

Site Type Initiative

Paired Plot Density Management (PPDM) Trials

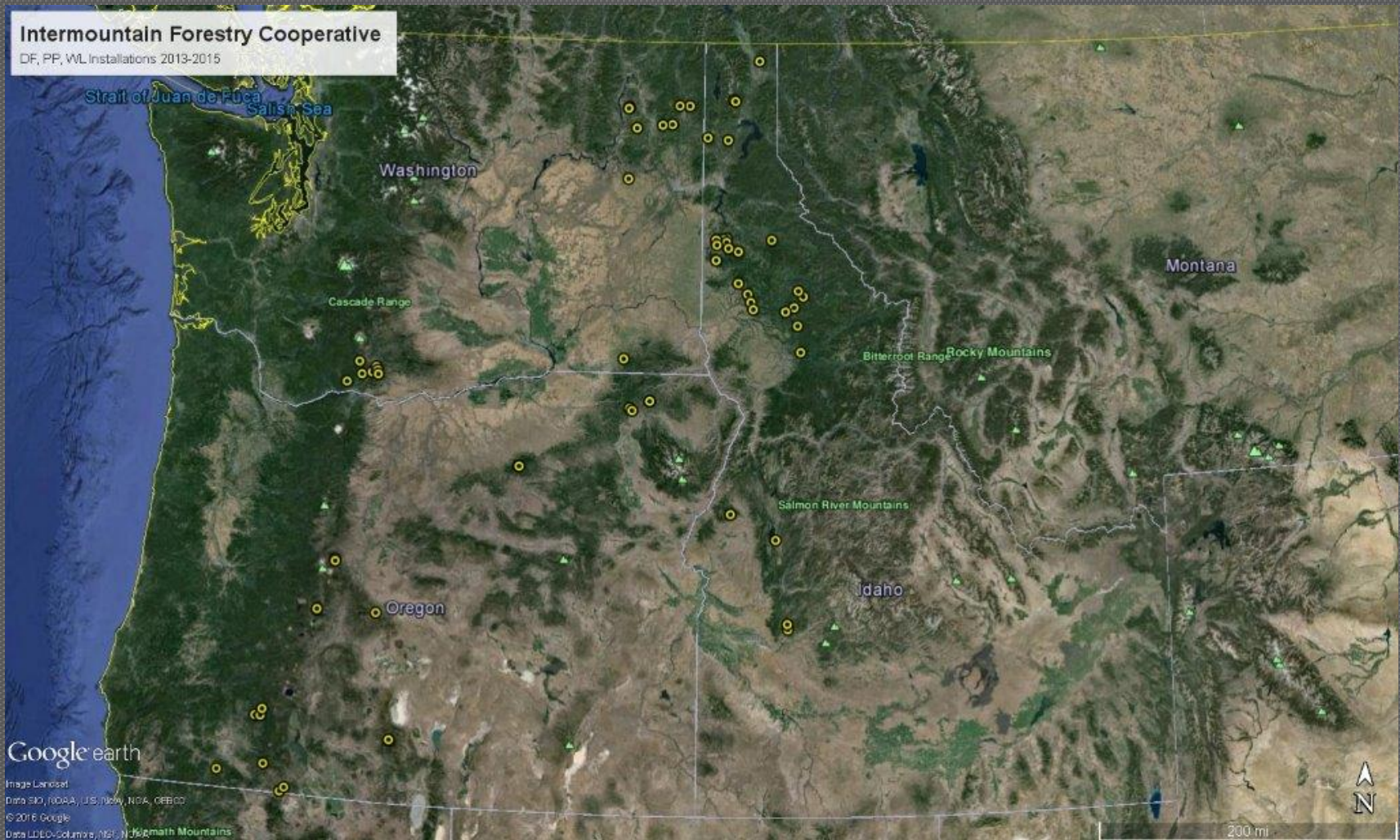
Two-Year Response DF & PP



D E N S I T Y	PRODUCTIVITY			
	Site I RD 20	Site II RD 20	Site III RD20	Site IV RD 20
Site I RD 40	Site II RD 40	Site III RD 40	Site IV RD 40	
Site I RD 60	Site II RD 60	Site III RD 60	Site IV RD 60	



Site Type Initiative Paired Plot Density Management (PPDM) Trials



Site Type Matrix

D E N S I T Y	Low ↓ High	PRODUCTIVITY →			
		Low			High
		10YR ≤ 18' RD ≤ 35	19' ≥ 10YR ≤ 22' RD ≤ 35	23' ≥ 10YR ≤ 26' RD ≤ 35	10YR ≥ 27' RD ≤ 35
		10YR ≤ 18' 35 > RD < 60	19' ≥ 10YR ≤ 22' 35 > RD < 60	23' ≥ 10YR ≤ 26' 35 > RD < 60	10YR ≥ 27' 35 > RD < 60
		10YR ≤ 18' RD ≥ 60	19' ≥ 10YR ≤ 22' RD ≥ 60	23' ≥ 10YR ≤ 26' RD ≥ 60	10YR ≥ 27' RD ≥ 60

Relative Density (RD)

$$RD = BA / (QMD^{1/2}) \text{ (Curtis 1982)}$$

RD ≤ 35

35 > RD < 60

RD ≥ 60

Productivity

10-Year (10YR) Height Segment

Site I = 10YR ≤ 18'

Site II = 19' ≥ 10YR ≤ 22'

Site III = 23' ≥ 10YR ≤ 26'

Site IV = 10YR ≥ 27'

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High	10YR ≤ 18' RD ≥ 60	19' ≥ 10YR ≤ 22' RD ≥ 60	23' ≥ 10YR ≤ 26' RD ≥ 60	10YR ≥ 27' RD ≥ 60

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$$RD = BA / (QMD^{1/2}) \text{ (Curtis 1982)}$$

$$RD \leq 35$$

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Productivity

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$$\text{Site I} = 10YR \leq 18'$$

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Site Selection - Sample Design

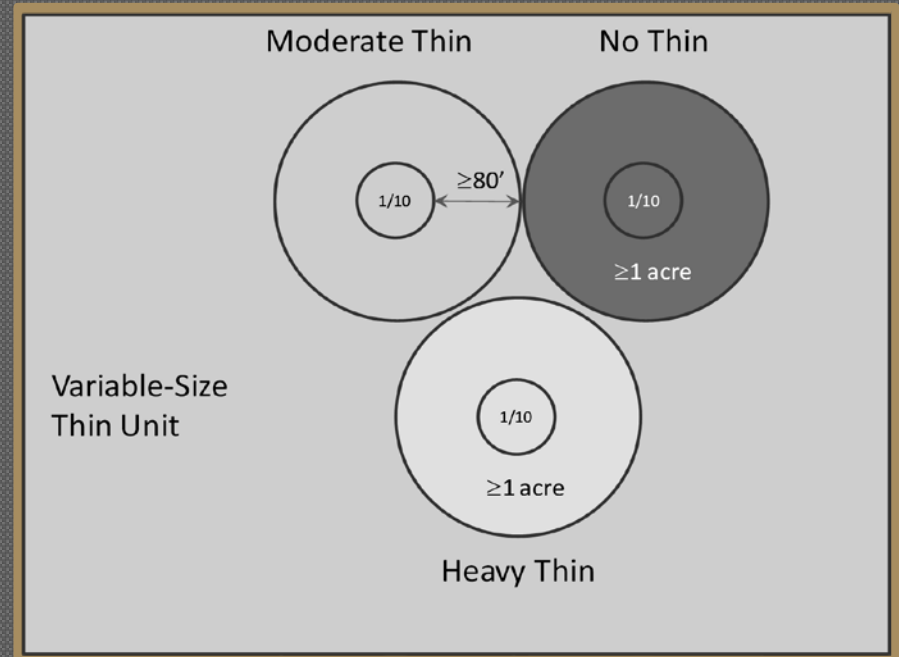
100+ PCT Stands (10-30YO)

3 Species - DF, PP, WL

Tri-Plot Design:

-1 No Thin (Control)

-1 Moderate Thin and 1 Heavy Thin -
Range 10' (436 TPA) - 18' (134 TPA)



Site Selection - Sample Design

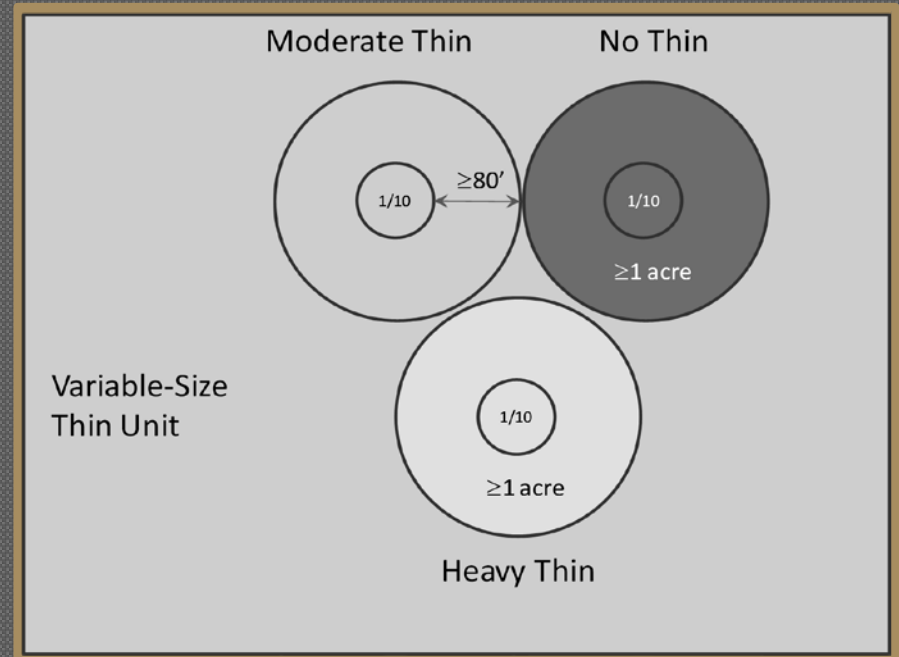
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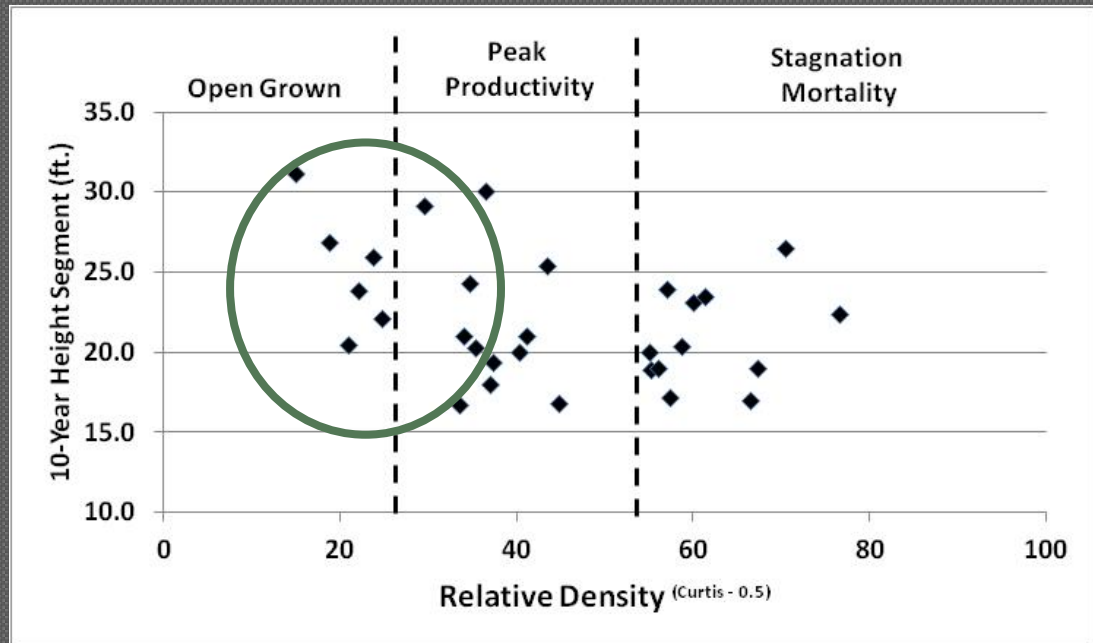
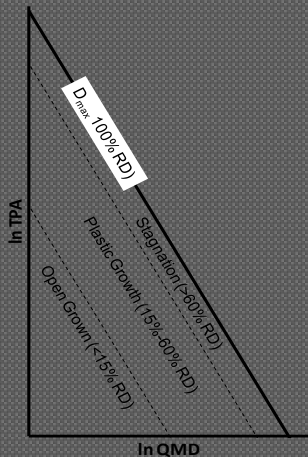
-1 Light to Heavy Thin - Range 10'
(436 TPA) - 18' (134 TPA)



Douglas-fir PPDM Matrix

		Douglas-fir Productivity Index			
		LOW			HIGH
DENSITY INDEX	LOW	1	4	2	4
		3	5	5	1
	HIGH	0	1	3	1

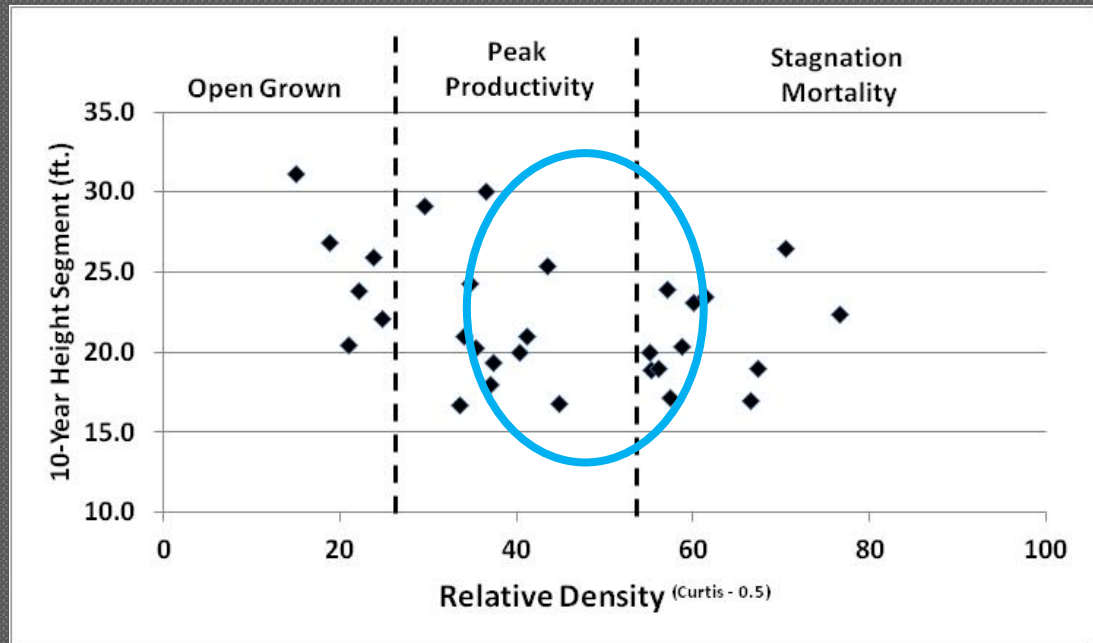
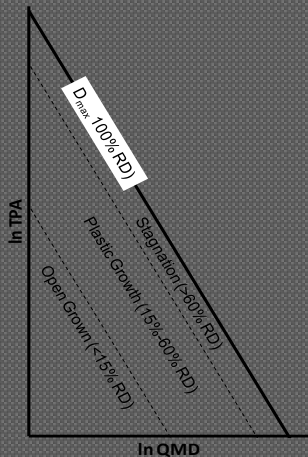
2013 – 2016 Douglas-fir Sites (30)



Douglas-fir PPDM Matrix

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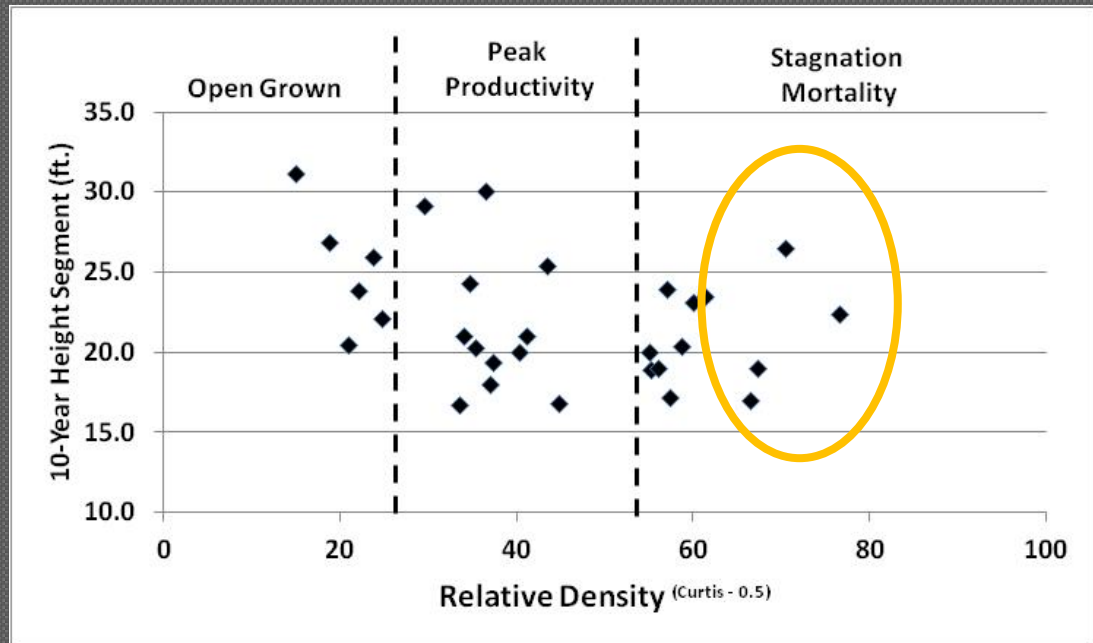
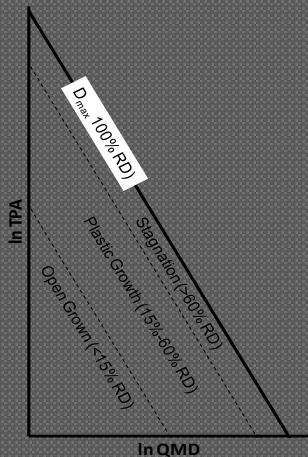
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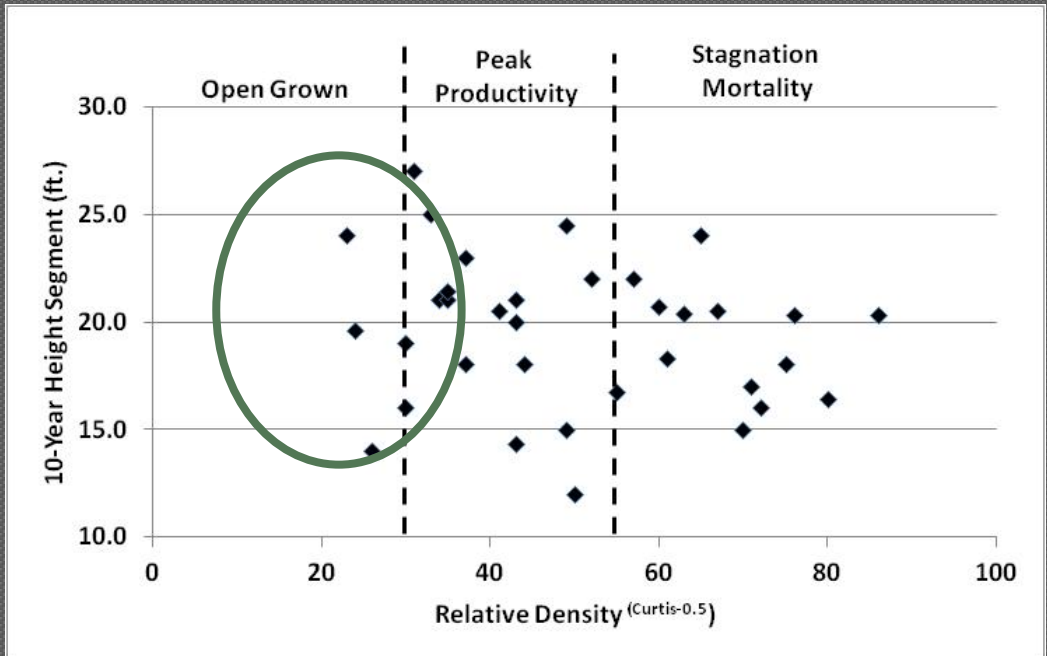
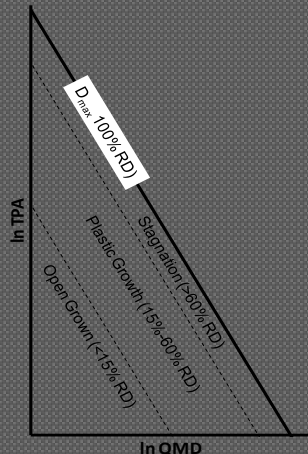
2013 – 2016 Douglas-fir Sites (30)



Ponderosa Pine PPDM Matrix

		Ponderosa Pine Productivity Index			
		LOW			HIGH
DENSITY INDEX	LOW	3	4	2	1
		6	7	2	0
	HIGH	4	4	2	0

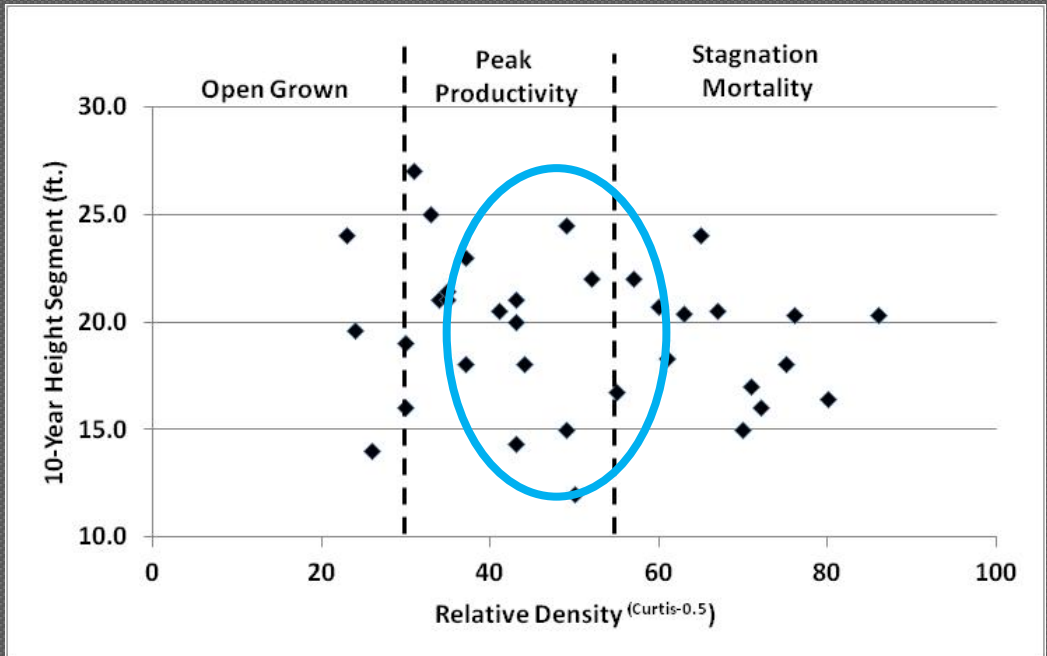
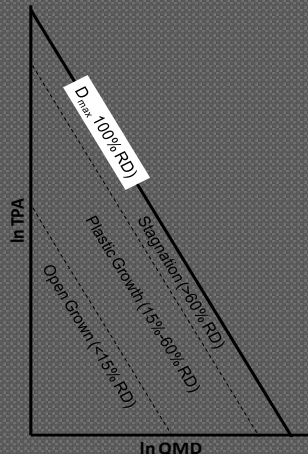
2014 – 2016
Ponderosa Pine Sites (35)



Ponderosa Pine PPDM Matrix

		Ponderosa Pine Productivity Index			
		LOW			HIGH
DENSITY INDEX	LOW	3	4	2	1
	MID	6	7	2	0
	HIGH	4	4	2	0

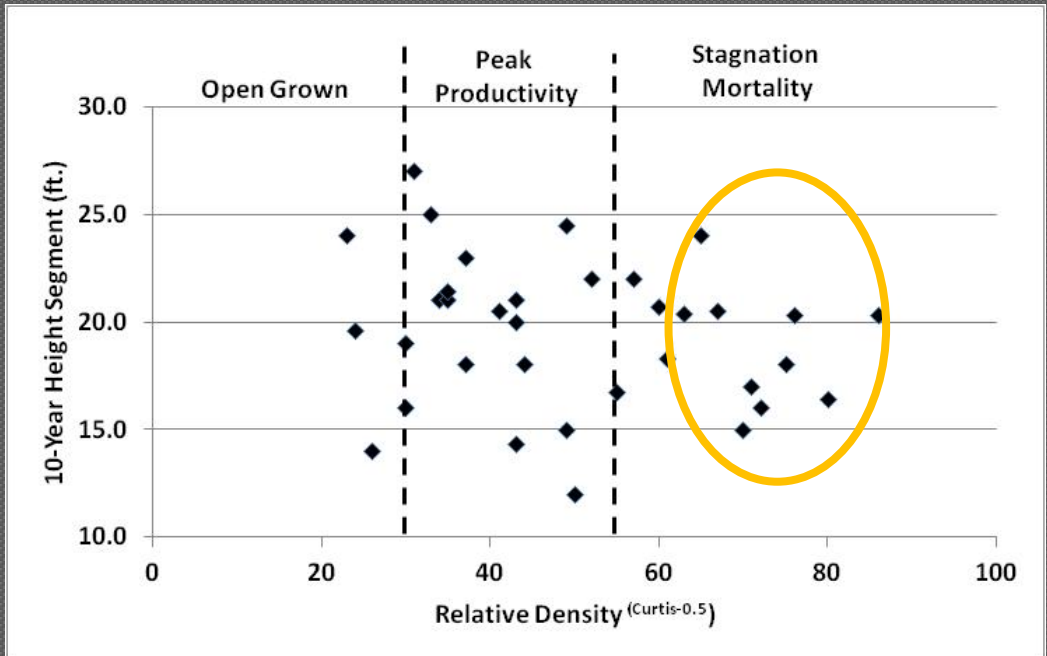
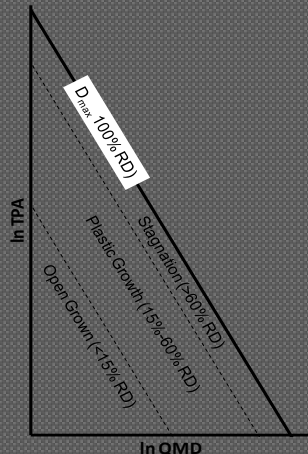
2014 – 2016
Ponderosa Pine Sites (35)



Ponderosa Pine PPDM Matrix

		Ponderosa Pine Productivity Index			
		LOW			HIGH
DENSITY INDEX	LOW	3	4	2	1
		6	7	2	0
	HIGH	4	4	2	0

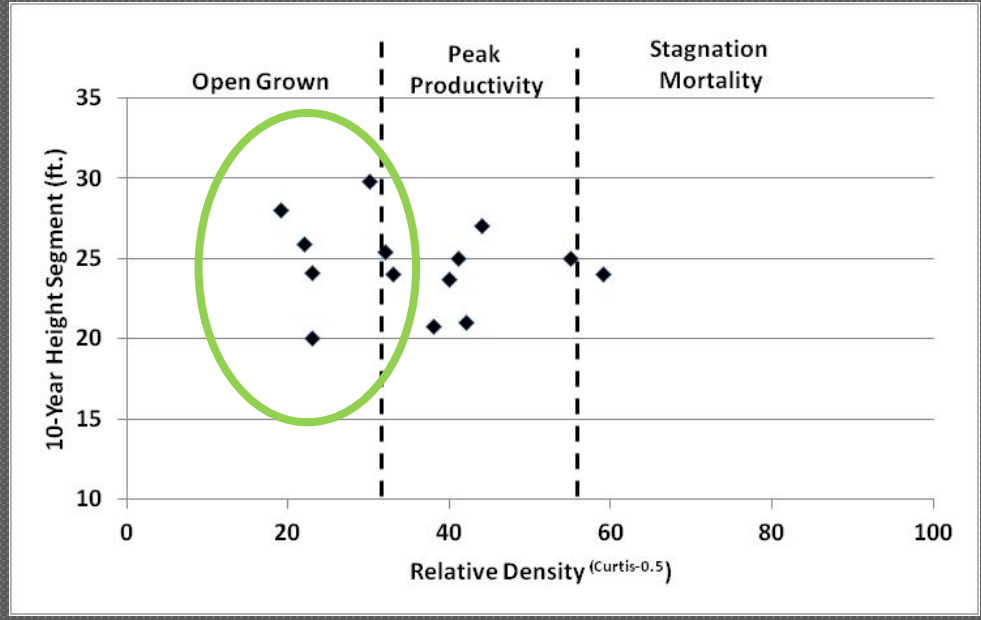
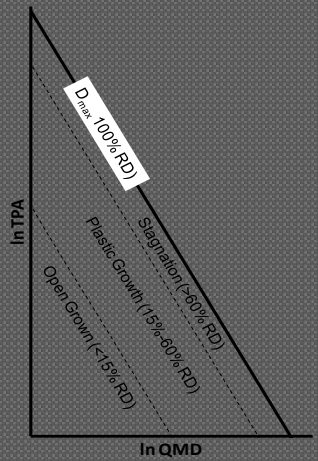
2014 – 2016
Ponderosa Pine Sites (35)



Western Larch PPDM Matrix

		Western Larch Productivity Index			
		LOW			HIGH
DENSITY INDEX	LOW	0	1	4	2
		0	2	2	1
	HIGH	0	0	2	0

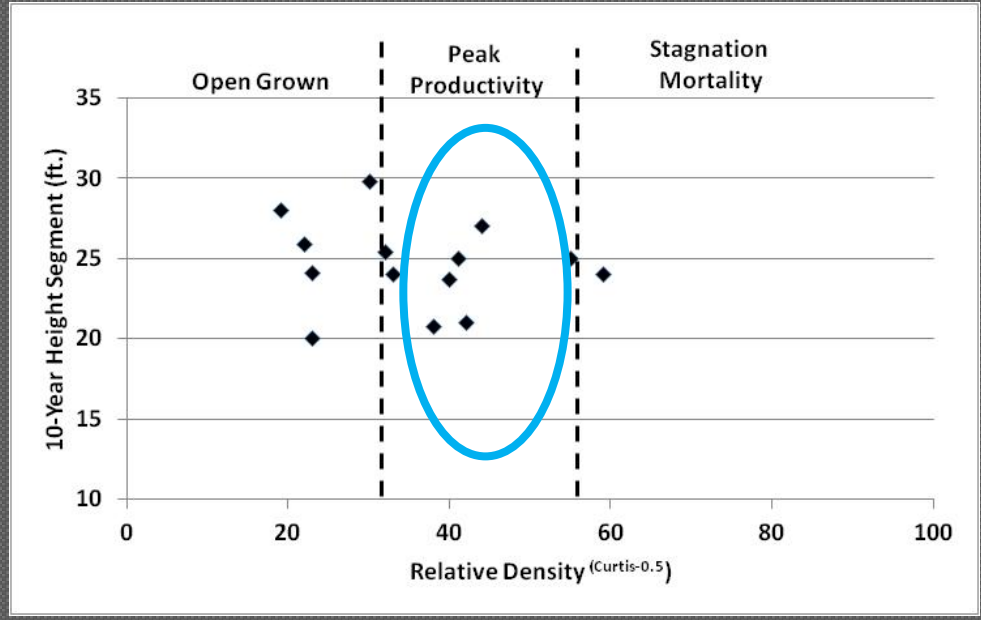
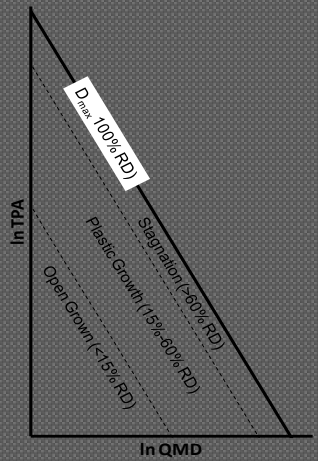
2015-2016
Western Larch Sites (14)



Western Larch PPDM Matrix

		Western Larch Productivity Index			
		LOW			HIGH
DENSITY INDEX	LOW	0	1	4	2
	MID	0	2	2	1
	HIGH	0	0	2	0

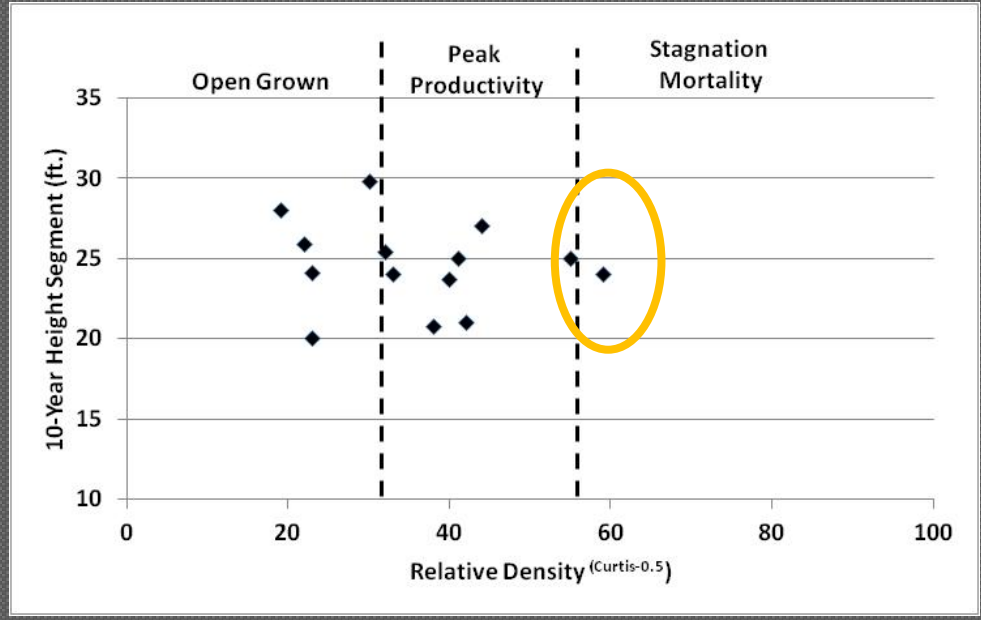
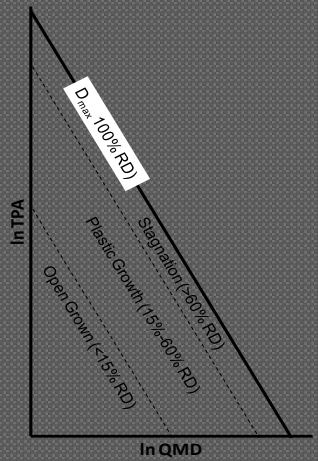
2015-2016
Western Larch Sites (14)



Western Larch PPDM Matrix

		Western Larch Productivity Index			
		LOW			HIGH
DENSITY INDEX	LOW	0	1	4	2
		0	2	2	1
	HIGH	0	0	2	0

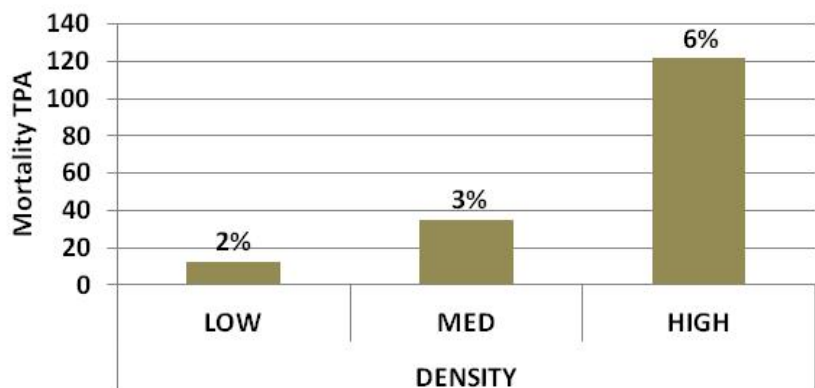
2015-2016
Western Larch Sites (14)



DF & PP Mortality

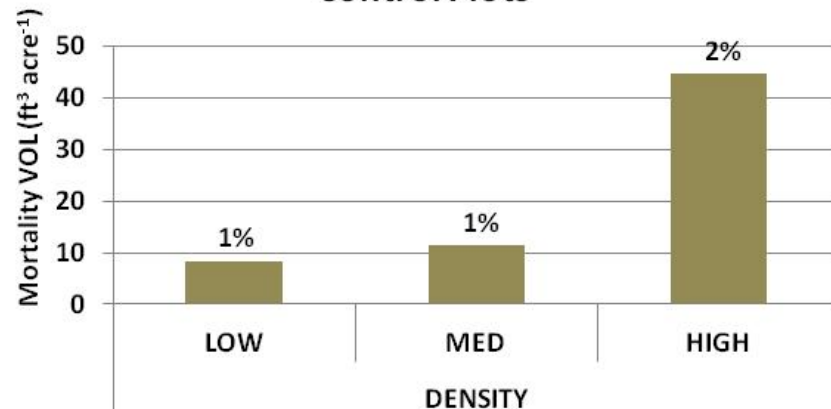
2-YR DOUGLAS-FIR TPA MORTALITY

Control Plots



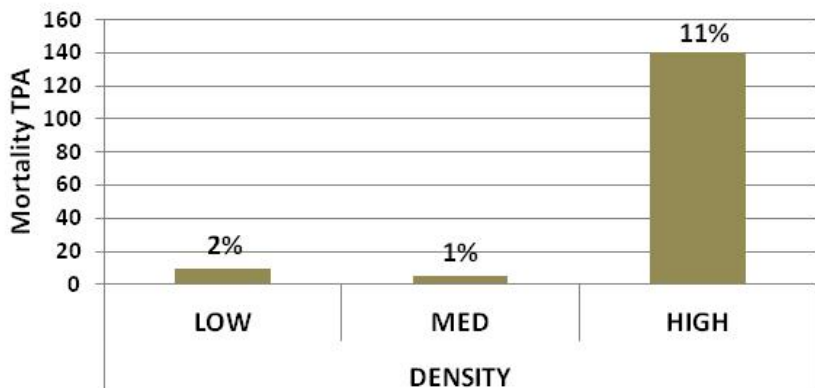
2-YR DOUGLAS-FIR VOL MORTALITY

Control Plots



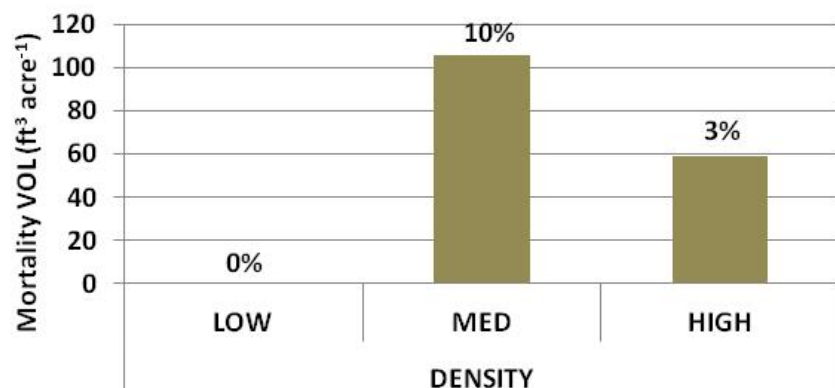
2-YR PONDEROSA PINE TPA MORTALITY

Control Plots



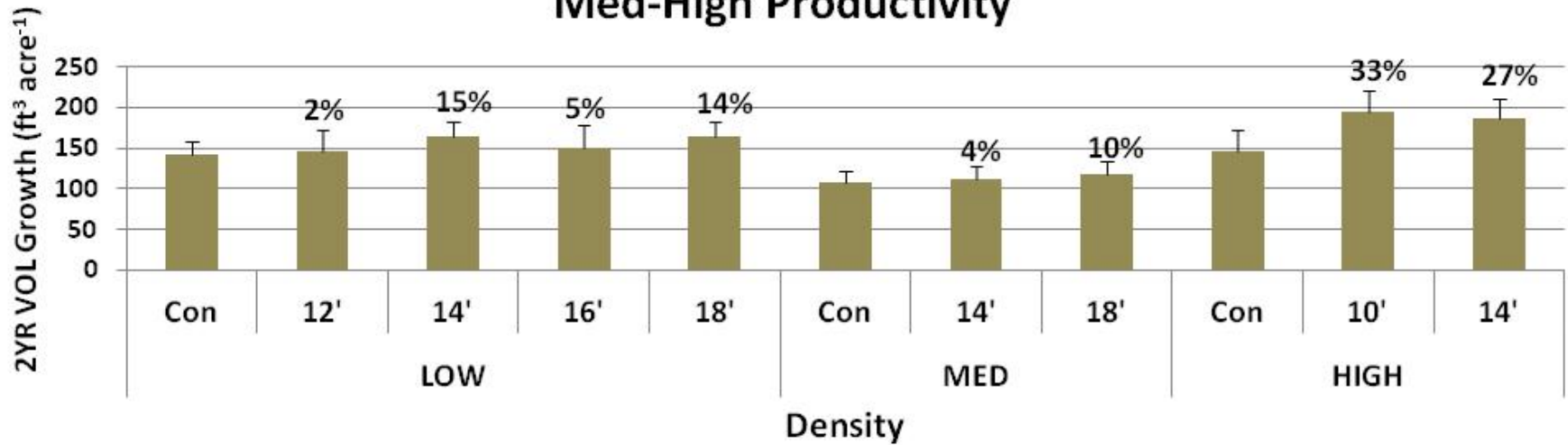
2-YR PONDEROSA PINE VOL MORTALITY

Control Plots



DF 2YR VOL Growth by Density and THNTRT

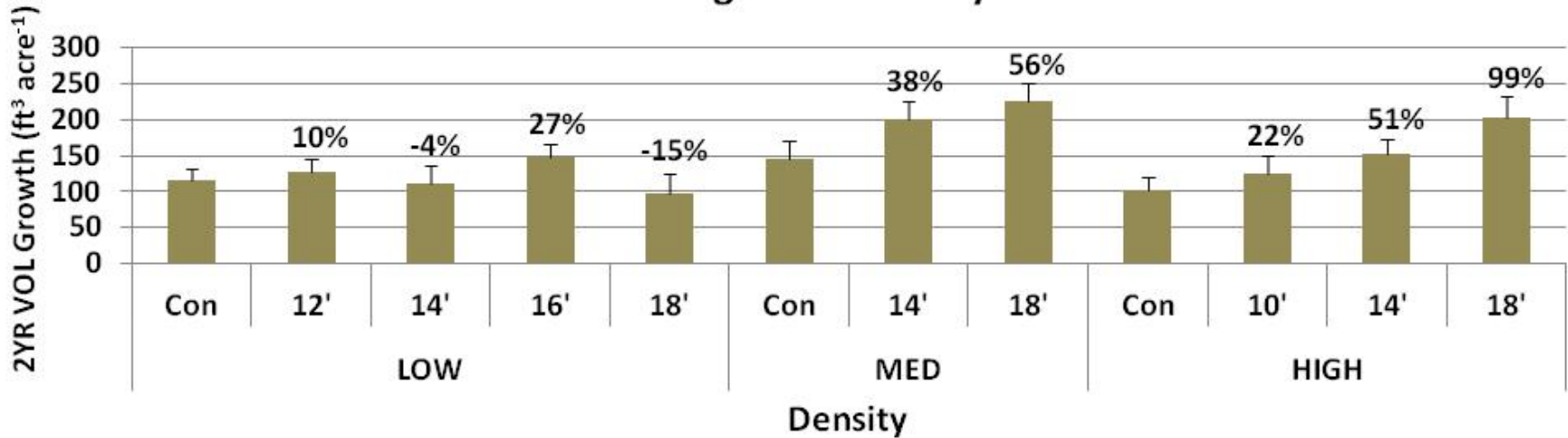
DOUGLAS-FIR CROP TREE 2YR VOL GROWTH Med-High Productivity



D E N S I T Y	Low	PRODUCTIVITY →		
	Low	Med-High	Med-High	High
↓ High	Site I RD Low	Site II RD Low	Med-High RD Low	Site IV RD Low
	Site I RD Med	Site II RD Med	Med-High RD Med	Site IV RD Med
	Site I RD High	Site II RD High	Med-High RD High	Site IV RD High



PP 2YR VOL Growth by Density and THNTRT

PONDEROSA PINE CROP TREE 2YR VOL GROWTH
Med-High Productivity



D E N S I T Y	Low ↓ High	PRODUCTIVITY →			
		Low			High
	Low	Site I RD Low	Site II RD Low	Med-High RD Low	Site IV RD Low
	Med	Site I RD Med	Site II RD Med	Med-High RD Med	Site IV RD Med
	High	Site I RD High	Site II RD High	Med-High RD High	Site IV RD High

PPDM Density Trials - Matrix

		Productivity Index 			
		LOW	LOW-MED	HIGH-MED	HIGH
DENSITY INDEX	LOW 	DF(2) PP(0) WL(3)	DF(0) PP(0) WL(2)	DF(1) PP(1) WL(0)	DF(0) PP(2) WL(1)
	MED	DF(0) PP(0) WL(3)	DF(0) PP(0) WL(1)	DF(0) PP(1) WL(1)	DF(2) PP(3) WL(2)
	HIGH	DF(3) PP(0) WL(3)	DF(2) PP(0) WL(3)	DF(0) PP(1) WL(1)	DF(2) PP(3) WL(3)



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