



Photo Taken by Kelly James  
Trask Watershed Study

# Board of Forestry Subcommittee on Alternative Forest Management Plans June 3rd, 2015



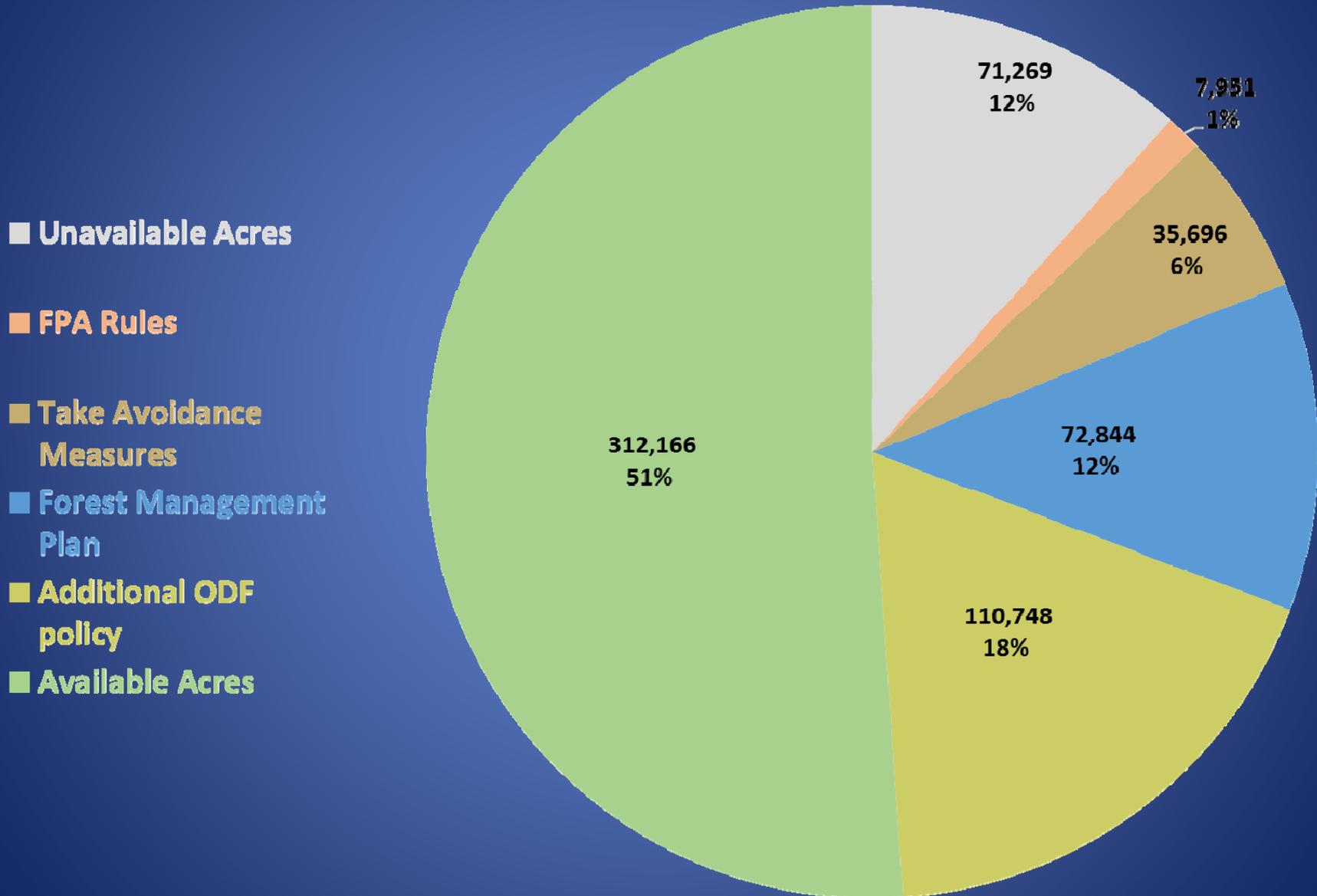
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# Project Status and Overview



# Planning Area Constraints



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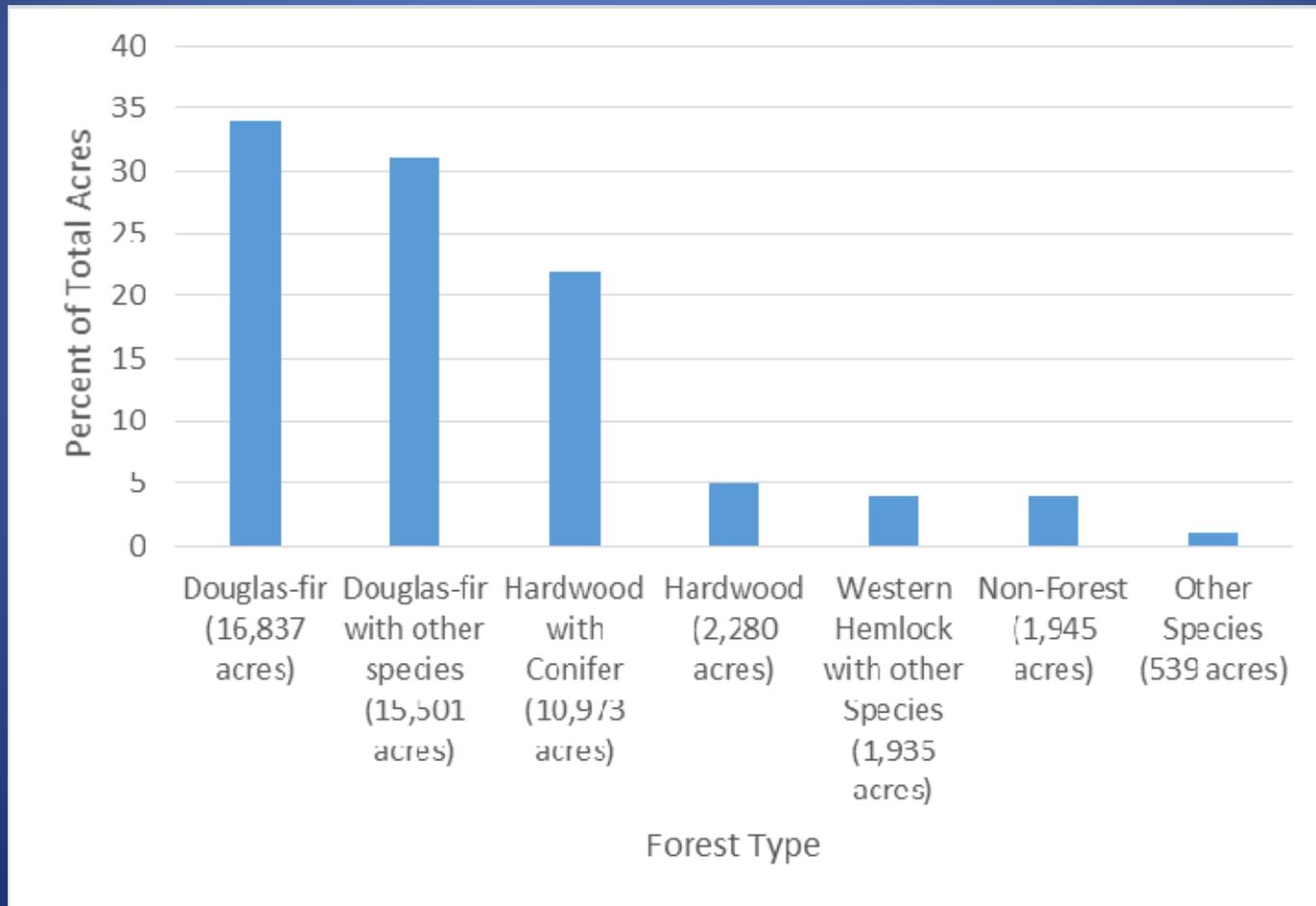
Order of Precedence	Constraint Group	Constraint Type	Gross Acres	Net Acres	% Planning Area (Net Type)	Net Acres (Group)	% Planning Area (Net Group)
↓	Unavailable Acres	Roads	14,503	14,503	2%	71,269	12%
		Non Forest Types	4,201	4,048	1%		
		Administratively Removed Areas	7,256	5,917	1%		
		Inoperable Areas	52,789	46,801	8%		
	FPA Rules	FPA Wildlife (excluding NSO)	243	181	0.03%	7,951	1%
		NSO Core Areas	1,789	1,598	0.26%		
		Landslide and Public Safety (High Risk)	7,706	6,172	1%		
	Take Avoidance Measures	Marbled Murrelet Management Areas	12,962	11,789	2%	35,696	6%
		NSO Circle Take Avoidance	30,316	23,907	4%		
	Forest Management Plan	Old Growth	140	61	0.01%	72,844	12%
		FMP Stream Buffers	77,961	59,403	10%		
		Inner Gorges	38,975	13,379	2%		
	Additional ODF policy	Terrestrial Anchor Sites	44,753	27,147	4%	110,748	18%
		Landscape Design - DFC Complex	183,592	83,602	14%		
			<b>Total</b>	<b>298,508</b>	<b>49%</b>		

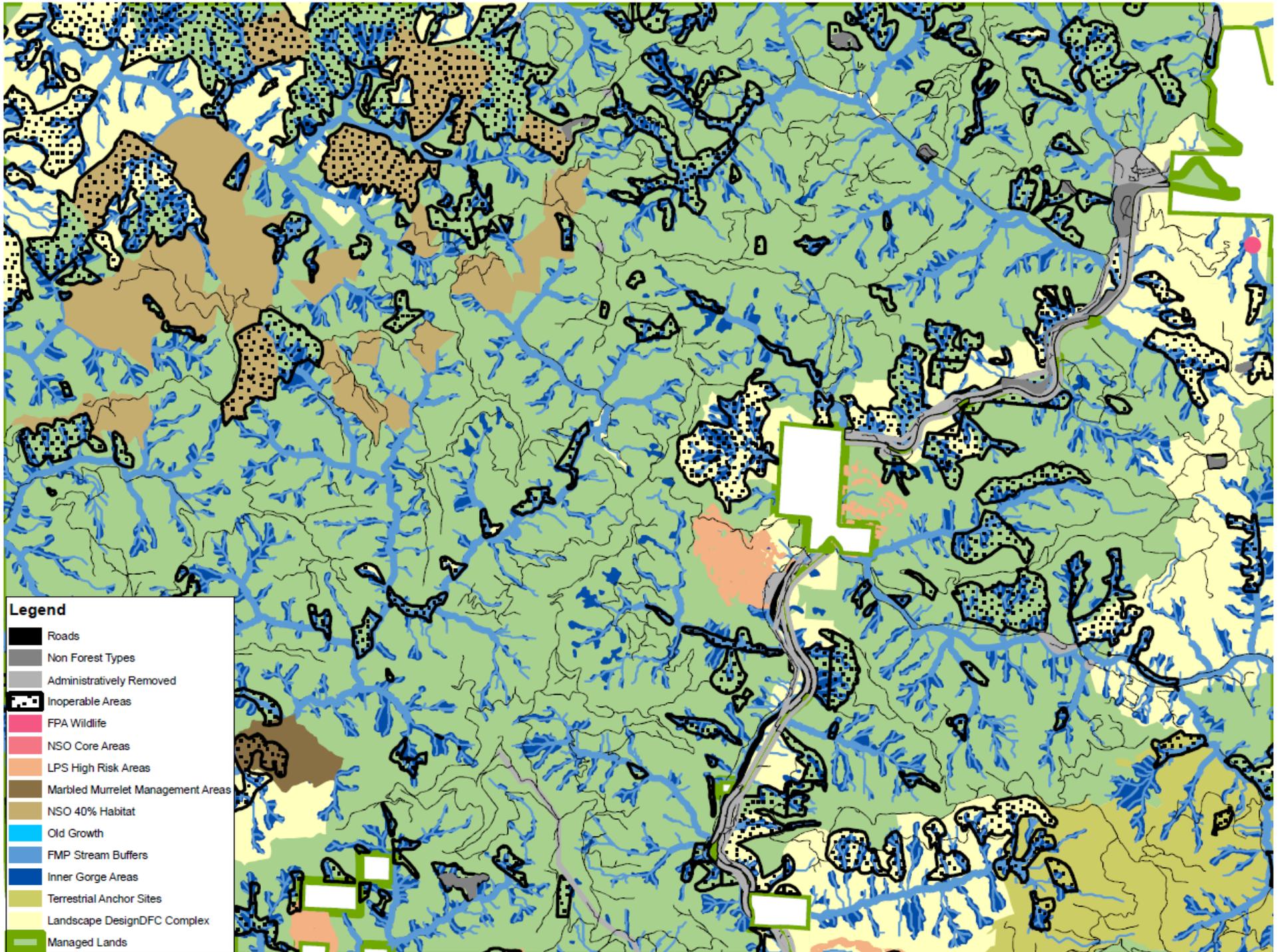
# Inoperable Areas

- Approximately 53,000 acres or 8% of the six district planning areas can not be logged
- Initially identified as part of the Harvest and Habitat Model Project:
  - Identify all feasible harvest units based on available logging systems and cost effective roads
  - Harvest units identified independent of land management strategy
  - Use for harvest modeling
  - Initial work conducted under a contract with a logging engineering firm

# Forest Stand Type on Inoperable Areas

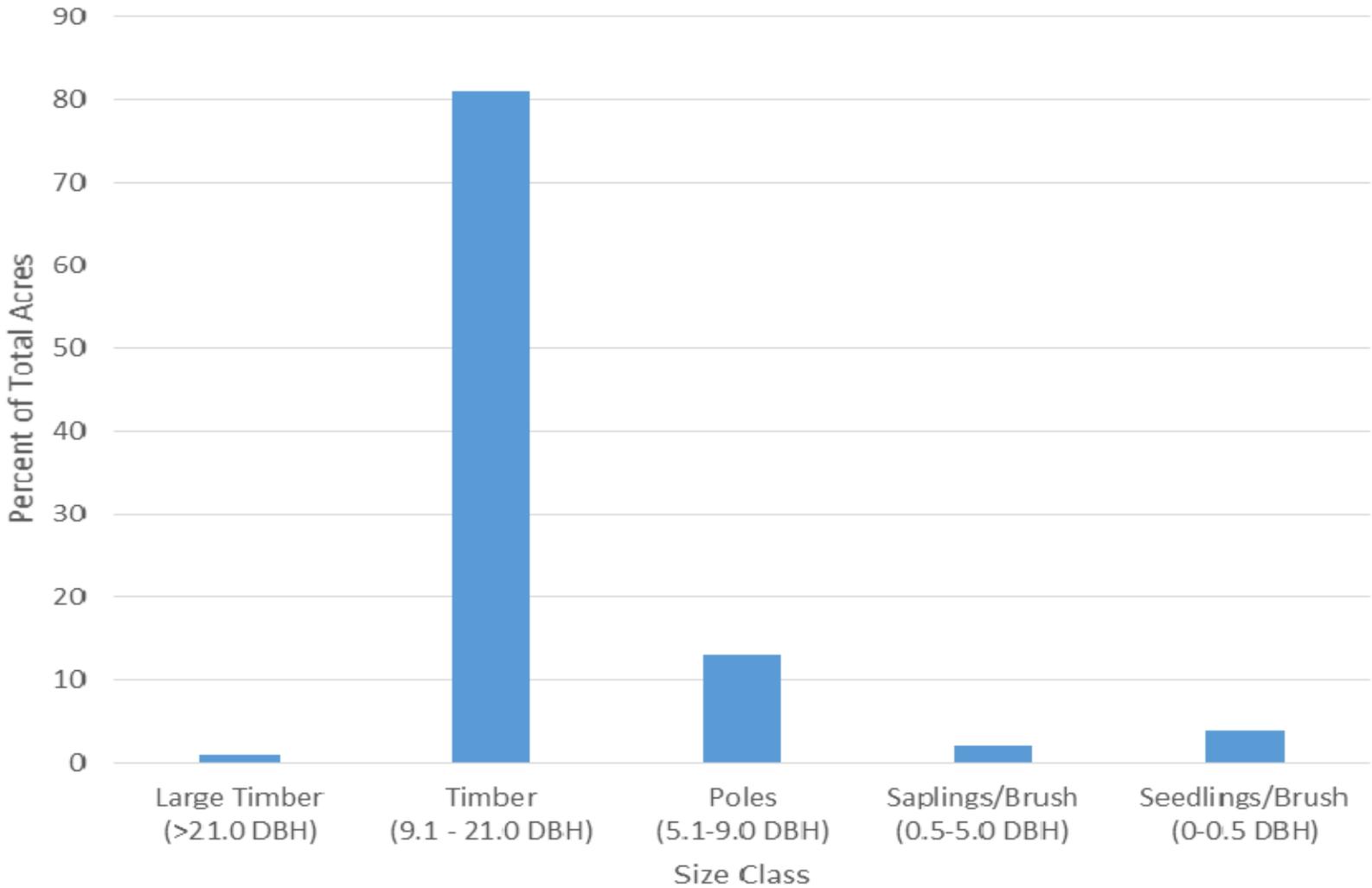
- Approximately 53,000 acres, or 8% of the six-district planning area cannot be logged





- Legend**
- Roads
  - Non Forest Types
  - Administratively Removed
  - Inoperable Areas
  - FPA Wildlife
  - NSO Core Areas
  - LPS High Risk Areas
  - Marbled Murrelet Management Areas
  - NSO 40% Habitat
  - Old Growth
  - FMP Stream Buffers
  - Inner Gorge Areas
  - Terrestrial Anchor Sites
  - Landscape DesignDFC Complex
  - Managed Lands

# Size Class of Forest on Inoperable Areas



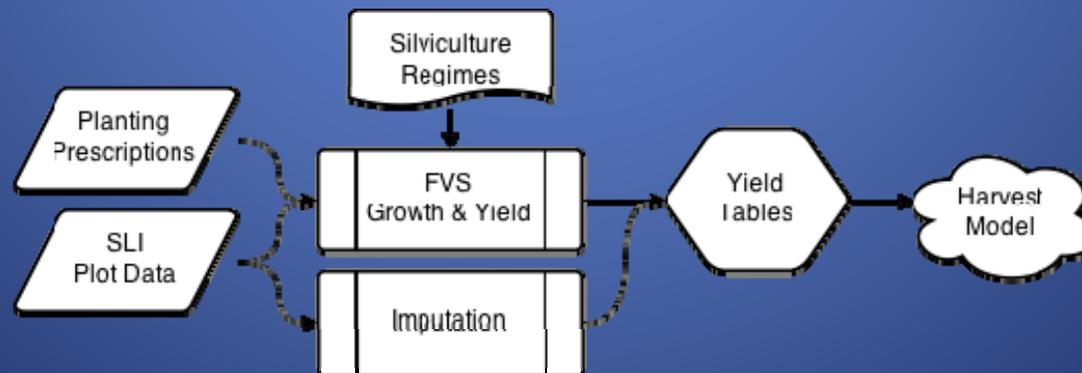
# SLI Status

District	Stands	Acres	Stands Cruised		Acres Cruised	
Astoria	1,813	136,993	742	41%	79,907	58%
Forest Grove	1,191	115,003	645	54%	77,943	68%
Tillamook	6,010	252,345	1,223	20%	89,881	36%
West Oregon	975	36,633	383	39%	16,578	45%
North Cascade	778	47,626	323	42%	23,683	50%
Western Lane	389	25,261	191	49%	16,337	65%
<i>Total</i>	<i>11,156</i>	<i>613,861</i>	<i>3,507</i>	<i>31%</i>	<i>304,328</i>	<i>50%</i>

- Attributes for stands not cruised are estimated by imputation.
  - Imputation is the assignment of data from cruised stands to non-cruised stands with similar characteristics.
  - Semi-automated imputation process was developed for Tillamook in cooperation with the Rocky Mtn. Research Station.

# Growth and Yield Modeling

- Stand Data
  - SLI plot data
  - Plantation prescriptions
- Growth Model
  - Forest Vegetation Simulator, USFS
  - Fire and Fuels Extension to project snags and down wood
- Local Calibration
  - Basal area increment
  - Maximum stand density
  - Individual tree volume and merchandization



# Inventory and Growth

	Net Volume (mmbf)	Current Annual Increment (mmbf/yr)	Long Term Sustained Yield (mmbf/yr)
Constrained Acres	4,112	85	105
Available Acres	9,488	243	282
Total	13,600	328	387

- CAI is predicted growth from 2015-2020.
- LTSY estimates maximum growth on an theoretical regulated landscape.

# Model and Data Improvements

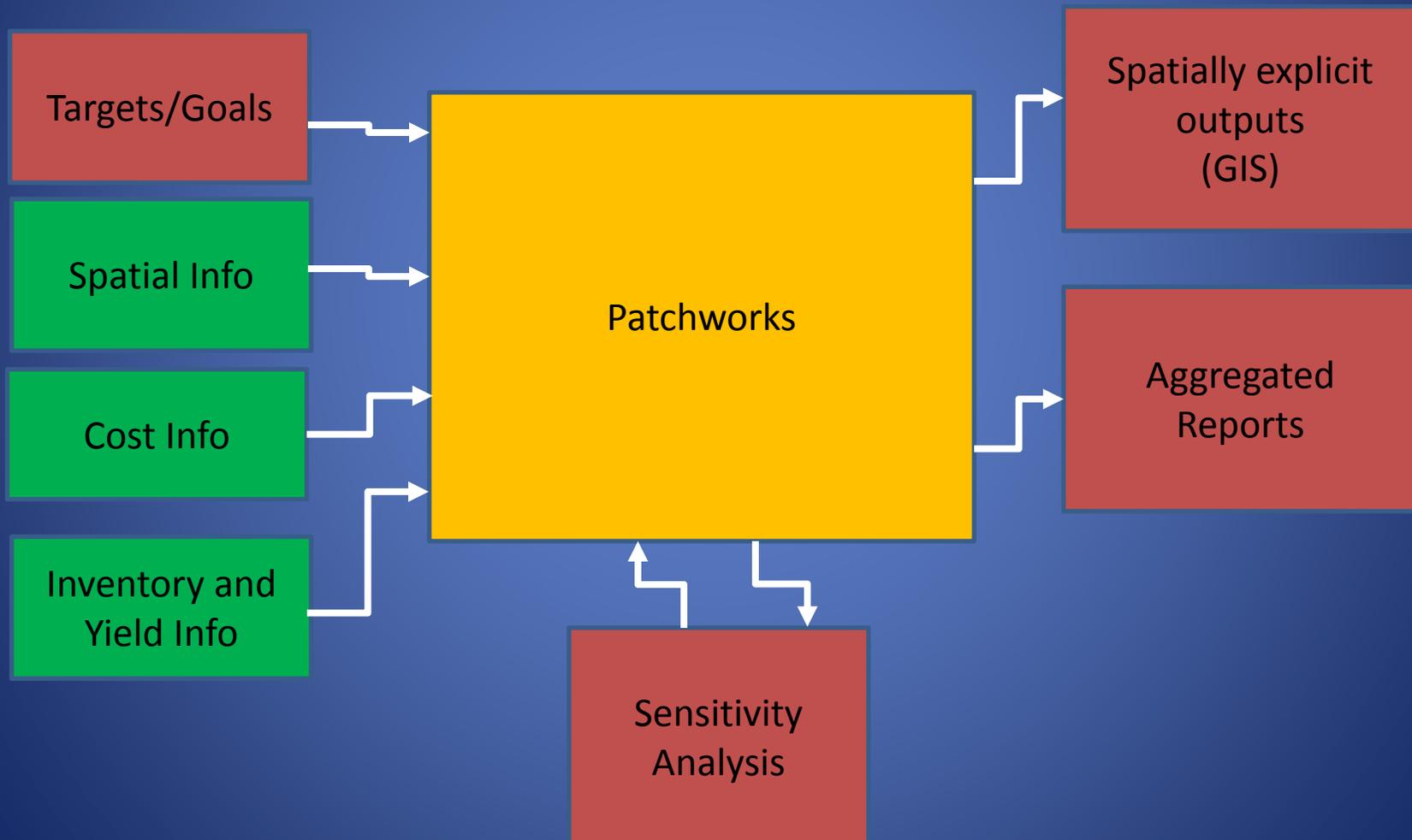
- Importance of Data
  - Model outputs depend on accuracy of input data
  - Input data is continuously improved
  - Input data, model outputs vetted by both Salem and field staff
  - Increasing complexity to adequately model GPV
- Categories of Data for Harvest Scheduler
  - Spatial (GIS) Data
  - Forest Inventory (current conditions)
  - Yield Tables (projections)
  - Revenue/Cost



# FMP Modeling

- Previous Planning Processes
  - NW and SW Oregon State FMP (1999)
  - H&H Model Project (2005)
  - Clatsop-Tillamook (C-T) Performance Measures (2008)
  - Implementation Plan Modeling (Ongoing)
- Current Planning Process

# Model Information Flow



# Growth & Yield

- Yield table improvements
  - NWO FMP: CLAMS (1999)
  - H&H: Stand Level Inventory (SLI) strata (2004)
  - C-T Performance Measures: SLI imputed (2008)
  - Current: Growth calibration (2014)
    - Diameter growth for coast range
    - Swiss needle cast
- Additional Attributes
  - Snags, Downed wood, Carbon pools

# Spatial Data

- Improvements
  - Harvest units, transportation network (2005, ongoing)
  - HLHL areas (ongoing)
  - Stand polygon updates
  - Stream surveys (ongoing)
    - Modeling of PDFT and Inner Gorges
    - Fish Presence and Perennial Stream survey
      - 70 miles, >\$50k
  - Others

# Data Improvements

- Spatial Data
  - Roads
  - Completed harvest units
  - Landslide and Public Safety
- Outputs
  - Stand Level Inventory
  - Swiss Needle Cast plots and calibration
  - Yield Tables – volume output
- Surveys (ongoing)
  - Northern Spotted Owl
  - Marbled Murrelet
  - Stream surveys

# Cost/Revenue Information

- Costs
  - Harvesting
  - Transporting
  - Reforestation
- Revenue
  - Pond value

# Model Verification

“If we can’t do it – the model shouldn’t be allowed to do it”

- Example Rules
  - Harvesting complex stands, size and/or activity in stream buffers, high landslide hazard locations
  - NSO, MAMU, TAS sites – harvest types and levels
  - Stand types harvested – hardwoods, conifer, age classes
  - Looking at the results and spatial data at a high level – areas activity or inactivity

# Operational Review

“What’s the number?”

- Type of prescriptions applied – clearcut or partial cut
- Costs (harvest and roads) versus outputs (volume and value)
- Volume output comparisons to district cruises and final timber sale cut-outs
- Review of individual harvest units at strategic level

# Summary

- Data input and modeling has continuously improved
- Significant improvements in harvest estimates
- Significant ongoing surveys
- Review from multiple technical & field staff.

# Timeline & Next Steps



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# Comment Period

- FTLAC
- Public

