



Board of Forestry Subcommittee on Alternative Forest Management Plans

October 19th, 2015



Photo credits: Kelly James, Trask Watershed Study

Overall Update



Maps

- Stand age for the current condition and at 100 years
- Includes Conservation and Production Emphasis Areas

Conservation Emphasis Zone

- Deed restricted areas precluding timber harvest
- Inoperable areas (i.e. not able to log due to physical conditions)
- Areas designated for FPA rules for wildlife and public safety
- Areas designated to prevent “take” of T&E species
- Existing old growth
- Current FMP riparian buffers and inner gorge strategies.

Production Emphasis Zone

- Some Production Emphasis Zone stands are not financially viable and are not harvested during the 100 year window.
 - Typically helicopter units isolated by inoperable (i.e. unable to log) areas
 - If the goal is volume instead of value, the model will log these units with negative revenue to ODF.

Comparing Land Allocation Model to Previous Modeling Efforts

Current Scenario (CS)

- Patch Works, a commercial harvest model, is now being used by ODF to create a model of forest management scenarios, including the current Land Allocation scenario
- Initiated 2013

Harvest and Habitat Models (HnH)

- Custom model built by Dr. John Sessions Of OSU for ODF
- Used to analyze many management scenarios
- 2004 through 2012

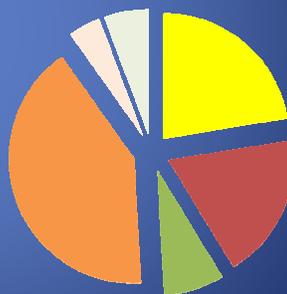
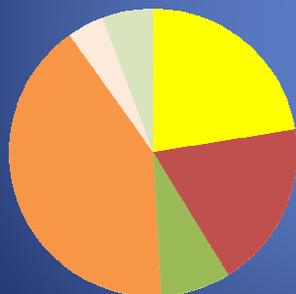
Key Differences Between the Models

- Policy Choices –
4 overarching parameters governing the model.
- Model Methodology –
3 differences in how specific items are handled in the model.
- Model Data –
4 simple differences in data that support the model.
- Model Outputs –
Conservation Outputs that can be used as metrics

Policy – Geographic Scale – High Impact

**CS– Solution based on entire planning area –
Approximately 610,000 acres**

HnH – Solution limited to resources available in each district – Average about 100,000 acres per district.





Policy – Even Flow – High Impact

“Value” versus “Volume”

CS – Net Revenue (1st 20 years), then even flow volume

- Timber that provides more revenue to the FDF fund after paying harvesting and variable costs is more likely to be harvested (during the first 20 years).

HnH – Even flow of volume

- All timber has an equal chance of being harvested, so long as it pays its way from stump to mill.

Policy – Legacy Structures – Low Impact

CS– FPA (retain 2 TPA in clearcuts)



HnH – Current FMP (retain 5 TPA in clearcuts)



The revenue implications of leaving 2 TPA versus 5 TPA is obvious to all; however, it has a much lower impact than the three previous policy choices.

Model Methodology

- Operational Costs – High Impact
 - CS – Harvest Costs, Variable Costs (sale layout, reforestation, T&E surveys), and Fixed Costs (overhead and administration)
 - HnH – Harvest Costs only (logs “must pay” their way from stump to mill)
- Silvicultural Prescriptions – Moderate Impact
 - CS – Focus on timber growth
 - HnH – Focused on creating complex forest structure
- T&E Rules – Low Impact
 - CS – NSO habitat floats within circle over time and closely follows the actual strategies applied on the ground
 - HnH – NSO habitat in fixed location over time

Model Data

Strategy	Impact	Current Scenario	HnH (in 2010)
Starting Inventory	High Moderate	13.6 Billion BF	13.8 Billion BF
Growth and Yield	High	537 BF/Acre/Year	622 BF/Acre/Year
Value and Costs	High	Higher	-
T&E Data	Low	Higher	-

Model Outputs – Conservation Outputs – High Impact

CS

- Stand Structure
- Other stand characteristic (of the live trees)
- Legacy structures
 - Downed wood
 - Snags
- Carbon storage

HnH

- Stand Structure
- Other stand characteristic (of the live trees)

Conservation Metrics

Conservation Goals and Measures – Model Outputs		
GPV Element	Now	Near Future
Wildlife Habitat	<ul style="list-style-type: none"> • Acres; Regen patch size • Late-, Mid-, Early-seral • Constrained areas 	<ul style="list-style-type: none"> • Snags; downed wood • Legacy green trees on landscape
Fish Habitat	<ul style="list-style-type: none"> • Conifer or hardwood RMAs • BA or QMD within RMAs 	<ul style="list-style-type: none"> • Effects of various buffer widths
Flood & Erosion Protection	<ul style="list-style-type: none"> • % watershed in different age classes 	<ul style="list-style-type: none"> • Roads within X-ft. of streams (GIS not Patchworks) • Stand characteristic on unstable slopes
Productive Soils	Not Patchworks	
Clean Air and Water	Not Patchworks	

Interpreting Conservation Metrics

- Provide the Science Team and Board with a variety of metrics to allow an assessment of conservation values at several scales:
 - Landscape
 - Individual habitat components
 - Specific species

Conservation Metrics

- Landscape habitat and spatial arrangements
 - Acres of stands by:
 - Age class
 - Quadratic Mean Diameter (QMD)
 - Stands with complex structure
 - Measures of:
 - Patch size by: age class, QMD and stands with complex structure
 - Interior area of late seral and complex structure
 - Connectivity among similar patches

Conservation Metrics

- Landscape metrics for multiple goals
 - Legacy Components:
 - Large green trees
 - Snags
 - Down wood
 - Riparian and Watershed:
 - Acres in riparian buffers
 - Percent of watershed by age class
 - Miles of roads within 100 feet of streams

Conservation Metrics

- Species-specific metrics
 - Habitat Suitability Index (HSI) for:
 - Northern spotted owl
 - Marbled murrelet
 - Red tree vole
 - Fisher
 - Big game species
 - Acres designated for rare, special and unique species or areas

Conservation Metrics – Next Steps

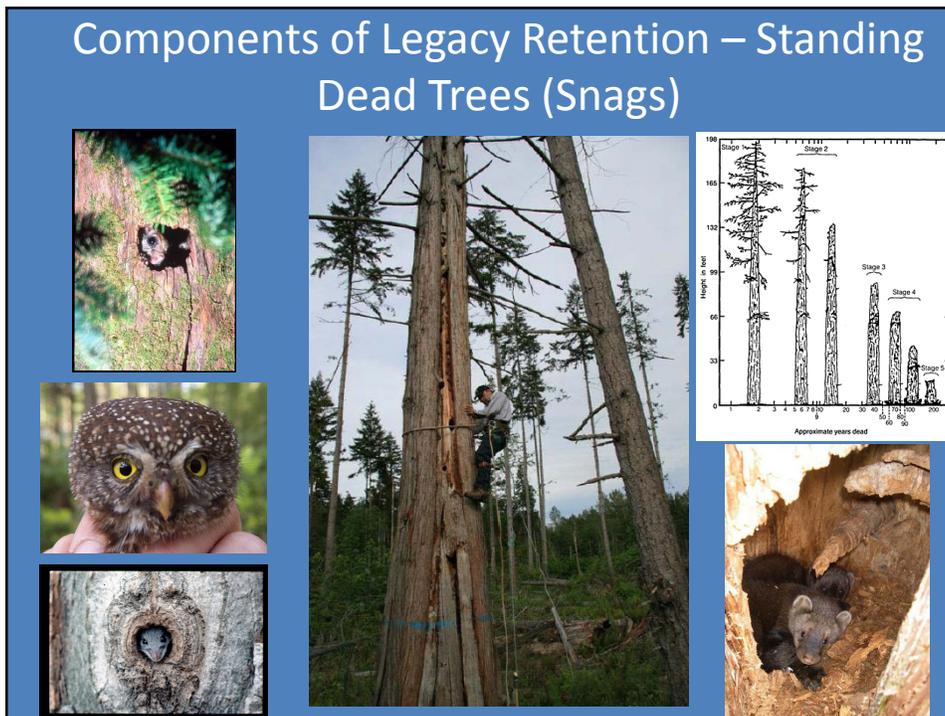
- Questions for Science Team review are in development.
- Metrics will be summarized to answer the specific questions.
- Engagement with Science Team to ensure that metrics are appropriate to answer the questions.

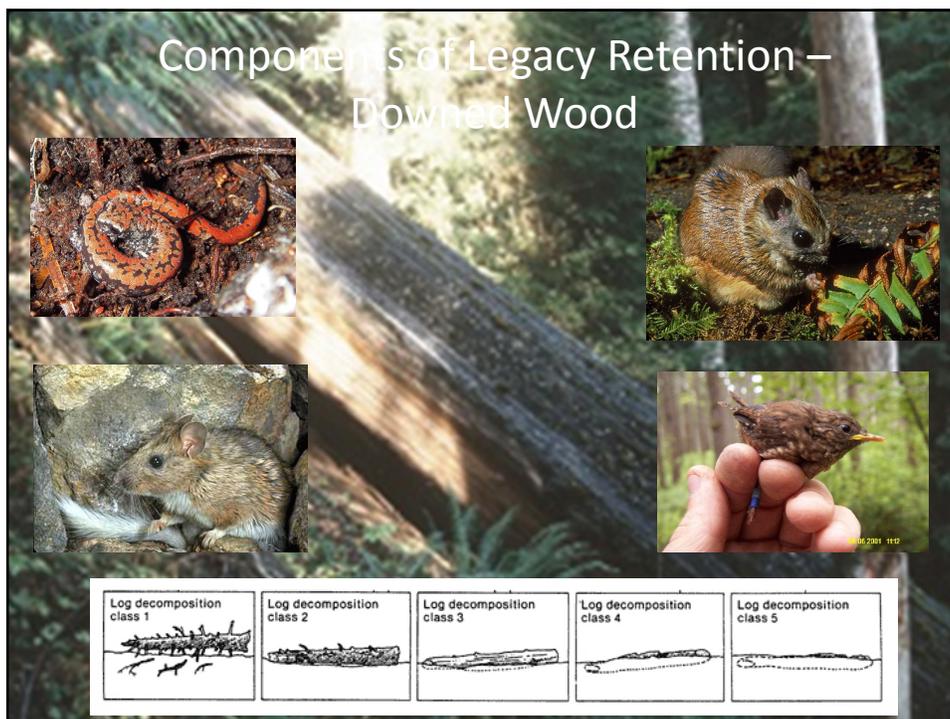


Components of Legacy Retention – Residual Live (Green) Trees



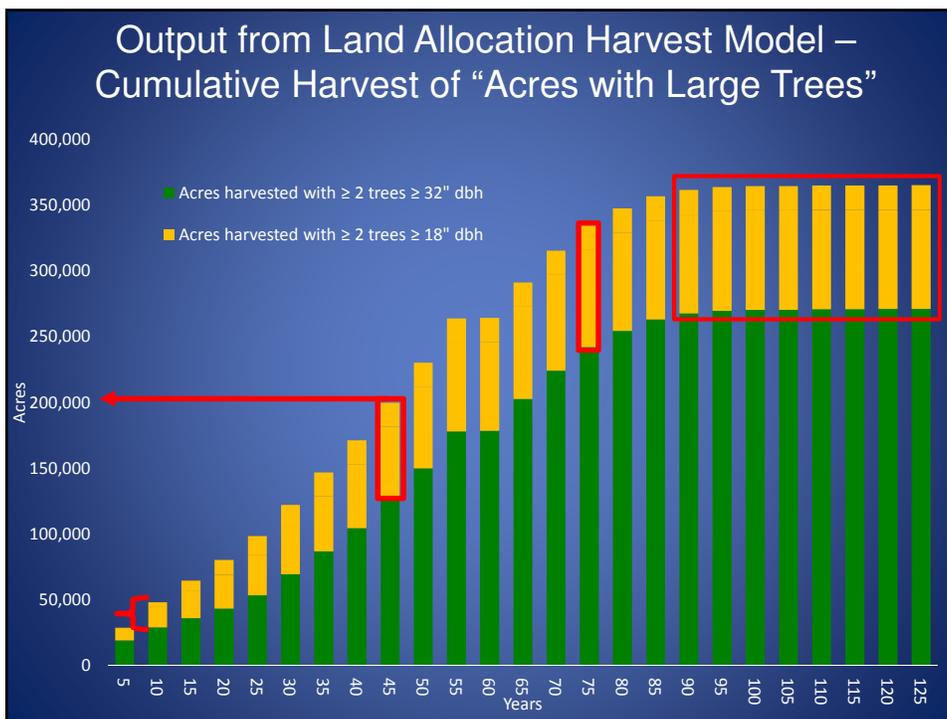
Components of Legacy Retention – Standing Dead Trees (Snags)





Legacy Retention Strategies – Current FMP vs. FPA Minimum

Habitat Component	Current FMP Strategy	FPA-minimum Strategy
Old-growth Trees	Retain all	No specific requirements
Residual Green Trees	5 trees/acre	2 trees/acre
Snags	≥ 2 hard snags/acre in DFC-General 6 snags per acre in DFC-Complex	Leave tree requirements can include snags.
Downed Wood	600 – 900 ft ³ hard logs/acre in DFC-General 3,000 – 4,500 ft ³ /acre in DFC-Complex	2 logs/acre ≥ 6' long and ≥ 10 ft ³



Current SF Conditions and Likely Outcomes for Habitat Components

Habitat Component	Current FMP Strategy	FPA-minimum Strategy
Old-growth Trees	Maintain or Increase	Decrease
Residual Green Trees	Maintain or Increase	Decrease
Snags	Maintain or Increase	Decrease
Downed Wood	Maintain or Increase	Decrease

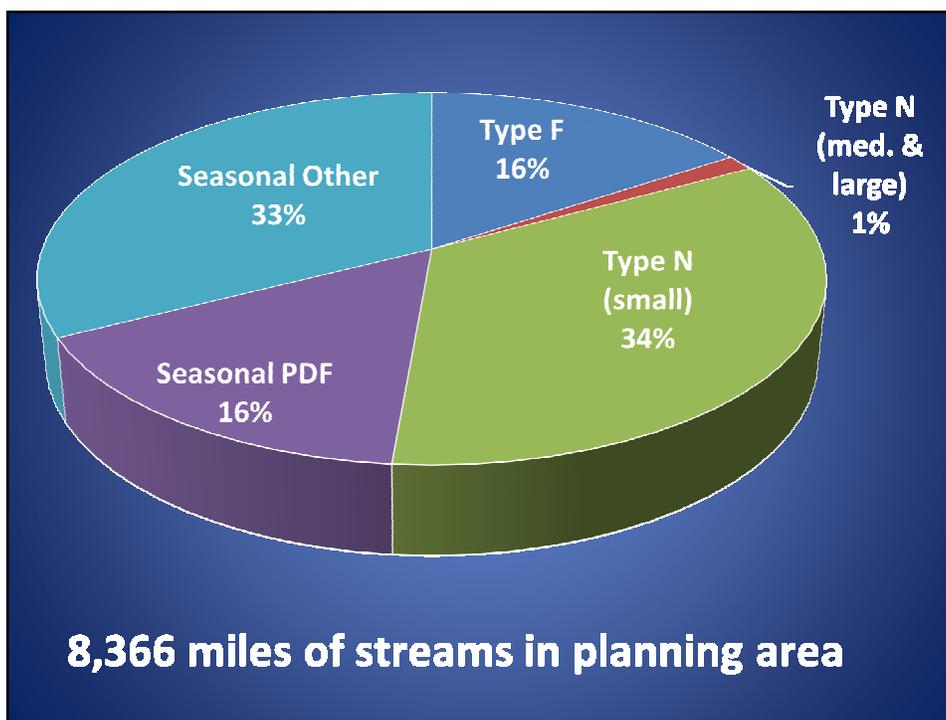


Riparian Buffer Value Analysis

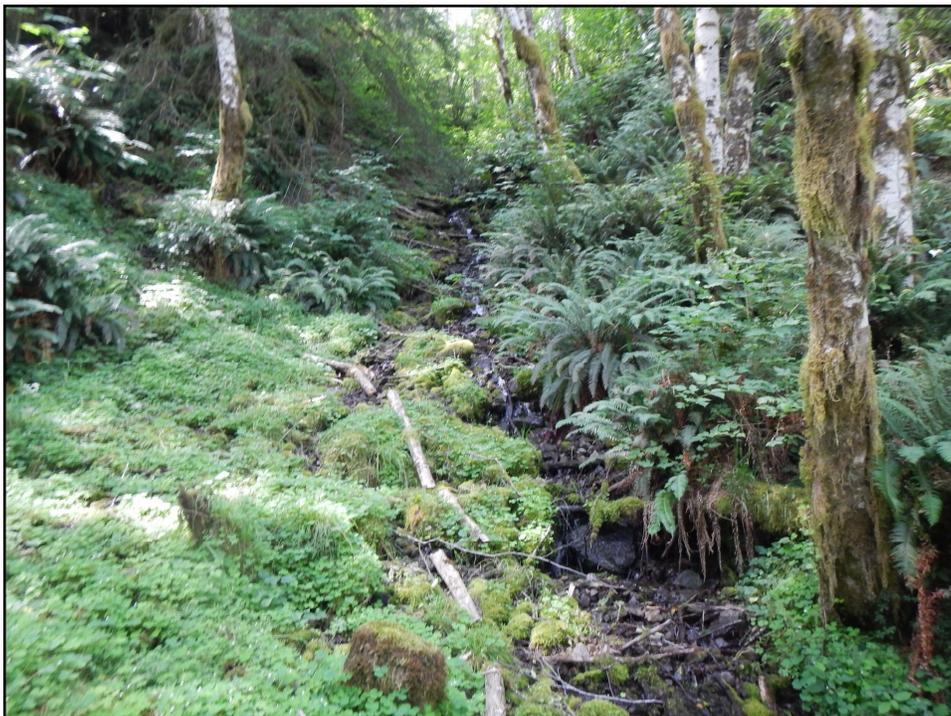
- Assess various buffer width scenarios
- Compare total acreage and total value
- Implications for aquatic resources
- GPV: “Result in a high probability of maintaining and restoring properly functioning aquatic habitats for salmonids, and other native fish and aquatic life (OAR 629-035-0010 6(b))”

Methods

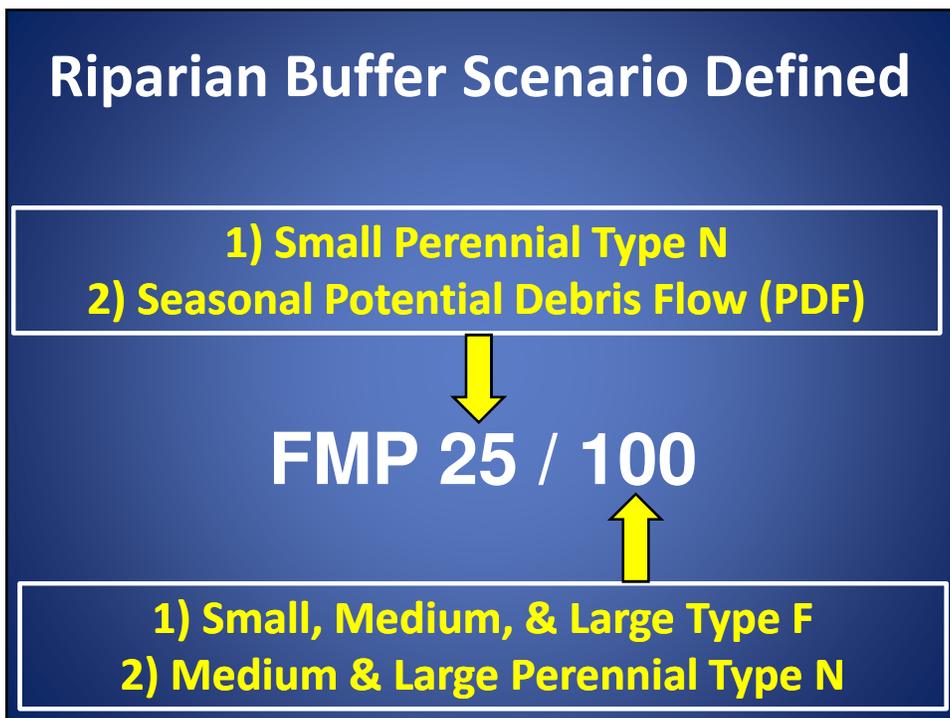
- Determined stream miles by stream type
- Defined 9 riparian buffer scenarios
- Calculated total acres
- Estimate riparian buffer value
 - Value = revenue manage as production
 - Based on 150 yr simulation
 - (\$216 / ac / yr)







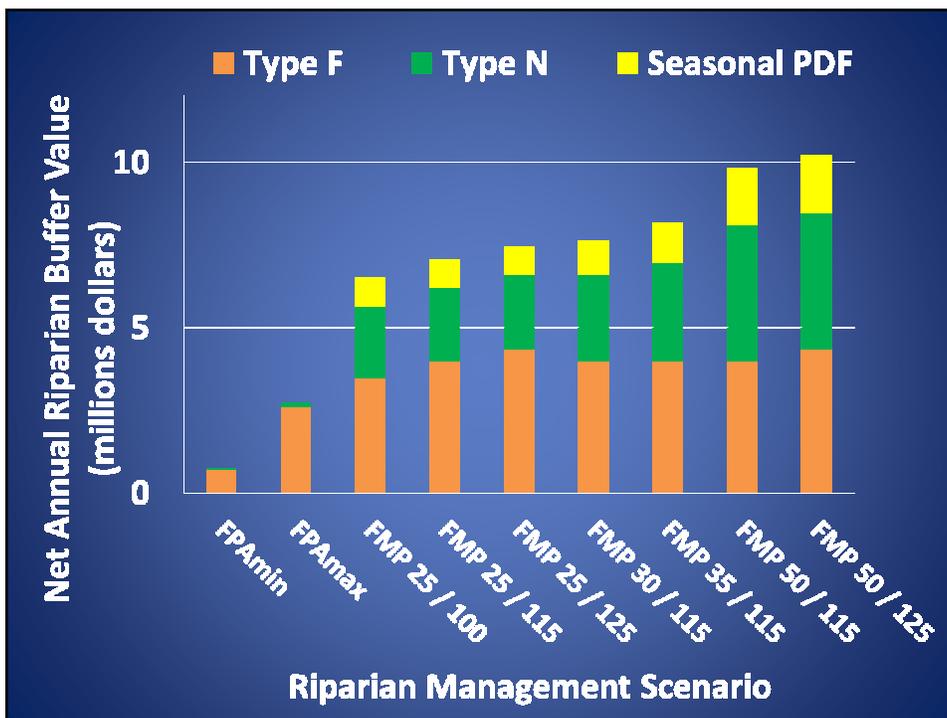
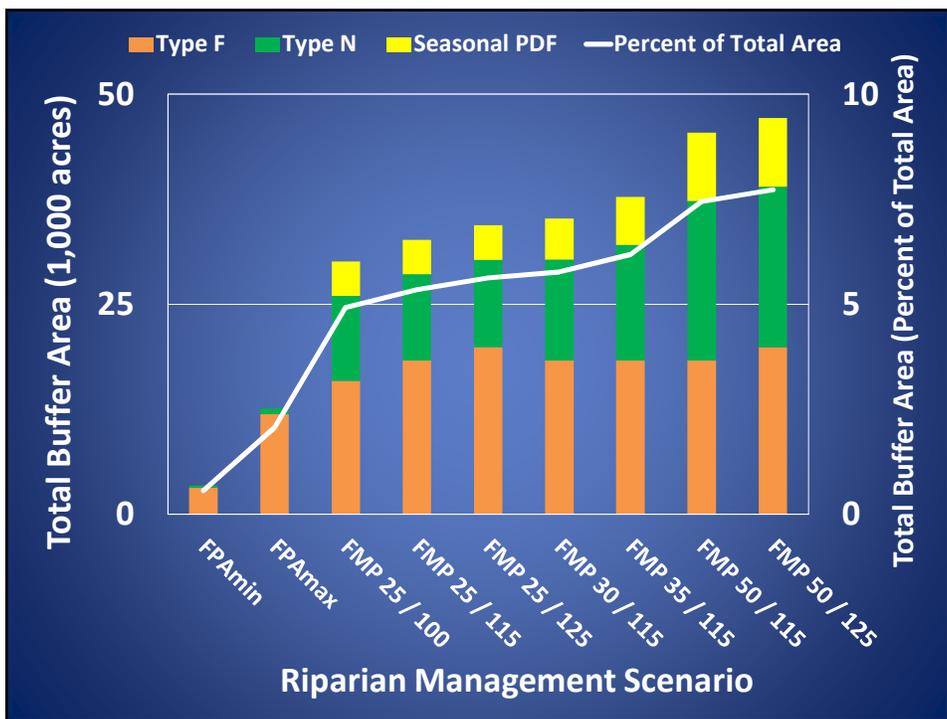




FPA Riparian Buffer Scenarios

- No buffer for small perennial Type N and seasonal PDF
- Buffer width for Type F and Type N depends on stream size class:
 - FPAmin = 20 ft all stream size classes
 - FPAmax = Type F: 50, 70, 100 (S, M & L)
Type N: 50, 70 (M & L)

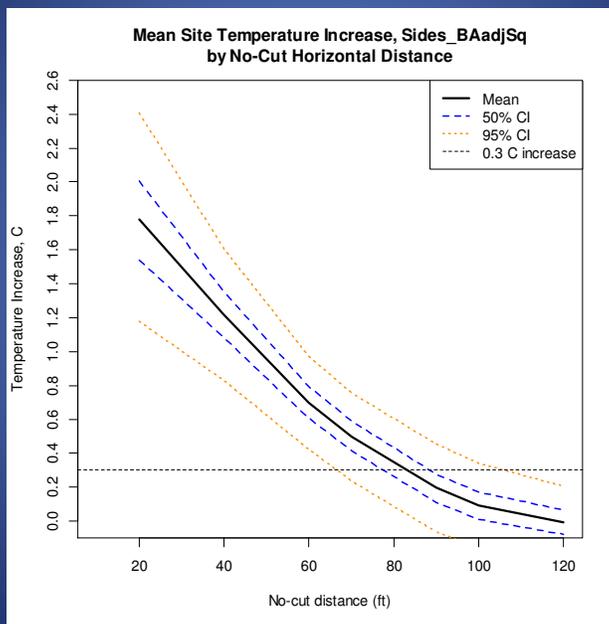
Riparian Scenario	Buffer Width by Stream Type	
	Small Type N & Seasonal PDF	Type F & Med/Large Type N
FPA min.	0	20, 20, 20
FPA max.	0	50/* , 70/50, 100/70
FMP 25/100	25	100
FMP 25 115	25	115
FMP 25/125	25	125
FMP 30/115	30	115
FMP 35/115	35	115
FMP 50/115	50	115
FMP 50/125	50	125

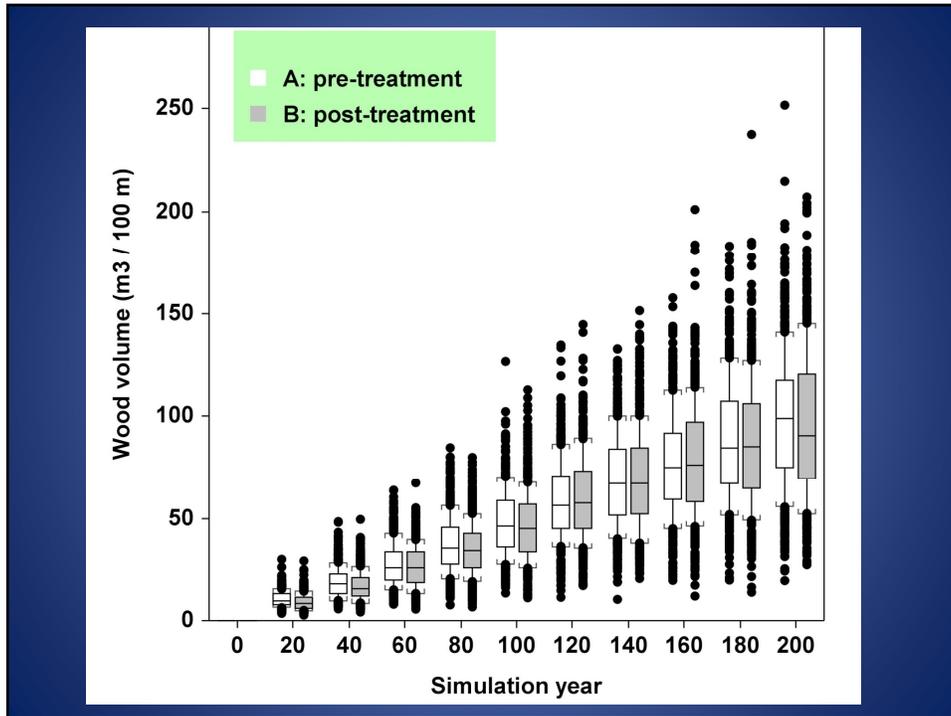


Summary

- **Goal: Maximize protection, minimize cost**
- **Management focus**
 - Type F - fish habitat – wider buffers
 - Type N - water quality – narrower buffers
- **Stream length ratio 3:1 for Type N : Type F**
 - Greatest aquatic protection isn't necessarily from the buffer scenario that costs the most
 - Buffer scenarios of similar costs offer a range of aquatic protection
- **Preliminary assessment, refinements possible**

Updated Predictive Model

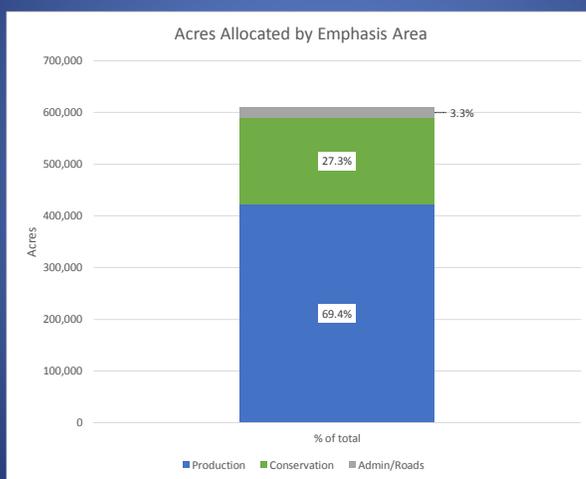




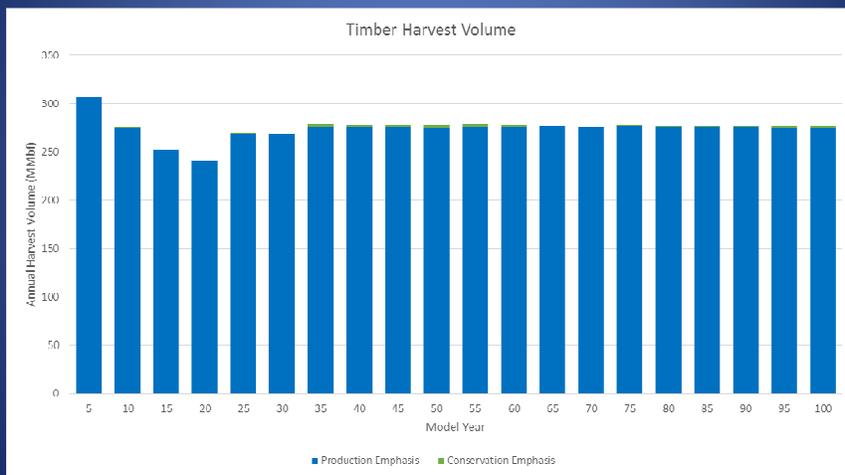
Land Allocation Base Model

- Northwest Oregon Planning Area
 - Astoria, Forest Grove, North Cascade, Tillamook, West Oregon, Western Lane
- Production-emphasis area
 - Achieve Financial Viability first 20 years
 - Sustainable harvest after 20 years
- Conservation-emphasis area
 - No regen harvest, limited thinnings.

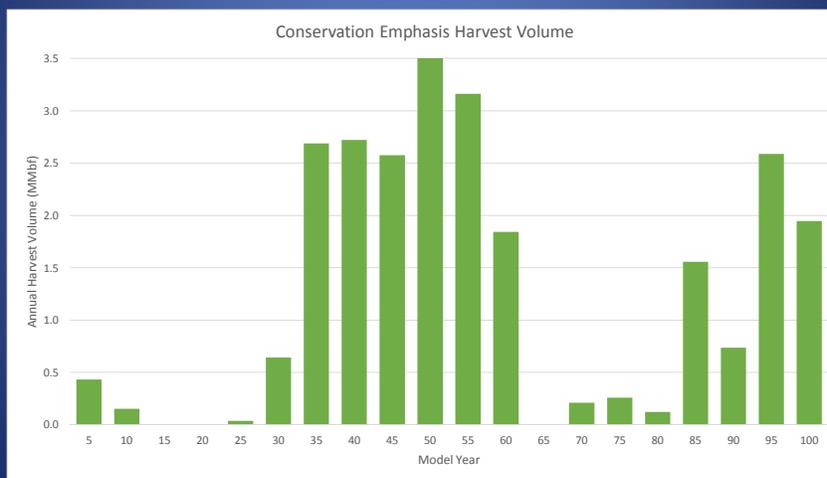
Conservation/Production Emphasis Areas (Draft)



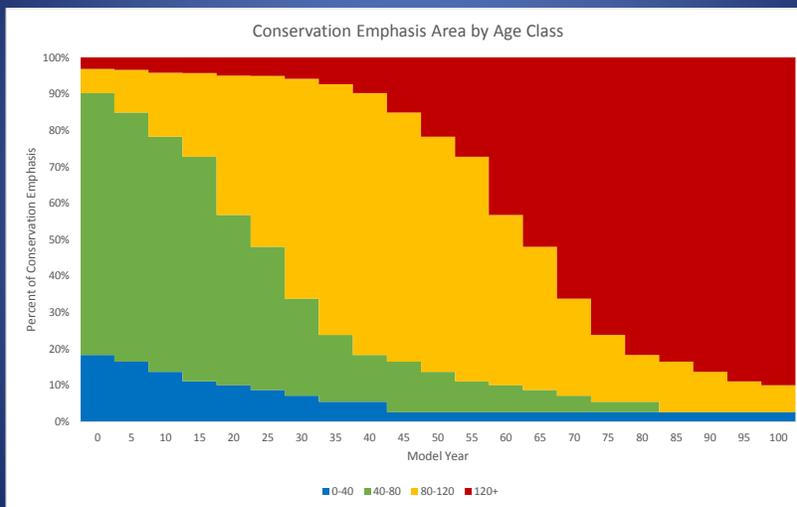
Harvest Volume (Draft)



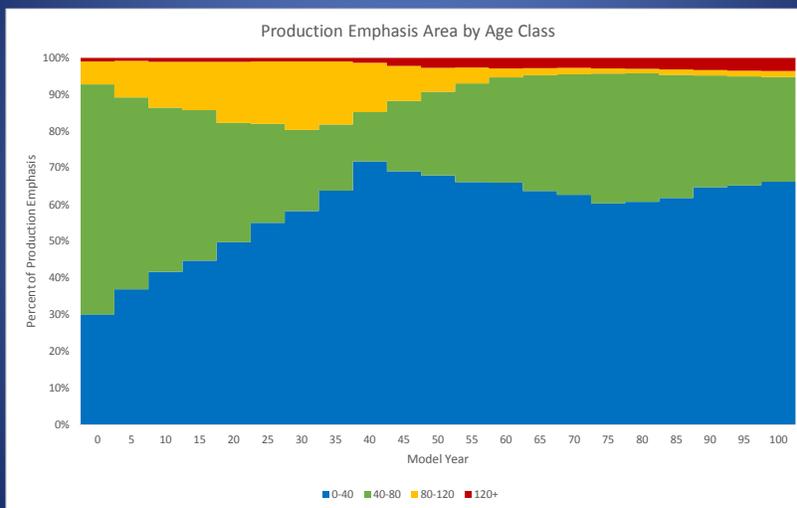
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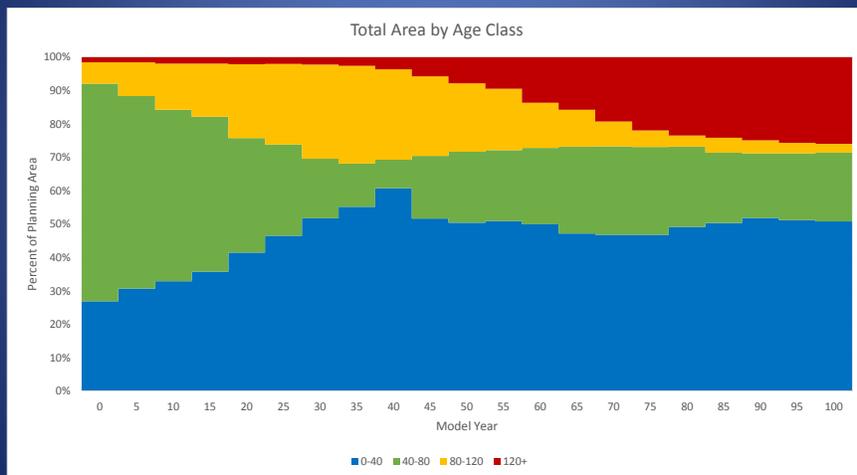
Age Class Distribution (Draft)



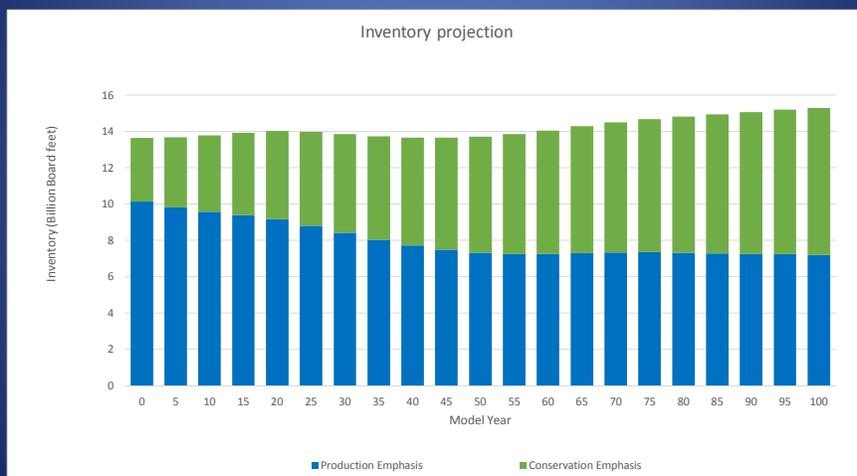
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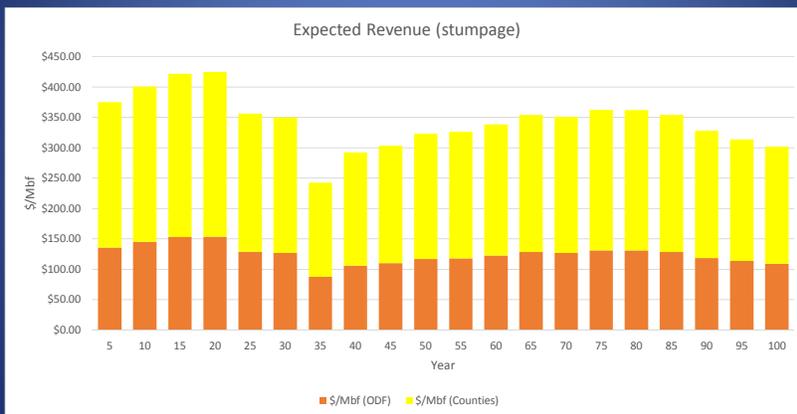
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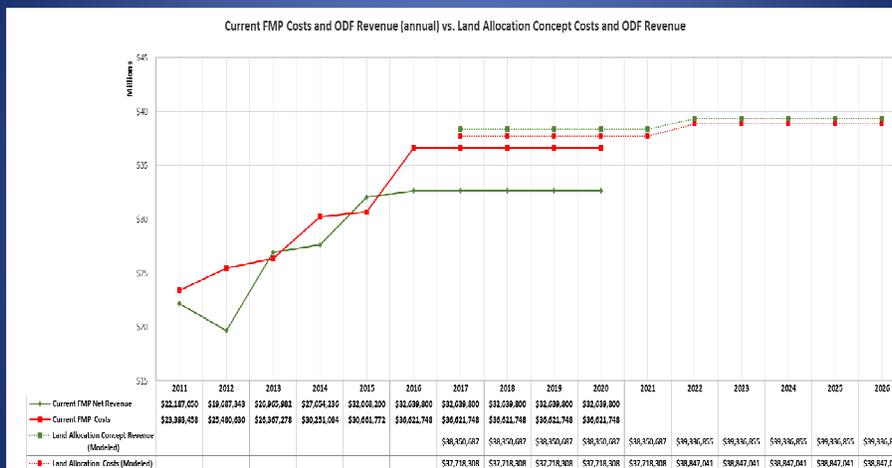
Inventory (Draft)



Stumpage Revenue (Draft)

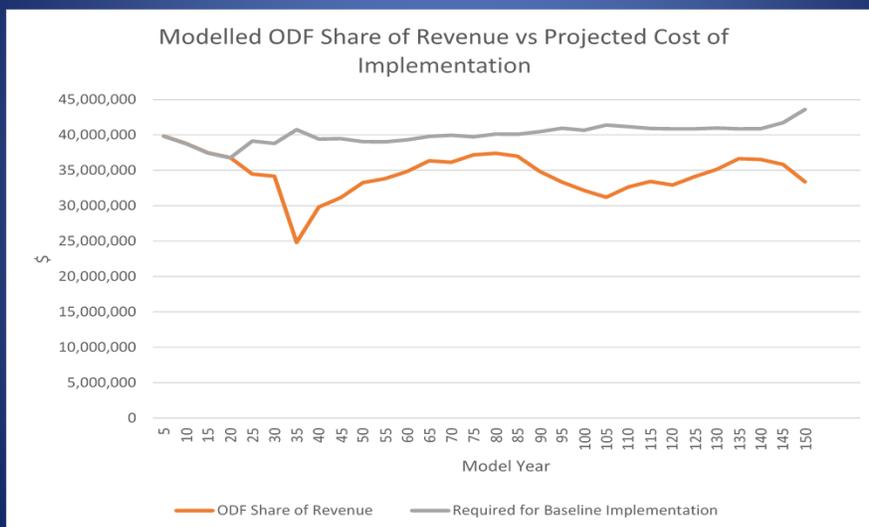


FINANCIAL VIABILITY Current FMP vs. Land Allocation Approach



This graph compares the financial performance of the current FMP to the financial performance of the Land Allocation Concept. For the Current FMP the first five years (2011 to 2015) show actual annual total costs and revenues. The second five-year period (2016 to 2020) shows the 5-year average projected costs and revenues from the Winter, 2013 revenue projection. For the Land Allocation Concept, the model produces 5-year averages for costs and revenues.

FINANCIAL VIABILITY Long-Term Model Results



Land Allocation Base Model Field Review

- Model results are dynamic
- Model scale and volume flow fluctuations present implementation challenges
- The model is a strategic tool
- Implementation would require additional iterations and refinements

Technical Expert Review Group

- Objectives
 - Detailed technical review
 - Build understanding and support for model outcomes
- Selected by Project Sponsors
 - FTLAC, NCSFC, OFIC
- Outcomes
 - Common understanding of data, model
 - Report for Sponsors and Board of Forestry

Technical Expert Review Group

Status Update from the Experts:

David Diaz, EcoTrust

Dave Walters, LandVest

Mark Rasmussen, Mason, Bruce and Girard



Subcommittee Discussion and Direction

October 19th, 2015



Photo credits: Kelly James, Trask Watershed Study

Comment Period

- FTLAC
- Public





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