

SIERRA
NEVADA
REGIONAL
MEETING

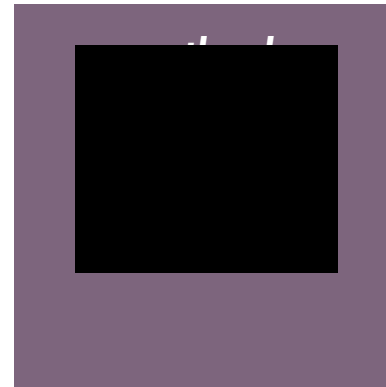
California's 2030 Natural and Working Lands Climate Change Implementation Plan



Agenda

1. Overview of state direction for natural and working lands
2. Overview of draft goals for conservation, restoration, and management in the Sierra Nevada region
3. Discussion on draft goals and outlook for future implementation

California's natural and working lands



Overarching goal

CALIFORNIA'S CLIMATE POLICY PORTFOLIO



Double building efficiency



Cleaner freight and goods movement



50% renewable power



Slash potent "super-pollutants" from dairies, landfills and refrigerants



More clean, renewable fuels



Cap emissions from transportation, industry, natural gas, and electricity



Cleaner zero or near-zero emission cars, trucks, and buses



Invest in communities to reduce emissions



Walkable/Bikeable communities with transit



Protect and manage natural and working lands



Fully integrate natural and working lands into California's climate change policy portfolio

December 2017 Scoping Plan directive

- **Maintain** lands as a **resilient carbon sink** – achieve net zero or negative greenhouse gas emissions
- **Minimize**, where applicable, net greenhouse gas and black carbon **emissions**
- Sets a **preliminary goal** for sequestration and avoided emissions of at least 15-20 MMT CO₂e by 2030 through existing pathways and new incentives

Achieving California's vision for Natural and Working Lands

2030 Natural and Working Lands Climate Change Implementation Plan

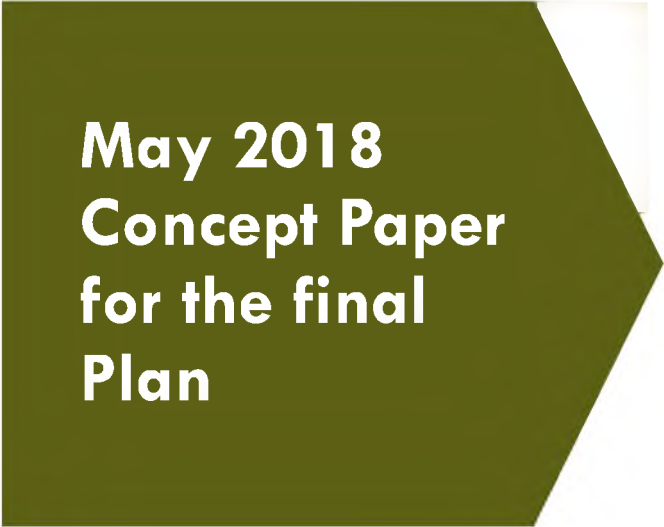


Blueprint for achieving state vision for natural and working lands



Increased ability for land to sequester carbon and provide health, social, economic, and environmental benefits

1. **Protect** land from conversion to more intensified uses by increasing conservation opportunities and pursuing local planning processes that avoid greenfield development;
2. **Enhance** the resilience of and potential for carbon sequestration on lands through management and restoration;
3. **Innovate** biomass utilization such that harvested wood and excess agricultural and forest biomass can be used to advance statewide objectives for renewable energy and fuels



**May 2018
Concept Paper
for the final
Plan**

A photograph of a cow grazing in a field of purple flowers. The cow is dark brown and is positioned in the middle ground, facing left. The field is filled with numerous small purple flowers, likely lupines, which are in bloom. The background shows a line of green trees under a slightly overcast sky. The overall scene is a rural, agricultural landscape.

California 2030 Natural and Working Lands Climate Change Implementation Plan Concept Paper

California Air Resources Board | California Environmental Protection Agency
California Department of Food and Agriculture | California Natural Resources Agency

MAY 2018

About the Implementation Plan

- California will implement land protection, restoration, and management activities through new and existing programs at various departments and agencies
- Programs will sequester carbon and provide ecosystem and societal co-benefits
- Leverages California's history of implementing these activities through programs which often do not have carbon sequestration as their primary goal

Intervention-based approach

- Relies on using identified activities to contribute to a GHG reduction goal
- Ambitious but achievable goal; scalable targets
- Focus on State-supported land conservation, restoration, and management activities for State agency departments, boards, and conservancies
- Ability to track and report on progress

Land protection, restoration, and management activities in the plan

Land protection Avoided conversion of land for development

Agricultural practices Cultivated land soil conservation; rangeland compost amendment; rotational grazing; conservation crop rotation; mulching; riparian restoration

Urban forests Expansion of existing urban tree canopy

Forest management Understory treatment, partial cut, prescribed burn, biomass utilization, improved management

Restoration activities Restoration and expansion of the extent of mountain meadows, managed wetlands, oak woodlands, and riparian areas, and seagrass

Goals of final Plan

1

Help integrate natural and working lands with broader State climate strategy and future Scoping Plan

2

Include a final statewide 2030 intervention-based sequestration goal for natural and working lands

3

Identify scale and scope of State-supported **land conservation, restoration, and management acreage targets** needed for long-term objectives & 2030 goal

Tools for setting the 2030 carbon goal

Projecting the carbon impacts of conservation, restoration, and management activities:

California Natural and Working Lands Carbon and Greenhouse Gas Model (CALAND)

**COMET-Planner
Compost-Planner**

California Natural and Working Lands Carbon and Greenhouse Gas Model (CALAND)

- Developed by Lawrence Berkeley National Laboratory
- Empirically based landscape-scale carbon accounting model
- Simulates effects of various practices and land use or land cover change on carbon dynamics



COMET-Planner & Compost-Planner

- **COMET-Planner:** developed by Colorado State University and U.S. Department of Agriculture Natural Resources Conservation Service
- **Compost-Planner:** developed by CARB with an interface developed by USDA-NRCS
- Both provide estimates net GHG benefits from increases in carbon sequestration and changes in nitrous oxide and methane emissions from the implementation of agricultural practices



Setting acreage targets

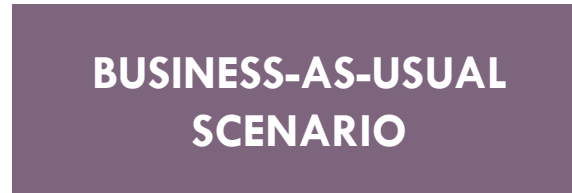
Three scenarios based on:

no state activities



Regulatory minimum
only

two alternatives

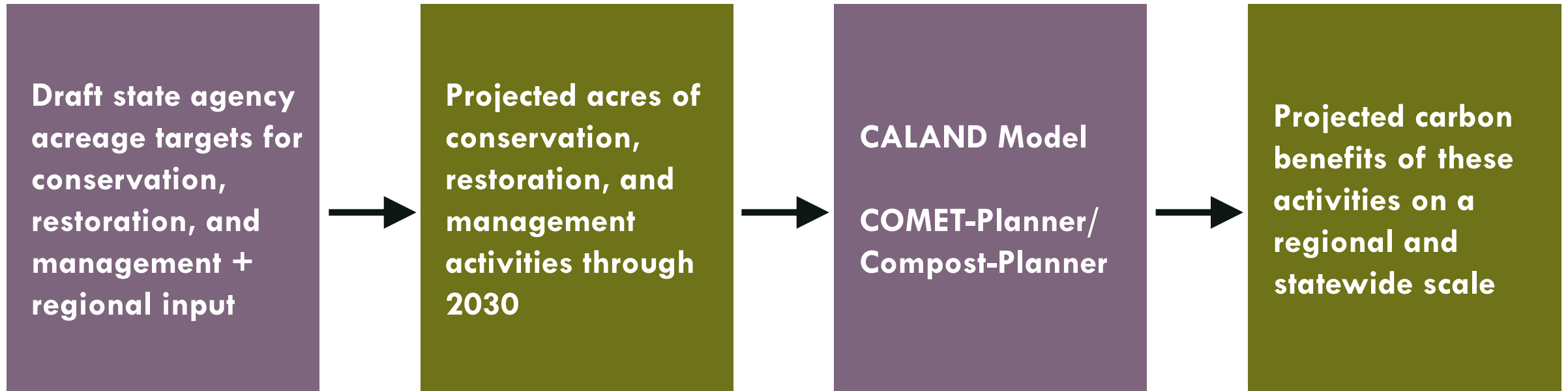


Maintaining California's
current track



More aggressive levels
of state funding for
programs/ voluntary
efforts

Projecting carbon impacts of conservation, restoration, and management targets



Results of projections

- Alternative scenarios compared to baseline to show impact of state activities
- Projections will provide outlook on scale needed and reasonableness of proposed strategies

Additional Considerations

- Near and long-term carbon impacts
- Climate change impacts, health, social, economic, and environmental benefits
- Cost effectiveness
- Geographic, environmental, social, and economic suitability
- Permanence, or long-term effect

Tracking and reporting

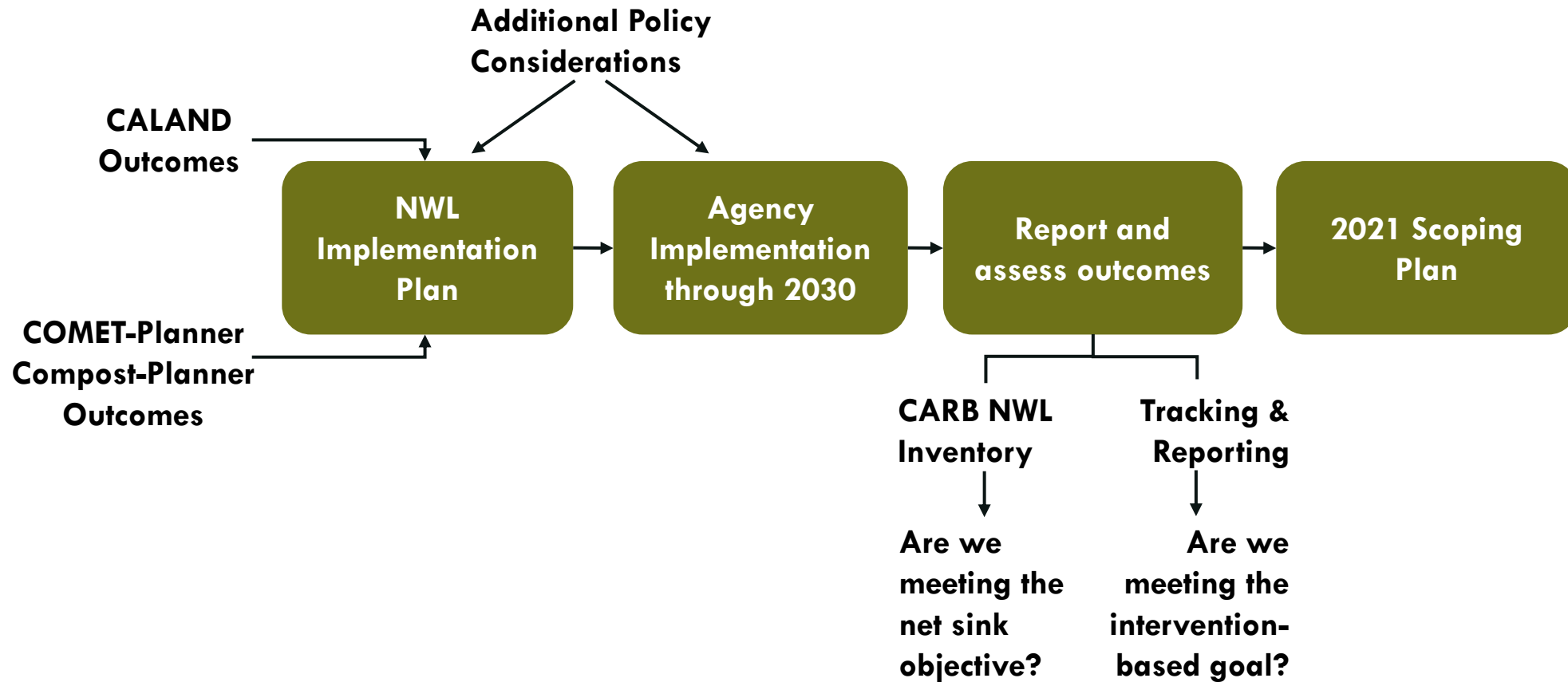
- Annual reporting on expected benefits based acres protected and brought under management using:
 - CALAND and other methods
 - COMET-Planner and existing quantification methodologies developed as part of California Climate Investments
- Develop a system for tracking and reporting actual outcomes

Assessing progress towards long-term objective

Natural and Working Lands GHG Inventory-

- Retrospective snapshot of carbon stocks, stock-change and resulting GHG flux
- Used to assess progress on sector objective of net sequestration or negative emissions
- Will capture the effects of implemented interventions, along with other gains or losses that occur over the same timeframe
- Will help indicate scale of interventions needed

Framework: putting it all together



Moving Forward

June 2018

Regional meetings

Summer 2018

Develop draft
2030 natural and
working lands
goal and Plan

**September
2018**

Announce natural
and working
lands
intervention-
based carbon
goal

**November
2018**

Release final
Implementation
Plan

Written comments on Concept Paper



Submit written comments through June 15, 2018 at:

<https://arb.ca.gov/cc/natandworkinglands/natandworkinglands.htm>



Activities

Upcoming Workshop:

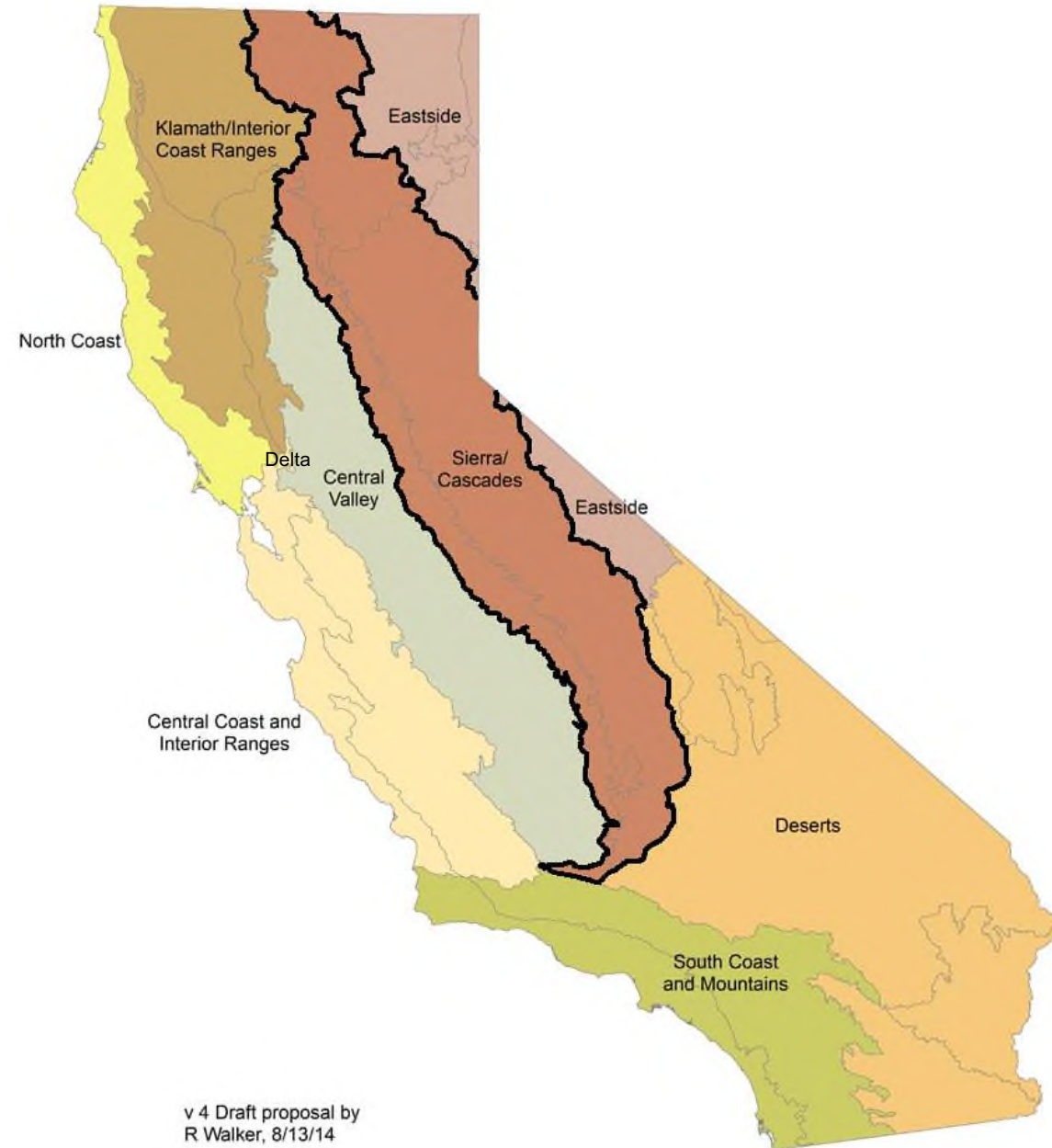
May 18, 2018 in Sacramento

- Public Workshop on the California 2030 Natural and Working Lands Climate Change Implementation Plan
 - Notice
 - California 2030 Natural and Working Lands Climate Change Implementation Plan Concept Paper
 - Detailed Agenda
 - Workshop Presentation (coming soon)
 - [Submit Comments](#)
 - View Comments



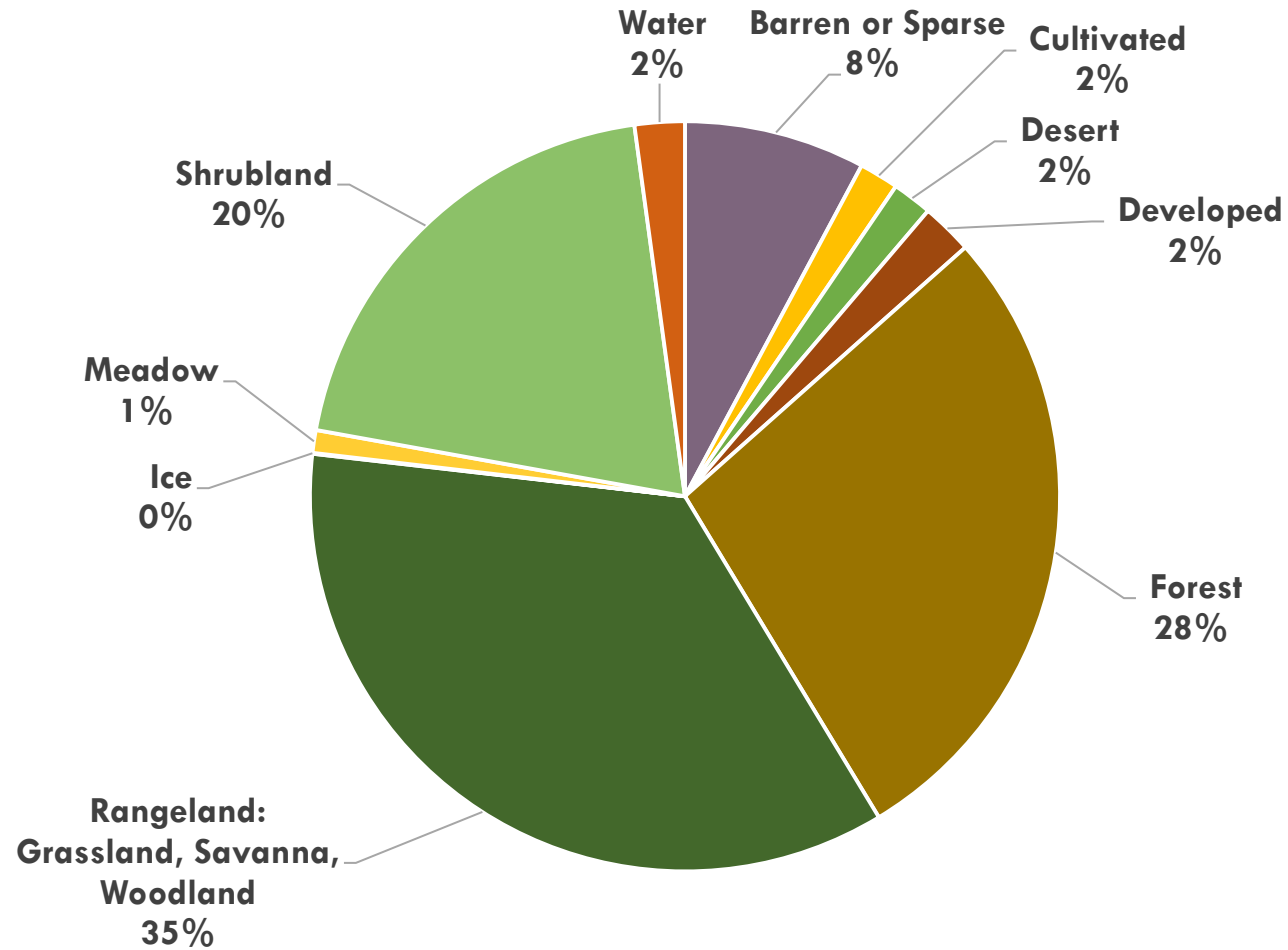
**DRAFT GOALS
FOR NATURAL
AND WORKING
LANDS IN THE
SIERRA NEVADA
REGION**

Sierra Nevada and Eastside Regions



v 4 Draft proposal by
R Walker, 8/13/14

Land Cover in the Sierra Nevada & Eastside Regions



Setting acreage targets

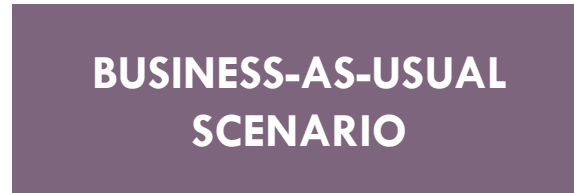
Three scenarios based on:

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Regulatory minimum
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Maintaining California's
current track



More aggressive levels
of state funding for
programs and voluntary
efforts

Agency and department projections

- **Business-as-usual alternative:** How many acres could be restored or managed over 12 years assuming current bond and program funding?
 - Includes projections based on current grant and bond-funded programs as well as activities from California Department of Forestry and Fire Protection Regional Units
- **Ambitious alternative:** How many acres could be restored or managed over 12 years with an ambitious but achievable increase in funding?
 - Includes projections based on existing plans and goals, such as those from the Sierra Nevada Watershed Improvement Program or Sierra Meadows Strategy

Contributing agencies and departments for the Sierra and Eastside regions

California Department of Food and Agriculture (CDFA)

California Tahoe Conservancy (CTC)

Department of Conservation (DOC)

Department of Fish and Wildlife (CDFW)

Department of Water Resources (DWR)

Department of Parks and Recreation (DPR)

Department of Forestry and Fire Protection (CAL FIRE)

Sierra Nevada Conservancy (SNC)

Wildlife Conservation Board (WCB)

Compiled acreage targets

Activity	Sierra/Cascade		Eastside		Contributing Agencies and Departments
	BAU	Ambitious	BAU	Ambitious	
Reforestation	2,568	2,568	36,033	42,757	WCB, DPR, SNC, CAL FIRE
Partial Cut	349,447	5,370,388	17,780	563,280	DPR, DWR, WCB, CAL FIRE, CTC, SNC
Forest Understory Treatment	30,552	42,400	0	0	DPR, CTC, SNC
Forest Prescribed Burn	104,562	132,306	0	0	DPR, CAL FIRE, SNC, CTC
Improved Forest Management	156,000	202,800	0	0	CAL FIRE
Additional Forest Biomass Utilization	25,430	42,290	0	0	CAL FIRE, CTC
Oak Woodland Restoration	522	750	0	0	DPR
Meadow Restoration	27,281	81,843	2,718	8,156	CDFW, WCB, SNC, CTC
Riparian Restoration	2489	3791	28	100	DOC, DPR, DWR, WCB, CTC, CDFA
Soil Conservation Practices	363	582	12	24	DPR, CDFA
Rangeland Rotational Grazing	0	60,000	0	0	DPR
Rangeland Composting	180	234	0	0	CDFA

Forest management targets

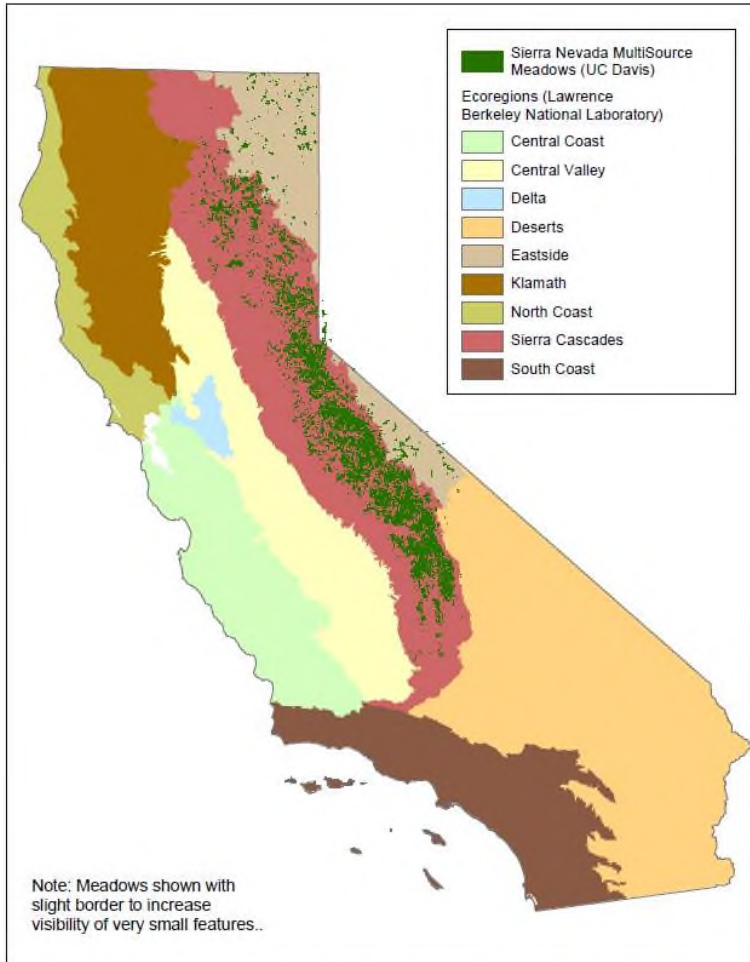
Description	Practice	Sierra/Cascade		Eastside		Contributing Agencies and Departments
		BAU	Ambitious	BAU	Ambitious	
Reforestation of non-regenerated forest area post-wildfire	Reforestation	2,568	2,568	36,033	42,757	WCB, DPR, SNC, CAL FIRE
Removal of a portion (20%) of the live canopy and standing dead trees for forest health objectives; represents a group of specific practices that require high levels of basal area to remain in the forest, such as uneven-aged management and thinning for fuel reduction*	Partial Cut	349,447	5,370,388	17,780	563,280	DPR, DWR, WCB, CAL FIRE, CTC, SNC
Clearing and removal of forest understory to support forest health objectives	Understory Treatment	30,552	42,400	0	0	DPR, CTC, SNC
Prescribed burning for forest fire fuel reduction and ecological restoration; can be modeled as in sequence with mechanical thinning	Prescribed Burn	104,562	132,306	0	0	DPR, CAL FIRE, SNC, CTC
Change from even-aged management to uneven-aged management (partial cut) or areas of no harvest (reserve areas) or extension in harvest rotation period	Less Intensive Forest Management	156,000	202,800	0	0	CAL FIRE
Increase in the percentage of slash material diverted to bioenergy and wood products, away from pile burning and decay	Additional Biomass Utilization	25,430	42,290	0	0	CAL FIRE, CTC

*Some acres listed under 'partial cut' will be slotted under 'prescribed burn' or 'understory treatment after further analysis; the 5,370,388 acres represents need for fuel reduction treatment.

Ecological restoration and land protection targets

Description	Practice	Sierra/Cascade		Eastside		Contributing Agencies and Departments
		BAU	Ambitious	BAU	Ambitious	
Reestablishment of oak woodlands on grasslands and cultivated lands	Oak Woodland Restoration	522	750	0	0	DPR
Restoration of meadows in mountain regions	Meadow Restoration	27,281	81,843	2,718	8,156	CDFW, WCB, SNC, CTC
Riparian trees, primarily oaks, are established on grassland or cultivated lands	Riparian Restoration	2489	3791	28	100	DOC, DPR, DWR, WCB, CTC, CDFA
Reduced conversion of natural and working lands to urbanized land	Land Protection	461,150	512,016	64,028	118,673	WCB, SNC, DWR, DOC

Meadow restoration targets

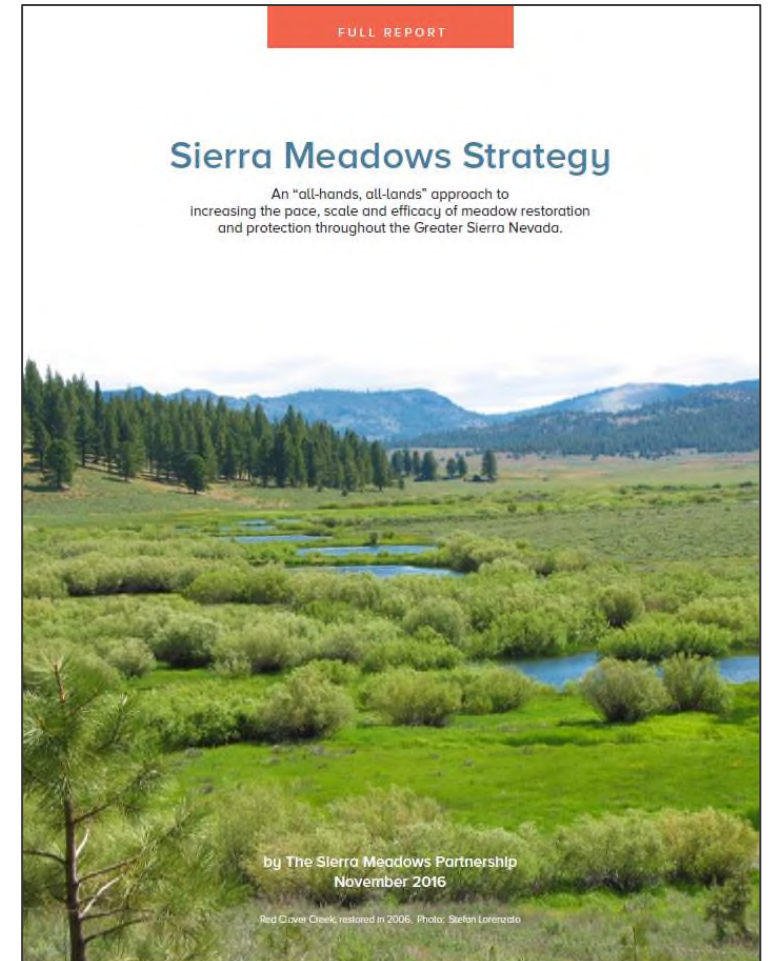


Business-as-usual targets:

30,000 acre target set in Sierra Meadows Strategy, split into Sierra and Eastside Regions

Ambitious targets:

Restoration need articulated in Sierra Meadows Strategy of 50% of meadows known or expected to be degraded/ in need of restoration



Targets for Rangelands and Cultivated Lands

Soil conservation practices

Includes cover cropping, reduced tillage, no-till, mulching, and compost

Rangeland compost application

Compost is applied to traditionally managed rangeland (grassland, savanna, and woodland land types in CALAND) and repeated either every 10 years or every 30 years. The base land type is traditionally managed rangeland.

Prescribed grazing practices

Managing the harvest of vegetation with grazing and/or browsing animals with the intent to achieve specific ecological, economic, and management objectives.

500,000

total acres of cultivated land

+

10,000,000

total acres rangeland

*in the Sierra Nevada and Eastside
Regions combined*



**QUESTIONS +
DISCUSSION**

Discussion Questions

1. Are **regional projects** reflected in the baseline and more ambitious draft acreage targets for conservation, restoration, and management?
2. How should the **ambitious** scenario be scoped for your region? Are there existing regional planning and goal-setting documents that should be included within the ambitious scenario?
3. What are your regional implementation **priorities**? What is needed to support successful regional implementation?

Thank you

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