FLIPCHART NOTES

Group A

Goals for Oaks

- Maintain cultural heritage (i.e., native Americans)
- Restoration of ecosystem health
- Protect remaining oak habitat
- Reestablish in former areas
- Manage to promote large oaks (uneven, self recruiting)
- Manage density \(\rightarrow\) fire resistance
- Manage to reduce risks to habitat from ice, wind, snow, and disease and pests
- Manage for resiliency

Climate Change and Goals for Oaks

- Reduce fuel loading to prevent total loss from wildfire
  - \(\text{re-establish former habitat but where under climate change scenarios?}\)
  - \(\text{Protect, but where...?}\)
  - \(\text{core areas – minimum viable area and buffers and connectivity}\)
- Natural fire regime (interval and severity)
  - \(\text{Viable ecosystems; “enough”}\)
  - \(\text{Maintain biodiversity}\)
- Strategic but not opportunistic! That addresses migration
- Monitor endangered species and consider transplanting
- Understand the future climate envelope:
  - \(\text{opportunities for expansion?}\)
  - \(\text{Geographic areas and north slopes (etc.) and elevation}\)
- Reduce fuel loads to reduce brush
- Eliminate/minimize non-natives
- Increase (or maintain) overall habitat areas and connectivity (landscape context)
- Restore savanna/open canopy oak
- Reduce conifer encroachment
- Protect and restore diverse “portfolio” of oak habitat (resiliency)
- Manage for multiple uses (i.e., working lands)
- Use fire as a management tool
- Banking genetic diversity (flora) including local genotypes
- Species recovery/head starting/captive breeding (fauna) [ =$$$$$]
- Landowner incentives $, education, outreach, policy
• Local policies for protection
• State policy/law to keep oaks (including land use)
• Grazing management -> improved hydro cycle
• Mitigate increased H2O use
• Encourage early detection of weeds and disease
• Create a master oak extension program

Group B

Landscape level goal

To manage for a fire-permeable oak ecosystem for combined habitat values and wildfire risk reduction.

Aside: protecting the “oakiness” of the landscape

Considerations

Resistance, resilience, and facilitation strategies

Observed & Predicted Climate Change Impact: Increased Summer and Winter Temperature

<table>
<thead>
<tr>
<th>CC Impact on Conceptual Model Elements</th>
<th>Intervention Points (ways that managers can influence the system)</th>
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<tbody>
<tr>
<td>Native forbs and grasses</td>
<td>• Native plant material programs</td>
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<td>• Evaluate what we are able to tolerate in terms of exotic species [NOTE: some introduced species might be helpful]</td>
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<td>• Provide necessary habitat function for introduced species that might be helpful</td>
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<td>• Understand, document, plan for how species disperse</td>
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<td></td>
<td>• Consider new local natives</td>
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<tr>
<td>Topographical locations</td>
<td>• Maintain topographic diversity (i.e., microclimates, local refugia, etc.)</td>
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<td>• Foster partnerships with adjacent landowners for issues of oak migration (i.e., with the BLM in the Willamette Valley)</td>
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<td>• Provide for replacement for “wet” oaks</td>
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<td>Regeneration</td>
<td>• Develop management options that allow for/have a broader range of resilient and drought tolerant species</td>
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<td>• Develop a planting strategy for oaks</td>
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<td>• Develop planning for an entire habitat type</td>
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<td>Phenology</td>
<td>Research critical questions</td>
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<tr>
<td><strong>Pathogens &amp; disease</strong></td>
<td>- Education programs (that include photographs and descriptions for landowner detection)</td>
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<td>- Promote resilience through diversifying species</td>
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<td>- Promote resilience through density reduction and thinning</td>
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<td>- Monitoring programs</td>
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<td>- Regulation of nurseries</td>
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<td><strong>Fire</strong></td>
<td>- Landscape-scale planning (identify areas of greater risk)</td>
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<td>- Vegetation management through thinning</td>
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<td>- Vegetation management through prescribed burning</td>
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<td>- Policy action: protect ability to do ecological burning</td>
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<td></td>
<td>- Education about fire tolerant systems (to agencies and landowners)</td>
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<td></td>
<td>- Research</td>
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<td>- Planning for post-fore recovery (use of natives)</td>
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<td></td>
<td>- Preparing for ecosystem conversion</td>
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<td>- Assurances to landowners for protections (if introduce fires)/address liability issues for prescribed burns</td>
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<td><strong>Soil biota, pollinators, etc.</strong></td>
<td>- Planning for assisted migration</td>
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<td>- Planning for soil restoration and decomposition</td>
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<td></td>
<td>- Develop a pollinator recovery plan</td>
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**Group C**

**How does the system work? Drier? Droughtier? More warmer days?**

- View (oak dominated habitats)
- Issues
  - Land management
  - Politics
  - Policy
  - Historical
  - Human and non-human forces (potential management tools)
  - Age class
  - Add soils
  - Land use and management
- Biologic understanding
- ? land use an fragmentation
(Several flipchart sheets about the conceptual framework)

Questions

- What is happening today on the edges
- What limits oaks?
  - When it's shaded
  - Competitors like Douglas fir
  - Temperatures: seedlings? Aspect and elevation? With climate change will the range expand?
- Increased human density and disease and pests/animals, “climate refugees”
- Add pollinators?
- Does perennial fire season effect oaks?
- Habitats-changing rapidly, do they have connectivity to evolve?
- Add habitat connectivity
- Climate impacts likely to be most severe at the edges of the range

What are we managing for? (and how will climate change these goals?)

- Habitat connectivity
- Conserve oak habitats (are important to support agriculture, cities, etc.) – more robust, conserve biodiversity
- Ensure survivability of oak associated species
- Important habitat structure elements – snag/structure
- Natural processes
- Invasive species
- Species, public access, fire
- Restored oak stands are more resilient to climate change

Climate change these goal

- Adaptive management strategies
- Difference: invasive or refugee?
- We must consider policy to help species and habitat
- Seek opportunities leverage other interests
- Why would people restore oak habitat on private land ($)?
- Economics – short term vs. long term decision making
- Communications, tools, messages, values
- Interagency/industry community communications
- Land use planning
- Financial incentives to landowners
Intervention

- Fuel management
- Policies
- Habitat connectivity
- Prescribed fires
- Availability of native plan materials
- Land use planning at local and regional scale
- Education
- Communication tools to articulate the value of oak habitats
- Research: survey of landowner knowledge
- Key points: seeding, selective logging, prescribed burning
- Integrate social science into discussions
- Drink beer
- Winery outreach

Not yet asked?

- How to make restoration economically viable
- Tie strategy to school fund
- Analysis of government policies that are in conflict with oak restoration

Group D

Goal

- Enhance and expand existing oak habitats and oak-associated species
  - System needs to be functional
  - Save the processes/plant/invertebrate
  - Maintain seral stages on sustainable _______; sustain oak communities through time
  - Why?
    - Diversity of species – plant, wildlife, invertebrate
    - Ecosystem services – for oaks and other ecological systems (ag lands, etc.)
    - Aesthetics
    - Cultural – traditional and tribal use
    - Products – wood, firewood
    - Food for wildlife, etc.
  - Concern: connected and larger
  - Climate change? Short-term vs. long-term (loss of climate envelope)
  - Human management (growth) is an issue now
Objectives

- Maintain biodiversity/connectivity

How will climate change affect our goal(s)?

- Short term vs. long term
- Will we still have oak habitats over time?
- If patches aren’t resilient enough to make it through time
- Manage for and with oak habitats in a changing climate is relevant over time as a strategy
- Human management issues in Willamette Valley is a bigger concern than climate change vs. southern Oregon where climate may be a bigger issue

Actions

- Maintain resilience
  - Reducing fuel load
  - Conifer competition-reduction
  - Reduce weeds
  - Prevent the catastrophic
  - Need shrub community diversity
- Maintain and ensure expanded connectivity
  - Buying, acquiring, creating step-stone patches. [assumption: current oak habitat are inadequate to meet connectivity now]
- How to get there?
  - Incentivize, landowner needs, Oregon deferment code, allow state wide oak goal

Intervention options

- Develop policy/law to establish incentives to provide/maintain/create habitat patches that “fit” the climate change oak distribution as climates warm/get drier
- Invertebrates: (one of the ecosystem services)
  - Maintain/increase/improve invertebrate pollinator communities to support oaks (control weeds, oak canopy inverts.)
- Maintain/enhance components of biodiversity associates with oak communities
- Mychorrizia (spelling?) maintain/enhance/resiliency allow for connectivity
- Allow oak species connection/understory components
- Maintain the complexity of the diversity of oak systems – understory, birds, fungi, mycho, inverts.
- How to maintain the oak “system” over time without needing to intervene -- sustainability
**Added Desired Responses**

1. – 5. [on the PowerPoint presentation framework slide]
6. Expanding oaks to historic and projected range
7. Support working lands
8. Political Support

**Interventions and Actions**

**Intervention: Oak-Conifer competition**

*Action:* thinning and prescribed burning  
**Desired Response:** 1, 3

*Action:* revise OFP Act for increase  
**Desired Response:** 1, 2, 3, 5,

*Action:* establish oak extension program and other educational programs (re: oaks and conifers)  
**Desired Response:** 5, 8

*Action:* policies – incentives and markets for working lands [note: increase landowner spending on restoration (?)]  
**Desired Response:** 8

*Action:* address conflict: removal of conifers vs. plant for CO2 sequestration  
**Desired Response:** 1, 5

*Action:* promote compatible recreational uses [concerns regarding invasive species]  
**Desired Response:** 1

*Action:* Reduce density (just not conifers)  
**Desired Response:** 1

**Intervention: Fire regime**

*Action:* decrease fuel load  
**Desired Response:** 3

*Action:* restore native herbaceous/grasses  
**Desired Response:** 1, 3

*Action:* increase fire frequency/prescribed burns (need to consider policies regarding sair quality, private landowner liability)  
**Desired Response:** 1, 3
**Action:** education public to accept fire (including planners, and fire and smoke staff)
**Desired Response:**

**Action:** reduce conifer density
**Desired Response:**

**Action:** incentives for fuel reduction
**Desired Response:**

**Action:** land-use (goal 5 compatible) planning re: lot sizes (large or clustered)
**Desired Response:**

**Action:** provide trained, professional technical assistance for fire (need to have more practitioners and trained and able crew/technical pool)
**Desired Response:** 1,3,

**Action:** collaboration with fire protection organizations
**Desired Response:**

**Action:** allow/promote (?) use and acceptance of herbicides as needed
**Desired Response:** 1, 3

**Intervention: Invasive species**

**Action:** re-seed disturbed areas with diverse natives, including after wild and prescribed fires
**Desired Response:** 1, 3, 4

**Action:** increase scope of native seed program (including research and education)
**Desired Response:** 1, 3, 4,

**Action:** develop early detection and rapid responses
**Desired Response:** 1, 3, 4

**Action:** define invasive vs. climate refugee, and research ecosystem services
**Desired Response:** 1, 3,4

**Action:** use mow/spray and grazing especially in areas without burns
**Desired Response:** 1, 3

**Action:** develop and promote use of education programs to nurseries
**Desired Response:**
**Action**: promote compatible recreational uses [concerns regarding invasive species]  
**Desired Response**: 1

**Action**: consider invasive and damaging wildlife (i.e., turkeys)  
**Desired Response**: 

**Action**: promote research about safe biological controls  
**Desired Response**: 1, 3, 4,

**Intervention: Economics of Oak Conservation**

**Action**: Integrate social sciences with oak conservation 
**Desired Response**: 3, 5, 7, 8

**Action**: collaborate/educate/research with landscape architects, planners, realtors to integrate protection with development  
**Desired Response**: 

**Action**: promote compatible recreational uses to integrate with oak conservation  
**Desired Response**: 1

**Action**: develop and use an urban forestry education program to safely protect oaks  
**Desired Response**: 

**Action**: education landowners about economic opportunities/incentives/assistance re: oalrk conservation  
**Desired Response**: 

**Action**: map and rank network of habitats/mitigation banks with partners at the landscape scale to optimize effective conservation  
**Desired Response**: 1, 2, 5

**Action**: conduct research about oak products and the use of thinning  
**Desired Response**: 

**Action**: Evaluate/remove disincentives or conflicting policies; track changing policies to help landowners and markets  
**Desired Response**: 

**Action**: promoting oak “branding” for multiple benefits  
**Desired Response**: 

**Action**: research to quantify C)2 sequestration of prairie/oak/soil and fire regimes
Desired Response: 7, 8

**Action:** collaborate with logger/chippers who need work/have equipment (set up an economic development network for oak conservation)
Desired Response:

**Action:** increase and leverage $$$
Desired Response:

**Action:** promote pollinators and economic benefits to agriculture
Desired Response:

### Additions to Intervention Points

- Policy inefficiencies
- Water allocations

### Research needs

In addition to those mentioned above in the “Intervention and Actions” section:

- One-stop shopping: Identify what we do know, synthesize into restoration guides (consider research public and private research collaborations) [note: Campbell report – more details, needs to be updated]
- Regeneration – range of conditions, what is needed
- Repository of case studies [note: think of the Conservation Registry]
- Research collaborations with: CA, WA, British Columbia for Oaks in general. Also consider the Midwest, other national examples, and the USFWS landscape conservation cooperatives
- Research outcomes to actions and outcomes – adaptive management
- Economic feasibility studies for landowners and communities; sustainable $
- What are the physiological tolerances of several oak species under climate change (and other species) and shift of the CC envelope north and upslope
- Research needs to be interdisciplinary, collaborative, strategic, and integrated
- Community assembly – how it responds to different management actions/site conditions/fire
  - o = dynamics of oak systems
  - o = basic ecology
- Social research/human dimensions, how to encourage landowners to conserve, accept fire, etc.
- Wildlife associations from prairie, savanna, woodland, and patch size/dispersal at landscape and stand level
- What is invasive species species vs. north-bound? Maybe guidelines...
- Ecosystem benefits from oak: quantify services and products.