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SPECIAL SECTION

PROGRESS: New growth emerging in timber industry

Construction underway on first commercial torrefaction plant in North America

By Richard Hanners Blue Mountain Eagle Jun 27, 2019



Raw logs ready to be milled at Iron Triangle's post and pole plant in Seneca.

The collapse of the timber industry in Grant County over the past decades negatively impacted the entire community, from jobs to schools to public services.

Just as the lights seemed to be going out for the last mill running in the county, collaborative efforts and a long-term stewardship contract kept John Day's lone mill running and loggers in the woods. A new high-tech plant currently under construction may provide additional help to the struggling industry.



The Prairie Wood Products mill in Prairie City closed about 10 years ago.

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Declining industry

The timber and forest-related industry has been a significant economic driver in Grant County for decades. At one time, timber mills and related businesses could be found across Grant County, with several mills running in John Day and smaller operations in Monument, Long Creek, Dayville and Mt. Vernon. Larger mills operated in Prairie City, Bates and Seneca.

According to a May 2019 draft Economic Opportunities Analysis report by Johnson Economics, local employment in natural resource jobs is nearly six times the national average. But this local economic sector has seen a sharp decline, largely attributable to falling timber production on public lands since 1993.

According to data from the Oregon Department of Forestry, annual timber production in Grant County ranged around 200-260 million board-feet per year from 1962 to 1977, with peaks of 300 million in 1973 and 340 million in 1975.

Production plunged to about 110 million board-feet per year in 1980-1983 before dramatically increasing to 300 million in 1985 and 290 million in 1989. Production then fell to less than 100 million since 1996, bottoming out at about 20 million board-feet for 2008-2015 before slightly increasing to about 35 million in 2016.

Grant County has a strong timber history. In 1922, the Forest Service laid out the Bear Valley Unit timber sale, which the Edward Hines Lumber Co. picked up in 1928. At 890 million board-feet, the multiyear contract is considered the largest timber sale in Pacific Northwest history. A 52-mile railroad spur was run from Burns to Seneca, and timber cutting on the unit continued through 1968.

Hines built a company town in Harney County next to Burns, and the city of Hines was incorporated in 1930. Seneca began to grow in 1929, when the company established a planing mill and railroad town. Logging in the region declined in the 1970s, and Hines shut down its area lumber mills and the railroad line in 1984.

The Oregon Lumber Co. operated a mill in Bates from 1917 to 1960. Hines bought the mill and operated it until 1975. At its height in the 1960s and 1970s, the mill could cut up to 180,000 board-feet per day, and the mill produced about 2 billion board-feet



This wigwam burner was part of the Edward Hines Lumber Co. mill, which opened in Seneca in 1939 and closed in the 1980s.

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during its lifetime. When operations ceased in 1975, company homes were sold for \$1, and much of the former mill site is now a state park.

The D.R. Johnson Lumber Co. acquired the timber mill in Prairie City in 1976 and added a stud mill and planer two years later. In the late 1980s, the company installed a co-gen power plant at the Prairie Wood Products mill.

In September 2008, facing a lack of available sawlogs and poor markets, D.R. Johnson shut down the Prairie City mill. It restarted the mill the following March but shut it down permanently after that. Much of the mill equipment and the co-gen plant remain at the site. By 2019, cleanup work at the closed mill wound down as potash waste was covered with topsoil.

The Malheur Lumber Co. mill in John Day, the last remaining timber mill in Grant



Strawberry Mountain rises above the Prairie Wood Products mill in Prairie City, which closed about 10 years ago.

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County, was facing a similar fate to Prairie City's by August 2012, when its parent company Ochoco Lumber Co. announced the sawmill would close. After 75 years of continuous lumber manufacturing, only the pellet mill, chipper and log shaver would continue operating.

The closure was put on hold the next month after Regional Forester Kent Connaughton presented plans to boost timber supply and accelerate the pace of forest restoration work on the Malheur National Forest. Ochoco's managing director, John Shelk, responded to the news by calling the Forest Service commitment a good first step.

Stewardship contract

Connaughton's plan to offer an additional 40 million board-feet of timber per year through additional forest treatment projects was backed by funding from the federal Collaborative Forest Landscape Restoration Program.



The co-generation plant at the closed Prairie Wood Products mill in Prairie City sits idle.

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The Malheur National Forest is one of 23 priority landscapes that receive CFLRP funding to accomplish accelerated restoration to restore forest resiliency. CFLRP encourages collaborative, science-based restoration, and the Malheur National Forest has the most ambitious forest restoration targets of any national forest in the Pacific Northwest region.

As the Forest Service's new plans to boost timber production were worked out in 2012-2013, they emerged as a 10-year stewardship contract that would include 70-80% of the Malheur National Forest's annual timber harvest. The goals included improving forest health, reducing forest fuels that contribute to larger wildfires and preventing a complete shutdown of the area's timber industry.

The stewardship contract allowed the Forest Service to use timber receipts that normally went to the Treasury Department for forest restoration work. Structured as an indefinite delivery, indefinite quantity contract, the Forest Service would offer at least one task order each year for 10 years and allow two years for each order to be completed. Specific work would vary with available funding.



Finished product ready to be shipped at Iron Triangle's post and pole plant in Seneca.

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The 10-year \$69 million contract was awarded to a John Day-based company, Iron Triangle LLC, in September 2013. The goal was to eventually treat 180,000 to 500,000 acres of the Malheur National Forest as ecological restoration on a landscape scale.

The news was welcomed at Malheur Lumber Co., which had not bid on the contract. Ochoco President Bruce Daucsavage called Iron Triangle the best logger in the region and the most qualified company to handle the array of service work the contract entailed.

According to a 2018 University of Oregon study, the 10-year stewardship contract supported 268 jobs in Grant and Harney counties from 2015-2017. The value of the forest and watershed restoration work came to \$1.2 million per year, with Forest Service operations adding another \$3 million per year.

“The logs provided under the stewardship contract have been essential in keeping Malheur Lumber, the lone traditional sawmill in Grant County, operating,” the university study said.

The lumber mill in John Day continues operating today with about 150 employees working in a single shift to produce dimensional lumber for companies that produce millwork for door and window framing.

The mill takes in raw pine logs and also produces pellets and bricks for wood-fired stoves and boilers, as well as shavings for animals. Some material is sent to Boise Cascade in Idaho for making paper. The mill is unable to take the smaller-diameter logs that are produced by forest health and fuel reduction treatment projects in the national forest.

Iron Triangle

Since the start of the accelerated restoration program, with an annual target of 75 million board-feet of timber for sale along with the obligations of the stewardship contract, Iron Triangle faced the challenge of meeting each project’s objectives as spelled out through the National Environmental Policy Act process and in each of the 10 task orders, including 18 separate project areas, Iron Triangle consultant King Williams said.

To meet the challenge, Iron Triangle increased employment by more than 50 employees and utilized more than 25 local subcontractors. Since 2013, the company has removed more than 150 million board-feet of timber while treating approximately 40,000 acres of national forest land, improving fire resiliency and reducing fire danger on those acres, Williams said.

“Included in our treatments along with the removal of the logs is pre-commercial thinning, hand and grapple piling, mastication, juniper removal, aspen restoration, fencing, stream stabilization, soil stabilization work, hundreds of miles of road maintenance and culvert replacement,” he said.

During this time, Iron Triangle also met obligations for completion of nine timber sales and several projects for private landowners, Williams said.

The company faced natural, marketing and environmental challenges along the way. The 2015 Canyon Creek Complex fire forced Iron Triangle to suspend work on their ongoing green projects during late 2015 and early 2016 and instead complete salvage of more than 20 million board-feet of logs impacted by the fire along with restoration projects on burned areas.

A major challenge Iron Triangle faced was finding a way to handle the large volume of small-diameter non-saw biomass generated through the forest health restoration projects. Iron Triangle met this challenge by building a post and pole plant in Seneca and a firewood processing facility in John Day.

“These operations provide the opportunity for utilization of 25,000 to 35,000 tons of biomass generated from our projects,” Williams said. “As these operations grow and expand, we anticipate additional employment opportunities.”

Another challenge the company faced in completing the Forest Service’s task orders has been the increasing inclusion of skyline logging requirements.

“Iron Triangle attempted to utilize sub-contractors without success and have now added a line-logging side operation, which not only required additional investment but included additional employment opportunities,” he said.

Collaborative efforts

In the early 2000s, with management of the Malheur National Forest seemingly gripped by gridlock, timber output declining and forest restoration work at a standstill, a Grant County commissioner joined an environmental attorney and a small group of diverse individuals to discuss the state of the timber-dependent economy. The Blue



Strawberry Mountain is visible above a stack of raw logs at Iron Triangle's post and pole mill in Seneca.

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Mountains Forest Partners collaborative group emerged as a result of these talks in 2006.

“Common ground existed among those present, however there were also areas of serious disagreement,” the group’s website states. “Seeing the value of overcoming disagreements and promoting forest restoration, members of this group continued to meet, gradually involving more stakeholders within the community.”

The collaborative group’s diverse stakeholders included loggers, environmentalists, ranchers, landowners, timber industry representatives, elected government officials and federal land managers. The group established a mission of promoting the long-term well-being of the forest.

“The forest’s declining condition is largely due to a combination of fire suppression, social and legal gridlock that arose as a result of dissenting stakeholders views and



Raw logs ready to be milled at Iron Triangle's post and pole plant in Seneca.

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sharply curtailed silvicultural management, outcomes of well-intentioned policies and advocacies that have produced a myriad of unforeseen and unintended negative consequences,” the website states.

A similar process took place in Harney County. In 2008, the Harney County Restoration Collaborative was convened by the High Desert Partnership, Harney County Judge Steve Grasty and the Nature Conservancy to work toward finding common ground to improve the declining state of sustainability on the southern Malheur National Forest.

The next spring, Gov. Ted Kulongoski designated the Harney County collaborative as an Oregon Solutions project. A declaration of cooperation and common ground principles were signed by the diverse stakeholders in 2009.

According to Mark Webb, the Blue Mountains Forest Partners executive director, the collaborative process is mandated by federal law. Forest Service and Bureau of Land Management lands in Grant County are public lands, so citizens across the U.S. have an interest in what happens to these lands. On the other hand, locals need an additional voice, he said.



A sign posts fire danger at the Prairie City Ranger Station in Prairie City.

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The partnership tries to help the Forest Service avoid litigation and to facilitate stewardship projects, he told the Grant County Court in June 2018. No litigation over timber projects on the Malheur National Forest has occurred since 2006, but that might be because the stewardship treatments were not aggressive.

Webb said he'd like to see more aggressive treatments, but he expected that could spark litigation by environmentalists. The collaborative group also might not want to be more aggressive, he said. Grant County's economic opportunities are limited, he

noted — Google won't set up a server center here, so the county will need to focus on its natural resources.

Without the stewardship contract, the mill in John Day would have shut down, he told the court. About 10% of the planning areas on the Malheur National Forest are being treated, and he wanted to see that increased to 40-50%. That increase, however, might trigger more administrative work under the National Environmental Policy Act.

Summing up successes he's witnessed, Webb said the Malheur National Forest since 2012 has received more than \$20 million in additional funding to help increase staff capacity to implement work on the ground.

"As a result, timber harvest has increased approximately three-fold, forest sector jobs and wages have increased substantially, and industry infrastructure has expanded as well as diversified," he said. "Projects have also gotten larger, and treatments are doing a better job of addressing forest health and wildfire concerns into the future."

Ongoing challenges include the current Blue Mountains Forest Plan and some state and federal regulatory policies that substantially compromise the Malheur National Forest's ability to implement the kind of scientifically based treatments that are needed to address forest health, wildfire danger and community well-being, Webb said.

Forest projects

The Forest Service published a final draft of its Blue Mountains Forest Plan Revision in June 2018, which included the Malheur, Umatilla and Wallowa-Whitman national forests. The new plan called for more than doubling the total harvest in the 5.5 million acre plan area from 101 million board-feet to 204 million.

In addition to replacing the 21-inch diameter Eastside Screens limit with a guideline that would allow harvest of large trees under certain scenarios, the new plan called for thinning up to 33% of overstocked dry-upland forest types. The Forest Service anticipated the new plan would increase employment in the forest products, livestock and recreation sectors from 1,647 jobs to 2,820 jobs.

In March, however, the Forest Service responded to deep-rooted concerns of residents,



Raw logs ready to be milled at Iron Triangle's post and pole plant in Seneca.

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industry and environmental groups and withdrew the plan. More than 300 people spoke against the plan during objection resolution meetings held across Eastern Oregon in November and December 2018.

Objections mostly focused on road closures, forest access, restoring landscapes to improve wildfire resilience and providing economic benefits to communities, Regional Forester Glenn Casamassa said. The last 15 years of preparation for the plan revision was not wasted, he said. The lessons the Forest Service learned will play a role in helping the agency come up with new forest plans that are written in plain English and can be implemented.

“To be quite honest, we can’t obviously do this on our own,” he said. “We need everyone working together.”

Meanwhile, work on the Southern Blues Restoration Coalition Project by the Forest Service, Iron Triangle, Blue Mountain Forest Partners, the Harney County Restoration Collaborative and other partners continues.

“The first few years we received \$2.5 million per year, but with the success we were having we applied for an expansion of the project, and in 2015 we expanded the landscape and increased the funding to \$4 million per year,” Malheur National Forest Public Affairs Officer Marc Strong said. “We have two more years of CFLR funding for the Southern Blues Restoration Coalition Project (2020-2021) at \$4 million per year.”

Strong said economic analyses completed each year indicate the majority of the CFLR funds stay in the Grant and Harney county communities. He said the Forest Service receives requests from researchers, scientists, politicians, volunteers, potential new partners and the media regarding the collaborative project.

A multi-disciplinary team that includes Forest Service personnel, collaborative groups, universities and non-governmental organizations monitors work on the project.

Monitoring projects for forest vegetation and fuels, white-headed woodpecker, riparian restoration, invasive species, socio-economic and collaborative effectiveness are in their fifth year of implementation.

In fiscal year 2018, according to the Forest Service, 54.43 million board-feet of timber were sold from the collaborative project; 11,344 green tons of small-diameter and low value trees were removed and made available for bio-energy production; 17,843 acres of hazardous fuels were treated outside the wildland-urban interface to reduce the chances of catastrophic fire; and 23,753 acres of hazardous fuels were treated inside the wildland-urban interface.

In addition, 41 miles of stream habitat in the project area were restored or enhanced; 40,455 acres of terrestrial habitat were restored or enhanced; 5,243 acres of forest vegetation was established; 8,151 acres of forest vegetation were improved; and 31,489 acres of water or soil resources were protected, maintained or improved to achieve desired watershed conditions.

“Fiscal year 2018 was another successful year for the Southern Blues Restoration Coalition project on all possible fronts,” Strong said. “We continued the focus on fire resiliency treatments and implementing riparian restoration treatments using appropriated funds, partnership contributions and monies generated through our 10-year stewardship.”



Matt Krumenauer, left, and Joe Koerner from Restoration Fuels LLC stand next to a triple-pass rotary dryer that will be repurposed for use as a torrefier kiln at the torrefaction plant in John Day.

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The future

In its May 2019 draft Economic Opportunities Analysis report, Johnson Economics looked at target industries in Grant County for improvement opportunities.

The natural resource and agricultural production sector employed 494 workers in 2017 with an average annual wage of \$37,752. Many of the employers in this sector were involved in timber or forest work, including the Forest Service, Iron Triangle, Grayback Forestry, AAA Thunderbolt Fire Service and Rude Logging.



A handful of pellets made from torrefied wood at a research facility in Louisville, Kentucky.

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The report noted that challenges to developing value-added products in this sector included the need for significant capital investments and the limited available labor workforce and workforce housing.

In May 2018, Grant County residents learned that the U.S. Endowment for Forestry and Communities had met that challenge with plans to invest \$15.5 million in a plant to produce a new bioenergy product from small-diameter and low-value biomass generated by forest stewardship projects.

Construction of the torrefaction plant at the Malheur Lumber Co. mill in John Day is underway, and the facility could be operating by September, according to Matt Krumenauer, the Endowment's vice president for special projects. It will be the first commercial torrefaction plant in North America.



Construction workers complete concrete forms and metal reinforcement for one of the foundations for the torrefaction plant at the Malheur Lumber Co. plant in John Day.

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Operating under the name Restoration Fuels LLC, the 100,000-ton-per-year plant could have a total economic impact of 39 jobs and \$6.8 million per year, according to an Oregon Employment Department report.

A large supply of small-diameter and low-value logs already sits at the mill's log yard on Lower Yard Road in John Day ready for the mill's chipper. From there, the chips would be run through a new belt dryer and then a rotary torrefier, which would turn the biomass into a charcoal-like material.

A machine from Denmark will be used to compress the torrefied wood into briquettes or pellets. Japan — which has imposed tariffs on power produced by nuclear and coal, making torrefied wood competitive — has shown interest in purchasing torrefied wood mass.



A handful of briquettes made from torrefied wood at a research facility in Louisville, Kentucky.

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Restoration Fuels plans to ramp up production to more than 100,000 tons per year, equivalent to about one log truck or one chip truck of biomass per hour, Krumenauer said.

Plans call for transporting the torrefied wood to a rail line in Prineville, at which point it can be shipped to domestic or international customers.

Richard Hanners is a reporter for the Blue Mountain Eagle. He can be contacted at rick@bmeagle.com or 541-575-0710.

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