater moisture availability than when they are planted in cultivated landscapes at low elevations. Issues that pose minor problems at high elevations become major problems on those more stressful low elevation sites. For example, leaf spot diseases get worse, borers are often attracted to them and damage is more destructive, stem cankers are more common and to have a greater effect, and nutritional deficiencies occur that do not occur at high elevations where soil pH is less than at low elevations. The heat and low humidity found in valleys also causes leaf scorch or browning of the leaf margins, meaning that aspen have less fall color because of less leaf area. The trees are less healthy and esthetically pleasing than they are in the mountains.

Another problem not related to elevation, but unavoidable wherever aspen grow, is aspen's root sprouting. Sprouting is probably the single most common reason that causes people to remove aspen from their cultivated landscapes. They get tired of mowing and digging the sprouts and don't like the woody knobs that grow in the grass.

Fortunately there is a partial solution to most of these problems that allows a better way to cultivate aspen at low-elevation. It uses the natural sprouting of aspen to your advantage. Basically, to grow attractive aspen at low elevation, establish a mulch bed where you want them and remove the suckers outside of that bed. To partially suppress sprouting you can treat cut surfaces with herbicides like glyphosate or triclopyr. Then select a few of the healthiest aspens and remove the rest from the mulch bed. The healthier ones will tend to be the smaller ones, since stem defects accumulate in trees and aspen don't put a lot of energy into healing or protecting themselves from decay. Again, you can treat the cut surfaces with herbicide if you want. The amount that you leave will depend on the area and your esthetic preferences—maybe leave one every 10 feet or so. You may also plant shade tolerant shrubs and herbaceous perennials, either native or non-native, to establish a mini-aspen woodland that you can enjoy.



Aspen in a cultivated landscape. | Photo credit: Mike Kuhns.

As sprouts come up outside the mulch bed remove them as you did before (if you aren't willing to deal with the sprouts, don't grow aspen). As sprouts come up within the mulch thin them out within a few years. Over time, let a few sprouts remain and these will become replacement trees for the older stems. Remove any stem before it reaches 5 or 6 inches in diameter. In doing so you will be removing the oldest, most defective stems, and you always will have replacement stems.

This type of aspen grove leads to a natural-looking planting that is healthier and blends in better than typical "lollipop trees" isolated in a lawn. The only cost is your time and the result can be quite nice.

- Michael R. Kuhns, USU Forestry Extension Specialist contact email: [mike.kuhns@usu.edu](mailto:mike.kuhns@usu.edu)

Interested in Aspen Ecology? Tune into our live webinar on April 19th at 12 p.m. (MT). For more information, visit our website: <http://forestry.usu.edu/htm/video/Webinars>



Utah State University is an affirmative action/equal opportunity institution. | Photo credit: Darren McAvoy.

## Contact Us

Do you have a story idea for the next edition of Utah Forest News? Have feedback about any story in this issue? Send us an email or give us a call!

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