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 Sacramento Valley and Delta

3. Discussion on draft goals and outlook for future implementation
California’s natural and working lands

- rangeland
- forests
- wetlands
- grasslands
- farms
- riparian areas
- seagrass
- urban green-space
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 CO$_2$e by 2030 through existing pathways and new incentives
2030 Natural and Working Lands Climate Change Implementation Plan

Blueprint for achieving state vision for natural and working lands:

1. Protect land from conversion to more intensified uses by increasing conservation practices and 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 renewable energy and fuels objectives

Increased ability for land to sequester carbon and provide other benefits

- Health
- Social
- Economic
- Environmental
May 2018
Concept Paper for the final Plan

https://arb.ca.gov/cc/natandworkinglands/nwl-implementation-plan-concept-paper.pdf
State-funded activity ("intervention-based") approach

• Plan relies on using identified activities (interventions)
• Sets an ambitious but achievable goal with targets that are saleable
• Focuses on State-supported land conservation, restoration, and management activities for State agency departments, boards, and conservancies
• Implementation will leverage new and existing programs at various departments and agencies & California’s history of implementing conservation programs
• Programs will continue to provide ecosystem and societal co-benefits while sequestering carbon
• Facilitates tracking and reporting on progress towards goal
Multiple benefits of implemented projects

- Biodiversity & habitat
- Water supply & quality
- Climate adaptation
- Tourism & recreation
- Public health
- Economic development
- Cultural & spiritual values
- Temperature cooling
## Land protection, restoration, and management activities in the plan

<table>
<thead>
<tr>
<th><strong>Land protection</strong></th>
<th>Avoided conversion of land for development</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agricultural practices</strong></td>
<td>Cultivated land soil conservation, rangeland compost amendment, rotational grazing, conservation crop rotation, mulching, riparian restoration</td>
</tr>
<tr>
<td><strong>Urban forests</strong></td>
<td>Expansion of existing urban tree canopy</td>
</tr>
<tr>
<td><strong>Forest management</strong></td>
<td>Understory treatment, partial cut, prescribed burn, biomass utilization, improved management</td>
</tr>
<tr>
<td><strong>Restoration activities</strong></td>
<td>Restoration and expansion of the extent of mountain meadows, managed wetlands, oak woodlands, riparian areas, and seagrass</td>
</tr>
</tbody>
</table>
Goals of final 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

Two tools for 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 of the net climate benefits resulting from implementation of various land-based management practices
Setting acreage targets

Three scenarios based on:

- **no state activities**
  - BASELINE SCENARIO
  - Regulatory minimum only

- **two alternatives**
  - BUSINESS-AS-USUAL SCENARIO
  - Maintaining California’s current track
  - AMBITIOUS SCENARIO
  - More aggressive levels of state funding for programs/voluntary efforts
Projecting carbon impacts of conservation, restoration, and management targets

**ACREAGE TARGETS**
Draft state agency acreage targets for conservation, restoration, and management + regional input

**SCENARIOS**
Projected acres of conservation, restoration, and management activities through 2030

**MODELS**
- CALAND Model
- COMET-Planner/Compost-Planner

**EXPECTED BENEFITS**
Projected carbon benefits of these activities on a regional and statewide scale
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

- CALAND outcomes
- COMET- and Compost- Planner outcomes

- NWL Implementation Plan
- Agency Implementation through 2030
- Report and assess outcomes
- Next Scoping Plan Update

- additional policy considerations
- CARB NWL Inventory
- Tracking & Reporting

- Are we meeting the net sink objective?
- Are we on track to meet intervention-based goal?
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
DRAFT GOALS FOR NATURAL AND WORKING LANDS IN THE SACRAMENTO VALLEY & DELTA
Ecoregions
Encompassing the Sacramento-San Joaquin Delta and Valley

Sacramento Valley:
Northern part of Central Valley Ecoregion

Sacramento-San Joaquin Delta:
Legal Delta boundary
Land Cover in the Sacramento-San Joaquin Delta

- Cultivated: 65%
- Developed: 13%
- Shrubland: 1%
- Water: 12%
- Rangeland (Grassland, Savanna, Woodland): 4%
- Coastal marsh: 5%
Land Cover in the Central Valley

- Desert: 1%
- Developed: 12%
- Desert (Grassland, Savanna, Woodland): 10%
- Shrubland: 9%
- Water: 1%
- Barren or Sparse: 2%
- Cultivated: 65%
Setting acreage targets

Three scenarios based on:

no state activities

BASELINE SCENARIO
Regulatory minimum only

two alternatives

BUSINESS-AS-USUAL SCENARIO
Maintaining California’s current track

AMBITIOUS SCENARIO
More aggressive levels of state funding for programs/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 through the Delta Conservancy, Department of Fish and Wildlife, Department of Water Resources

• **Ambitious alternative:** How many acres could be restored or managed over 12 years with an ambitious but achievable increase in funding?
  - Assumes acceleration of business-as-usual work
<table>
<thead>
<tr>
<th>Departments reporting conservation, restoration, and management targets in the Sacramento Valley and Delta Regions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delta Conservancy</td>
</tr>
<tr>
<td>Department of Conservation (DOC)</td>
</tr>
<tr>
<td>Department of Fish and Wildlife (CDFW)</td>
</tr>
<tr>
<td>Department of Water Resources (DWR)</td>
</tr>
<tr>
<td>Department of Parks and Recreation (DPR)</td>
</tr>
<tr>
<td>Department of Forestry and Fire Protection (CAL FIRE)</td>
</tr>
<tr>
<td>Wildlife Conservation Board (WCB)</td>
</tr>
</tbody>
</table>
## DELTA REGION: Compiled acreage targets

<table>
<thead>
<tr>
<th>Practice</th>
<th>BAU (acres)</th>
<th>Ambitious (acres)</th>
<th>Reporting Agencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Protection</td>
<td>8,514</td>
<td>21,577</td>
<td>Department of Water Resources, Department of Conservation, State Parks</td>
</tr>
<tr>
<td>Delta Wetland Restoration</td>
<td>15,000</td>
<td>30,000</td>
<td>Delta Conservancy, Wildlife Conservation Board, Department of Water Resources</td>
</tr>
<tr>
<td>Riparian Restoration</td>
<td>5,000</td>
<td>10,000</td>
<td>Delta Conservancy, Wildlife Conservation Board, Department of Conservation, Department of Water Resources</td>
</tr>
<tr>
<td>Coastal Marsh Restoration</td>
<td>41</td>
<td>51</td>
<td>Wildlife Conservation Board</td>
</tr>
<tr>
<td>Urban Forest Expansion</td>
<td>-</td>
<td>10% expansion in canopy</td>
<td>Department of Forestry and Fire Protection, Natural Resources Agency</td>
</tr>
</tbody>
</table>

**Practices not reported for this region:** reforestation, forest partial cut/fuel reduction, forest understory treatment, forest prescribed burn, improved forest management, additional forest biomass utilization, oak woodland restoration, meadow restoration, soil conservation, rangeland rotational grazing, rangeland composting, coastal wetland restoration, seagrass restoration
## DELTA REGION: Restoration and conservation practice descriptions & acreage targets

<table>
<thead>
<tr>
<th>Description</th>
<th>Practice</th>
<th>BAU (acres)</th>
<th>Ambitious (acres)</th>
<th>Reporting Agencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conversion of cultivated lands to fresh managed wetlands in the Sacramento-San Joaquin Delta</td>
<td>Delta wetland restoration</td>
<td>15,000</td>
<td>30,000</td>
<td>Delta Conservancy, Wildlife Conservation Board, Department of Water Resources</td>
</tr>
<tr>
<td>Riparian trees, primarily oaks, are established on grassland or cultivated lands</td>
<td>Riparian Restoration</td>
<td>5,000</td>
<td>10,000</td>
<td>Delta Conservancy, Wildlife Conservation Board, Department of Water Resources</td>
</tr>
</tbody>
</table>
15,000 - 30,000 ACRES OF WETLAND RESTORATION

Reflective of the amount of deeply subsided land in the Delta (approx. 250,000 acres) & the amount of land under public ownership (approx. 40,000 acres) that could accommodate wetlands; includes all EcoRestore targets for wetlands

5,000 - 10,000 ACRES OF RIPARIAN RESTORATION

Reflective of over 1,000 miles of denuded waterways in the Delta that were once natural riparian habitat
<table>
<thead>
<tr>
<th>Practice</th>
<th>BAU (acres)</th>
<th>Ambitious (acres)</th>
<th>Reporting Agencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Protection</td>
<td>155,554</td>
<td>236,801</td>
<td>Department of Water Resources, Wildlife Conservation Board, Department of Conservation, State Parks</td>
</tr>
<tr>
<td>Forest expansion</td>
<td>455</td>
<td>683</td>
<td>Department of Water Resources</td>
</tr>
<tr>
<td>Partial cut/fuel reduction</td>
<td>13,620</td>
<td>20,710</td>
<td>Department of Water Resources, State Parks</td>
</tr>
<tr>
<td>Forest Understory Treatment</td>
<td>120</td>
<td>900</td>
<td>State Parks</td>
</tr>
<tr>
<td>Forest Prescribed Burn</td>
<td>-</td>
<td>600</td>
<td>State Parks</td>
</tr>
<tr>
<td>Oak Woodland Restoration</td>
<td>496</td>
<td>1,452</td>
<td>State Parks</td>
</tr>
<tr>
<td>Meadow Restoration</td>
<td>481</td>
<td>570</td>
<td>State Parks, Department of Water Resources</td>
</tr>
<tr>
<td>Riparian Restoration</td>
<td>14,913</td>
<td>22,462</td>
<td>Department of Conservation, State Parks, Department of Water Resources, Wildlife Conservation Board</td>
</tr>
<tr>
<td>Soil Conservation Practices</td>
<td>120</td>
<td>300</td>
<td>State Parks</td>
</tr>
<tr>
<td>Rangeland Rotational Grazing</td>
<td>-</td>
<td>60</td>
<td>State Parks</td>
</tr>
<tr>
<td>Urban Forest Expansion</td>
<td></td>
<td>10% canopy expansion</td>
<td>Department of Forestry and Fire Protection, Natural Resources Agency</td>
</tr>
</tbody>
</table>

**Practices not reported for this region:** reforestation, improved forest management, additional forest biomass utilization, rangeland composting, coastal wetland restoration, seagrass restoration
<table>
<thead>
<tr>
<th>Description</th>
<th>Practice</th>
<th>BAU</th>
<th>Ambitious</th>
<th>Reporting Agencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reestablishment of oak woodlands on grasslands and cultivated lands</td>
<td>Oak Woodland Restoration</td>
<td>496</td>
<td>1,452</td>
<td>State Parks</td>
</tr>
<tr>
<td>Riparian trees, primarily oaks, are established on grassland or cultivated lands</td>
<td>Riparian Restoration</td>
<td>14,913</td>
<td>22,462</td>
<td>Department of Conservation, State Parks, Department of Water Resources, Wildlife Conservation Board</td>
</tr>
<tr>
<td>Reduced conversion of natural and working lands to urbanized land</td>
<td>Land Protection</td>
<td>155,554</td>
<td>236,801</td>
<td>Department of Water Resources, Wildlife Conservation Board, Department of Conservation, State Parks</td>
</tr>
</tbody>
</table>
Developing targets for rangelands and cultivated lands

Soil conservation practices
Including cover cropping, reduced tillage, no-till, mulching, and compost application on cultivated lands

Rangeland compost application
Compost is applied to traditionally managed rangeland (grassland, savanna, and woodland land types) 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

Herbaceous or woody cover establishment
QUESTIONS + DISCUSSION

Loren Kerns
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 activities in 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?

---

**CONSERVATION, RESTORATION, & MANAGEMENT ACTIVITIES**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Land protection</strong></td>
<td>Avoided conversion of land for development</td>
</tr>
<tr>
<td><strong>Agricultural practices</strong></td>
<td>Cultivated land soil conservation, rangeland compost amendment, rotational grazing, conservation crop rotation, mulching, riparian restoration</td>
</tr>
<tr>
<td><strong>Urban forests</strong></td>
<td>Expansion of existing urban tree canopy</td>
</tr>
<tr>
<td><strong>Forest management</strong></td>
<td>Understory treatment, partial cut, prescribed burn, biomass utilization, improved management</td>
</tr>
<tr>
<td><strong>Restoration activities</strong></td>
<td>Restoration and expansion of the extent of mountain meadows, managed wetlands, oak woodlands, riparian areas, and seagrass</td>
</tr>
</tbody>
</table>
Feedback on Acreage Targets

By July 10

Please submit written comments on acreage targets to:

emma.johnston@resources.ca.gov
THANK YOU

Claire Jahns, California Natural Resources Agency
claire.jahns@resources.ca.gov

Shelby Livingston, California Air Resources Board
shelby.livingston@arb.ca.gov

Jenny Lester Moffitt, California Department of Food and Agriculture
jenny.lestermoffitt@cdfa.ca.gov

Emma Johnston, Natural Resources Agency
emma.Johnston@resources.ca.gov