

Variable Density Thinning

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Variable Density Thinning is a management technique that can reduce resource strain, promote structural complexity and increase species diversity within a forest

Many restoration sites are approaching the age where a thinning could benefit the trees & reduce the burden on the site resources



A conifer plantation spaced at 10'x10' will the “danger zone” by the time its has an average DBH > 10”

Appendix A. Douglas-fir stand density table

Approximate tree size in inches DBH at different absolute densities (trees per acre, or by approximate spacing [in feet]) and competition level (RD). Based on stand quadratic mean diameter and a maximum stand density index of 520.

Zones and thresholds	Relative density	Trees per acre	50	75	100	125	150	175	200	225	250	275	300	360	435	680
		Spacing	30'	24'	21'	19'	17'	16'	15'	14'	13'	12.5'	12'	11'	10'	8'
Maximum Stocking	100	Average diameter at breast height (DBH)	43"	33"	28"	24"	22"	20"	18"	17"	16"	15"	14"	13"	11"	8"
	75		39	30	25	22	20	18	16	15	14	13	13	11	10	8
Zone of No Return	70		36	28	23	20	18	16	15	14	13	12	12	11	9	7
	65		33	26	21	19	17	15	14	13	12	11	11	10	9	6
Danger Zone	60		31	24	20	18	16	14	13	12	11	11	10	9	8	6
	55		30	23	19	17	15	14	12	12	11	10	10	9	8	6
	50		28	22	18	16	14	13	12	11	10	10	9	8	7	5
Upper Goldilocks Zone	45		26	20	17	15	13	12	11	10	10	9	9	8	7	5
	40		24	19	16	14	12	11	10	10	9	8	8	7	6	5
Lower Goldilocks Zone	35		22	17	15	13	11	10	9	9	8	8	7	7	6	4
	30		20	16	13	11	10	9	9	8	7	7	7	6	5	4
Enthusiastic Growth Zone	25		18	14	12	10	9	8	8	7	7	6	6	5	5	4
	20		16	12	10	9	8	7	7	6	6	5	5	5	4	3
	15		13	10	9	7	7	6	6	5	5	5	4	4	3	3

Table: Withrow-Robinson and Maguire, © Oregon State University

Thinning will release the trees from competition

Can achieve habitat & growth goals on a shorter time scale

Variable Density Thinning can help achieve other goals for the site

- Structural complexity**
- Understory development**
- Species distribution (redistribution or amend)**
- Revenue?**

**To insure continued productivity
of forest stands in the future
thinning should be applied early**

VDT can help you achieve management goals and provide needed relief

Patch cuts

Leave areas

Thinning matrix

Patch Cuts

Size should fit goal

Shade intolerant
species desired;
need a larger
opening

Regeneration plan

WAC 222-34



Leave areas/skips

**Dense thickets – wildlife
refuge**

Nesting sites

Shade

**Areas where soil erosion
is a concern**



Matrix Thinning

Thinning to target spacing/RD/Basal area

Long term goals for stand – future harvest?

Look up!

Access? Terrain

Markets

Goals/issues

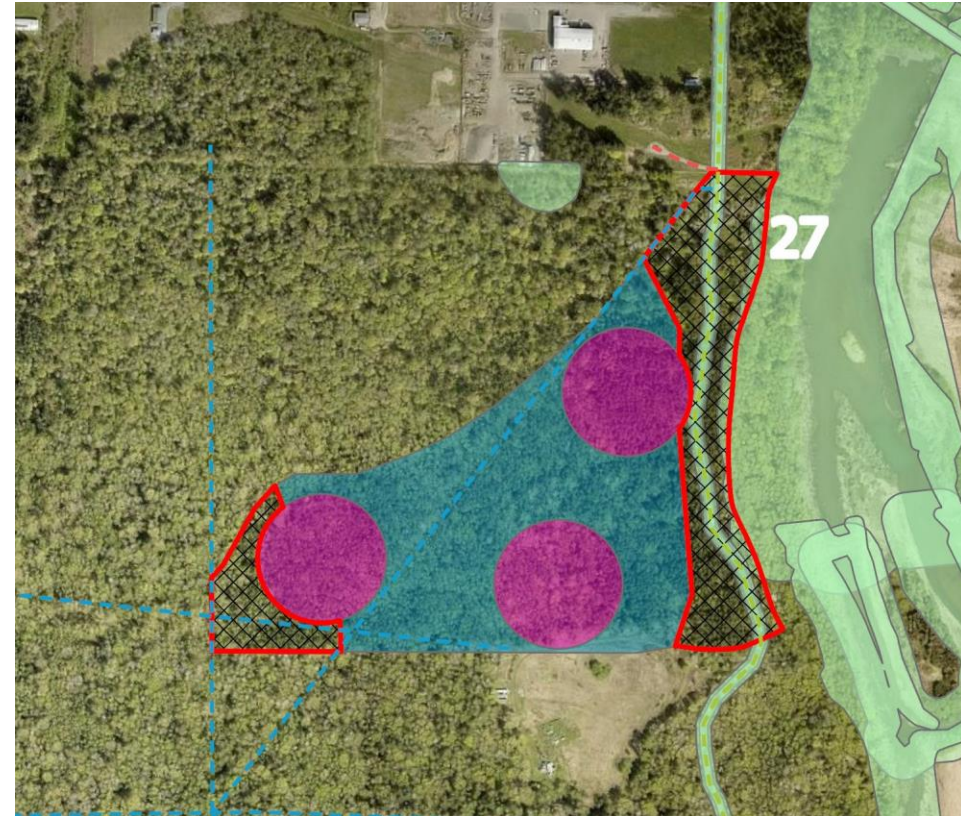
Regulatory Forest Practices



Matrix – 23 acres (remove 35% timber volume)

Leave Area – 15 acre

Patch Cuts – 14 acres total





<https://extension.oregonstate.edu/catalog/pub/em-9206-competition-density-woodland-stands>

1/50th acre – 16.7'

1/20th acre – 26.3'

1/10th acre – 37.2'

