Work Plan #4:	**Emerging and Overarching Issues**
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BACKGROUND

The Work Plan process is designed to create a systematic way for the Board to identify issues and set priorities that lead to specific decisions and products. The process is also designed to link with the biennial budget cycle where resources are identified for, and allocated to, Department programs.

The Board of Forestry work plans are organized around the core business functions of the agency. There are work plans for each of the major divisions within the agency: Administrative, Protection from Fire, Private Forests, and State Forests. In general, the Division work plans map directly to key department businesses to promote integration of Board and Staff work on priority issues for rule changes, development of legislative concepts and policy option packages, or direction to the agency on major policy changes (i.e., decision making).

The process of developing work plans provides a number of advantages including:

- Allowing staff to more efficiently allocate time among multiple demands,
- Providing the public with a better idea about when to provide input, and
- Organizing the Board's work so that it leads to specific decisions

The Emerging and Overarching Issues work plan is intended to allow the Board more flexibility for spontaneity and exploration of topics not yet ready for decision making or inclusion in one of the division work plans. In this work plan, staff will conduct background research on topics of interest to the Board, identify time lines for discussion, and provide the foundation for division work plan items or allow items to sunset if action will not be taken on the topic.

ISSUE/TOPIC: Develop Options to Help Maintain Forest Landowner Viability

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The forest industry is very important to Oregon's economy especially in rural areas of the state. In addition to timber, forestlands also produce non-timber forest products, recreation, ecosystem services, wildlife habitat, water, and other values that could be captured in markets. All forest values depend on having a stable land base, and timber values alone cannot compete with development values. Therefore, Oregon is likely to have erosion of the land base without identifying additional market based options to increase the revenues from forestland management. A central question is how to diversify revenue streams for landowners.

Purpose
Explore potential alternate revenue sources for forest landowners, in addition to timber production, and options to increase markets for those sources of revenue. Make recommendations to the Board about policy changes that could help expand or enhance alternate revenue sources.

Scope
This project in the work plan will concentrate on developing recommendations to increase the viability of forest operations for landowners and manufacturers.

Deliverables
1. Develop a process to identify and prioritize alternative revenue sources.

    a. Form a work group of ODF staff and outside partners to guide the project (completed).

    b. Identify and explore a broad range of potential revenue sources to increase revenue for landowners and the forest industry (completed).

    c. Narrow the focus of the work plan to the most promising few ideas (completed).

2. Conduct studies about potential additional revenue sources and other options to enhance or expand revenue sources.

    a. Develop personal services contracts to research the workings of the markets, barriers to implementation, and potential options that could be used to enhance or expand the markets.

    b. The following four topics were chosen for further research:
        i. Pathways for Non-Timber Forest Products and Other Markets – staff delivered a study and recommendations on this issue at the September 2015 Board meeting. (*Landowner Viability: Opportunities and Challenges related to Market Diversification for Family Forest Landowners. Jennifer H. Allen, Ph.D., and Mary Ann Rozance, PSU).* Private Forest staff will consider including the recommendations in a new Strategic Initiative on Family Forests.

ii. <u>Small Diameter Wood</u> – staff has contracted with the Beck Group to study opportunities, markets, and operating requirements related to production utilizing small diameter wood and biomass. Small diameter material creates operating challenges since it is less amenable to lumber production, but it does constitute a feedstock for a range of products including chips, firewood, hogfuel, pellets, posts and poles as well as other value-added items.

iii. <u>Cross Laminated Timber (CLT)</u> – staff is participating in a study with OSU to determine the technical and commercial viability of utilizing small diameter logs (as small as 4" diameter) generated in the east-side restoration treatments in structural CLT products.

iv. <u>Finished Product Export Markets</u> – Green certification of wood products is becoming a key component for access to international markets. The ASTM D76120 standard is an acceptable and preferred standard to which the Oregon Forest Practices Act (OFPA) subject forest products could receive internationally recognized designation through a qualified third party evaluation. Staff will continue to develop a system to gain this recognition for Oregon's wood products.

3. Recommendations for policy changes. Staff will develop a suite of recommendations for the Board to consider on each of the topics listed above.

Timeframe with Milestones *[significant dates – Board action]*
January 2016 – Results from the Small Diameter Wood study will be presented to the Board
September 2016 – Present work on ASTM D78120 certification of OFPA wood to Board
December 2016 – Progress report on CLT study

Resources required
Contract – $100,000

Group participants and roles
A work group has been organized to help refine the work plan, generate ideas, and help develop recommendations. It includes Linc Cannon (OFIC), Jennifer Allen (PSU), Jim Cathcart (ODF), Jim James (OSWA), and Brandon Kaetzel (ODF).

Stakeholder/public involvement
The work group will reach out to experts in different fields to discuss ideas and help develop the scope and deliverables of potential studies. The work group will also consult with standing committees and other organizations interested in the topics (e.g., Committee for Family Forestlands, Stewardship Coordinating Committee, etc.).

ISSUE/TOPIC: **Estimating the Future Cost of Fighting Wildfire**

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Background

The cost of fighting wildfires has become a major issue in the United States. Federal appropriations for all wildfire management activities have more than doubled in recent years, from an average of $1.2 billion annually during fiscal years 1996 through 2000 to more than $2.9 billion annually during fiscal years 2001 through 2007 (General Accounting Office [GAO] 2009). Spending related specifically to wildfire suppression has similarly doubled. The average annual USDA Forest Service emergency suppression spending was $1.1 billion in the 2000s, compared with $0.5 billion during the 1990s (Gude et al 2012 and references therein). Three suggested reasons wildfires have become so expensive include:

1. A build-up of fuels resulting in part from past fire suppression policies (Covington and Moore 1994, Caprio and Swetnam 1995, Moore et al. 1999),

2. Warming temperatures and drought conditions (Calkin et al. 2005, Westerling et al. 2006), and

3. The expansion of home development into fire prone landscapes (Snyder 1999, Canton Thompson et al. 2006, GAO 2006).

Westerling and others (2006) reported that large wildfire activity increased suddenly and markedly in the mid-1980s, with higher large-wildfire frequency, longer wildfire durations, and longer wildfire seasons. As average temperatures increase with rising levels of greenhouse gases we can expect to see a lot more fire in the Western U.S. Warmer temperatures will increase the likelihood of drought. It will be easier for forests to burn, and burns will be more severe. Several studies suggest that warming temperatures over the next decades/centuries can be expected to produce larger more frequent fires. Increased temperature in the future will likely extend fire seasons throughout the western United States, with more fires occurring earlier and later than is currently typical, and will increase the total area burned in some regions (McKenzie et al. 2004). The projected increases in wildfire potential and forest areas highly suited for large wildfires (Yang et al. *In prep*) suggest that increased resources and management efforts for disaster prevention and recovery would be needed in the future. As the need for additional resources to fight more wildfires for longer periods of time rises so will the need for annual firefighting budgets to rise.

A recent study by Headwaters Economics (Gude et al. 2012) provides evidence that wildfire suppression costs are positively associated with the number and location of homes. Interpretation of their combined Oregon and California model suggests that after accounting for fire size and growth potential, a 1% change in the number of homes within six miles of a wildfire is associated with a 0.05% increase in fire suppression costs. Similarly, after controlling for confounders, a doubling of homes (100% increase) is associated with a 5% increase in fire suppression costs.

These trends of increasing wildfire from changes in climate along with conversion of forestland for housing and other structures provide natural resource management agencies with the challenge of estimating the future cost of wildfire protection. Estimating these future costs will require interagency partnerships to identify relevant climate and development data sources that can be used to carry out modeling and analyses.

Purpose
The purpose of this project is to explore the possibilities of developing a modeling framework capable of predicting the future cost of wildfire suppression from changes in climate and development. The intended results of the modeling would be to provide the State and Federal agencies with more accurate projections of changes in the cost of firefighting due to expected impacts from climate change and anticipated development patterns. The projections will be useful for fire protection organizations faced with planning changes to the size and structure of their operations.

Scope
The work would utilize and expand on the continuation of research being conducted on large wildfire susceptibility for the Climate Change Adaptation work plan. Cost estimates will be developed on a statewide basis, rather than separate estimates for particular agencies.

Deliverables
1. Conduct a process to explore the feasibility of modeling changes in fire suppression costs due to changes in climate and development.

    a. Introduction and Exploration

        Steps:

        i.   Introduce the question about this modeling possibility with ODF Fire Analysts and our existing partnerships with other researchers (ODF, PNW, OSU).

        ii. Learn about what data on suppression costs, historic development, and future climate is available and relevant.

        iii. Explore the question of what the most appropriate modeling framework might be.

    b. Summary and Decision

        Steps:

        i.   Organize and summarize information from the Introduction and Exploration stage.

        ii. Evaluate the information

        iii. Produce a decision about the possibilities and limitations of developing the modeling capability.

2. Recommendations – Future wildfire suppression costs will be influenced by climate change and development. Better cost estimates could be used by ODF and USFS in planning and budgeting. However, this project has a strong research component and the outcome of the work is uncertain. Upon completion of the first project phase, we will discuss our results

with the Board to determine whether developing the modeling framework is possible and how the project might proceed.

Timeframe with Milestones *[significant dates – Board action]*
- Organize a research committee within ODF – May 2016
- Introduction and Exploration – Summer 2016
- Summary and Decision – Autumn 2016
- Progress report to Board – September 2016

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ISSUE/TOPIC: Oregon Timber Product Census

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Background

An important driver of Oregon's forest economy is the condition of the state's mill infrastructure. In past years the agency has relied on a survey from a private firm that no longer exists. The data that was taken from this survey provided annual snapshots of the number of mills, number of workers employed, and a general census of production. At present, there is another survey conducted cooperatively between the US Forest Service Forest Inventory and Analysis (USFS FIA) unit and The University of Montana. This survey does not meet current needs for several reasons including: irregular survey periods, results are regularly delayed by several years from the time of collection which invalidates published results, response rate is low, and unreliable extrapolation is utilized in lieu of nonresponse.

Current Status and Next Steps

Resources Planning is using data from the Oregon Employment Department, which was obtained in cooperation with OFRI, as a starting point to assess how many primary and secondary producers there are in Oregon. From this list, the following data is provided: a complete census of workers and wages for the primary and secondary producers and a complete list of addresses for all businesses that can be used for contacting them with the survey instrument. The next step is to develop a survey instrument using other surveys from Washington DNR and USFS FIA/The University of Montana as templates. This process may entail working in cooperation with Washington DNR and The University of Montana to ensure that the data is collected in a timely fashion, entered in to a database that is easy to report from, that analyses and reports are useful and timely, and that the Timber Product Output (TPO) database needs of the USFS FIA are met. The goal is to get a 100 percent survey response through building trust as a state agency rather than as an outside entity collecting the data.

The above mentioned database would be beneficial to ODF as an agency in assessing sector health, and it would be beneficial in promoting the Oregon Forest Sector to domestic and international buyers that are trying to connect with Oregon sellers for specific products. In addition the information would permit benchmarking for evaluation of policy and investment both public and private. The data will be useful for the Board and State Agencies to identify challenges and suggest ways to address them.

Purpose

The purpose of this project is to obtain a dataset capable of providing a detailed profile of Oregon's Forest Product sector. Currently this information is unavailable and challenges a broader understanding of sector functioning, opportunities, challenges, and trends. The data is expected to provide multiple benefits including: benchmarking, trend analysis, and production diversity and capacity estimates. We also hope the data will support stakeholders and partners who are actively marketing forest products and seeking to better connect sector producers, sellers, and buyers.

The Governor's Office has formed a work group to advance innovation, utilization and markets for wood products. With this data ODF could make an important contribution to the group by providing information, analysis, and ideas to help the forest sector.

Scope
This project will concentrate on gathering information necessary to make the decision as to whether ODF should take an active role in conducting the mill survey work for the State of Oregon. Staff will assess what other partners would be useful (and would benefit) in this project. If the situation is favorable for ODF, then this project will be a springboard for beginning the data collection process in coordination with other possible partners.

Deliverables
1. Develop a process to assess whether ODF should take the lead on conducting the Oregon mill study.
    a. Meet with USDA:FS FIA personnel connected to the current mill study out of Montana to determine whether cooperation is advantageous to each party.
    b. Meet with WA:DNR to discuss whether ODF staff can use their survey instrument and to determine whether cooperation between ODF and DNR could bolster a PNW mill study.
    c. Meet with OFIC and OFRI to gain support of the Oregon forest industry.
    d. Reach out to OSU for potential data and involvement.
    e. Setup advisory group to make decisions regarding the survey instrument and report structure.

2. Database and mill census report.

Timeframe with Milestones
- July 2016 – Decision point regarding whether ODF should conduct the mill census survey in cooperation with other participants
- December 2016 – Survey instrument and database prepared
- January 2017 – Estimated time that the survey would be implemented
- December 2017 – Estimated time that a first report would be produced from mill census survey

Resources required
Contract - $80,000

Group participants and roles
ODF will contact representatives from OFIC, OFRI, Business Oregon, USDA:FS FIA, The University of Montana, Washington DNR and possibly others. For this project to succeed, it will rely on cooperation from many different agencies and stakeholders. At present, staff have talked to Gretchen Nicholas and Glenn Christensen (USDA:FS FIA), Todd Morgan (The University of Montana), and Dorian Smith (Washington DNR). These conversations have centered on how the mill census work for Oregon has been done in the past, current issues/caveats with the process and deliverables, and what other options exist for cooperation going forward. Future meetings

with OFIC and OFRI will center on getting the support for this process from the Oregon forest industry. Business Oregon will be useful in assessing other opportunities for data that is collected to be utilized. Finally, staff will continue to work with the Oregon Employment Department on keeping a list of mills up to date.

ISSUE/TOPIC: Mapping and Reporting the Composition and Dynamics of Oregon's Forests

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Background
Research is being carried out in a multi-agency partnership at Oregon State University in the Laboratory for Applications of Remote Sensing in Ecology (LARSE) and with the Landscape Ecology, Modeling, Mapping, and Analysis (LEMMA) group, working to advance new techniques for mapping changes in forest vegetation. This research incorporates Landsat imagery originating from the *Landsat 8* into vegetation and change detection mapping which provides full coverage of forest disturbance annually from 1984 to present.

Quantitative mapping of forest vegetation, disturbance from fire, timber harvest and other change agents, regrowth, and changing forest condition is fundamental for assessing and evaluating the status and trends of Oregon's forested ecosystems. These maps are essential for assessing the effects of different types of forest disturbance on changes in forest structure and species compositions, forest mortality, water quality, and wildlife habitat. Moreover, recent research has identified a range of emerging challenges to forest persistence and health in the context of emerging "megadisturbances" that are capable of driving abrupt tree mortality of a spatial extent, severity, and frequency surpassing that recorded during recent human history Millar and Stephenson (2015).

Purpose
The forest mapping products generated by the LARSE and LEMMA groups will create a large amount of forest vegetation and disturbance data. The purpose of this project is to utilize the forest mapping products for subsequent analyses and interpretation to understand the effects of different types of disturbance on changes in species compositions, forest health and mortality, carbon storage and flux, water quality, and wildlife habitat. The information could then be used by ODF to inform policy discussions or land management decisions.

Scope
This project seeks to obtain a landscape scale dataset to assess the status and trends in the composition and structure of Oregon's forests. This dataset provides quantitative mapping of forest vegetation attributes and disturbance which will provide new research opportunities and products to address emerging issues in forest productivity and health, water quality, climate

change, and long-term management. This dataset will represent forested areas of Oregon, west of the Cascades, covered by the Northwest Forest Plan.

Deliverables
1. Yearly ensemble change detection maps of forest disturbances for Western Oregon, attributed with causal agent, for 2013 to 2016. This new change detection dataset will expand and improve the existing time series of forest disturbance that covers 1984 to 2012.

2. Yearly GNN forest vegetation maps of Western Oregon from 2013 to 2016

   Steps for 1 and 2:

   a. Contract with OSU LARSE & USDA Forest Service Pacific Northwest Research Station

   b. Preliminary change detection with model-based attribution (#1)   Oct. 2016

   c. Yearly GNN maps (#2)   Jan. 2017

3. Derive GIS data layers from the GNN-dataset to generate baseline maps that can be used for communicating and analyzing the dynamics of various landscape level features of Oregon's forests including disturbance frequency and type, structure by size class, biomass and carbon flux, and diversity of forest types.

   Steps:

   a. Data exploration and development of relevant research questions   Jan 2017

   b. Develop research plan and data processing and analysis.   March 2017

   c. Begin generating forest disturbance and attribute maps   May 2017

4. Develop recommendations for how the ensemble forest change detection and GNN data can be used within a forest assessment framework and the relevance of the data and analyses across the spectrum of forest policy dimensions such as the effects of forest disturbance on changes in water quality or quantifying and evaluating the resilience of forest ecosystems from different types and intensities of disturbance, for example.

   Steps:

   a. Maintain derived GIS data layers within the data library   Jan 2018

   b. Generate a synthesis document (similar to the Oregon Atlas) of maps depicting the spectrum of forest features within a time-series framework   Feb 2018

   c. Organize formal and informal meetings with ODF staff and managers to present the information and initiate discussion and relevance of the information.   Autumn 2018

Timeframe with Milestones
To be determined – this is a large multi-year project. General timelines have been included with the deliverables. Staff will bring information to the Board as it becomes available.

Resources required
- $75,000 from Forest Assessment Project
- Significant amount of staff time for data organization, analysis, and map generation after the data is delivered

Group participants
- USFS PNW Research Station
- Oregon State University
- ODF staff and managers

References
Millar CI, Stephenson NL. 2015. Temperate forest health in an era of emerging megadisturbance.

ISSUE/TOPIC: Federal Forests

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Background:
Federal agencies manage 60% of Oregon's forestland on behalf of the public. While different ecological dynamics are drivers in Oregon's diverse forests, an increase in forest restoration statewide will provide important ecological, economic, and social benefits for Oregonians. In particular, it will also have positive impacts for rural communities. Collaborative efforts have successfully built trust across diverse stakeholder groups and reduced interest-based litigation. Where collaboratives have been effective, additional federal and state resources are broadening the base and pipeline of active management. As collaboration has become mainstream in Oregon, concerns have been voiced by some citizens and stakeholders. Some view collaboration, and efforts to reform Federal policies governing forest management, as a two pronged strategy leading to unregulated timber harvest. Other constituents perceive collaboration as a Trojan Horse which will ultimately reduce access, use and benefit by local communities.

In 2009, the Board adopted *Achieving Oregon's Vision for Federal Forestlands*, a report produced by the Federal Forest Advisory Committee (FFAC). Since, the Governor's Natural Resource Office has convened the Federal Forest Working Group (FFWG) to implement actions identified within the State's purview in the 2009 Report. The FFWG initially identified and scoped out what became the ODF Federal Forest Health Program (FFH) funded in both the 2013-2015 and 2015-2017 biennia by the State Legislature.

Purpose:
The intent of this workplan is to amplify the "Oregon Model", a functional partnership among local forest collaboratives, the State, and the Federal agencies to accelerate the restoration of forests and watersheds managed by the US Forest Service or Bureau of Land Management. To date, this Model has been successful at a place-based scale. The deliverables in this workplan are intended to qualify and quantity forest restoration statewide, and strengthen the foundation for success. Through success, the Oregon Model can be an example for other western States.

Scope:
The scope for this workplan includes all federal forestland statewide, including lands managed by the US Forest Service and the Bureau of Land Management.

Deliverables:
 1. Quantify opportunities for restoration within existing land management plan constructs

     a. Deliverable A: Map of active restoration opportunities for each national forest based on current land designations (e.g. Wilderness, etc) and administrative policies (IRA's, RHCA's, etc.)

     b. Deliverable B: Acres (exhibited in a table) of forest acreage and percentage that is allocated or designated into different management opportunity categories

2. Revisit *Achieving Oregon's Vision for Federal Forestlands* (2009 report from the Federal Forest Advisory Committee) and the work of the *Federal Forest Working Group* to determine any next steps needed to amplify the Oregon Model

    a. Deliverable: to be determined

3. Engage in media outreach/campaign

    a. Deliverable: Coordinated media outreach strategy regarding the opportunities for forest restoration and the successes to date of the Oregon Model

Timeframe with Milestones
- Spring 2016 – Presentation of maps and table to Board – Spring 2016
- Spring-Summer 2016 – Board agenda topics regarding status of collaboration
- Fall/Winter 2016 – Board adoption of outreach strategy

Resources required
- ODF Staff time to prepare maps and tables
- Time on Board agenda
- Otherwise, to be determined