

MARKING GUIDELINES



**George McFadden
Bureau of Land Management
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BLM – ODF Joint Thinning Training – Silver Falls State Park

DEVELOPING MARKING GUIDELINES

- Review IMP
- Define what is to be accomplished
- Review stand assessment
- Define post thinning stand condition
- *Define which trees are to be cut or left*
- Develop activity prescription
- Record the prescription in Micro*Storms
- Monitor results



ACTIVITY PRESCRIPTION

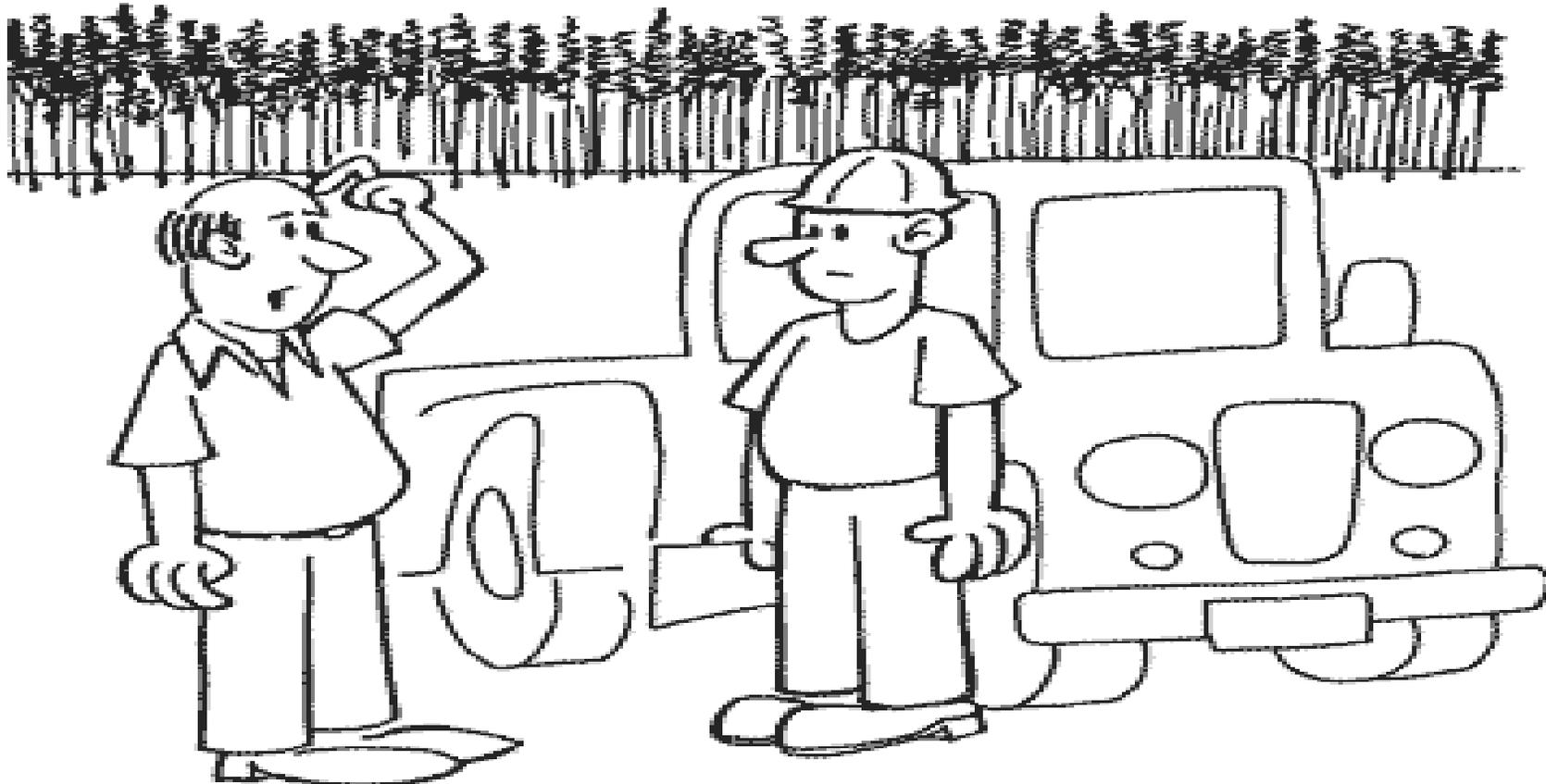
An activity prescription is activity specific. Thus it will only contain information related to that activity

The lowest level of the planning hierarchy

In a thinning prescription it contains the marking guidelines



KEEP IT SIMPLE STUPID



"LET ME GET THIS STRAIGHT. YOU WANT ME TO
PAY YOU TO THIN MY TIMBER?"



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DEFINE WHAT IS TO BE ACCOMPLISHED

- **Play with Neat Toys**
- **Establish Stand Dominance**
- **Recover Anticipated Mortality**
- **Maintain Growth Rate**
- **Early Return on Investment**
- **Enhance Habitat**
- **Address Forest Health Issues**
- **Fuels Management**
- **Extend Rotation / Age Class Distribution**



DEFINE WHAT IS TO BE ACCOMPLISHED

Blowing Off Steam

Canopy Differentiation

Competition Mortality

Stand Establishment



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REVIEW STAND ASSESSMENT

- **Next to Nature PC**
- **Keller PC**
- **Bluegrass Thinning**



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DEFINE POST THINNING STAND CONDITION

**If we can make some money by cutting
some of the trees, we can make more
money by cutting more of the trees**

**The residual stand is worth more than
the value of its replacement**

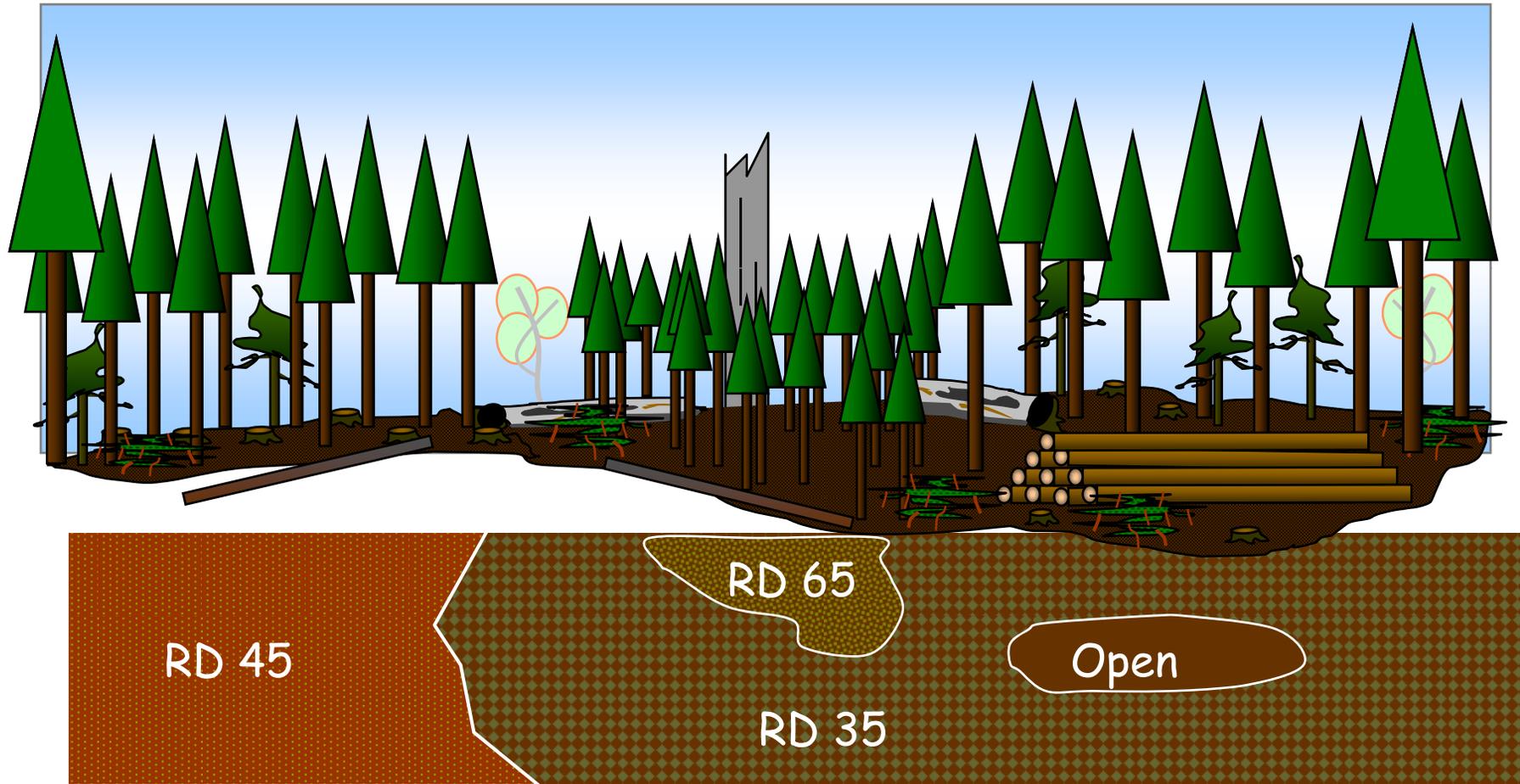


THINNING TREATMENTS

- **Variable Density Thinning**
- **Diameter Limit Thinning**
- **Single Metric**
- **Double Metric**
- **Row Thinning**
- **Others**



VARIABLE DENSITY THINNING



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VARIABLE DENSITY THINNING

- **Advantages**
 - Very flexible in terms of design
 - Incorporates natural stand variability
- **Disadvantages**
 - Initial training required
 - Instructions must be very clear and precise



DIAMETER LIMIT THINNING

- **Cut or leave all trees is a specified diameter range**
 - **Leave the largest trees, Thinning from below**
 - **Cut the largest trees**
 - **Harvest a specific product**



d/D RATIO

d/D Ratio: Ratio of quadratic mean diameter of trees cut divided by the quadratic mean diameter of all trees prior to cutting

$d/D < 1.0$ Thinning from below

$d/D > 1.0$ Thinning from above (High Grade)



THINNING FROM BELOW

Objective: Thin from below, remove 33 percent stocking

Cutting Prescription: Leave 70 TPA and a RD of 42

DBH	DF (TPA)	DF (BA)	CUT DF	CUT BA			Initial		Post Thin
14	0	0.0	0	0.0					
15	4	4.9	3	3.7		<i>Ht / Dia Ratio =</i>	80		
16	6	8.4	4	5.6					
17	7	11.0	4	6.3		QMD =	22.0		23.2
18	9	15.9	3	5.3					
19	11	21.7	7	13.8		RD =	65.2		42.5
20	15	32.7	6	13.1					
21	12	28.9	6	14.4		SDI =	410.7		269.4
22	13	34.3	4	10.6					
23	9	26.0	4	11.5		STR =	0.13		0.16
24	5	15.7	2	6.3					
25	3	10.2	2	6.8		Relative Density =	0.65		0.59
26	2	7.4	1	3.7					
27	4	15.9	0	0.0		CVTS =	135.4		157.2
28	6	25.7	0	0.0					
29	7	32.1	0	0.0		Tarif (DF) =	48.5		50.6
30	2	9.8	0	0.0					
31	1	5.2	0	0.0				d/D =	0.91
Total	116	305.8	46	101.1					



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DIAMETER LIMIT THINNING

- **Advantages**
 - Easy to communicate
 - Easy to identify trees to be cut / left
- **Disadvantages**
 - Does not deal with stand variability
 - Difficult to remove damage / disease
 - Stump cruise to comply



SINGLE METRIC THINNING

- **Uses a single measure of stocking, density or distance to define thinning**
 - **Stocking**
 - **Density**
 - **Clearing distance**

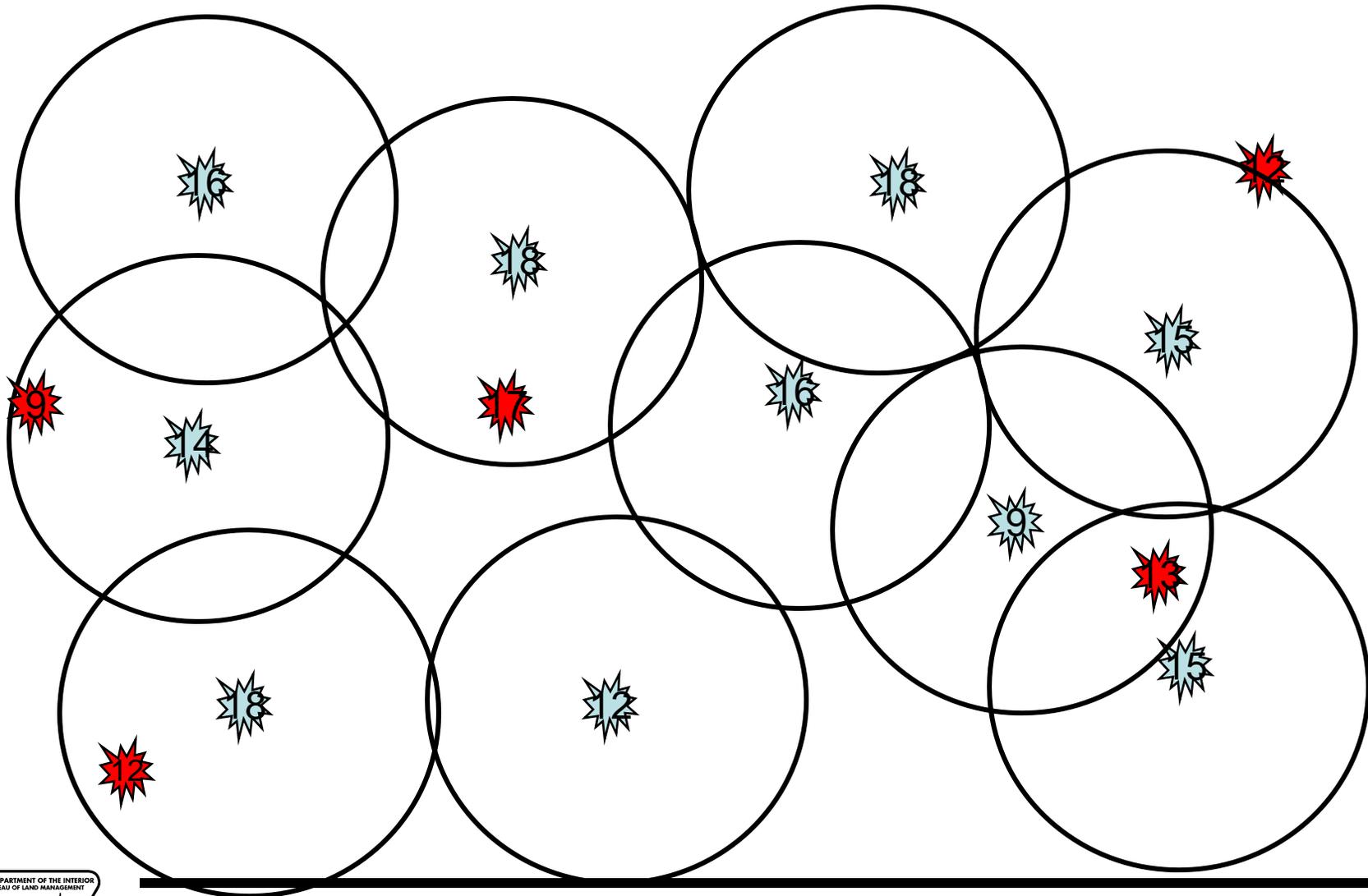


SINGLE METRIC THINNING

- **Uses a single measure of stocking, density or distance to define thinning**
 - **Identifies number of trees per acre to be left**
 - **Identifies basal area to be left**
 - **Spot compliance is possible**



CLEARING DISTANCE



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SINGLE METRIC THINNING

- **Advantages**
 - Easy to measure
 - Spot compliance is possible
 - Basal area adjusts for diameter variability
- **Disadvantages**
 - Does not clearly identify which trees are to be cut / left
 - Open to possibility of high grading
 - Cruising can be inaccurate



DOUBLE METRIC THINNING

- **Combines two measures of stocking and density to define thinning**
 - **Stocking – Basal Area or RD**
 - **Density – Trees per Acre**



DOUBLE METRIC THINNING

STAND AGE = 26

SP	DBH	T/A	Ht	TARIF	BA	CV4	SV4-32
DF	6.0	20	63	33	4	78	0
DF	7.0	17	64	31	5	102	338
DF	8.0	34	64	29	12	285	1,015
DF	9.0	26	65	28	12	288	1,046
DF	10.0	32	66	27	18	446	1,938
DF	11.0	38	67	27	25	648	2,692
DF	12.0	37	68	26	29	742	2,585
DF	13.0	37	68	26	34	872	2,954
DF	14.0	20	69	25	21	547	2,000
DF	15.0	5	70	25	6	145	508
DF	16.0	2	71	25	2	55	215
10.2		275			168	4,208	15,292



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DOUBLE METRIC THINNING

Objective: Thin across all diameter classes, remove 33 percent stocking

Cutting Prescription: Leave 180 TPA and a RD of 34

DBH	DF (TPA)	DF (BA)	CUT DF	CUT BA			Initial		Post Thin	
6	20	3.9	7	1.4						
7	17	4.5	6	1.6		Ht / Dia Ratio =	80			
8	34	11.9	11	3.8						
9	26	11.5	8	3.5		QMD =	10.7		10.7	
10	32	17.5	10	5.5						
11	38	25.1	13	8.6		RD =	51.3		34.4	
12	37	29.1	12	9.4						
13	37	34.1	12	11.1		SDI =	299.4		201.1	
14	20	21.4	6	6.4						
15	5	6.1	2	2.5		STR =	0.18		0.22	
16	2	2.8	1	1.4						
17	0	0.0	0	0.0		Relative Density =	0.45		0.41	
Total	268	167.8	88	55.1						
						CVTS =	17.2		17.2	
						Tarif (DF) =	29.1		29.1	
								d/D =	1.00	



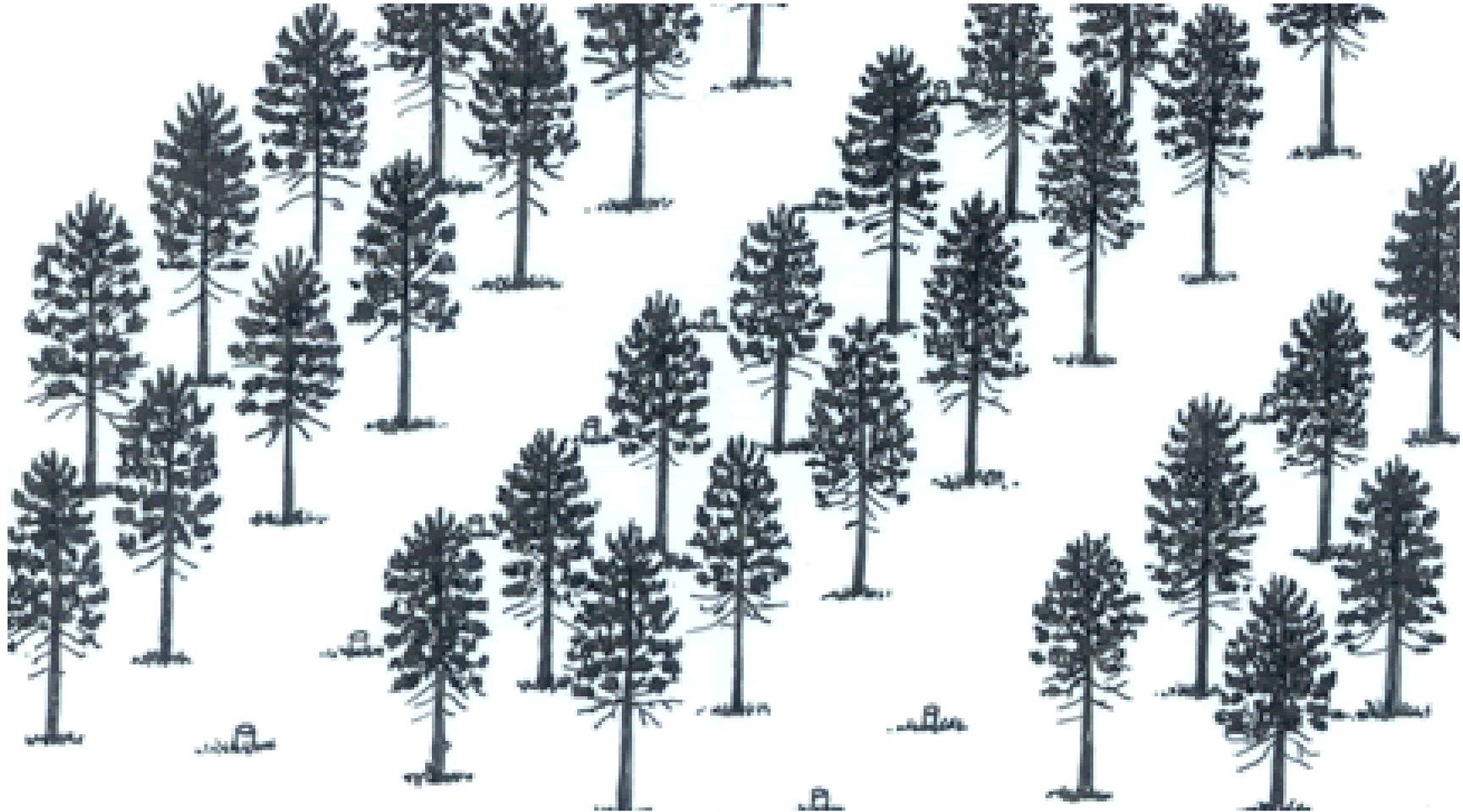
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DOUBLE METRIC THINNING

- **Advantages**
 - Identifies number and size of trees to be cut /left
- **Disadvantages**
 - Spot specific compliance difficult
 - Requires an accurate stand table
 - May increase cruising intensity
 - No spot compliance



ROW THINNING



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COMMUNICATE THINNING PRESCRIPTION

- **Designation by Description**
- **Designation by Prescription**
- **100 Percent Mark**
- **Contractor Certification**
- **Others**



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DESIGNATION BY DESCRIPTION

- **Advantages**

- If implemented correctly it precisely identifies the tree to be cut

- **Disadvantages**

- Expensive and complicated to implement
- Trained crew to mark stand
- Can not estimate volume until after stand is marked
- Removes all clumps
- Can not be sold lump sum



DESIGNATION BY PRESCRIPTION

- **Advantages**

- Cheap and easy to implement
- Trees identified as sale is harvested
- Do not have to pre-design skid trails
- Can be used for Variable Density Thinning

- **Disadvantages**

- Requires accurate stand table information
- Can not be sold lump sum



100 PERCENT MARK

- **Advantages**

- Clearly identifies which trees are to be cut
- Can be sold lump sum
- Easy for loggers to implement
- Easy to comply, don't forget stump marks

- **Disadvantages**

- Expensive
- Requires double compliance
- Completed prior to sale being sold
- Yarding corridors need to be pre-designed



100 PERCENT MARK

- **Advantages**

- Clearly identifies which trees are to be cut
- Can be sold lump sum
- Easy for loggers to implement

- **Disadvantages**

- Expensive
- Requires double compliance
- Completed prior to sale being sold
- Yarding corridors need to be pre-designed



REASONS TO 100 PERCENT MARK

- **Financial security for high value products**
- **Complex prescription**
- **High degree of stand variability**



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QUESTIONS



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