



Oregon Department of Forestry Certified Burn Manager

Pile burning

Presentation developed by John Punches and Jacob Putney

COLLEGE OF FORESTRY 

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Pile Burning

- Consolidated fuel
- Concentrated impacts
- Forethought required



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CBM Responsibilities

- Complete pile burn plan
- Ensure permissions in place
- Ensure notifications made
- Implement and monitor burn
- Transfer responsibility
- Ensure reporting is complete

Advise on best practices for piles

Oregon Department of Forestry Pile Burn Plan						
Landowner or Company Name and Address including zip code	Township	Range	Section	County	Section Name	
Oregon State University 1000 University Ave Cascades Hall (Eggs 01)	53N	40E	11	Wasco	437 - 24.220E - 107-48-020E	
SIGNATURES						
Prepared by:	John Punches, 541-852-4888			Date:	8/15/2024	
Certified Burn Manager Name, CBM #, and Phone:	John Punches, 541-852-4888			Date:	6/27/2024	
Landowner(s):	How many to the College of Forestry? <i>John Punches</i>				When:	11/21/2024
REGISTRATIONS, NOTICES, ORDINANCES, AND PERMITS						
State and/or FEMA Number and smoke registration ID (if any):	2024-01-10000	Burn and Smoke Permit Obtained (if required):	None required			
NEIGHBORS						
NEAREST LANDOWNERS AND INTERESTS			FILE, CERTIFICATION, APPROVALS, AND AIR QUALITY CONTACTS			
Name:	Contact info:	Name:	Contact info:			
Paul Living	70211 Pioneer Rd Eggs 01-01-0107	Oregon Department of Forestry	Track cover			
Ed and Andrea Cagler	241-241-4714 70211 Pioneer Rd Eggs 01-01-0107	Wasco/City/County Fire Department(s)	State Department of Forestry			
Neighbors & Contacts (continued)	2344 1st Ave S Bathurst, WA 98812	Emergency Services	WMA Note: Admin on Duty Contact: 503-350-3100			
Jackie Orthogon	70211 Pioneer Rd Eggs 01-01-0107	Local Air Quality	No ODF			
Ed and Andrea Cagler	70211 Pioneer Rd Eggs 01-01-0107					
Tom & Sheronda Arnold	70211 Pioneer Rd Eggs 01-01-0107					
Notes and other notes:	70211 Pioneer Rd Eggs 01-01-0107 Best contact call: 503-350-3100 www.oregon.gov/odf					
BURN UNIT DESCRIPTION						
What Fuel Type (Saw, Bark, etc.):	How Fuel Loading:		Site of Area (Township, Range, Section)			
Saw	Saw		11-24-000			
ADJACENT PARKS (State, Local, Tribal, and/or Federal) AND THE BURN SITE OPERATIONS						
Cultural resources (TRC): What localized historic cleared forest road along western edge of property. Will burn when 2" or more of snow covering ground, or when adjacent fuel wet and frozen to prevent wet.						

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Pile burn stages



Pre-burn



Burn day



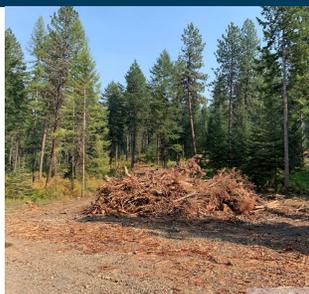
Post-burn

Photos: John Punches

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Pre-burn

- Estimate tonnage
 - ODF tools
- Develop plan
 - Contingency, safety
- Inform ODF
 - NOAP, smoke registration, burn permit
- Notify adjacent landowners
- Site prep/control lines
- Monitor weather
 - Burn window
- Organize resources
 - People, equipment, fuel



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Burn day

- Permission to burn
 - Smoke forecast
- Follow burn plan
 - Go/No-Go checklist
 - Briefing
- Notify ODF
 - Ignition start and end
 - Patrol plans
 - Responsibility transfer
- Implement and monitor burn
- Monitor weather and smoke



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Post-burn

- Monitor and Patrol
 - Creep, spotting
- Monitor weather
 - Wind (east events)
 - Storms
- Extinguish if needed
 - Spread or smoke
- Report to ODF
 - Accomplishments
- Pay applicable fees



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Pile Science



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Pile size



Few large



Many small

Photos: John Punches

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Few large

- Efficient for operator
- Fewer to cover/manage
- Longer burn time, more heat, longer flames
- Need larger opening
- Longer transmission of embers
- More soil impact in pile footprint
- Effective at “capturing” bark beetles



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Many small

- Efficient for hand crews
- More to cover/manage
- Shorter burn time, less heat, shorter flames
- Smaller opening
- Less transmission of embers
- Less soil impact in pile footprints
- Attract Ips beetles (pine) that fly before burning



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Constructing Slash Piles



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Construction

- Depends On:
 - Amount of Slash
 - Suitable Locations
 - Equipment
 - Adjacent Resources/Values
- Determines:
 - Number of Piles
 - Pile Size
 - Things to Watch For



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Location

- Natural openings and/or landings
- Little to no surface fuels
- Consider:
 - Access
 - Proximity to other resources/values
- Avoid:
 - Draws, depressions, riparian areas
 - Steep slopes
 - Old stumps



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- Large piles
- Large opening



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- Small piles
- Small openings



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Resource & Value Protection



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Construction – Best Practices



- Tall piles burn more efficiently
- Sides straight vertically
- Place fine fuels at base
- Coarser fuels above
- Avoid Including:
 - Stumps
 - Large material (> 8")
 - Soil – Smolders long-term

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Construction – Equipment



Dozer	Excavator w/ Rake	Log Loader/Shovel
<ul style="list-style-type: none"> • Fast, Efficient • Piles not as tall • Soil in Piles • Compaction 	<ul style="list-style-type: none"> • Cleaner, Efficient • Maneuver Slash Easily • Less Compaction • Expensive 	<ul style="list-style-type: none"> • Available, Timely • Multitask • Smaller Pieces Difficult • Compaction at Landings

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Covering

- Material - Polyethylene Sheeting
 - Acceptable to burn per Oregon Statute
- Advantages:
 - Prolongs burn window
 - Burn in wider range of weather conditions
 - Burn more efficiently – Reduce emissions
- Best Practices:
 - 10' x 10' covering is sufficient
 - Place above ignition point
 - Consider prevailing winds
 - Secure with sticks or pile additional slash



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Preparation & Planning – Weeks Prior

- Determine number of piles and approximate dimensions
 - Length, width, & height – Reel/Spencer tape
- Estimate tons of material to be burned
 - Piled Fuels & Biomass Emissions Calculator
- Develop burn plan
- Consult with local Oregon Dept. of Forestry Stewardship Forester
 - Specific regulations/requirements vary across the state



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Measuring Piles



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Timing

Fall Burning:

- Often ideal burn windows
- Close to winter wet season
- Careful of warm, dry weather after burning
- Burn when surrounding fuels are wet
 - Recent rain
 - Snow covered (~2" ideal)
- Beetles may invade over the summer

Spring Burning:

- Narrower burn windows
- Precede warm, dry season
 - Containment may be more challenging
 - Requires diligent mop-up/monitoring
- Burn when surrounding fuels are wet
 - If possible
- Consumes slash prior to beetle emergence

Winter burning is an option if your piles are covered

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Preparation & Planning – Days Prior

- Prep the burn site, if needed
- Consult Oregon Dept. of Forestry regarding burn conditions
- Ensure reporting is complete & permissions in place
- Prepare tools, resources, & personal protective equipment (PPE)
- Review burn plan objectives, safety and contingencies
- Monitor weather conditions to anticipate your burn opportunity

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Burn Day

- Receive Permission from ODF
- Make Final Notifications
 - Neighbors/Adjacent Owners
 - Local Fire Protection District
- Follow Burn Plan
 - Briefing (Objectives, Assignments, Safety, etc.)
 - Test fire
 - Go/No-Go Checklist
- Monitor Burning & Weather Conditions



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Mop-Up & Monitoring

- Monitor burn regularly
 - Piles can burn for a week or more
 - Weeks/months with stumps, large material, soil
- Monitor weather conditions
 - Watch for dry conditions & east winds
- Extinguish if/as needed
- Report burning accomplishments to ODF
- Landowner and/or operator assumes liability



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Burn Accomplishments

Smoke Management Registration
Accomplishment Section, (Registration Part 3)



Operator Name: _____ Phone: _____
 Unit Name: _____ Registration #: _____
 Actual Burn Date: _____ Actual Ignition Time: _____
 Actual Acres Burned: _____ Landing R/W Tons Burned: _____
 Pile Tons Burned: _____ Broadcast Tons/Ac. Burned: _____
 Total Broadcast Tons Burned: _____ Total Tons Burned: _____

Ignition Duration: _____ Achieved Rapid Consumption: _____ Shrub Consumption: _____
 Duff Fuel Moisture: _____ Fuel Moisture 1000Hr: _____ 1000Hr%: _____

Fuel Moisture Code: NFDR-th (1000hr moisture from NFDRS model)
 Adj-th (user adjusted moistures)
 Weighted (oven weighted samples)

Days Since Significant Rain: _____ Wind Speed: _____
 Additional Comments: _____

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Ignition



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Ignition - Tools

- **Drip Torch** – Most Common for Rx Fire
 - Pros: Ready fuel, can vary mixture
 - Cons: Igniting wet and large fuels
- **Propane Burner**
 - Pros: Sustained heat, efficient for wet fuels
 - Cons: Heavy, awkward, may require multiple tanks
- **Panama Torch** – Drip Torch & Burner
 - Pros: Designed for slash burning, efficient
 - Cons: Expensive, heavy
- **Leaf Blower**
 - Pros: Add air/oxygen to enhance combustion
 - Cons: Embers, tool damage

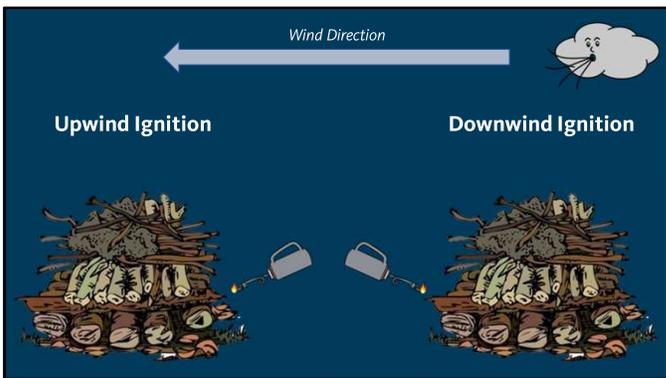
Panama Flame Torch

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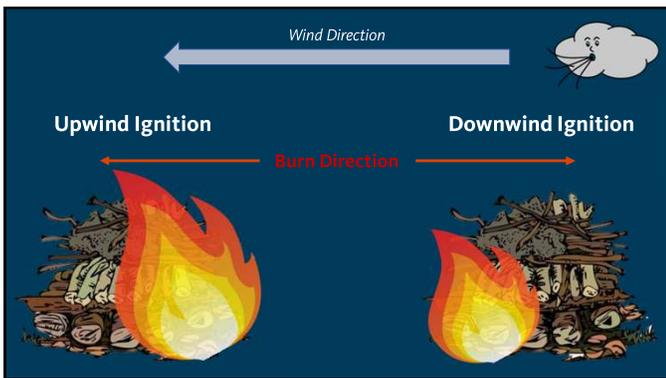
Ignition - Techniques

- **Ignite Upwind Side** – Burns Through Pile
 - Facilitates ignition
 - Faster consumption
 - Generally cleaner (less smoke)
 - More heat – Consider proximity to resources
- **Ignite Downwind Side** – Backs Through Pile
 - Ignition may be more challenging
 - Slower consumption
 - Potentially not as clean (more smoke)
 - Less heat – Mitigate impacts to adjacent resources

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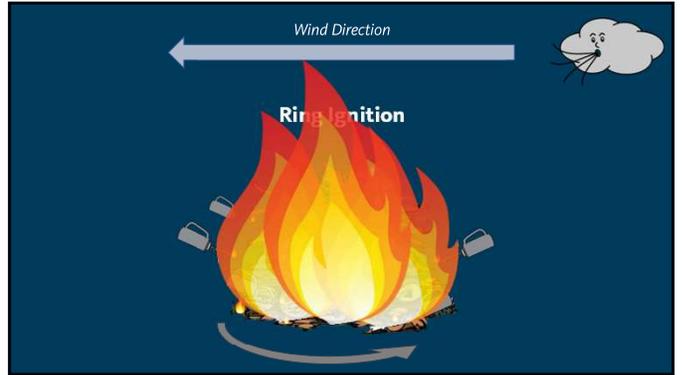
Ignition - Techniques

- **Ring Ignition** – Circle the Pile
 - Start downwind, work toward upwind
 - Best consumption, Generally cleaner
 - Most heat – Consider proximity to resources
- **Two-Stage Ignition** – Protect Resources
 - Ignite side opposite of resource
 - Allow development of convection column
 - Ignite side nearest to resource
 - First stage pulls second stage away from object
 - Winds must be favorable

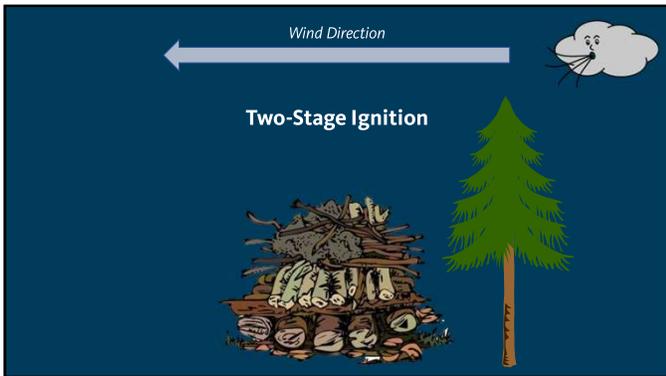
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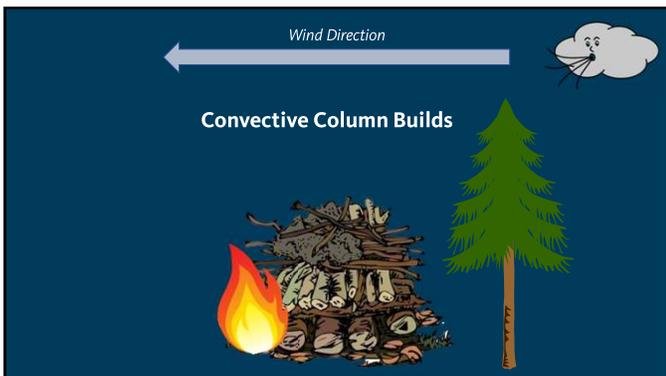
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Ignition - Logistics

- Consider order of igniting piles
 - Work from the furthest back
 - Avoid trapping yourself and your vehicle
 - Staggering ignition of many small piles
- Ensure sufficient fuel to complete burn
- Have water & delivery apparatus on-hand
 - For escapes or to cool adjacent resources if needed




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Other Considerations & Resources



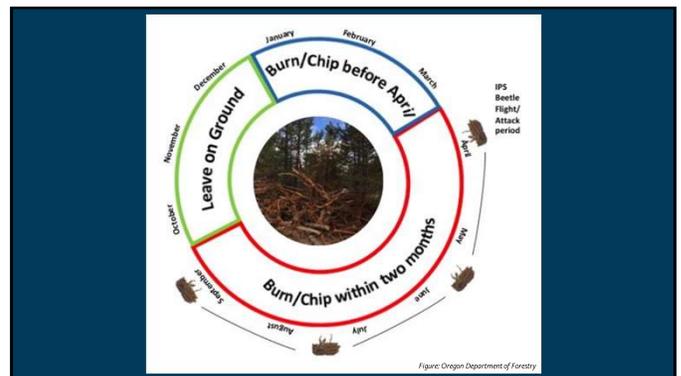
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Pest Considerations

- Fresh slash from pine species attract Ips beetles
 - Particularly within 3-8" diameter range
- Timing Recommendations:
 - September – March: Burn/Chip before April
 - April – August: Burn/Chip within 2 Months
- Pile Recommendations (Made January – August):
 - Larger the better (>20 ft. Wide x >10 ft. Tall)
 - Creates a multigenerational "sink"
 - Emerging beetles move inward




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Be a Good Neighbor

- Consider where smoke will go
- Plan well in advance for making notifications
- Closely monitor weather & burning
- Just because you have permission to burn doesn't mean you should
- Be considerate of your neighbors



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Alternatives to Pile Burning

- Chipped or masticated
- Biomass Utilization
- Biochar (burning in containers)
- Piled for Wildlife
- Scattered



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Resources

- Managing Logging Slash Piles in NW OR – Oregon Forest Resources Inst.
https://site.oregonforests.org/sites/default/files/2021-03/OFRI_slash-pile-guide_WEB.pdf
- Episode 44: Slash – *In The Woods* Podcast
<https://inthewoodspodcast.com/2024/01/08/episode-44-slash-piles/>
- Burning & Smoke Management – Oregon Dept. of Forestry (ODF)
<https://www.oregon.gov/odf/fire/pages/burn.aspx>
- The Forestland Burning Guide – ODF
https://www.oregon.gov/odf/Documents/fire/ForestlandBurningGuide_2019update.pdf
- Prescribed Burning & Smoke Management – ODF
<https://www.oregon.gov/odf/Documents/fire/prescribed-burning-and-smoke-management-brochure.pdf>
- Find a Stewardship Forester – ODF
<https://www.oregon.gov/odf/working/pages/findaforester.aspx>

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