



Priority Nature-Based Climate Solutions and Cross-Cutting Priorities

The following list is drawn from California's [Natural and Working Lands Climate Smart Strategy](#) published on April 22, 2022.

FORESTS - PRIORITY NATURE-BASED CLIMATE SOLUTIONS

- A. Protect resilient forests and large trees and advance proactive vegetation management in more vulnerable stands, using forest thinning, which includes methods such as prescribed and cultural burns and managed natural wildfire, to reduce the risk of catastrophic wildfire, increase resilience to future drought, increase carbon sequestration rates, and stabilize carbon storage.
- B. Increase active reforestation efforts in areas recovering from severe wildfires and suffering from reduced natural regeneration as a result. Timely post-wildfire reforestation efforts can also prevent conversion of forest to shrublands and reduced water storage capacity in watersheds.
- C. Protect and restore riparian forest ecosystems to enhance carbon storage, protect biodiversity, and expand wildlife corridors and climate migration pathways for native species.
- D. Reconnect aquatic habitat within forests to help fish and wildlife endure drought and adapt to climate change.
- E. Increase voluntary cultural easements for cultural burns and to ensure California Native American tribes have access to natural cultural resources and cultural landscapes.

SHRUBLANDS AND CHAPARRAL - PRIORITY NATURE-BASED CLIMATE SOLUTIONS

- A. Protect existing shrublands and chaparral systems from development and conversion and restore degraded shrubland and chaparral systems that will increase connectivity, enhance system resilience, and reduce the permanent loss of carbon on the landscape.

- B. Build healthy soils.
- C. Reduce wildfire risks through climate smart management of lands near communities and transportation infrastructure, including through development of buffer zones.
- D. Apply managed grazing with goats when appropriate as an effective carbon-neutral fuels management technique to maintain fuel breaks in shrublands and chaparral and in transitional lands between these systems and forests.

CROPLANDS - PRIORITY NATURE-BASED CLIMATE SOLUTIONS

- A. Scale up soil health practices for carbon storage, greenhouse gas emission reduction from soils, climate resiliency, soil water retention, improved water and air quality, and more, while supporting socially disadvantaged farmers. Practices include, but aren't limited to cover cropping; retention of crop residue; production and application of organic amendments, such as compost and biochar; planting of hedgerows; grass filter strips; low or no-till; integrated pest management that utilizes natural pest-predator dynamics and supports biodiversity above and below ground; and others.
- B. Protect at-risk agricultural lands from development through conservation easements, Williamson Act contracts, and agricultural zoning.
- C. Increase water and nutrient use efficiency, including through installation of climate smart irrigation systems.
- D. Increase managed groundwater recharge on working croplands that capture rain and storm runoff and redirect water during periods of extended high flows to allow water to sink into aquifers in a manner that does not exacerbate water quality issues and ensures diversions are protective of native fish and wildlife.
- E. Repurpose cropland retired or fallowed due to lack of water supply for environmental, cultural and societal benefits, such as sequestering carbon, capturing floodwater, recharging aquifers, reducing dust, and providing habitat.
- F. Enhance circular economies for organic waste utilization which prioritize ecosystem and biological health, such as use as animal feed, compost creation and utilization, manure markets, whole orchard recycling and mulching.

G. Facilitate planting, harvesting, and sustaining culturally and historically significant food crops by California Native American tribes.

H. Reactivate flood plains on working croplands, including rice fields to improve flood management and aquifer recharge and enhance biodiversity and habitat.

I. Scale up the use of integrated pest management; advance safer, more sustainable pest management practices and provide tools to support the accelerated transition away from harmful pesticides.

WETLANDS - PRIORITY NATURE-BASED CLIMATE SOLUTIONS

A. Protect against habitat loss, degradation, and fragmentation to help maintain carbon sequestration, protect biodiversity and culturally-significant species, reduce climate risks, and increase climate resilience.

B. Restore and enhance coastal wetlands in a manner that ensures these habitats can keep pace with future sea level rise, such as conserving and restoring inland areas to allow for upland migration and through sediment augmentation.

C. Identify and prioritize wetland restoration near communities most vulnerable to climate change and where climate smart land management can improve groundwater and water quantity, protect communities from flooding, and increase access to nature.

D. Restore Delta tidal wetlands to improve ecological function and flood protection. Encourage conversion of deeply subsided Delta peatlands to rice cultivation and managed wetlands to stop subsidence and resulting carbon emissions.

E. Restore rivers, floodplains, and estuaries and facilitate their natural function and connectivity.

F. Protect and restore mountain meadow function and hydrology using site appropriate solutions, such as beaver reintroduction, to enhance water quality and reliability, biodiversity, carbon storage, and natural system connectivity.

G. Treat water through nature-based solutions such as constructed wetlands and treatment channels, which can often store recycled and/or treated potable water, provide habitat for wildlife, and increase access to nature,

educational opportunities, and recreation.

H. Identify opportunities to reconstruct wetlands and saltmarshes where possible, for example during construction projects in areas where these nature-based solutions could deliver climate and other beneficial outcomes to communities.

I. Construct living shorelines, which are protected, stabilized shorelines constructed with natural materials that can sequester carbon and maintain carbon stores of the wetlands they protect, build resilience to sea level rise, improve water quality, and provide coastal access and habitat.

SEAGRASSES AND SEAWEEDS - PRIORITY NATURE-BASED CLIMATE SOLUTIONS

A. Protect and restore seagrass ecosystems¹⁰⁶ from future sea level rise, nutrient pollution, poor water clarity, disease, and disturbance.

B. Protect and restore California's kelp forests in the face of changing ocean conditions.

C. Continue science-based adaptive management of California's statewide network of marine protected areas to protect biodiversity in a changing climate, and further explore the role of these areas in providing resilience to climate impacts.

D. Construct living shorelines, which are protected, stabilized shorelines constructed with natural materials, such as native seagrasses. Living shorelines can support carbon sequestration and storage, build resilience to sea level rise, improve water quality, and provide coastal access and habitat.

E. Consistent with the state's Guiding Principles for Marine Aquaculture in California, support aquaculture and co-management that facilitates California Native American tribes' subsistence, cultural, and commercial practices; a sustainable blue economy; and ecosystem health.

DEVELOPED LANDS - PRIORITY NATURE-BASED CLIMATE SOLUTIONS

A. Integrate nature-based climate solutions into (new and retrofit) community infrastructure investments, particularly pedestrian walkways, housing, schools, transportation, stormwater, and recreational spaces. Examples include, but are not limited to green schoolyards; community compost; community gardens;

bioswales; urban farms; rain gardens; tree-shaded sidewalks and bike lanes; green roofs; bioretention ponds; etc.

B. Protect against habitat loss and fragmentation and reconnect fragmented habitats in developed lands to help maintain carbon sequestration, protect biodiversity and improve connectivity, limit exposure to climate risks, and increase climate resilience.

C. Invest in land acquisition, improvements, urban greening, on site organic material recycling, and high-quality, low-chemical management of parks and green spaces in and around cities to benefit communities who are often the most negatively affected by health impacts related to air pollution and extreme heat caused by urban heat islands.

D. Prioritize protection of public safety by treating vegetation near roads and energy infrastructure using best practices to protect ecological health.

E. Accelerate the adoption of integrated pest management and other safer, more sustainable pest management tools, increasing soil health and alternative practices to combat invasive species.

F. Expand and maintain both urban tree canopy and green spaces to moderate urban heat islands, decrease energy use, and contribute to carbon sequestration. Close the tree canopy gap in low-income/disadvantaged communities, particularly those vulnerable to the impacts of extreme heat, hazardous air quality, and/or with the least access to nature.

G. Utilize place-based tree and plant selection and intensity with the principle of “the right tree for the right place,” to ensure the species selection process considers climate, water, and locally specific circumstances. H. Protect urban trees from pests, disease, and drought for as long as feasible, and seek the highest and best use for trees and other biomass that must be removed due to pests and disease or for valid management purposes.

I. Connect communities with greenways/greenbelts; consider how these landscapes can protect communities (particularly the most vulnerable) from climate impacts such as flooding, fires, heat, etc.

J. Protect and restore urban river/streams, riparian areas, floodplains, seasonal wetlands, and corridors.

K. Increase water-reuse and recycled water for urban green spaces.

L. Increase urban agriculture, and address known barriers such as land access,

water hook ups, lack of local soil creation/availability, fencing, community knowledge and capacity, and local infrastructure for packaging and storage for local and regional markets.

M. Scale community land stewardship, including through neighborhood-run and owned gardens, school food gardens, community clean-ups, residential and community composting, and youth-focused land management programs.

N. Prioritize nature-based climate solutions that protect vulnerable communities from projected impacts of climate change in developed lands (such as those that absorb floodwater, prevent the spread of wildfire, and reduce temperatures) and deliver benefits beyond climate that deliver on community priorities (such as reduced air pollution, increased access to nature, and high road nature-based careers).

O. Implement healthy soils practices, including through native and locally-adapted plant landscaping and mulch and compost application.

P. Increase drought-tolerant yards and landscaping through, for example, native plant species replacements and lawn removal and by adopting, implementing and enforcing the State's Model Water Efficient Landscaping Ordinance.

Q. Ensure brownfield revitalization supports community efforts to become more resilient to climate change impacts by incorporating adaptation and mitigation strategies throughout the cleanup and redevelopment process. These efforts also increase equity, as many climate vulnerable communities live close to brownfields and other blighted properties.

R. Utilize urban forest related efforts such as tree planting and maintenance to help create high quality local jobs where they are needed most and provide training and workforce development opportunities for priority communities to enhance the effectiveness of the urban forest economic sector.

S. Support community land stewards, gardeners, and composters to reclaim empty or unused urban spaces.

T. Restore and conserve lands developed for oil and gas production or other industrial uses, especially those near vulnerable communities, to improve public health, enhance access to nature, and create new economic opportunities.

GRASSLANDS - PRIORITY NATURE-BASED CLIMATE SOLUTIONS

- A. Increase climate smart and regenerative practices on grasslands, such as range planting, riparian restoration, grazing management regimes that work to support positive ecological outcomes and to increase the amount of deep rooted, quality rangeland grasses for improved vegetation for feed, carbon and water storage, and fire resiliency.
- B. Preserve and restore native grasslands to improve carbon storage, biodiversity, and connectivity.
- C. Protect grasslands from development and conversion to more intensive agricultural production.
- D. Apply compost in ecologically appropriate contexts to grasslands to enhance carbon sequestration and storage, increase water quality and availability, and support the overall health of grazed or historically degraded grasslands.
- E. Increase adoption of compost production on farms and application of compost in appropriate grassland settings for improved vegetation and carbon storage, and to deliver waste diversion goals through nature-based solutions.

SPARSELY VEGETATED LANDS - PRIORITY NATURE-BASED CLIMATE SOLUTIONS

- A. Protect sparsely vegetated lands from disturbance and conversion to other land types, particularly where these efforts protect public health and/or wildlife.
- B. Restore native plants and animals on sparsely vegetated lands.
- C. Appropriate use of cultural fire.
- D. Increase use of living shorelines, which are protected, stabilized shorelines constructed with natural materials. Living shorelines include a variety of strategies including beaches and vegetated dunes. Living shorelines can sequester carbon and maintain carbon stores of the wetlands they protect, build resilience to sea level rise, improve water quality, and provide habitat.
- E. Identify beach and dunal habitats that are vulnerable to sea level rise and develop approaches for addressing loss of these habitats, including removing barriers and protecting buffer areas on adjacent undeveloped lands to allow for

inland migration.

WATER - PRIORITY NATURE-BASED CLIMATE SOLUTIONS

A. Protect and restore state waters.

B. Ensure flows in rivers and streams are sufficient to provide key ecological and climate-resilience functions.

C. Bring groundwater basins into sustainable conditions that avoid adverse effects including land subsidence, degradation of water quality, and drying of surface waters.

D. Increase connection of rivers to floodplains, including restoration of riparian corridors.

E. Where practical, remove barriers, such as aging or obsolete dams and undersized culverts, to allow streams to function naturally and restore species' access to cooler water habitats.

F. Reconnect aquatic habitat to help fish and wildlife endure drought and adapt to climate change.

G. Encourage landscape-scale management, including restoration and protection of wetlands, to restore watershed health and improve community resilience.

H. Acquire land for the purposes of constructing setback levees necessary to allow streams to return to a more natural flow regime, slow down overland flow, and enhance groundwater infiltration.

I. Partner with California Native American tribes to preserve, restore, and enhance rivers, lakes, and coastal areas on ancestral lands.

CROSS-CUTTING PRIORITIES FOR CLIMATE SMART LAND MANAGEMENT

- Prioritize and practice equity, including through meaningful community engagement and prioritizing implementation of nature-based solutions that benefit the communities most vulnerable to climate change.

- Advance multi-benefit, collaborative, landscape-level approaches that engage communities and landowners, and incorporate adaptive managements.
- Empower all Californians (and youth in particular) through technical assistance, education, outreach, and training pathways into high road jobs that drive California's restoration economy.
- Align, leverage, and scale resources, particularly through partnerships.
- Partner with California Native American tribes to increase co-management and tribal management authority; restore and enhance natural cultural resources, traditional foods, and cultural landscapes; and support tribes' implementing tribal expertise and Traditional Ecological Knowledges and cultural easements.
- Protect landscapes that deliver multiple ecosystem services, are resilient and likely to persist under future climate conditions, and have high carbon storage capacity.
- Conserve established and potential climate change refugia and corridors, facilitating migration, range shifts, and connectivity to support biodiversity.
- Avoid conversion and advance durable protection measures, such as acquisition and voluntary easement and infill and compact development, as means of preserving carbon sequestration and storage value and building climate resilience.
- Combat invasive species.
- Expand capacity of public and private nurseries and native seed banks to increase amount and variety of seedlings available to be used in restoration and post-disturbance recovery, and to prepare for changing climate conditions.