





## MCDONALD-DUNN RESEARCH FOREST PLANNING PROCESS



## MCDONALD-DUNN RESEARCH FOREST PLANNING PROCESS



The OSU College of Forestry is developing a new management plan for the McDonald and Dunn Research Forests, which is anticipated to be ready for implementation in 2024. This new plan will determine how the forests provide opportunities for teaching, research and outreach efforts of the College of Forestry. The new research forest plan will reflect the college's diverse values, and will position the McDonald-Dunn Research Forest to be a model example of multiple value forest management. Management decisions and activities on the McDonald-Dunn Research Forest will be driven by College of Forestry research agendas, education and demonstration opportunities, and considerations of an inclusive balance of forest uses and values.

The process of developing the new management plan will involve opportunities for public input, and two committees working in tandem from spring 2022 through fall 2023.

- Public input opportunities include three Community Listening Sessions, a webform through which written comments can be provided, and an email to which written questions can be sent.
- Two committees will assist in the development of the new plan: an external Stakeholder Advisory Committee (SAC) and College of Forestry Faculty Planning Committee (FPC). Comments submitted through the webform will be forwarded to these committees.

### **Upcoming Meetings & Events:**

- March 1, 2023, 1:00pm 4:00pm Stakeholder Advisory Committee Meeting (agenda, open to the public to listen remotely through Zoom but not comment; video recording will be posted online after the meeting).
   Zoom link: <a href="https://pdx.zoom.us/j/85485216216">https://pdx.zoom.us/j/85485216216</a>
- March 6, 2023, 11:00am 1:00pm Faculty Planning Committee Meeting (open to the public to listen remotely through Zoom but not comment; video recording will be posted online after the meeting).
   Zoom link: <a href="https://oregonstate.zoom.us/j/8948549218?pwd=Uko4L2hYNnpQU0dlWlhWWGxhcFZFZz09">https://oregonstate.zoom.us/j/8948549218?pwd=Uko4L2hYNnpQU0dlWlhWWGxhcFZFZz09</a>

#### Past Meetings & Events:

- June 14, 2022, SAC and FPC Joint Kickoff Meeting (agenda, video, meeting summary)
- Aug 30, 2022, SAC Meeting (agenda, presentation, meeting summary)
- Aug. 31, 2022, Community Listening Session (agenda, presentation, meeting summary)
- Sept. 16, 2022, Faculty Planning Committee Meeting (agenda, presentation, meeting summary)
- Sept. 20, 2022, Stakeholder Advisory Committee Meeting (agenda, presentation, video recording, meeting summary)
- Oct. 11, 2022, Faculty Planning Committee Meeting (agenda, presentation, video recording, meeting summary)
- Oct. 25, 2022, Faculty Planning Committee Meeting (agenda, presentation, video recording, meeting summary)
- Nov. 7, 2022, Community Listening Session (agenda, presentation, video recording, meeting summary)
- Nov. 22, 2022, Faculty Planning Committee Meeting (agenda, presentation, video recording, meeting summary)
- Dec. 5, 2022, Stakeholder Advisory Committee (agenda, presentation, video recording, meeting summary)
- Dec. 6, 2022, Faculty Planning Committee Meeting (agenda, presentation, video recording, meeting summary)- Remarks made by an individual during the Dec 6 Faculty Planning Committee meeting do not reflect the values of the university or the College of Forestry, or our shared commitment to respectful discussion and engagement. The College appreciates all input being provided in planning the future of the McDonald-Dunn Research Forests and is committed to listening to and considering all perspectives with respect. An apology for these remarks was made during the Stakeholder Advisory Committee meeting on Dec 13.
- Dec. 13, 2022, Stakeholder Advisory Committee Meeting (agenda, video recording, meeting summary)
- Dec. 20, 2022, Faculty Planning Committee Meeting (agenda, presentation, video recording, meeting summary)
- Jan. 18, 2023, Stakeholder Advisory Committee (agenda, presentation, video recording, meeting summary)
- Jan. 23, 2023, Faculty Planning Committee Meeting (agenda, presentation, video recording, meeting summary)
- Feb. 6, 2023, Faculty Planning Committee Meeting (agenda, presentation, video recording, meeting summary)
- Feb. 20, 2023, Faculty Planning Committee Meeting (agenda, presentation, video recording)

SUBMIT YOUR COMMENTS	SUBMIT YOUR QUESTIONS	STAY CONNECTED

HISTORIC DOCUMENTS - MCDONALD-DUNN RESEARCH FOREST PLANNING
2004-PRESENT

# Defining each new 'Forest Management Strategy'

- A. Even-aged, short rotation
- B. Even-aged, long rotation
- C. Multi-aged, multi-species
- D. Managed reserves
- E. Ecosystems of concern



# McDonald-Dunn Research Forests draft guidelines for each new 'Management Strategy' [version after FPC meeting on 20 February 2023]

[version after FPC ii	neeting on 20 February 202.				
	Even-aged short rotation	Even-aged long rotation	Multi-aged multi-species	Managed reserves	Ecosystems of concern
Overview	Even-aged plantations of Douglas-fir (or other climatic-appropriate species and genetic stock) will be established and managed to be financially competitive by maximizing yields of wood products valuable for domestic mills. Clearcut harvests will not exceed 80 acres (with limited exceptions due to large-scale disturbances).	Even-aged forests of Douglas-fir (or other climatic-appropriate species and genetic stock) will be established and managed to provide older forest conditions and produce high-quality wood for domestic mills. Clearcut harvests will not exceed 40 acres (with limited exceptions due to large-scale disturbances).	Multi-aged, mixed-species forests of primarily Douglas-fir will be established and managed using shelterwood-with-residuals, group-selection, and variable retention regeneration harvests to create heterogeneity in openings, regenerate new age classes of trees, and maintain structural diversity and visual aesthetics. Multiple native tree species will be encouraged. These harvests will not exceed 40 acres.	These areas will be held and conserved outside the management base using only a light touch when needed to promote and maintain historical older-forest structural and compositional diversity, visual aesthetics, and provide for public safety. Forest succession and developmental processes following natural disturbances will proceed with little human intervention. Areas added to the existing reserve base may need more active operations to promote the development of historical conditions.	Restoration and maintenance activities will be undertaken in native oak savanna/woodlands, meadows, and riparian/aquatic systems. Two strategies will be employed:  • retain and conserve the most at-risk and highest value components of ecological and cultural diversity, and  • use intensive efforts where needed to improve and restore broader ecological and/or cultural functions at specific sites.
Guiding principles	Manage in a way that creates learning and research opportunities about short-rotation forestry and early seral conditions, under the principle of financial sustainability.	Manage in a way that creates learning and research opportunities about long-rotation forestry and retention of legacy elements throughout the life of each stand.	Manage in a way that creates learning and research opportunities about managing multiaged and/or multi-species stands to support diverse forest values recognized by a variety of cultures.	Manage in a way that ensures learning and research opportunities about the creation and maintenance of historical late-seral forest conditions informed by both Indigenous knowledge and Western science.	Manage in a way that creates learning and research opportunities about a range of restoration opportunities and intensities to improve and maintain the health and resiliency of selected ecosystems, informed by both Indigenous knowledge and Western science.

	Even-aged short rotation	Even-aged long rotation	Multi-aged multi- species	Managed reserves	Ecosystems of concern
Opportunities created	Offers dependable financial returns Early-seral conditions provide habitat for some plant & wildlife species Early-seral conditions are preferred by some hunters Short rotations ensure edge habitat important for some wildlife species Short rotations allow testing & demonstration of climate adaptability using alternative genetics of Douglasfir or other species Enables demonstration of the longevity and character of early-seral conditions and use of prescribed fire Creates learning opportunities about harvest operations, regeneration, vegetation treatments, fuels management, and comparison of net carbon sequestration between Douglas-fir and alternative species	Offers dependable financial returns Produces high-quality logs/wood that fills niche markets Provides net carbon sequestration potential relative to shorter rotations Is aesthetically appealing Retention of more legacy elements at stand initiation (e.g., old trees, CWD, broadleaf shrubs) provides habitat for wildlife throughout the life of each stand The variety in stand age promotes biodiversity across the landscape Older stands fill a gap on the landscape because there are few such forests on lands under other ownership Creates learning opportunities about managing and financing rotation lengths longer than is typical Provides training opportunities on thinning and underburning	Offers reduced and variable financial returns  Multi-aged stands with varying degrees of within-stand complexity will promote overall biodiversity and a broad suite of habitat conditions for wildlife  Continuous cover ensures visual aesthetics  Provides enhanced recreational opportunities  Enables net carbon sequestration in multiaged stands and multispecies stands  Multi-age and multispecies stands fill a gap on the landscape because there are few such forests on lands under other ownership  Creates learning opportunities about managing with complex silvicultural techniques, and investigations of operational costs and harvest costs associated with non-typical silvicultural approaches  Demonstrates complex approaches for small-scale forest operations and woodland owners	Enables exploration of non-timber benefits and preserves options for future carbon markets     Allows exploration of opportunity costs and direct costs and benefits of conserving late seral conditions     Sustains relatively undisturbed conditions that promote habitat for some plant and wildlife species     Provides preferred aesthetic conditions for recreation     Net carbon sequestration will be useful for comparisons     Creates learning opportunities about long-term risks from invasive species, climate change, and climate-induced disturbances as trees age and tree densities increase     Provides outreach opportunities about the importance of old forests and benefits associated with their active management	<ul> <li>Enables research, teaching, and demonstration on all aspects of ecosystem restoration and monitoring for oak, meadow, and riparian/aquatic systems</li> <li>Creates chance to understand costs incurred by restoration and maintenance programs for unique ecosystems</li> <li>Enhances biodiversity by improving health in three distinct ecosystem types and at the landscape scale</li> <li>Demonstrates potential applications of Indigenous knowledge</li> <li>Reduces wildfire risk in the WUI through strategic fuel breaks in oak woodlands</li> <li>Creates healthy examples of native meadows and oak woodlands, filling a gap on the landscape because few exist on lands under other ownership</li> <li>Increases social license to operate</li> <li>Enhances partnerships with external entities interested in restoration</li> <li>Enables learning about restoration principles, the ecology of native plants, first foods, and invasive species reduction</li> </ul>

	Even-aged short rotation	Even-aged long rotation	Multi-aged multi-species	Managed reserves	Ecosystems of concern
Stand establishment	Employs intensive site preparation following industry standards (prescribed fire and vegetation control) for ease of planting and early stand establishment. Planted seedlings will be from the best genetically selected material available for timber production but will also consider genetic seed sources adapted to a changing climate. Planting densities will be sufficient to meet the Oregon Forest Practices Act but avoid the need for precommercial thinning. Spacing will be intentionally uniform. Competing vegetation will be managed to minimize growth loss of tree seedlings for the first 1-5 years until trees are free-to-grow, and then competing vegetation will be allowed to grow. 5% of hardwood resprouts will be left free to grow in the understory.	Employs adequate site preparation to plant and establish a stocked young stand. Planted seedlings will be from the best genetically selected material available for timber production but will also consider genetic seed sources adapted to a changing climate with an eye to longer rotations. Initial stocking rates will be appropriate for the site conditions with enough established trees to accommodate multiple commercial thinning harvests within the rotation. Spacing can be variable and appropriate to the site. Competing vegetation will be managed with less herbicide than short rotations, with the intention of limiting tree seedling mortality during the first 1-3 years, and then competing vegetation will be free to grow. 10% of hardwood resprouts will be left free to grow in the understory.	A combination of pile burning, broadcast burning, and limited surface herbicide treatments will be used for site preparation in understory and/or small openings. Seedlings will be interplanted to augment natural regeneration of conifers from seed and hardwoods from both sprouts and seed, with an eye to species richness and genetic variability.  Shelterwood with residuals will maintain an appropriate overstory density to allow understory trees to grow. Overstory trees may be spaced uniformly or variably, dictated by site, stand, and windthrow risk conditions.  Group-selection harvests will contain small (1.5-4.0 acre) openings.  Variable retention regeneration harvests will retain individual trees, clumps of thinned and unthinned trees, and/or no-touch areas that are dictated by site, stand, and windthrow risk conditions.	Typically, stands will regenerate continuously on their own from natural seeding. Active conifer and hardwood regeneration efforts may occur in areas subjected to large-scale disturbances (e.g., windstorms, ice storms, or wildfires), or when adding acres to the reserve base. Invasive vegetation will be managed to ensure establishment and growth of tree seedlings and culturally significant species.	Oak savanna/woodlands – in areas designated to receive intensive restoration treatment, oaks may be purposefully established through seed or seedlings at appropriate densities along with other native and culturally significant vegetation that historically occurred in these ecosystems. Site preparation with prescribed fire and/or judicious surface herbicide use may be required.  Meadows – may require site preparation with prescribed fire and/or judicious surface herbicide use and seeding of other appropriate native herbaceous vegetation.  Riparian systems - in areas designated to receive small-scale restoration treatment, limited harvests will occur with site preparation and planting at appropriate densities along with other native vegetation that historically occurred in these ecosystems.

	Even-aged short rotation	Even-aged long rotation	Multi-aged multi-species	Managed reserves	Ecosystems of concern
Intermediate treatments	Thinning and other intermediate stand treatments will only be done if justifiable economically or if needed to respond to an unplanned disturbance event to maintain the health of each the stand.	The first commercial thinning will occur as dictated by stand conditions, likely around 28-34 years of age. Additional commercial thinning entries will be done until final harvest using a variety of thinning approaches. The last thinning will occur no later than 10-15 years before final harvest.	Shelterwood-with- residuals - understory trees may be commercially thinned when needed (likely 30- 40 years of age) depending on the overstory density. If overstory trees die, replacement trees may be assigned from the understory cohort to maintain the two-storied canopy structure over time.  Group-selection - Periodic thinning will be used to increase vertical and horizontal structure, maintain health, and provide interim income.  Variable retention regeneration harvests - Periodic thinning will be used to increase vertical and horizontal structure, maintain health, and provide interim income.	All areas may receive intermediate treatment under limited circumstances:  • Treatment of invasive species  • Removal of individual trees due to safety concerns  • Prescribed burning to emulate historical processes and for research purposes Areas newly added to the reserve base may need intermediate treatment under limited circumstances:  • Irregular thinning or creation of gaps to promote characteristics of historical late-seral forest conditions typical of the region and in light of climate change	treatments could include prescribed burning, control of invasive plants, and/or precommercial thinning to remove young invading conifers  Meadows - treatments could include repeat prescribed burning and control of invasive plants and invading conifers  Riparian systems - treatments could include additional structural thinning, repeat prescribed burning, and control of invasive plants  Aquatic systems - In-stream and pond treatments could include removal of invasive species, including invasive aquatic plants.

	Even-aged short rotation	Even-aged long rotation	Multi-aged multi-species	Managed reserves	Ecosystems of concern
Stand age	Rotation lengths will be regulated primarily by age that maximizes net revenue production. Rotations will be 30-60, likely 35-45 years.	Rotations typically will be 60-90 years, with a small percentage (<10%) managed to 120 years.	Shelterwood-with- residuals - Final harvest of understory trees will be 60-70 years. The age of the oldest trees harvested from these stands will be 60-120 years, regulated primarily by the complexity of habitat desired for each stand.  Group-selection - Re-entry harvest will occur every 15-30 years to create 3-4 age classes. Minimum proximity of group selection openings to previous harvest entries will be >200 feet.  Variable retention harvest - Re-entry harvest will occur every 15-30 years to create 3-4 age classes.	NA. The age of the oldest trees in these stands will continue to increase over time adding to the age-class diversity across the forest.	NA. The age of the oldest trees in oak and riparian ecosystems will tend to increase over time.
Legacy elements	Procedures will follow OFPA regulations (i.e., retain wildlife trees and CWD in harvest units >25 acres).	Procedures will exceed OFPA regulations (i.e., retain additional legacy trees, green trees, snags, and CWD).	This management system maintains abundant living and dead structure constantly within each stand in an effort to create and sustain diverse forest conditions.	NA – it is the legacy	Oak savanna/woodlands – old conifers with an open grown character dating to pre-settlement will be retained.  Meadows – NA  Aquatic/riparian systems - large old trees and big logs will be retained or enhanced both in-stream and in riparian zones.

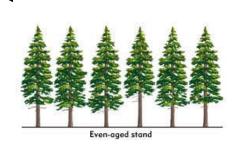


## Silviculture Continuum

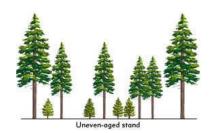
**Even-aged Forests** 

Two-aged Forests

Multi-aged Forests







# Shelterwood

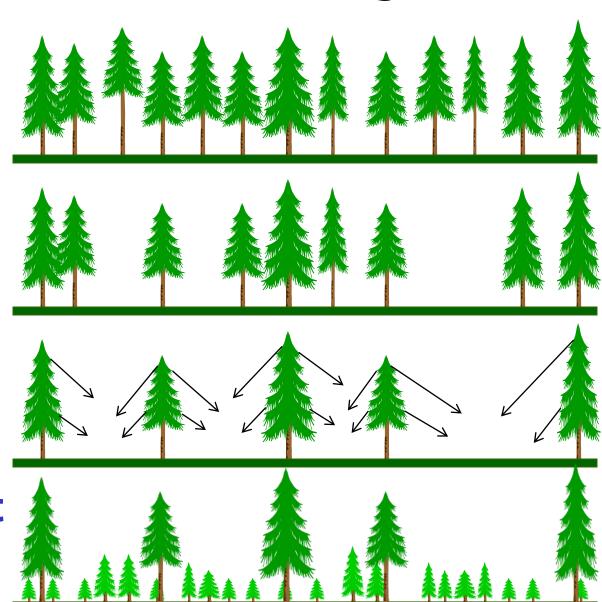


**Original** stand

**Preparation** cut

**Seed cut** 

Repoyal cut (5-10 yrs.)

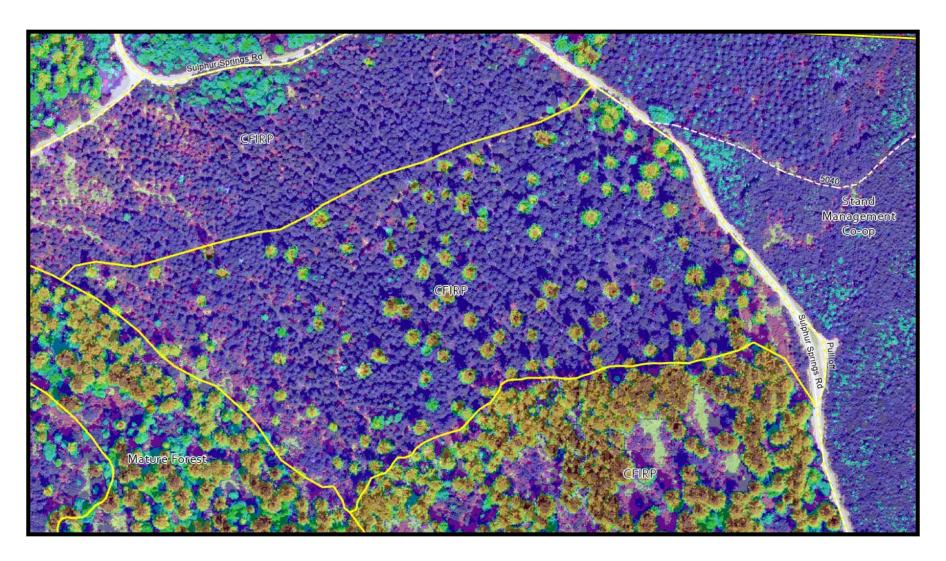


# Shelterwood Two-aged

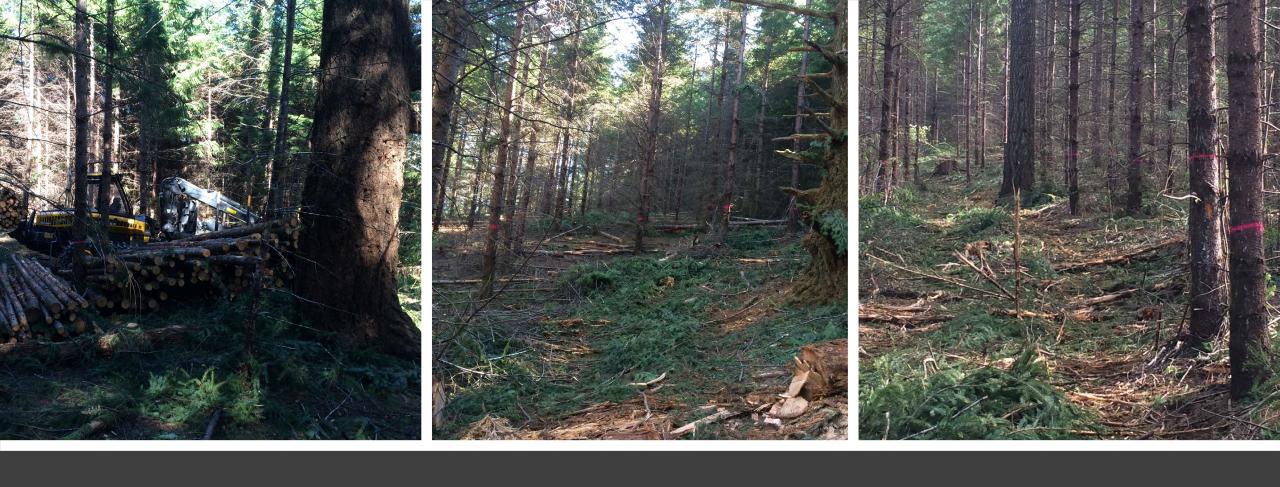
~35 yrs. later



# Two-aged Management

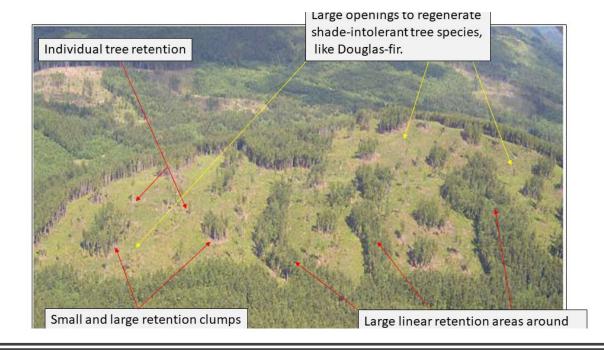


McDonald Forest



# Two-aged Management



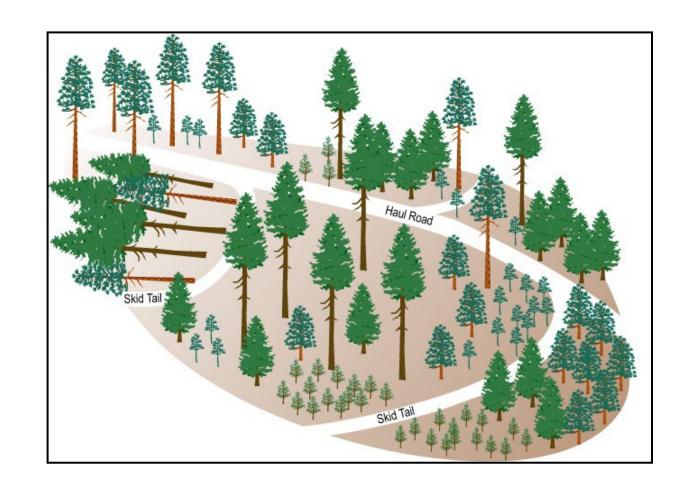




# Variable Retention Harvests

# **Group Selection**

- Trees are harvested in small group: ~ 3-4 acres or less in size.
- Creates several "mini" even-aged stands.
- Groups should be large enough to encourage "sun loving" tree species.





# McDonald-Dunn Research Forests draft guidelines for each new 'Management Strategy' [version after FPC meeting on 20 February 2023]

	Even-aged short rotation	Even-aged long rotation	Multi-aged multi-species	Managed reserves	Ecosystems of concern
Overview	Even-aged plantations of Douglas-fir (or other climatic-appropriate species and genetic stock) will be established and managed to be financially competitive by maximizing yields of wood products valuable for domestic mills. Clearcut harvests will not exceed 80 acres (with limited exceptions due to large-scale disturbances).	Even-aged forests of Douglas-fir (or other climatic-appropriate species and genetic stock) will be established and managed to provide older forest conditions and produce high- quality wood for domestic mills. Clearcut harvests will not exceed 40 acres (with limited exceptions due to large- scale disturbances).	Multi-aged, mixed-species forests of primarily Douglas-fir will be established and managed using shelterwood-with-residuals, group-selection, and variable retention regeneration harvests to create heterogeneity in openings, regenerate new age classes of trees, and maintain structural diversity and visual aesthetics. Multiple native tree species will be encouraged. These harvests will not exceed 40 acres.	These areas will be held and conserved outside the management base using only a light touch when needed to promote and maintain historical older-forest structural and compositional diversity, visual aesthetics, and provide for public safety. Forest succession and developmental processes following natural disturbances will proceed with little human intervention. Areas added to the existing reserve base may need more active operations to promote the development of historical conditions.	Restoration and maintenance activities will be undertaken in native oak savanna/woodlands, meadows, and riparian/aquatic systems. Two strategies will be employed:  • retain and conserve the most at-risk and highest value components of ecological and cultural diversity, and  • use intensive efforts where needed to improve and restore broader ecological and/or cultural functions at specific sites.
Guiding principles	Manage in a way that creates learning and research opportunities about short-rotation forestry and early seral conditions, under the principle of financial sustainability.	Manage in a way that creates learning and research opportunities about long-rotation forestry and retention of legacy elements throughout the life of each stand.	Manage in a way that creates learning and research opportunities about managing multiaged and/or multi-species stands to support diverse forest values recognized by a variety of cultures.	Manage in a way that ensures learning and research opportunities about the creation and maintenance of historical late-seral forest conditions informed by both Indigenous knowledge and Western science.	Manage in a way that creates learning and research opportunities about a range of restoration opportunities and intensities to improve and maintain the health and resiliency of selected ecosystems, informed by both Indigenous knowledge and Western science.

	Even-aged short rotation	Even-aged long rotation	Multi-aged multi- species	Managed reserves	Ecosystems of concern
Opportunities created	Offers dependable financial returns Early-seral conditions provide habitat for some plant & wildlife species Early-seral conditions are preferred by some hunters Short rotations ensure edge habitat important for some wildlife species Short rotations allow testing & demonstration of climate adaptability using alternative genetics of Douglasfir or other species Enables demonstration of the longevity and character of early-seral conditions and use of prescribed fire Creates learning opportunities about harvest operations, regeneration, vegetation treatments, fuels management, and comparison of net carbon sequestration between Douglas-fir and alternative species	Offers dependable financial returns Produces high-quality logs/wood that fills niche markets Provides net carbon sequestration potential relative to shorter rotations Is aesthetically appealing Retention of more legacy elements at stand initiation (e.g., old trees, CWD, broadleaf shrubs) provides habitat for wildlife throughout the life of each stand The variety in stand age promotes biodiversity across the landscape Older stands fill a gap on the landscape Older stands fill a gap on the landscape Creates learning opportunities about managing and financing rotation lengths longer than is typical Provides training opportunities on thinning and underburning	Offers reduced and variable financial returns  Multi-aged stands with varying degrees of within-stand complexity will promote overall biodiversity and a broad suite of habitat conditions for wildlife  Continuous cover ensures visual aesthetics  Provides enhanced recreational opportunities  Enables net carbon sequestration in multiaged stands and multispecies stands  Multi-age and multispecies stands fill a gap on the landscape because there are few such forests on lands under other ownership  Creates learning opportunities about managing with complex silvicultural techniques, and investigations of operational costs and harvest costs associated with non-typical silvicultural approaches  Demonstrates complex approaches for small-scale forest operations and woodland owners	Enables exploration of non-timber benefits and preserves options for future carbon markets     Allows exploration of opportunity costs and direct costs and benefits of conserving late seral conditions     Sustains relatively undisturbed conditions that promote habitat for some plant and wildlife species     Provides preferred aesthetic conditions for recreation     Net carbon sequestration will be useful for comparisons     Creates learning opportunities about long-term risks from invasive species, climate change, and climate-induced disturbances as trees age and tree densities increase     Provides outreach opportunities about the importance of old forests and benefits associated with their active management	Enables research, teaching, and demonstration on all aspects of ecosystem restoration and monitoring for oak, meadow, and riparian/aquatic systems     Creates chance to understand costs incurred by restoration and maintenance programs for unique ecosystems     Enhances biodiversity by improving health in three distinct ecosystem types and at the landscape scale     Demonstrates potential applications of Indigenous knowledge     Reduces wildfire risk in the WUI through strategic fuel breaks in oak woodlands     Creates healthy examples of native meadows and oak woodlands, filling a gap on the landscape because few exist on lands under other ownership     Increases social license to operate     Enhances partnerships with external entities interested in restoration     Enables learning about restoration principles, the ecology of native plants, first foods, and invasive species reduction

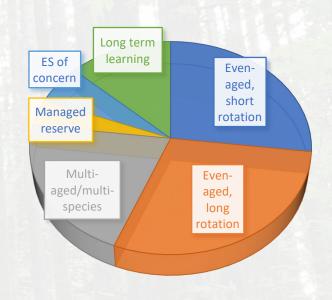
	Even-aged short rotation	Even-aged long rotation	Multi-aged multi-species	Managed reserves	Ecosystems of concern
Stand establishment	Employs intensive site preparation following industry standards (prescribed fire and vegetation control) for ease of planting and early stand establishment. Planted seedlings will be from the best genetically selected material available for timber production but will also consider genetic seed sources adapted to a changing climate. Planting densities will be sufficient to meet the Oregon Forest Practices Act but avoid the need for precommercial thinning. Spacing will be intentionally uniform. Competing vegetation will be managed to minimize growth loss of tree seedlings for the first 1-5 years until trees are free-to-grow, and then competing vegetation will be allowed to grow. 5% of hardwood resprouts will be left free to grow in the understory.	Employs adequate site preparation to plant and establish a stocked young stand. Planted seedlings will be from the best genetically selected material available for timber production but will also consider genetic seed sources adapted to a changing climate with an eye to longer rotations. Initial stocking rates will be appropriate for the site conditions with enough established trees to accommodate multiple commercial thinning harvests within the rotation. Spacing can be variable and appropriate to the site. Competing vegetation will be managed with less herbicide than short rotations, with the intention of limiting tree seedling mortality during the first 1-3 years, and then competing vegetation will be free to grow. 10% of hardwood resprouts will be left free to grow in the understory.	A combination of pile burning, broadcast burning, and limited surface herbicide treatments will be used for site preparation in understory and/or small openings. Seedlings will be interplanted to augment natural regeneration of conifers from seed and hardwoods from both sprouts and seed, with an eye to species richness and genetic variability.  Shelterwood with residuals will maintain an appropriate overstory density to allow understory trees to grow. Overstory trees may be spaced uniformly or variably, dictated by site, stand, and windthrow risk conditions.  Group-selection harvests will contain small (1.5-4.0 acre) openings.  Variable retention regeneration harvests will retain individual trees, clumps of thinned and unthinned trees, and/or no-touch areas that are dictated by site, stand, and windthrow risk conditions.	Typically, stands will regenerate continuously on their own from natural seeding. Active conifer and hardwood regeneration efforts may occur in areas subjected to large-scale disturbances (e.g., windstorms, ice storms, or wildfires), or when adding acres to the reserve base. Invasive vegetation will be managed to ensure establishment and growth of tree seedlings and culturally significant species.	Oak savanna/woodlands – in areas designated to receive intensive restoration treatment, oaks may be purposefully established through seed or seedlings at appropriate densities along with other native and culturally significant vegetation that historically occurred in these ecosystems. Site preparation with prescribed fire and/or judicious surface herbicide use may be required.  Meadows – may require site preparation with prescribed fire and/or judicious surface herbicide use and seeding of other appropriate native herbaceous vegetation.  Riparian systems – in areas designated to receive small-scale restoration treatment, limited harvests will occur with site preparation and planting at appropriate densities along with other native vegetation that historically occurred in these ecosystems.

	Even-aged short rotation	Even-aged long rotation	Multi-aged multi-species	Managed reserves	Ecosystems of concern
Intermediate treatments	Thinning and other intermediate stand treatments will only be done if justifiable economically or if needed to respond to an unplanned disturbance event to maintain the health of each the stand.	The first commercial thinning will occur as dictated by stand conditions, likely around 28-34 years of age. Additional commercial thinning entries will be done until final harvest using a variety of thinning approaches. The last thinning will occur no later than 10-15 years before final harvest.	Shelterwood-with- residuals - understory trees may be commercially thinned when needed (likely 30- 40 years of age) depending on the overstory density. If overstory trees die, replacement trees may be assigned from the understory cohort to maintain the two-storied canopy structure over time.  Group-selection - Periodic thinning will be used to increase vertical and horizontal structure, maintain health, and provide interim income.  Variable retention regeneration harvests - Periodic thinning will be used to increase vertical and horizontal structure, maintain health, and provide interim income.	All areas may receive intermediate treatment under limited circumstances:  • Treatment of invasive species  • Removal of individual trees due to safety concerns  • Prescribed burning to emulate historical processes and for research purposes Areas newly added to the reserve base may need intermediate treatment under limited circumstances:  • Irregular thinning or creation of gaps to promote characteristics of historical late-seral forest conditions typical of the region and in light of climate change	Oak savanna/woodlands - treatments could include prescribed burning, control of invasive plants, and/or precommercial thinning to remove young invading conifers  Meadows - treatments could include repeat prescribed burning and control of invasive plants and invading conifers  Riparian systems - treatments could include additional structural thinning, repeat prescribed burning, and control of invasive plants  Aquatic systems - In-stream and pond treatments could include removal of invasive species, including invasive aquatic plants.

	Even-aged short rotation	Even-aged long rotation	Multi-aged multi-species	Managed reserves	Ecosystems of concern
Stand age	Rotation lengths will be regulated primarily by age that maximizes net revenue production. Rotations will be 30-60, likely 35-45 years.	Rotations typically will be 60-90 years, with a small percentage (<10%) managed to 120 years.	Shelterwood-with- residuals - Final harvest of understory trees will be 60-70 years. The age of the oldest trees harvested from these stands will be 60-120 years, regulated primarily by the complexity of habitat desired for each stand.  Group-selection - Re-entry harvest will occur every 15-30 years to create 3-4 age classes. Minimum proximity of group selection openings to previous harvest entries will be >200 feet.  Variable retention harvest - Re-entry harvest will occur every 15-30 years to create 3-4 age classes.	NA. The age of the oldest trees in these stands will continue to increase over time adding to the age-class diversity across the forest.	NA. The age of the oldest trees in oak and riparian ecosystems will tend to increase over time.
Legacy elements	Procedures will follow OFPA regulations (i.e., retain wildlife trees and CWD in harvest units >25 acres).	Procedures will exceed OFPA regulations (i.e., retain additional legacy trees, green trees, snags, and CWD).	This management system maintains abundant living and dead structure constantly within each stand in an effort to create and sustain diverse forest conditions.	NA – it is the legacy	Oak savanna/woodlands – old conifers with an open grown character dating to pre-settlement will be retained.  Meadows – NA  Aquatic/riparian systems - large old trees and big logs will be retained or enhanced both in-stream and in riparian zones.

## Potential scenarios, AKA proportions of 'Management Strategies'

Proportion	Scenario A (baseline)
Even-aged, short rotation	~27%
Even-aged, long rotation	~29%
Multi-aged/multi-species	~21%
Managed reserve	~4%
Ecosystems of concern	~6%
Long term learning *	~15%
TOTAL	100%



<sup>\*</sup> long-term learning = acreage used for long-term research and recurring teaching and demonstrations

Cancelled due to snow

# 2023 McDonald-Dunn Engagement Timeline for Product Development -----DRAFT-----

	Date	Group	Tasks
	Feb 25, 28	COF	SAC & FPC field tours
	March 1	SAC	SAC MEETING #6     Review Management Strategy definitions and scenarios, and provide feedback
	March	FPC	Integrate feedback and make refinements to Management Strategy definitions and scenarios
	March	OC & COF	ACADEMIC USER LISTENING SESSION
	March	Consultants	Conduct Modeling Round 1 for forest growth/development and ecosystem services
		COF	Distribute Round 1 modeling results to SAC, FPC, and community Announcement of Community Input Session dates
		OC & COF	COMMUNITY INPUT SESSION #1 Review modeling results, evaluate alternatives, and provide feedback
		SAC	Review modeling results, evaluate alternatives, and provide feedback     Consider community feedback     Make recommendation about preferred scenario(s)
		FPC	Refine scenarios based on community and SAC feedback
-		Consultants	Conduct Modeling Round 2 for forest growth/development and ecosystem services
		COF	Distribute Round 2 modeling results to SAC, FPC, and <u>community</u> Reminder for Community Input Session
		OC & COF	COMMUNITY INPUT SESSION #2 Review modeling results, evaluate alternatives, and provide feedback

S	AC	<ul> <li>SAC MEETING #8</li> <li>Consider community <u>feedback</u></li> <li>Review modeling results, evaluate alternatives, and provide <u>feedback</u></li> <li>Make recommendation about preferred scenario(s)</li> </ul>
C	OF Dean	Determine one scenario to move forward
		Draft remaining FMP sections (based on final scenario)
SA	AC	SAC MEETING #9 Discuss and provide feedback on draft outlines/sections of FMP
C	OF	Draft FMP ready for review  • Distribute to SAC, FPC and community  Announce public review and comment period
		Discuss and draft recommendations related to plan implementation, communications/outreach, Visitor Use planning, etc.
		Public comment period closes
		FPC/SAC SUBGROUP MEETING     Review synthesized input from public comments and discusses if/where to integrate into the draft FMP
		Integrate feedback and make refinements to FMP
		Final FMP ready
		Present final FMP to the Dean and FEC, along with additional recommendations from SAC
		Final plan is announced to the public and placed on website
		Plan adoption completed and implementation begins