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 -> 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
    - re-establish former habitat but where under climate change scenarios?
    - Protect, but where…?
    - core areas – minimum viable area and buffers and connectivity
- Natural fire regime (interval and severity
    - Viable ecosystems; “enough”
    - Maintain biodiversity
- Strategic but nor opportunistic! That addresses migration
- Monitor endangered species and cinsider transplanting
- Understand the future climate envelope:
    - opportunities for expansion?
    - 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

CC Impact on Conceptual Model Elements	Intervention Points (*ways that managers can influence the system)*
Native forbs and grasses	• Native plant material programs
	• Evaluate what we are able to tolerate in terms of exotic species [NOTE: some introduced species might be helpful]
	• Provide necessary habitat function for introduced species that might be helpful
	• Understand, document, plan for how species disperse
	• Consider new local natives
Topographical locations	• Maintain topographic diversity (i.e., microclimates, local refugia, etc.)
	• Foster partnerships with adjacent landowners for issues of oak migration (i.e., with the BLM in the Willamette Valley)
	• Provide for replacement for "wet" oaks
Regeneration	• Develop management options that allow for/have a broader range of resilient and drought tolerant species
	• Develop a planting strategy for oaks
	• Develop planning for an entire habitat type

	• Include wildlife-habitat relationships in oak planning (both in/vertebrate)
	• Research
Phenology	• Research critical questions
Pathogens & disease	• Education programs (that include photographs and descriptions for landowner detection)
	• Promote resilience through diversifying species
	• Promote resilience through density reduction and thinning
	• Monitoring programs
	• Regulation of nurseries
Fire	• Landscape-scale planning (identify areas of greater risk)
	• Vegetation management through thinning
	• Vegetation management through prescribed burning
	• Policy action: protect ability to do ecological burning
	• Education about fire tolerant systems (to agencies and landowners)
	• Research
	• Planning for post-fore recovery (use of natives)
	• Preparing for ecosystem conversion
	• Assurances to landowners for protections (if introduce fires)/address liability issues for prescribed burns
Soil biota, pollinators, etc.	• Planning for assisted migration
	• Planning for soil restoration and decomposition
	• Develop a pollinator recovery plan

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 its 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 conservatino
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: oalk 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: Indentify 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
    - = dynamics of oak systems
    - = 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…
- Ecosytsem benefits from oak: quantify services and products.