

Potential Ideas for New Emerging Issues

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.

These are not the only potential ideas that the Board could choose for new Emerging Issues, other ideas could be developed. These are just ideas generated by staff to seed the conversation. Three ideas are outlined below.

1. Estimating the Future Cost of Fighting Wildfire

Purpose: The purpose of this project is 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 planning changes to the size and structure of fire protection organizations

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, CantonThompson 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.

References

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2. Oregon Timber Product Census

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.

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 the 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 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.

3. Evaluating the Effects of Forest Disturbance

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 consist 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.

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