



Synthesis of California Nature-based Climate Solution Roundtable Dialogues

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CONTEXT AND HIGHLIGHTS FROM THE CALIFORNIA NBS ROUNDTABLE DIALOGUES

By: Jill Brammah, Michelle Passero, Sydney Chamberlin

INTRODUCTION AND CONTEXT

Every region across the globe is being affected by climate change through weather extremes and other impacts. These escalating fingerprints of climate change underscore the need for increased climate action. Science further points to the urgency of the situation: a recent report by the Intergovernmental Panel on Climate Change (IPCC), the world’s leading body to assess the science on climate change, urges strong and sustained reductions of greenhouse gas (GHG) emissions to limit the most catastrophic impacts of climate change— with the UN Secretary General calling the IPCC’s report a “code red for humanity.” Accelerated action to address climate change is needed across all parts of society and sectors of the economy.

Nature has a critical role to play in supporting this action; conserving, restoring, and carefully stewarding our lands and natural ecosystems could provide nearly a third of the emissions reductions needed to limit the average global temperature increase to 1.5 degrees Celsius. Historically, these solutions have been underutilized, but there is increasing recognition and support for these nature-based climate solutions (NBS). At the 2021 U.N. Climate Conference in Glasgow— also referred to as the “Nature COP” — meaningful commitments to NBS were made, including an unprecedented global pledge to end deforestation.

Recognizing the importance of nature, both the U.S. Government and California have substantially increased public funds for NBS. California is developing a [scoping plan](#) to achieve carbon neutrality by 2045; notably, the proposed plan for reaching that goal incorporates NBS. With this unprecedented opportunity and support to integrate nature in climate solutions, there is significant need to understand what it will take to drive action in this space— not solely from a top-down perspective, but from a bottom-up perspective as well.

The goal of the California Regional Dialogues on Nature-based Solutions, summarized in this synthesis, is to advance the understanding of what is needed to accelerate NBS in support of California’s goal to achieve and, ultimately, exceed carbon neutrality. Specifically, we aim to build a deeper understanding of what is needed to scale up NBS across different regions of the state— ranging from technical assistance, funding, and social needs to information sharing— and how state policy and public funding could support such action.

METHODS AND LIMITATIONS OF THESE DISCUSSIONS

In partnership with the USDA California Climate Hub (CCH) and regional partners¹, TNC hosted five virtual regional roundtables covering the North Coast, Bay Area and Central Coast, Southern California, the Sacramento-San Joaquin Delta and Central Valley, and the Southern Cascades and Sierra. As a capstone, we held a final roundtable that included organizations with a statewide policy purview related to NBS.

During the virtual dialogues, digital whiteboards (provided via the [MURAL](#) application) and breakout discussions were used to solicit input on opportunities and challenges associated with NBS (see figure 1) across different regions and jurisdictions within them. We also sought to understand pressing issues for the regions, how the NBS activities and their potential co-benefits might address these issues, and how unintended consequences of activities could be avoided. After the roundtables, a sociologist qualitatively analyzed the responses and data captured in the discussions; see the [Summary of California NBS](#)

¹Udita Sanga is a sociologist with a Ph.D from Michigan State University in Community Sustainability & Environmental Science and Policy

[Roundtable Dialogues](#) for further methodological detail. This white paper is a summary of key findings from the roundtables, as well as a synthesis of the regional dialogues that includes detailed input from each region.

As part of this effort, we sought to engage a balance of interests across landowners, farmers, tribes, local governments, foundations, conservation groups, businesses, and frontline communities. However, this was not always possible due to competing priorities, varying levels of capacity to participate, and the disruptive impact of COVID to our communities. Consequently, this overview and synthesis should be viewed as a beginning of ongoing dialogues that are needed to accelerate climate action and NBS.

STATEWIDE HIGHLIGHTS OF WHAT WE HEARD

The following section highlights several themes and ideas that resonated with us during the roundtables. We share some key activities and topics that were raised across the regions, including specific challenges and solutions that were shared, as well as insights on the programs and examples that are successfully supporting NBS action. A key impression from these discussions is that NBS, and their acceleration, cannot be approached in a silo. They overlap with and relate to many other critical issues and considerations, including housing affordability, health, equity, local economies, biodiversity, and broader conservation efforts, among many others.

ACTIVITIES DISCUSSED

The activities and examples discussed throughout this synthesis reflect some, but not all, of the NBS available, and many associated benefits that could be advanced across California to address climate change. The Nature Conservancy estimated the potential of different land management, conservation, and restoration activities (NBS) to support California's climate goals, and the results are summarized in [*Nature-based Climate Solutions: A Roadmap to Accelerate Climate Action in California*](#). This report estimates that California has up to 28 million acres of land available to reduce GHG emissions and sequester carbon, with an associated emissions reduction potential of up to 514 million metric tons of CO2 equivalent. While the 13 NBS analyzed in the report do not capture all possible opportunities our natural and working lands can provide to address climate change, we used them as a starting point for the NBS roundtable discussions.

Figure 1, below, represents the NBS activities that participants were asked to consider for discussion. During the discussions, participants were most interested in or had the most experience with a subset of these activities, such as avoided conversion of land to more intensified uses, reduced wildfire severity and post-wildfire restoration, urban reforestation, and wetland restoration. Participants also raised activities that were not initially presented, such as regenerative agriculture.

NATURE-BASED CLIMATE SOLUTIONS



Figure 1. Types of nature-based climate solutions that were presented to roundtable dialogue participants for discussion.

VALUE OF NBS “CO-BENEFITS”

Any single NBS activity offers a number of benefits for ecosystems and people. When participants were asked to describe the multiple benefits associated with NBS activities and their relative importance, the lists of benefits were long. Examples ranged from water and air quality benefits to wildlife habitat and jobs, to protection from climate impacts like flood and sea level rise. Many of these “co-benefits” were considered equally as, if not more, important as the climate benefits. They are reflected in Figure 2 below and in more detail in [the Appendix](#).



Figure 2. A word cloud representing the key co-benefits of NBS activities that were highlighted by roundtable participants.



TRIPLE BOTTOM LINE CALCULATOR (IDEA)

A challenge to implementing and gaining support for NBS is that it is difficult to quantify the associated co-benefits to be included in a detailed cost-benefit analysis. Having a system, or online calculator, that defines and quantifies the co-benefits of different NBS activities in a standardized way could elevate the value of NBS and further support communities and decision-makers to choose and advocate for acceleration of these activities.

CROSS-CUTTING ISSUES (I.E., CAME UP CONSISTENTLY ACROSS REGIONS)

Several themes were consistently raised during discussions of how to accelerate action on NBS across the regions. Two of the most common themes were public funding and equity. While funding for NBS activities comes from both private and public sources, participants primarily referred to state funding and to a more limited extent, federal public funding. The issue of equity was also a common theme that came up in different contexts related to housing affordability, public process and input, and the distribution of funds. An overview of these discussion topics, along with related challenges and solutions, are shared below.

PUBLIC FUNDING

→ Some challenges...

While public funding for NBS has increased recently through California’s annual budget and federal programs, participants noted that funding is still insufficient to meet the scale of the problem. Another chronic issue is that public funding is stochastic in nature, exacerbating challenges to follow through with implementation of projects and long-term stewardship. Bond funding is a traditional source of funds for NBS, but the use of these funds is timebound and limited.

Even with available funds, accessing them can be challenging. Grant funds are spread across different agencies and programs, each with different timeframes and requirements that make it difficult for applicants to successfully understand, navigate, and execute these processes. Grant requirements can be overly narrow with respect to the timeframes within which funds must be spent, as well as eligible actions. Furthermore, some participants noted that public grants often require projects to be “shovel ready,” limiting ability to spend funds on planning and longer-term maintenance or stewardship that is essential for the durability of NBS.

→ Potential Solutions...

Participants across the regions offered a variety of suggestions to overcome challenges they face with public funding. To enhance the flexibility of public funding, grant structures could be altered so they become multi-year grants, extending the period of funding, and including more funding for both planning and ongoing maintenance and stewardship. [FEMA’s Building Resilient Infrastructure and Communities \(BRIC\) Program](#) was mentioned as an example of a funding-grant structure that provides multi-year funding and financial support for planning and implementation for NBS activities that could be replicated. The Program’s phased-funding concept allows applicants to secure funding for implementation and

preparation of technical elements, such as environmental review and cost-benefit analyses. Additional suggestions included increasing the availability of block grants to support more flexible use of funds and altering grant programs to offer more funding upfront to grantees, versus only providing payment in the form of reimbursement.

To enhance access to public funds, participant suggestions included creating and staffing a “help line” to support applicants as they navigate the funding application process, as well funding for technical assistance to access funds, developing a centralized online clearinghouse for funding opportunities, and creating a uniform application for grants that support NBS activities.



MULTI-YEAR FUNDING (IDEA)

One challenge for the acceleration of NBS activities and public funding is the limited funding for planning and ongoing stewardship, as well as limited time periods to spend public funds. The Federal Emergency Management Agency phased-funding approach in its Building Resilient Infrastructure and Communities Program could provide a conceptual approach to a longer-term multi-year funding model at the state level that could also pay for planning and potentially longer-term maintenance.

EQUITY

→ Some challenges...

Addressing inequity was consistently raised as an issue that must be addressed to accelerate NBS and promote durable results. Some participants shared that societal inequities become relevant when NBS activities like restoration and conservation increase the cost of housing, exacerbating the limited availability of affordable housing and displacement. Participants also shared concerns that public funding is not distributed equitably across Northern and Southern California or across urban and rural communities, which can undermine the ability to scale NBS consistently across the state.

Another challenge raised was the lack of consultation and input in decision-making from underrepresented communities, such as tribes and frontline communities. They are often not included in discussions and processes, or are brought into decision-making at a late stage, which diminishes the ability to provide meaningful input or influence the outcome.

→ Potential Solutions...

In response to these equity challenges, participants offered a variety of suggestions. To help address potential housing challenges, project implementers could adopt anti-displacement policies and ordinances. Project leaders should ensure decisions follow the lead of local communities and underrepresented communities, so the NBS meet their needs. Another suggestion was to establish land banks to address displacement; land banks are properties acquired to be transitioned for productive uses that reflect community goals.

To reduce inequities in decision-making and input related to NBS projects and funding, participants suggested prioritizing frontline and underrepresented communities in grant solicitations and providing information in multiple languages. California’s [Transformative Climate Communities Program](#) was cited as a good model. Another suggestion was to use community stabilization toolkits to codevelop NBS

solutions and support frontline and underrepresented communities.¹ Prior to designing and implementing projects, impacted communities should be consulted to identify potential impacts and how to remedy or avoid them. During this process, project proponents should reference other communities where similar projects have been implemented to gain lessons learned. Tribe-to-tribe discussions and tribal-led approaches to support NBS should also be supported by state funding, processes, and project development.

To help address equitable distribution of funds across Northern and Southern California and urban-rural communities, block grants could be distributed equally to counties or regions.



TRANSFORMATIVE CLIMATE COMMUNITIES (MODEL)

The Transformative Climate Communities (TCC) Program was raised in discussions as a positive model that helps address climate change and equity. The Program funds the development and implementation of neighborhood-level, transformative, climate community plans and projects to reduce green-house gas emissions in California's low-income and underrepresented communities. This model could be further scaled to support equity and climate benefits for these communities, including NBS.

REGIONAL DISCUSSION HIGHLIGHTS

The regional discussions spanned five regions of California: North Coast, Sacramento-San Joaquin Delta and Central Valley, Southern Cascades and Sierra, Bay Area and Central Coast, and Southern California. Since the implementation of NBS occurs on local scales, operationalizing these strategies at scale will require a suite of strategies and policies that can meet needs at both regional and local levels. The selected regions have similar ecological and population characteristics and match those considered in previous work by The Nature Conservancy. The five regions are pictured in Figure 3.

¹ Examples include the [Lower Los Angeles River Community Stabilization Toolkit](#) and the San Francisco Planning Department's [Community Stabilization initiative](#).



Figure 3. Map depicting the areas covered by the five regional roundtable discussion.

Below, we share highlights from the regional discussions. In most regions, multiple NBS activities were discussed, including challenges and proposed solutions. In this overview we focus on one or two topics that engendered a lot of discussion among participants for each region. The full range of topics and ideas that were shared can be found in the Summary of California NBS Roundtable Dialogues and Appendix in parts two and three of this report.

NORTH COAST

The North Coast roundtable event included co-hosts from the North Coast Resource Partnership (NCRP) and the Sonoma County Water Agency. This is a region rich in natural resources. Forest management, and urban forestry, while not the only NBS that could be implemented in the region, were key topics during discussions alongside agroforestry, avoiding land conversion, riparian and wetland restoration, woodland restoration, and the use of cover crops. However, reduced wildfire severity— which is highlighted in detail below— was the most actively discussed NBS during this roundtable.

HIGHLIGHTED NBS: REDUCED WILDFIRE SEVERITY

→ Some challenges...

Participants identified several key challenges to scaling actions to reduce wildfire severity. A significant challenge includes the costs, time, and complexity to attain the permits needed to undertake risk reduction activities like prescribed burns or mechanical thinning. On a related note, air quality concerns were also raised as a barrier to undertaking prescribed burns. Equity issues were also discussed, as some participants noted a historic lack of input from frontline and underrepresented communities, including tribes, and a lack of indigenous knowledge integrated into fire and resource management. The absence of long-term and comprehensive, regional planning and sustained funding for ongoing maintenance, management, and technical assistance were also identified as challenges.

→ Potential Solutions...

Participants identified and discussed a number of potential solutions to help address these challenges. For permitting challenges, programmatic permitting (e.g., for CEQA) arose as a potential pathway to expand treatments based on best management practices. Participants also suggested expansion of the permitting efficiencies developed under the California Vegetation Management Program to address permitting barriers.

The California Department of Conservation's [Regional Forest and Fire Capacity Program \(RFFCP\)](#) was identified as a good example to promote more comprehensive planning for fire and resources management. Some participants noted that expanding this program for larger scales and longer terms could be beneficial and empower local governments to shift toward outcome focused goals that could extend beyond fuel reduction. Participants also underscored the importance of more demonstration projects and suggested their expansion through programs like the California Department of Water Resources' [Flood-Managed Aquifer Recharge \(Flood-MAR\) Program](#), which enhances groundwater recharge and can mitigate impacts of drought across agricultural and forest lands.

For longer-term, more consistent funding and access to technical assistance, roundtable participants suggested adjusting programs like those funded under the California Climate Investments so they can provide multi-year and longer-term funding. Participants also pointed to the importance of investment in workforce training and continued community support for entities like the Fire Safe Council.

In terms of input from priority and underrepresented populations, participants discussed prioritizing tribes and priority populations in grant solicitations and early in the development of plans and programs and revisiting California's Cal Enviro Screen criteria for greater inclusion of rural communities.

North Coast region participants identified two successful regional examples that can serve as models in addressing the barriers discussed above. One is the [North Coast Resource Partnership](#), which is a long-term collaboration among Northern California Tribes, counties and other diverse stakeholders that aims to enhance the watersheds and communities of the North Coast region. This partnership is a working example of trust building amongst diverse parties, collaborative comprehensive planning, and more inclusive processes for resource management. The [North Bay Forest Improvement Program](#) was also discussed as a good model by participants. This partnership between the Rebuild North Bay Foundation and the five Northern California Resource Conservation Districts (RCD) brings critical resources to treat wildfire hazards on private properties throughout the North Bay region. The program focuses on serving underrepresented communities and provides financial incentives to landowners to reduce wildfire risk and promote forest health.



NORTH BAY FIRE IMPROVEMENT PROGRAM (MODEL)

The North Bay Fire Improvement Program offers resources to private forest landowners to treat wildfire hazards on their properties. Funds are provided to support the planning and implementation of projects to promote forest health, in addition to financial incentives for landowners to participate. The funds for the program are available through Proposition 68 and the CAL FIRE Wildfire & Forest Resilience Task Force's Small Private Landowner Working Group. The program focuses on underrepresented communities and supports the planning and implementation of these projects to promote forest health. This model could be replicated with available funds to incentivize landowners to implement additional NBS activities on their properties.

SOUTHERN CALIFORNIA

The Los Angeles County Chief Sustainability Office and University of Southern California Schwarzenegger Institute for State and Global Policy (USCSI) joined TNC in co-hosting the Southern California roundtable event. The Southern California region includes the populous Los Angeles metropolitan area— the second most populous such area in the United States— and avoiding land conversion to more intensive uses, highlighted below, was the predominant topic discussed by participants. Additional topics of discussion included composting, riparian restoration, urban forestry, wetland restoration, and the use of cover crops.

HIGHLIGHTED NBS: AVOIDED LAND CONVERSION

→ Some challenges...

Avoided land conversion was highlighted by participants as an important NBS for the region that also faces challenges to scaling. Participants in the Southern California roundtable event identified the lack of availability and affordability of both housing and transportation as challenges. The combination of high property values and variable support for redistricting development add to this challenge. Additionally, participants noted that public funding for the region is insufficient in meeting the region's needs, further exacerbating these challenges.

→ Potential Solutions...

Participants identified several potential solutions around the housing, transportation, and development challenges laid out above. Voter influence on local zoning decisions— and voting-related initiatives, like Save Open Space and Agricultural Resources (SOAR)— arose as key opportunities to leverage influence.

Given California’s shortage of affordable housing, land conservation and development can be at odds. Participants in the Southern California regional roundtable pointed to this tension, noting that the use of urban growth boundaries— while sometimes politically challenging— can serve as an effective strategy to avoid the conversion of land to more intensive uses.

Additional recommendations flagged by participants included increasing public funding for conservation in the region using block grants and undertaking an information campaign to help increase and promote awareness of the benefits associated with land conservation, including groundwater recharge and other co-benefits.



SAVE OPEN SPACE AND AGRICULTURE RESOURCES (MODEL)

The Save Open Space and Agricultural Resources (SOAR) initiative is a tool that gives voters the decision-making power on whether to rezone open space, agricultural or rural land for development. This initiative is in place in eight California cities and has the potential to spread to additional cities and counties. This model could help avoid land conversion, protect existing carbon sequestration, and allow communities to decide what’s best for them.

SOUTHERN CASCADES AND SIERRA

The Nature Conservancy and USDA California Climate Hub co-hosted the Southern Cascades and Sierra roundtable event with the Sierra Nevada Conservancy and the UC Berkeley Rausser College of Natural Resources. Like the North Coast region, the Southern Cascades and Sierra region is characterized by heavily forested areas and rich natural resources. Reduced wildfire severity arose as a key discussion topic and is highlighted below. Additional discussion focused primarily on avoided land conversion, forest management, post-wildfire reforestation efforts, urban reforestation, wetland restoration, and wood products development.

HIGHLIGHTED NBS: REDUCED WILDFIRE SEVERITY

→ Some challenges...

Participants flagged several barriers related to efforts to reduce wildfire severity. Similar to issues raised in the North Coast roundtable discussion, these barriers included complex permitting processes that are costly and timely, and a lack of available workers to implement management interventions to reduce wildfire severity. Participants also noted several challenges related to funding, including a lack of sustained funding as well as the infrastructure or markets for forest biomass (i.e., the vegetation removed from forests to reduce wildfire severity). It was also noted that there is a public bias around the appearance of ‘healthy’ forests, and some of the forest management interventions that reduce wildfire severity, such as prescribed burns, do not fit into that picture of ‘healthy forests.’ This perception is compounded by concerns around poor air quality impacts because of prescribed burns.

→ Potential Solutions...

Ideas for removing barriers and addressing challenges related to implementing interventions that reduce wildfire severity included supporting ecological restoration workforce development programs, and scaling NEPA and CEQA to include larger landscapes and provide more exemptions. Participants also suggested additional support and scaling up public-private partnership that look more holistically at the different impacts and benefits of action to increase participation.

The roundtable participants discussed several opportunities to innovate the wood products and biomass market to incentivize greater participation in activities to reduce wildfire severity. The United States Forest Service has recently announced a fund to distribute wood innovations and community wood grants. The intention of the grant program is to expand the use of wood products, strengthen emerging wood markets, and support active management to improve forest health. This is a fund that could be leveraged by industries in California or replicated by the state. Participants also suggested creating a wood products database or map to give consumers more information about the wood products industry.



NBS TOOLKIT (IDEA)

A consolidated nature-based climate solutions toolkit could be developed to support landowners and decision makers to plan and implement NBS at different scales. The toolkit would provide valuable information about what types of NBS would be most effective in different locations, available tools to plan and quantify NBS, and funding opportunities to quantify and implement these activities. This type of information is currently only available in disparate locations, making it difficult to view the bigger picture of how NBS could be connected well.

BAY AREA AND CENTRAL COAST

The Bay Area and Central Coast roundtable event included co-hosts from Santa Clara Valley Open Space Authority and the Association of Monterey Bay Area Governments. The San Francisco Bay Area and Central Coast is a populous area that hosts a variety of habitats and vegetation, ranging from coastal prairie scrub to redwoods and valley oaks— and from rolling hills inland to coastal mountains that lead to the ocean. Participants discussed challenges and solutions to many types of NBS activities. Below we highlight participant input related to urban reforestation and changes in forest management. Participants shared the importance of the many co-benefits that are associated with urban reforestation, including improving public health, reducing energy consumption, increasing carbon sequestration and more. Participants also flagged the urgent need for changes in forest management, noting the declining health of California's forests.

HIGHLIGHTED NBS: URBAN REFORESTATION

→ Some challenges...

Challenges raised during the roundtable related to urban reforestation included a lack of community consultation when undertaking urban reforestation projects. Some participants suggested successful projects need to be led by communities and priority populations, who best understand the needs of their communities and the potential negative impacts, such as displacement or gentrification, that could occur if a project is not planned or implemented well. Participants identified similar challenges around the need for holistic planning for urban reforestation, noting that these efforts should ideally be considered as part

of a full system for supporting communities. For example, urban greening efforts can be done in parallel with the development of fair housing policy. Finally, participants pointed to the lack of resources for urban reforestation. Funding is needed not only for implementation, but also for ongoing tree and vegetative maintenance to ensure these projects do not become liabilities or dangers for communities.

→ **Potential Solutions...**

Participants discussed potential solutions that could address many of the outlined challenges to implementing urban reforestation projects. Participants suggested longer and more sustained funding periods to support projects and noted that early consultation with priority populations on urban reforestation projects would improve community and climate outcomes. The Transformative Climate Communities (TCC) Program, funded through the California Strategic Growth Council and mentioned earlier, was highlighted as a good model for engaging communities in the planning and decision-making for more equitable climate solutions, including NBS. The TCC Program empowers the communities most impacted by pollution to lead projects to reduce greenhouse gas emissions and local air pollution. This model could be replicated or expanded for greater impact.

Participants also recommended improved interagency coordination and communication to take a more holistic view of development and planning, and to prioritize urban reforestation and greening in local climate action plans. A mapping tool such as [the Bay Area Greenprint](#) could be utilized in these coordination efforts. The tool provides information about green spaces in the Bay Area, including data layers for air quality, urban heat, and recreation, to help decision makers and developers make better-informed decisions that support integrating nature into infrastructure, policy, and planning.

HIGHLIGHTED NBS: CHANGES IN FOREST MANAGEMENT

→ **Some challenges...**

Participants highlighted several challenges related to changes in forest management practices, which include actions such as post-wildfire reforestation, prescribed burns, and selective vegetative clearing, noting that there are awareness and education gaps around the ecological and social benefits associated with changed forest management practices. Some of these are perpetuated by more frequent and extreme forest fires, which have created concern that reforestation and prescribed burns may increase fire risks or cause other unintended impacts such as harming habitat, forest health, and water quality or reducing property values. Other barriers to changes in forest management included lack of funding or incentives for altering management practices or providing certification (e.g., Forest Stewardship Council), a long return on investment, cumbersome permitting processes for harvest and restoration, and a lack of collaboration across jurisdictional boundaries for management or exchange of best management practices.

→ **Potential Solutions...**

Providing education to the public and decision-makers around the benefits associated with changes in forest management practices could remove some of the existing barriers to implementation. For example, materials could be developed and provided to communicate the benefits and importance of prescribed fires in reducing the frequency and intensity of future fires, and to highlight the difference between managed burns and mega wildfires. Perspectives on selective harvesting may also be changed by sharing the ecological and potential economic benefits of this management practice. Additionally, proactive efforts to engage diverse landowners and managers with properties of all sizes may increase interest in these practices. Building shared objectives, values, and a community of collaboration would enable these landowners and managers to make changes to their properties.



BAY RESTORATION REGULATORY INTEGRATION TEAM (BRRIT) (MODEL)

The Bay Restoration Regulatory Integration Team (BRRIT) is an example of cross-agency collaboration to improve and implement restoration projects and increase efficiency of multi-jurisdictional permitting processes. Most notably, the BRRIT offers pre-application support and feedback prior to applicants submitting permit applications to each individual BRRIT agency. This process could serve as a conceptual model for other regions to improve permitting processes and reduce overall costs of NBS implementation, making it easier to accelerate action.

SACRAMENTO-SAN JOAQUIN DELTA AND CENTRAL VALLEY

The Sacramento-San Joaquin Delta and Central Valley roundtable event included co-hosts from the Sacramento-San Joaquin Delta Conservancy and the East Merced Resource Conservation District. As a region with abundant agricultural lands, the discussion around compost application and the use of cover crops was especially active. Participants also focused on challenges and improvements associated with wetland restoration. Below we highlight participant input related to these keenly discussed NBS activities, as well as potential solutions or models to improve or replicate implementation of these activities in the region.

HIGHLIGHTED NBS: COMPOST APPLICATION AND COVER CROPS

→ Some challenges...

Roundtable participants identified several challenges and barriers preventing greater application of compost and cover crops on agricultural and other land types. These include poor public perception and understanding of these methods, especially of the use and benefits of cover crops. This challenge is further exacerbated by the limited availability of carbon markets and protocols or methods to measure the carbon sequestration benefit of these activities. Additionally, implementation of these activities has raised concerns about potential pests that could accompany their application and concerns of water availability during a state of ongoing drought.

→ Potential Solutions...

Participants in the region recommended several potential solutions to address challenges related to compost application and cover crops. Extension education programs were suggested as a strategy to address public perception of these activities. Such programs can help landowners and others understand the potential mutual benefits of adopting these practices for healthy soils, productive lands, and sustainable communities. Similar efforts could provide more direction and guidance on how to implement these activities. For example, the Natural Resources Conservation Service (NRCS) of the United States Department of Agriculture (USDA) developed [Organic Conservation Planning Guides](#) for farmers to learn how to incorporate organic practices into their agricultural planning for improved soil health and better yields. A similar guide, focused on compost application and cover crops, could be developed and shared.

Better identifying and addressing the science gaps surrounding these activities could support education and facilitate the implementation of these activities. Participants also noted that pooling community equipment and building cooperatives could help make the application of compost and cover crops more feasible. The Marin Carbon Project, a partnership between local agricultural, conservation, and county organizations, assists land managers in developing plans to implement practices that will store carbon and mitigate climate change while concurrently improving soil health and on-farm productivity. A similar

model in other regions could provide farmers and ranchers with the knowledge and tools to implement similar projects on their properties. Programs that could provide financial and technical assistance for the planning, design, and implementation phases of the work could also make positive impacts.

HIGHLIGHTED NBS: WETLAND RESTORATION

→ Some challenges...

Wetland restoration was another topic that was vibrantly discussed. Some of the perceived challenges of this NBS were similar to others, including concern over water availability and water quality— with a highlighted concern that wetland restoration projects can sometimes be perceived as competing with agriculture for access to water. The upfront costs associated with planning and designing restoration projects, followed by maintenance costs, were also as key barriers. Participants noted that they saw the lack of federal and state resources available for this type of work as a contributing factor. Challenges to implementation are additionally compounded by regulatory barriers, which add time, cost, and complexity to projects. For example, a California wetland restoration project that must comply with CEQA regulations may also require additional permits from the Department of Fish and Wildlife, increasing complexity, cost to implement, and time to get shovels to the ground. Participants also shared that without additional quantitative information about the benefits from these projects, the ecosystem services they provide, and the carbon storage potential they offer, they are difficult to implement.

→ Potential Solutions...

Participants proposed several pathways to overcome the challenges associated with wetland restoration. One suggestion pointed to the creation and approval of a compliance protocol for wetland restoration in California's cap-and-trade program. Because current carbon market prices for wetland restoration are low, the addition of this type of project to the regulatory market could spur greater implementation and increase the prices for this type of NBS.

Participants also noted the need for increased connection between interdisciplinary science experts, suggesting that dismantling the silos between ecologists, climate scientists, and other researchers could accelerate the development and implementation of solutions; using science to clearly illustrate the positive feedback loop between wetland restoration and improved hydraulic systems could lead to increased public support for this NBS. For example, the Public Policy Institute of California has a [Water Policy Center](#) focused on innovative water management solutions. One of their reports explores the potential for water-limited agriculture in the San Joaquin Valley. This report, and others like it, can help alleviate the perception that wetlands must compete with agriculture for water.

The California Department of Conservation developed a [Watershed Coordinator Grant program](#) that has funded watershed coordinator positions in different geographies. The purpose of these roles is to build broad coalitions of government, stakeholders, and communities to develop plans and projects to improve watershed health and meet groundwater sustainability goals. A similar type of position could be created to plan NBS projects, including watershed restoration, cross-regionally.



IDEA: *Develop systems in the Central Valley to recycle and filter water through wetland restoration. Such practices could help restore ecosystems and local climates while cleaning water, improving soil moisture, and ameliorating drought impacts.*

CONCLUSION

These regional roundtable discussions on NBS underscored the value of our natural and working lands, not only for climate change, but also for the many additional multiple benefits they provide. They revealed some common issues, that if addressed and supported by the state, could help scale up action to address climate change and support NBS that strengthen and benefit communities across California. The regional nature of the discussions also highlighted the nuances that exist across the state and the importance of soliciting more localized input on how these solutions should take into account and help address regional concerns and goals. We hope participants and decision-makers find this synthesis useful and encourage ongoing regional dialogues as a key part of scaling up NBS and climate action.