HARNEY COUNTY SMALL DIAMETER TREE ECONOMIC SUMMIT

HIGH DESERT PARTNERSHIP

HCRC
Harney County
Restoration Collaborative

October 8-9, 2014

Burns, Oregon

Purpose of summit:

- Make available information on quantity and quality of low-value trees available in Eastern Oregon.
- Explore current economic opportunities and utilization of small diameter trees.
- Discuss public and private tax, lending and business components, and legislative incentives available for developing a viable small diameter wood utilization business and associated end-use markets.

Current Situation:

- Hundreds of thousands of acres of densely overstocked stands.
- Increased stress encourages disease and insect pest outbreaks.
- Creating serious fire hazard and obstacles to restoration of forest and watershed health.

Prepared by:

Dr. Brenda Smith, Executive Director, High Desert Partnership

The Need to Create Economic Opportunity for Small Diameter Tree Wood Products

Developing and implementing sustainable forest practices requires consideration of the social, economic and environmental aspects of managing natural resources. Restoration will only be sustainable when it is economically sound and integrated into the social fabric at appropriate scales. The U. S. Forest Service and the Harney County Restoration Collaborative members recognize the importance of restoring ecological diversity and health of the vast Ponderosa pine forests located on the Emigrant Creek Ranger District.

Currently, there is opportunity to move in a productive and sustainable direction with restoration activities where large quantities of small diameter trees, which currently have little economic value, need to be treated or removed. Generating income from the small diameter trees removed during restoration activities is necessary for long-term sustainability, as sale of products will help support the expensive restoration activities over large tracts of forested land. Ultimately, there will be a direct benefit to rural eastern Oregon communities with this natural resource base and the products generated from associated activities.

Building and gaining local/regional support is critical in order for something of this magnitude to succeed. Individual property owners, agencies, governmental entities, foresters, wood producers, wood products manufacturers, the consumers and the community will need to come together to begin to plan, implement and coordinate to bring about positive progress to create positive change.

Long-term goals for the summit:

- Analysis of equipment needs, sources, purchases, and maintenance.
- Supporting the community through job creation, forest health projects and fire hazard mitigation programs.
- Identification of forest resources and development of value-added forestry services.
- Education of forest landowners and managers on forest conditions and methods, and on their interdependence with forest product businesses.

Viable Rural Economies

A good example where the three elements of sustainability were disjointed was in the mismanagement of Pacific Northwest forests. This led to a number of conservation issues, including the spotted owl ESA listing, recovery of logged areas to high-stock density stands at risk of fire, disease and insects, and severe economic impacts on forestry-dependent communities. Subsequent management changes were necessary to correct non-sustainable logging practices, but the fact that species and habitat conservation was disjointed from the economic viability of local economies created a social atmosphere in which spotted owls and associated conservation measures are looked at as a liability to the persistence of the rural way of life. Ultimately, such a model is not likely to be sustainable. Though forest communities and stakeholders are making progress on revitalizing the linkage between economic, social and environmental values they lag decades behind in recovery and renewal of these critical natural resources.

Background from the Forest Service

Ecologic Necessity & Economic Opportunity, Steve Beverlin:
In order to realize long-term resilience plans for Eastern Oregon it will be necessary to utilize low value timber.
Historically, there were expansive stands of large diameter logs in the dry-pine forests of eastern Oregon. There was intensive landscape use and minimal government oversight when the forests were first logged in the 1930's-40's. At this time the timber industry was supporting war effort during World War II. Beginning in the 1960's we started getting more government oversight, such as the clean water act, clean air act and this began to change the forestry practices.

At present we are tasked with different ways to achieve restoration and we are encouraging utilization of forest restoration byproducts to offset treatment costs that will also benefit local rural economies to improve forest health.
The forest collaboratives have formed and are creating a new climate where there is social agreement, accelerated restoration and increase in stewardship contracting.

Looking to the future, the service is hoping to continue awarding 10 year stewardship contracts, use existing markets, continue timber sales, increase commercial firewood.
We are interested in managing for forests that are more resilient, with benefits of increased forage production and wildlife habitat. It will be important to take a strategic approach – build upon success, target contracting and collaborative engagement to view problems as opportunities.

Quantity and Quality of Trees in the Forest, Josh Giles:
The Emigrant Creek Ranger District is comprised of up to 80% ponderosa pine. Landscape scale projects are now being planned with commercial thinning of 4-9 inch diameter trees. In the Emigrant Creek district, we have over 300,000 acres of small diameter trees to manage.

The US Forest Service recognizes there are big trees in the woods. We just don't have as many big trees and current eastside screens to cut 21 inches or less. n the new forest plan the proposed age limit is 150 years but this is not determined by age or size but characteristic.
Over the past 10 years on the Emigrant District there has been 5000 to 8000 acres for cut, piling and burn. We are not in a shortage of acres for NEPA.

Current regulations require if there is a fire, the area has to be to be replanted within 5 years. I question whether we have to plant as densely? Can we plant less densely so less pre-commercial thinning is needed. We now have 30 years of forest planting to thin.

Agenda:

- Ecologic Necessity & Economic Opportunity for Utilizing Low-Value Timber in Eastern Oregon: *Steve Beverlin, Deputy Forest Supervisor, US Forest Service*
- Quantity and Quality of Small Diameter Trees: *Josh Giles, Siviculturalist, Emigrant Creek Ranger District*
- Realities of Acquiring, Harvesting and Transporting Small Diameter Timber: *Phil Jenkins, Iron Triangle and Mike Billman, Grayback Forestry*
- Juniper Tree Availability: *Jeff Rose, Associate District Manager and Tim Newkirk, Forester BLM, Burns District*
- Growth Opportunities for Juniper: *Zach and King Williams, Iron Triangle and Nancy Hamilton, Dylan Kruse – Sustainable Northwest , Portland , OR*
- Sustainable Communities and Sustainable Economies Using Woody Biomass: *Rusty Dramm, Interim Program Manager, Forest Products Marketing Unit, Forest Products Laboratory*
- Collaborative Operating Model for Underutilized Wood: *Nils Christoffersen, Wallowa Resources*
- Operating a Small Mill: Source material, challenges & community accomplishments: *Dan Haak, Small Mill Operator Harney Co.*
- Biomass Heat Market: *Marcus Kauffman, Oregon Department of Forestry*
- Utilization of Biomass for Heat: *Andrew Haden, Wisewood*
- Financing New & Small Business Expansion in Eastern Oregon: *Larry Holzgang, Business Oregon*
- Overview of Opportunities from Dry-Side Restoration in Eastern Oregon: *Dylan Kruse, Sustainable Northwest*

Background from Bureau of Land Management (BLM)

Juniper Tree Availability: Jeff Rose and Tim Newkirk
Western juniper is considered a nuisance species on BLM lands. We currently have 1.3 million acres of juniper in Harney Co. and it is increasing in range. Of that acreage 870,000 acres is on BLM managed lands, 290,000 acres on private and 140,000 acres other ownership. BLM's management emphasis in pine stands is to reduce juniper populations, specifically removing it out of aspen stands and along streams. When juniper occurs in the pine forest it is usually along the fringe of the forest. This is mainly to increase habitat and forage production and increase water flow in streams. When juniper moves in it dominates sites and understory vegetation does not survive. Without understory vegetation, soil erosion becomes a significant issue.

"We have 1.3 million acres of Juniper in Harney County and it is increasing in range." …

Jeff Rose, BLM

Another concern of juniper encroachment is into greater sage-grouse habitat. Juniper trees provide perches for birds of prey, thus sage-grouse avoid juniper stands. Additionally, sage-grouse require large continuous tracts of sagebrush with a herbaceous understory. Most juniper stands are within sage-grouse habitat and is one reason BLM is focusing on juniper removal.

Previously, BLM's main effort for juniper removal was burning, essentially a cut and burn process. Because of sage-grouse restrictions, the shift is to a cutting and piling process. Using an excavator to pile on relatively flat land and steep slopes, juniper is cut and hand piled with the goal to maintain sagebrush.

Challenges of juniper management:
- Juniper is expensive to get out. This is primarily due to lack of road systems into dense stands.
- Contractors who obtain juniper removal contracts, prefer to cut and leave on the ground for 18 months and even 2 years if they are using the wood for posts. However, there is a distinct fire risk in leaving the cut trees on the ground before removing. Contractors have also reported theft of cut trees before they haul the logs out.

Contracts for juniper removal:
- Usually contracts are 3 plus years with the goal to modify habitat and biomass is just a bi-product. There are cost share programs available through Oregon Watershed Enhancement Board, Soil and Water Conservation Districts and Rocky Mtn. Elk Foundation and others.
- New projects include getting the product off site to someone who needs it. The key is coordinating this aspect of the project. In the Burns district there are 3 current projects. Mill Creek Stewardship -459 acres, Blitzen Stewardship and Claw Creek Stewardship- 900 acres. Contractors are looking to harvest about 5 tons/ acre to make the project worthwhile.
- We can try to accommodate someone who has a need for material but it would depend on if it was already covered in NEPA.

Juniper Product Opportunities

Growth Opportunities for Juniper Removal— King and Zach Williams, Dylan Kruse continued

Marketing Side:
The Western Juniper Working Group's (WJUG) goal is to restore ecosystems and provide jobs. Our purpose is to enhance utilization and create jobs in the region. A big part to enhancing juniper utilization is to address supply chain and building market capacity. WJUG is made up of over 40 participating organizations and businesses. Sustainable Northwest is a non-profit who is currently selling juniper products such as decking, fencing, raised garden bed material, post and pole, furniture and paneling. Among the marketing efforts includes attending trade shows, developing a website, brand identification with a logo, alternative products. Juniper hasn't been on the market that long but has seen a 20% growth rate annually. Anything and everything has been looked at, the challenge is getting it to market to build the chain and that is where we see the increase in growth. Keeping the timber harvesters around is the key.

Currently, a big market barrier keeping juniper out of other markets is that it has not been tested for design and engineering values. This is a formal process that tree species must go through in order to be used for load bearing applications. Without this certification, it cannot be used for public procurement, for example Oregon Department of Transportation cannot use if for sign posts and it is not listed for architects. However, this process is finally underway and this formal testing process is now being conducted at Oregon State University and can take up to two years to complete.

Supply Side:
One of the difficulties in being a contractor for juniper harvesting is that stands cannot be evaluated from aerial mapping. Time needs to be spent ground trothing stands before bidding on contracts. This adds to the cost. Even though restoration is the end goal, companies harvesting juniper need to know places where it will be economically feasible to harvest because harvest is so difficult. Cost of removal is high and currently it is necessary for harvests to be subsidized in order to potentially make a profit from removal.

Among the needs for juniper removal to be viable are to improve harvest methods and develop restoration standards so that the resulting landscape is not highly disturbed. Work has begun on this aspect of harvest management and are moving forward with soft audits and commitment from producers. Additionally we are currently developing a juniper MOU with state and federal agencies – signed by forest service and BLM. NEPA documents need to analyze utilization. For example, the best juniper is in riparian and transitional pine and both of these are places they don't belong. Logging rules are set up to not harvest in riparian areas.

Challenges left to resolve on the supply side include high transportation costs, high treatment costs, only 50% of the log is marketable. Therefore the need exists to find potential markets for co-products. It is critical to have a steady supply and stability in inventory.

One job in Harney County has the economic impact equivalent of 208 jobs in Multnomah County."

Jason Yohanna

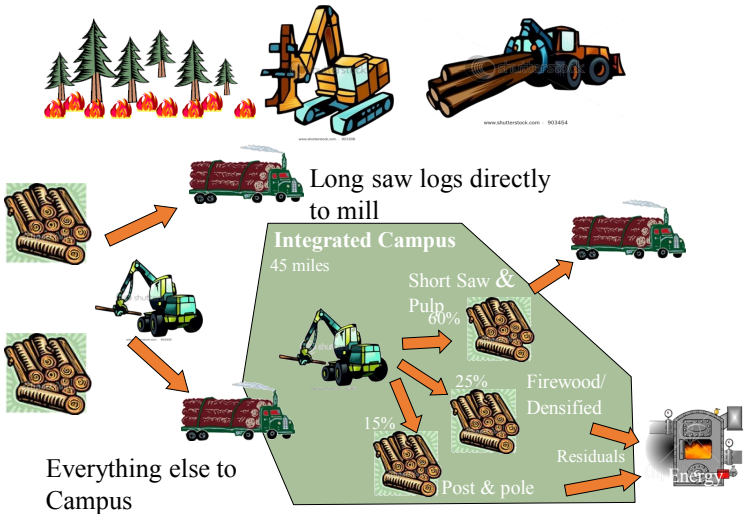
Regional Economist - Oregon Labor Market Information

Small Diameter Timber: Current Harvest Situation

Realities of Acquiring, Harvesting and Transporting Small Diameter Timber: Phil Jenkins and Mike Billman

Costs of Transporting Biomass:
Iron Triangle is currently the largest purchaser of biomass in the region, 40-50%. We generate more biomass than the forest service feels is out there. Biomass for our operation is defined as anything that is not saw logs. A fiber truck can haul as many as 250 logs/ load. Through our whole operation we try to be as efficient as possible using short log trucks. Minimum truck is 12 ft. logs 3 in. diameter. It is time intensive to load these logs because it is all mechanical harvest, using a single grip harvester. The only market is a pulp mill in Tukwila, OR but it is too far for these loads. Pilot Rock, OR is the closest mill and the logs are made into chips and then taken to a pulp mill. Pulp mills drives the cost of this material and we are far enough out on the edge that it doesn't pencil out, it has to be subsidized. Demand doesn't change on pulp mill side but it does on the supply side. For our operation to be viable we need our trucks to have a delivery point in Burns or John Day. Putting in a sort yard in Burns would be very valuable to our business.

Integrated campus supply chain



Economics of Small Diameter Harvests:

- Not all the material that comes off these small diameter timber harvests (designed to restore the forest) can be utilized by the mills and it does not magically disappear. There is a lot of material available but we have to face the big difference between the real cost and the subsidized cost.
- Cost of harvesting fiber timber for a 30 ton load is $45-50/ load.
- At the Pilot Rock Mill they are paying $30/ ton, at this point the harvester is $450-600 in the red.
- Saw logs that are harvested off these contracts are supposed to cover the loss for the fiber logs. It takes 2 loads of saw logs to pay for one load of fiber logs.

What would be most helpful right now? Tendency is throw it at the ground is not a long term solution. Something viable is difficult. If there is enough opportunity someone would be taking advantage. Biomass diversity of use would be an advantage. This is what Wallowa Resources has done, to create more stability. There is no problem to turn a truck toward Burns, taking trucks the long distance is the problem, like to Pilot Rock.

Small Diameter Timber: The Opportunities

Sustainable Communities and Sustainable Economies Using Woody Biomass, Rusty Dramm

The Forest Products Laboratory is operated by the US Forest Service at the University of Wisconsin. Currently there considerable innovation around Woody Biomass materials. If additional products can be developed, they can help defray the costs of stewardship contract harvests to achieve healthy, resilient and fire resistant forests.

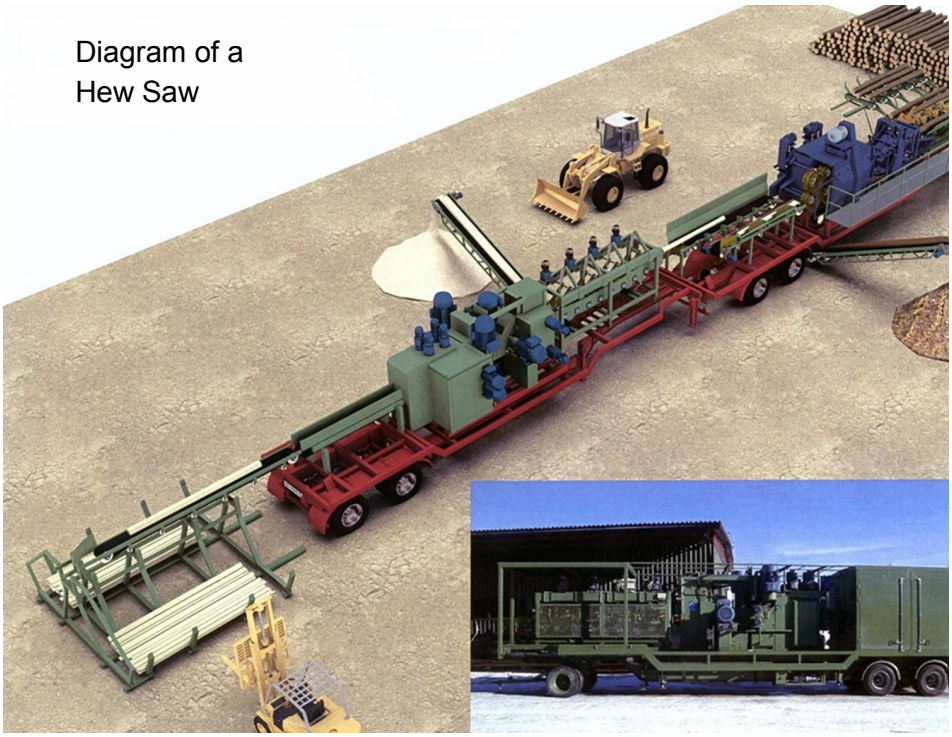
A pulp mill built today is over a billion dollars, last mill in US was built in 1992. Pulp and paper mills will not be built in today's economy. However there are new technologies in saw mills, for example a "Hewsaw" is a mobile, single pass mill with the capability to process 20-30 logs per minute. The question is can we take this mobile saw concept out to the woods? Perhaps 10 loads a day were lumber and 10 were residual that we have found a market for.

Potential Products from Cellulose Nanomaterials Technology

Potential small diameter market opportunities:

- Cross-laminated timber – Europeans have used for a long time and can use lower grade material used in commercial structures that are 20-30 stories high and take the place for steel and cement. Code work needed in US.
- Biochar soil amendments, pure carbon – hardwood charcoal (not Briquets. This product provides a cation exchange site for soil fertility. Biochar is for the home garden, organic gardening and mine reclamation.
- Wood safe house for wind events – hurricanes
- Biofuels
  - -Heat treated firewood – must be sanitized to kill insect pests
  - -Pellets – wood has to be dried first and is an additional cost for manufacture
- Nanotechnology – reinforced concrete
- Railroad ties, oil well mats

Diagram of a Hew Saw



Case Study: Wallowa Resources

Collaborative Operating Model for Underutilized Wood: Nils Christoffersen

Wallowa Resources was started in 1996 following initial loss of mills. When the mill first shut down there was profound shock as the mill was the largest private payroll provider. How to respond in a positive way. The County Commissioners searched for respond to this shut down in a positive way, the result was Wallowa Resources. It was formed non-profit started by the community so that they could use bring-in outside funds. The commissioners wanted to provide a transition for the private sector to diversify. We use the vehicle of the non-profit to get grants so that we had money to put the contractors to work. Overall mission was very broad – so started on education, engagement, research and policy.

We were interested in figuring out how to build a bigger portfolio over time and chose to do a full watershed assessment ($175,000). We brought in all groups, assessed the forest and rangeland conditions and developed a plan. We took the assessment to the forest service and asked them to start NEPA. Ultimately, this resulted in over $6 million in contracts over a period of 5 years.

We then needed to find a market for small diameter wood. What were the opportunities for our contractors? They were not winning service contracts and needed to start getting those, what did they need to be aware of opportunities coming along? We needed to shift from "low-bid" contracting. Our contractors are now getting 57% of service contracts in the area.

Eventually, we were able to be innovative and Invest in an integrated biomass energy campus. We started a for-profit subsidiary – Community Solutions Inc. and invested in Joseph Timber Co. for small diameter trees. We suffered a setback when a majority owner liquidated the rest of the mill. Ultimately we put enough together for a call for financing in the community and put up $330K then bought out – when economy tanked. Today our biggest product line is bundled firewood – Seattle, Salt Lake City, and even to Dallas.

Firewood demand is bigger than we can handle – we need already dead or seasoned trees. This is it is in the woods just need to get it out. Also have a production line of densified heat log. Today there are 24 jobs on site and recruiting for 4 more.

Our contractors do various types of work now, including small and large riparian restoration, fuel reduction, noxious weed control, aspen restoration. Contractors now have that on their resume to be able to get more of that work. Some of our contractors do other things, but they must have insurance so I put them on part time salary to get the job needed done.

Overcoming Obstacles: Keys to the Success of Wallowa Resources

- *Key factor for success is the people of the community, if something is going to happen is because you provide leadership and make it happen.*
- *Putting local communities first is the formula for successfully linking conservation and economic development. Must rely on communities and not regulation.*
- *Believe in collaboration, local leadership with external voices, commit to stewardship, these are renewable resources and can produce goods and services, maintain working land values, invest in research and education.*

Potential In Harney County

Operating a Small Mill: Source material, challenges & community accomplishments: Dan Haak

My current business is a one-man operation. I still have a full-time job and have been operating a small mill for 2 years. My mill is a WoodMizer Automatic band saw. It is set up for 21 feet but can go to 42 feet. Volume I can produce in an 8 hour shift is 1000 board feet, however the mill is capable of 500 board feet / hour I produce fencing material, siding, building posts. I am the guy to go to if you want to do a backyard project. My business interest is in finding a small niche market. I have listed my products on Craiglist, best market is probably in Portland if I can get it there. I am not in the wholesale market but I think I could get into the market.

I cannot get into the stewardship contract market. I cannot compete with a subsidized agreements. BLM subsidized contracts go for 1 cent/ ton. The rancher I work with is not going to give me the material, he sees a future for juniper.

Biomass Heat Market – Marcus Kauffman

What are the opportunities for biomass heat?

- Cogen is combusting wood and creates heat and electricity – high volume commercially available this market is currently contracting. It costs 2Xs the amount to generate to sell electricity. Currently, a better understanding of the green value of the electricity is needed because it is not recognized in the market place.
- Oregon Army National Guard plant in Hermiston building a plant, and also one in Ashland as SOSU. They are driven by energy security. All of the state universities have signed on to Co2 gases showing they are walking the talk. Army Corp of Engineers will begin construction next year.
- Biochar. This is cooking wood in the absence of oxygen – result is highly porous product that can be used for water filtration, taking nutrients out of water, soil fertility, etc. We are seeing small start ups making soil amendments going to mines, oil and gas field reclamations, seed coating and prilling for agricultural uses. We have an entrepreneur using this in ag production to coat native seed. There is a Northwest Biochar Work group and there are quite a few businesses in the Biochar world. I was initially skeptical but there is actual businesses that are selling into the world that is desired by the market. Development of small scale technology, currently smallest equipment you can buy is $1million and other folks are working on smaller scale for community development could be down to $50,000. Very much an emerging market.
- Wood pellet and bricks. Now up to 19 installations in Oregon and in cold parts of the state where natural gas and oil is expensive. Energy savings and cost neutral investment, public funding is key to project initiation and development. The trend is to move from single buildings to larger systems. Challenges include lack of upfront capital, competing for low cost natural gas, need to have a feasibility study behind this and Dept. of Forestry puts their resources behind that.

Potential in Harney County cont.

Utilization of Biomass for Heat, Andrew Haden

I design heating systems and about 2 years ago I started working with the Harney County School District and designed a system to create an outlet for small diameter wood harvested in Harney County. Total use is a relatively small amount about, 1000 tons per year for wood that would have no other use. The system is designed to share facilities when cost effective and is focused on public buildings with hook-up to other buildings as cost effective. We are calling this Harney Community Energy and it is about community self sufficiency.

The District is interested in upgrading heating systems and lower heating bills with a sustainable product. The total fuel bill for the school district is now at $360,000/ year and the students at Slater are still cold. Harney is not interested in pellet boilers and there is great opportunities for low cost fuel. We have lots of underutilized wood. As designed Harney Community Energy will eliminate the operating and maintenance costs for all customers and will use chips, hog fuels. It is expected that one person will be hired with the capacity to maintain system, does create new forest product business in town that utilizes wood.

Wood comes in modified drop boxes – buy in wood at a good price and put into 6-8 bins, work with local sanitation company who has a drop box and bring the boxes back and forth.

Main barrier is capital costs, boilers and rest of the building system need upgrades to make proper use of the heat, maintenance issues and dedicated staff with strong mechanical skills and need to aggregating up for employing one person for maintenance, procuring chips for a solid supply. The main challenge is securing funding for upfront costs and labor requirements.

Financing New and Small Business Expansion in Eastern Oregon: Larry Holzgang

Business Oregon works to create, retain, expand and attract businesses that provide sustainable, living-wage jobs for Oregonians through public-private partnerships, leveraged funding and support of economic opportunities for Oregon companies and entrepreneurs.

We have business finance tools, including:
•Direct Loan Programs
•Loan Guarantee & Loan Loss Reserve Programs
•Conduit Bond Programs
•Oregon NMTC

Entrepreneurial Development Loan Fund (EDLF) is also a possibility and can loan up to $70,000 plus and additional $30,000 with history. The interest Rate = prime + 2*, this is a fixed rate loan and we can partner with other lenders, or be the sole lender.

Participant Input to Developing Markets for Small Diameter Trees

What are the characteristics of an economically viable, sustainable and socially beneficial small diameter log processing facility in Harney County?

- *Capital*
- *Ample resources*
- *Proven technology*
- *Access to markets*
- *Flexibility*
- *Entrepreneurs +++*
- *Good business plan*
- *Guaranteed Supply of product*
- *Public support*
- *Workforce*
- *Connect to existing businesses that need your product, local market*
- *Science – use current science for*
- *Research and development*
- *Commitment to doing the project*
- *Identification of raw material – what is it?*
- *Creative people*
- *Diverse – cannot just do one thing*
- *Utilize existing knowledge*
- *Need youth that want to be a part of industry, need to create desire, educators that will teach*

Who are the players needed to make the project come to fruition?

- *Forest Service*
- *Engineers*
- *Experienced Entrepreneurs*
- *Youth*
- *Community Leadership*
- *Local Contractors*
- *Guidance for local contractors; forest service advisement*
- *County Government*
- *Single person willing to do the business*
- *Local Lenders*
- *State Government – Regional Solutions Team (SNW, Business Oregon, ODF)*
- *Collaborative Groups – Social License*
- *Customers*
- *Marketers for nuance of price points/market needs*
- *Forest Products Labs-OSU,USFS*
- *NEPA ready projects fitting needs*
- *BLM*
- *Someone willing to fight through challenges and road blocks, determination*
- *Secondary ring of people, broader network and expertise*
- *Local Landowners*
- *Local Lenders not risk adverse*
- *Accounting and business professionals*
- *Researchers for future projects*
- *Congressmen/ Legislators*

What would need to happen to get this project started?

- *Meeting of local investors*
- *Owner/Operator for specific business*
- *Land use approval*
- *Synergy*
- *Nonprofit to support owner/operators (funds, inform existing contractors)*
- *Identify core team to move forward the project*
- *Well constructed business model, flexible business model*
- *Money*
- *Social License; a desire*
- *Resource, supply, contracts*
- *Owner/operator*
- *Critical success factors (9)*
- *Raw materials, process…*
- *Marketing: Product, Place, Price and Promotion*
- *Resource supply assessment*
- *Market research; strengths and weaknesses*
- *Mitigate the financial risk*
- *Business professional*
- *Patience and perseverance*
- *Clear goal and mission statement; what are we trying to accomplish*

Summary

Overview of Opportunities from Dry-Side Restoration in Eastern Oregon: Dylan Kruse

Role of collaboratives are very important; we are the pioneers in the US for collaboratives. Everyone in the country is looking at this as a way doing business, it is remarkable for what that has done for job creation in eastern Oregon. US Forest Service recognizes the collaboratives and this is revolutionary as a way of doing business, not just ecological benefits but also economic trends. There is a need for restoration byproduct market development however it is essential local community benefits

2015 Policy opportunities: What can we do? First and foremost expand dry-side federal forest health program funded this year at 6.5$ million. Have to continue to make the economic case for restoration. This is the gap right now for funders and we have failed to recognize the economic assessment . Over the last one and a half days a lot of good ideas and chances to do good things have been brought to the forefront.