Riparian Rule:
Economic Impact Analyses per ORS 527.714(7)

Forest Practices Act Riparian Rule for Protecting Cold Water

Rulemaking Advisory Committee

15 April, 2016

Outline of Presentation

- **Overview: Required Impact Analysis**
- **Methods:**
  - Macroeconomic Analysis:
    - Western Oregon Softwood Log Market Model
    - Input-output analysis (IMPLAN System)
  - Microeconomic Analysis
    - Survey Approach

Required Impact Analysis

ORS 527.714(7) requires the board to prepare and make available to the public a comprehensive analysis of the economic impact of the proposed rule. The analysis shall include, but is not limited to:

(a) An estimate of the potential change in timber harvest as a result of the rule;

(b) An estimate of the overall statewide economic impact, including a change in output, employment and income;

(c) An estimate of the total economic impact on the forest products industry and common school and county forest trust land revenues, both regionally and statewide; and

(d) Information derived from consultation with potentially affected landowners and timber owners and an assessment of the economic impact of the proposed rule under a wide variety of circumstances, including varying ownership sizes and the geographic location and terrain of a diverse subset of potentially affected forestland parcels.

Macroeconomic Analysis

Change in timber harvest, output, employment and income, and overall impact on the forest products industry.

- Western Oregon Softwood Log Market Model used to estimate change in harvest, log prices, and product output in Western Oregon given the rule change criteria.
- Input-output analysis (IMPLAN System) used to estimate annual effects on jobs and compensation as a result of the change in harvest from the rule change

Western Oregon Softwood Log Market Model

- Western Oregon Softwood Log Market Model (Adams, et al. 2002) has five basic components
  - Inventory data,
  - Assumptions about likely future silvicultural regimes,
  - projections of future timber,
  - assumptions about changes in timberland area, and
  - a model that projects future harvests based on inventory and other assumptions, applies the management regimes, and updates the inventory over time.

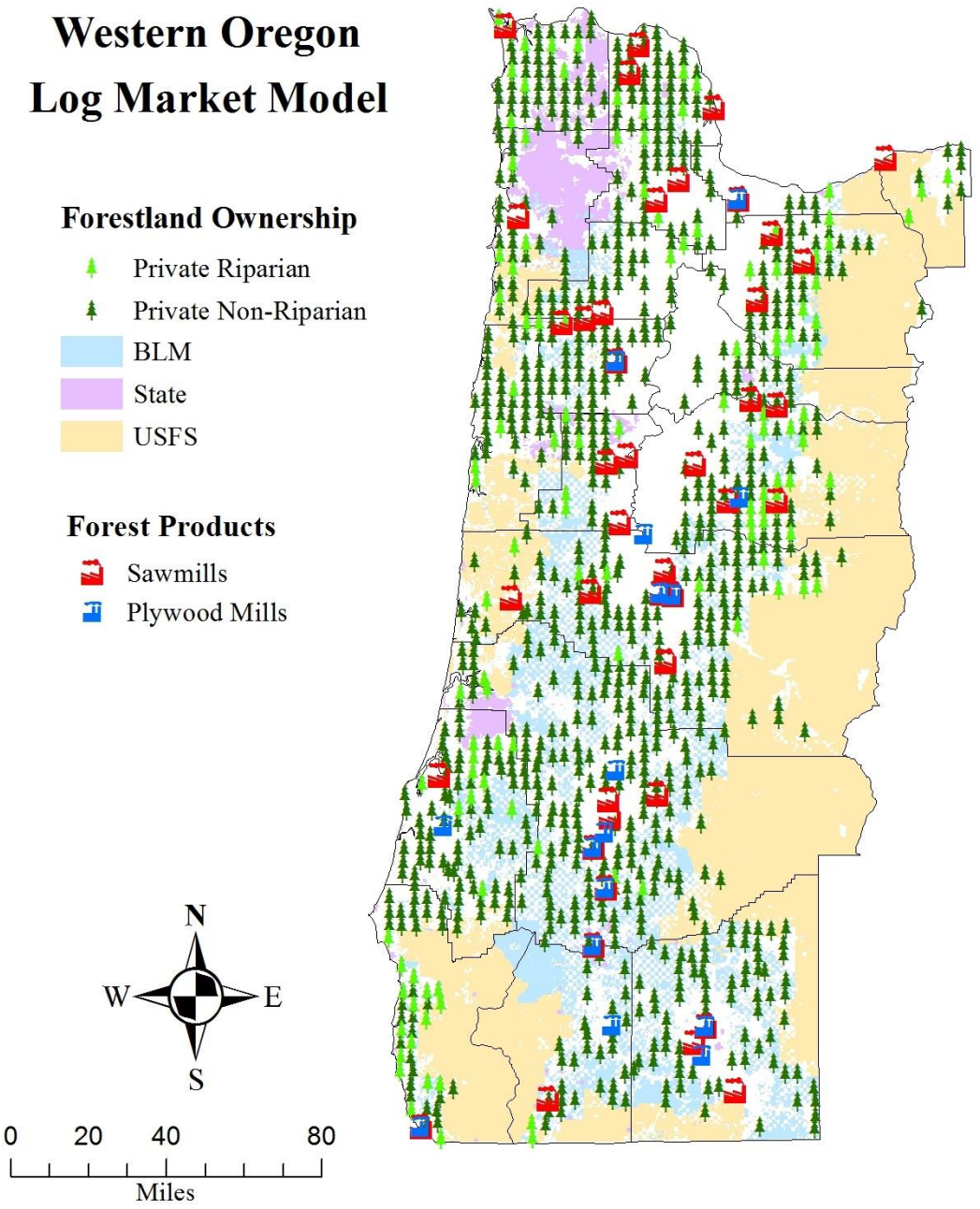
Western Oregon Softwood Log Market Model

- Inventory data: spatial distribution based on the USFS's Forest Inventory and Analysis (FIA) annual inventory.
- Different management intensity classes for existing and future stands, with growth and yield generated using regional variants of the USFS Forest Vegetation System (FVS, Dixon, 2003).
- The land use model based on a Lettman (2011) dataset describing development on non-federal lands throughout western Oregon.

Western Oregon Softwood Log Market Model

- For western Oregon, a model of the region log markets that recognizes the spatial dispersion of log processing facilities and the forested lands that supply logs.
- Demand is derived from lumber and plywood production which are sensitive to the delivered price of logs and an exogenous level of log exports.
- The supply of logs in the short-term is based on private owners' decisions about harvest timing to optimize the value of their timber investments given stand growth and interest rates.

Western Oregon Softwood Log Market Model



Western Oregon Softwood Log Market Model

- Assumptions to estimate change in silvicultural regimes due to rule changes:
  - **Base Riparian Policy**: no cut buffer of 23 horizontal feet on small fish bearing streams and 41 horizontal feet on medium fish bearing streams (i.e., average no-cut buffer under current policy).
  - **New Riparian Policy**: no cut buffer of 54 horizontal feet on small fish bearing streams and 72 horizontal feet on medium fish bearing streams (uses average horizontal distance, assumes no active management).

Summary of Log Market Model

- Run model under base policy.
- Run model with new riparian rule.
- Difference will estimate change in timber harvest and output in lumber and plywood production.

Note:

- Estimate is for all medium and small fish streams
- Need to scale to extent of SSBT streams.

Log Market Model Harvest Results

Riparian Policy	Industrial	Non-Industrial	Total
	20-year average annual softwood harvest (mbf)		
Model Results for all Small and Medium fish-bearing streams			
Current Rule (CR)	1,965,380	576,419	2,541,799
New Rule	1,946,560	567,268	2,513,828
Change	18,820	9,151	27,971
% Change	-0.96%	-1.59%	-1.10%
Change for SSBT (25 to 35% of Small and Medium fish-bearing streams)			
Change if SSBT is 25%	4,705	2,288	6,993
% Change from CR	-0.24%	-0.40%	-0.28%
Change if SSBT is 35%	6,587	3,203	9,790
% Change from CR	-0.34%	-0.56%	-0.39%

Log Market Model Product Results

Riparian Policy	Lumber	Plywood
	(mbf) - 20-year annual average - (msf)	
Model Results for all Small and Medium fish-bearing streams		
Current Rule (CR)	6,066,420	3,338,456
New Rule	6,039,871	3,304,036
Change	26,549	34,420
% Change	-0.44%	-1.03%
Change for SSBT (25 to 35% of Small and Medium fish-bearing streams)		
Change if SSBT is 25%	6,637	8,605
% Change from CR	-0.11%	-0.26%
Change if SSBT is 35%	9,292	12,047
% Change from CR	-0.15%	-0.36%

Macroeconomic Analysis

Input-output analysis (IMPLAN System) used to estimate annual effects on jobs and compensation as a result of the change in harvest from the rule change

- Originally (1976) designed under the direction of the USDA Forest Service (IMpact analysis for PLANning).
- Currently used by multiple agencies / companies (e.g., BLM, EPA, Bureau of Economic Analysis, Federal Reserve, FEMA, Ernst & Young, CH2M).

Input-Output Analysis

- The results from log market model are used with input-output analysis (IMPLAN software) to determine impact on employment and income.
- The change in output from log market model is too small to run directly in IMPLAN.
- Approach: calculate jobs per million board feet based on total economic output (i.e., value of the material produced) for the sector and a knowledge of what was actually produced in Western Oregon.

Input-Output Analysis Results

- Impact on employment and income
- IMPLAN estimated jobs number as 8.9 jobs per million board feet, which was used as a scalar on the estimated loss in harvest to calculate job loss.

	Jobs Affected	Compensation
Change if SSBT is 25%	62.24	$3.81 million
Change if SSBT is 35%	87.13	$5.33 million

Microeconomic Analysis

Information derived from consultation with potentially affected landowners under a wide variety of circumstances, including varying ownership sizes and the geographic location and terrain of a diverse subset of potentially affected forest parcels.

- Contracted survey of family forestland owners.
- Coupled with analysis of encumbered acres by surveyed owner.

Survey Approach

- Research agreement with University of Oregon, led by Dr. Cassandra Moseley, Research Professor and Director, Institute for a Sustainable Environment.
- Her team will prepare the appropriate methodology and survey instrument with ODF support.
- Using Oregon Forest Owner Database.
- They will be in charge of administering the survey, compiling the results, and preparing a report.

Questions?