

# Evolution of Silvicultural Prescriptions on the Malheur National Forest

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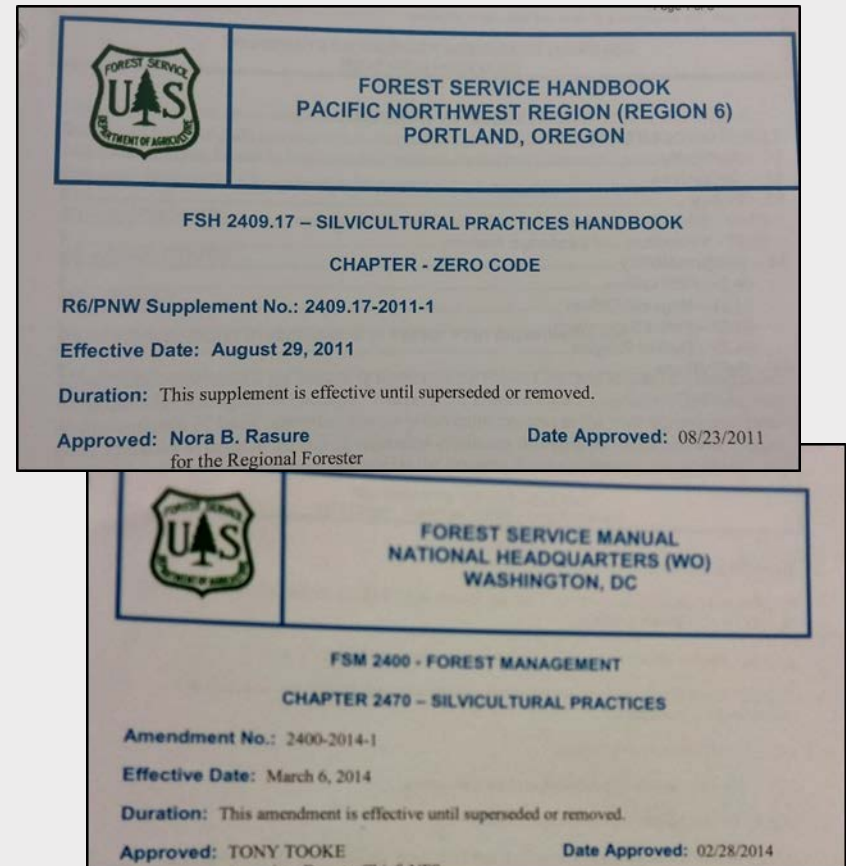
# Outline

- Policy guidance
- Brief history
- Restoration principles and research
- Evolution of prescriptions
- Changes in contract mechanisms



# Policy Guidance

- Forest Service Manuals and Handbooks provide policy and direction
  - Detailed Silviculture Prescriptions
    - Purpose, process, and documentation
  - Prescription Format and Content
    - stand id, land management objectives, site data for diagnosis, sequence of actions for treatment, and timing of actions
    - Written or reviewed and approved by a certified silviculturist
- Prescriptions must be consistent with manual direction





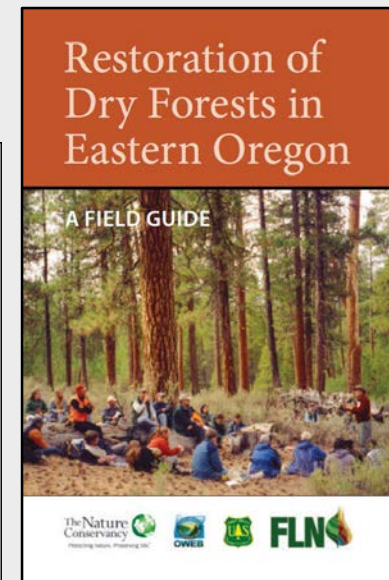
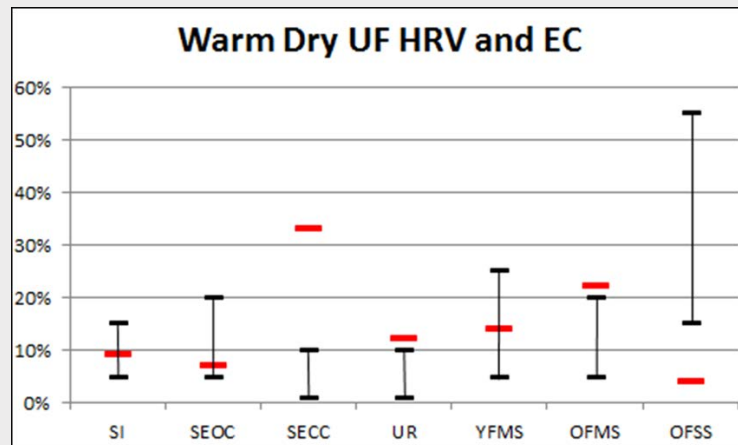
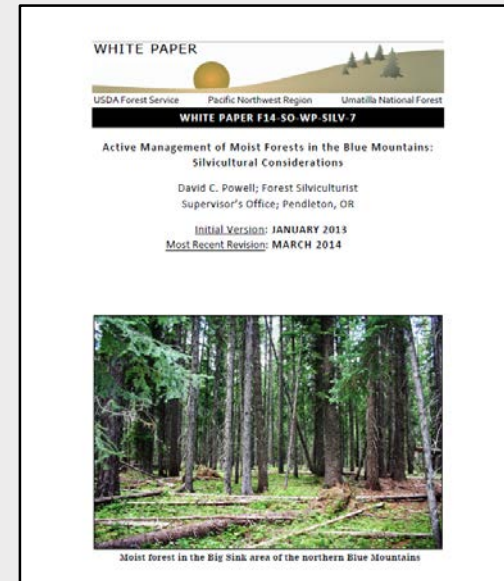
# Brief History

- Pre-Eastside Screens
  - traditional silviculture: thinning, even-aged regeneration harvest, salvage sales
- Post-Eastside Screens
  - Management halted
- Healthy Forest Restoration Act of 2003 (HFRA)



# Restoration Principles and Research

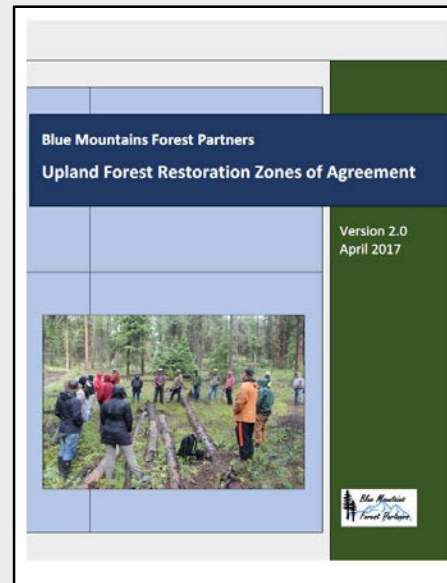
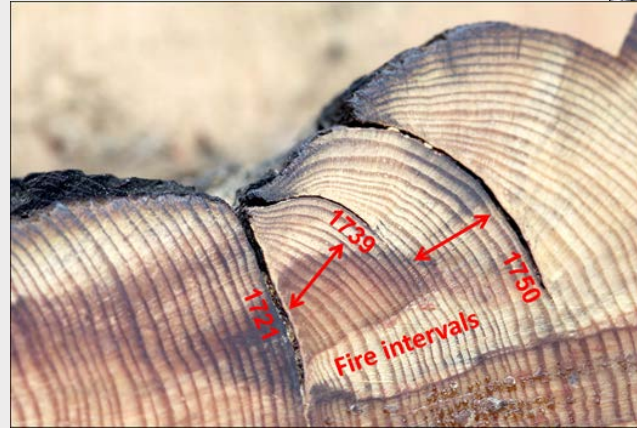
- Variable density thinning
  - Skips and gaps, wildlife patches and openings
- HRV
  - Structure, density, species, and spatial pattern
- Dry Forest Restoration Principles
  - Franklin et al. 2013, Lillebo 2012
- Moist Forest Restoration Principles
  - Powell 2013, Stine et al. 2014
- Free Selection
  - Graham et al. 2006





# Restoration Principles and Research

- ICO
  - Churchill et al.
- Large, young tree removal
  - Van Pelt 2008, Johnston et al. 2018
- Historical reconstructions: fire regimes and species composition
  - Johnston et al. 2017, Johnston 2017
- BMFP Zones of Agreement
  - Upland Forest, Aspen, Riparian



# Evolution of Prescriptions

- Variable density thinning
  - Wildlife patches and openings, skips and gaps, clumps, variable basal area targets
- Margos



**Basal Area Variability Table**

Percentage of Stand	50 ft <sup>2</sup> /acre Average	60 ft <sup>2</sup> /acre Average
10%	25 ft <sup>2</sup> /acre	30 ft <sup>2</sup> /acre
15%	40 ft <sup>2</sup> /acre	45 ft <sup>2</sup> /acre
50%	50 ft <sup>2</sup> /acre	60 ft <sup>2</sup> /acre
15%	60 ft <sup>2</sup> /acre	75 ft <sup>2</sup> /acre
10%	80–100 ft <sup>2</sup> /acre	90–110 ft <sup>2</sup> /acre

\*Wildlife leave patches 2 to 5 acres in size are to be taken out of the unit first, then the above percentages are to be applied to the portions of the unit that is actually thinned.

# Evolution of Prescriptions

- Forest Plan Amendments
  - “21 inch rule”
  - Removal of large, young grand fir and Douglas-fir
  - Soda Bear project coring trees
  - Van Pelt 2008 guidelines
  - Johnston et al. 2018

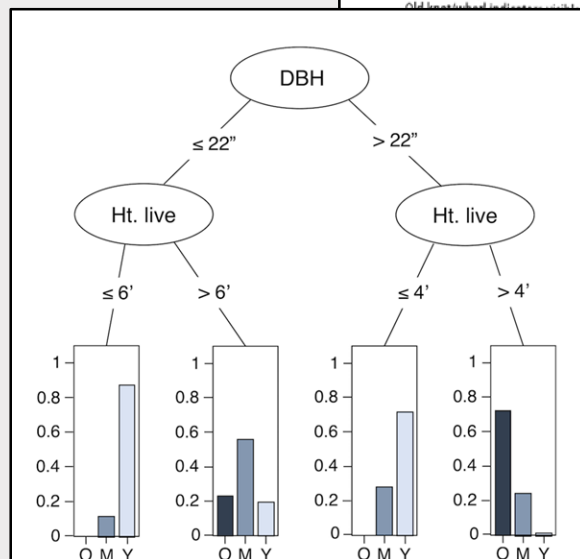
## Rating system for determining the general age of western larch trees

(Choose one score from each category and sum scores to determine developmental stage)

Bark condition, tree base . . . . . Score  
 Hard, bony bark with small fissures . . . . . 0  
 Hard bark with moderately deep fissures (4-10 cm – 2-4 in) . . . . . 1  
 Deep fissures present (> 10 cm – 4 in) . . . . . 3  
 Maximum fissure to fissure plate width  $\geq$  15 cm (6 in) . . . . . 3

Knot indicators, lower one-third of tree  
 Branch stubs present . . . . . 0  
 Old knot holes indicating decay . . . . . 1  
 . . . . . 2

. . . . . 0  
 . . . . . 1  
 . . . . . 2  
 . . . . . 3  
 . . . . . 5



Species	Below 5,600 feet elevation	Above 5,600 feet elevation
grand fir	grand fir $\geq$ 21" DBH and height to live foliage > 4'	grand fir $\geq$ 18" DBH
Douglas-fir	Douglas-fir between 21" and 26" DBH with dead branches > 6' and Douglas-fir > 26" DBH	Douglas-fir $\geq$ 21" DBH



# Evolution of Prescriptions

- Transition from dry forest restoration to both dry and moist forest restoration
- Free Selection
  1. Openings
  2. Leave patches
  3. Variable density thinning matrix
- Leave tree prescriptions



# Evolution of Prescriptions

- ICO
  - Churchill et al. 2017
- Low basal area retention
  - Restoring pine savannas and woodlands where forest encroachment is occurring

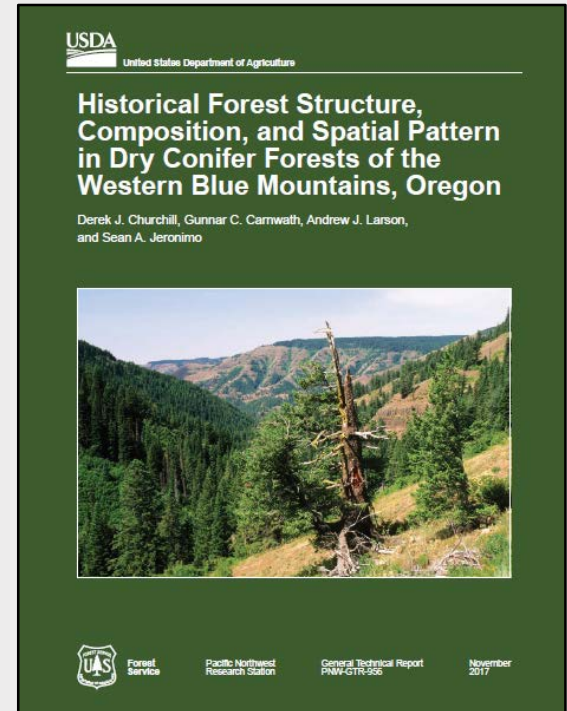


Table 3: Clump Targets

	1 Tree	2-4 Trees	5-9 Trees	10-15 Trees	16-30 Trees
Target Clump %	20%	41%	31%	6%	2%
Clumps/Acre	10	6.8	2.2	0.2	0.04
Clumps Unit 124	1020	649	224	20	4
Clumps Unit 126	810	551	178	16	3
Clumps Unit 131	130	88	29	3	1
Clumps Unit 132	320	218	70	6	1

\*The number of clumps per unit assumes that 10% of each unit is left in wildlife leave patches that do not count as clumps.





# Evolution of Prescriptions

- Aspen
  - Precommercial thinning
  - Tree felling
  - Commercial removal
  - 21 inch rule
  - Hinging





# Evolution of Prescriptions

- Wildfire salvage
- Salvage of early 2000 fires
  - Controversial
  - Most were litigated
- Roadside salvage
- Canyon Creek Fire Salvage
  - Identify post-fire salvage harvest prescriptions that allow benefits to economics, while minimizing negative consequences to wildlife
  - Three treatment prescriptions



	Treatment prescription (per acre retention)			
Snag retention level	Level 1	Level 2	Level 3	Control
>20 inches dbh	8	4	2	All
15 to 20 inches dbh	0	6	10	All
12 to 15 inches dbh	4	8	17	All
9 to 12 inches dbh	22 (all)	22 (all)	22 (all)	All
Treatment Unit Assignments	T4, T5	T1, T6	T2, T3	C1, C2, C3

# Evolution of Prescriptions

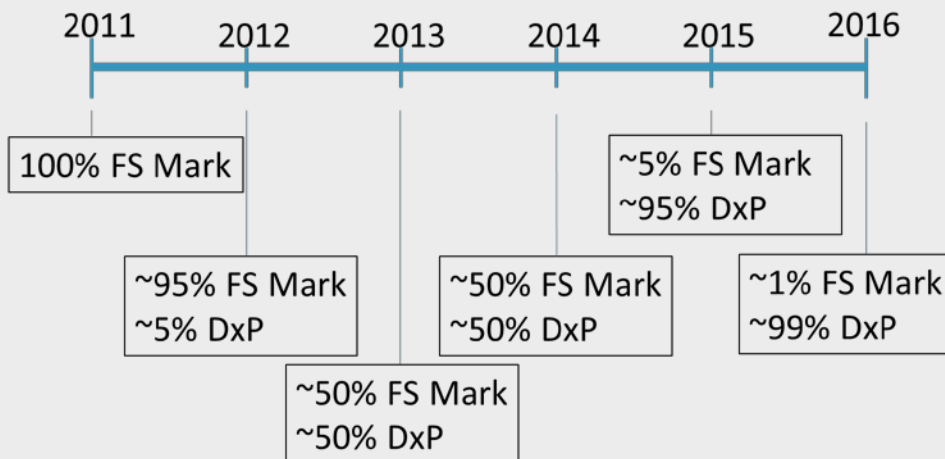
- Riparian thinning
  - Precommercial thinning
  - Non-commercial thinning
  - Commercial thinning/Tree tipping
  - Prescription structure follows upland treatments





# Changes in Contract Mechanisms

- Transition from ITM to DxP and DxD
- Suite of contract types
  - Timber sale, IRSC, IRTC, 10-Year Stewardship, GNA, BPA
- Contract specs





# Questions

