February 15, 2022

California Natural Resources Agency
715 P Street
Sacramento, CA 95814
Submitted electronically: CaliforniaNature@resources.ca.gov

RE: **Draft "Pathways to 30x30" Plan**

Dear California Natural Resources Agency staff:

The California Ecological Restoration Business Association (CalERBA) appreciates the opportunity to provide comments to the California Natural Resources Agency (CNRA) on the strategic draft plan "Pathways to 30x30" (Pathways Plan). CalERBA applauds the leadership of Governor Newsom's Executive Order N-82-20 (EO) and CNRA to implement a goal of 30% state land and water conservation by 2030. CalERBA represents California's growing industry of companies in the business of land stewardship and delivering wetland, stream, water quality, and species restoration projects in collaboration with conservationists, NGOs, landowners, and regulators. Member businesses support job creation and bolster the state's natural infrastructure through accountable mitigation, restoration, coastal and flood resiliency, and biodiversity outcomes. The state's economy and environment stand to greatly benefit from expansion of the ecological restoration industry, which brings skilled jobs to rural regions and reinforces the resiliency of natural systems.

CalERBA members' investments accelerate conservation and fill in gaps where public funding and efforts on public lands alone are not enough. We strongly believe that California must enlist both private and public lands and funding to achieve 30% conservation by 2030. Ecological restoration markets incentivize private landowners to not only conserve land, but also generate the environmental uplift critical to the biodiversity goals of the EO. Wetland mitigation and conservation banks alone have resulted in the dedication of hundreds of thousands of acres towards restoration outcomes, with an individual bank site often covering thousands of acres.[1] Resource uplift at bank sites must be monitored and measured to prove performance success, which makes banks accountable and dependable conservation towards 30x30 goals. Considering these benefits, the state has an immediate opportunity to supplement the strategic actions identified in the Pathways Plan by improving the current review processes for advance mitigation projects developed under federal and state programs in California.

Based on our collective decades of experience implementing durable ecological restoration projects, we respectfully submit the following comments and recommendations for your consideration. First, we offer our strong support for this initiative and outline how our industry can help the state implement the Pathways Plan. Second, we offer recommendations centered on the three themes of: i) value of restoration for impactful conservation, ii) the strategic actions identified in the Pathways Plan, and iii) importance of financial considerations and funding. Lastly, we close with a few short recommendations

[1] *See* https://caecologicalrestoration.org/member-projects and https://ribits.ops.usace.army.mil.

on specific details of the Pathways Plan. These comments and all positions from CalERBA are informed by our report *Principles of Nature-Based Solutions*, enclosed with this comment letter.

I. Support for the Pathway Plan's Key Objectives and Core Commitments.

CalERBA strongly supports the Pathway Plan's Key Objectives and Core Commitments outlined on pages 11-23 of the draft report. As land stewards and ecologists by training and practice, we understand well the myriad of valuable ecological benefits that restoration and conservation efforts provide and strengthen in our communities' ecosystems. In particular, our members' projects help "Protect California's unique biodiversity" (Objective 1) and "Conserve places that help California achieve carbon neutrality and/or build climate resilience" (Objective 3).

CalERBA members commonly deliver restoration projects under offset programs or a direct procurement model that seeks a specific ecological outcome for a protected resource. While the restoration project may only receive credit for the single protected resource, the project's siting, restoration work, and long-term protection produce benefits that cut across a range of ecological functions and multiple species' needs. For example, a wetland restoration bank is valued for the wetland habitat it restores or a conservation bank for the specific endangered species habitat it provides. But, these bank sites are also offering needed habitat for other plant and animal species, thus boosting biodiversity, and the sites are often located to fill conservation gaps on private lands and repair ecosystem services. Notably, under the watershed approach,[2] many wetland and stream restoration projects are positioned to reconnect historic floodplains, which directly increases resiliency of local communities against climate change fueled extreme weather events.

CalERBA also applauds the Core Commitment on safeguarding economic prosperity, especially the principles to "use voluntary and collaborative approaches to identify and conserve lands and coastal waters," and "provide training and workforce development opportunities for jobs in resource protection, conservation, and outdoor access related fields." CalERBA believes that ecological uplift equals economic uplift for California. Indeed a recent state analysis of landscapes conserved by the California Rangeland Trust found that over 300,000 conserved acres provide $1Billion annually in various ecosystem services and that conservation easements return $3.47 for every dollar invested.[3] Other recent studies have found that wetlands provide billions in storm protection value and can offer a geographic region up to $4.2B per year in sediment, pollutant, and safe drinking water benefits.[4] In short, investing in our natural systems and places will itself provide economic prosperity to the state.

Our industry and members are an example of the promising jobs, economic returns, and capital investment opportunities behind the inter-disciplinary field of resource protection and conservation. Nationally, the ecological restoration sector that CalERBA members operate within produces an

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[2] *See* 33 CFR 332.3.

[3] Butsic, V., Huntsinger, L., Johnsen, R., *Evaluating Ecosystem Services: Values & Return on Investment of Conservation Easements held by the California Rangeland Trust*. Available at: https://rangelandtrust.org/ecosystem-service-study/ (last accessed 2.7.22).

[4] *See* Tariq Aziz, Philippe Van Cappellen. *Economic valuation of suspended sediment and phosphorus filtration services by four different wetland types:* A preliminary assessment for southern Ontario, Canada. Hydrological Processes, 2021; 35 (12) DOI: 10.1002/hyp.14442; Robert Costanza, Sharolyn J. Anderson, Paul Sutton, Kenneth Mulder, Obadiah Mulder, Ida Kubiszewski, Xuantong Wang, Xin Liu, Octavio Pérez-Maqueo, M. Luisa Martinez, Diane Jarvis, Greg Dee, *The global value of coastal wetlands for storm protection*, Global Environmental Change, Volume 70, 2021 (https://www.sciencedirect.com/science/article/pii/S0959378021001072).

estimated $25 billion in annual economic output and supports 225,000 jobs and growing.[5] To put those numbers in perspective, the ecological restoration industry now offers more job opportunities than the well-known iron and steel, logging, and coal mining sectors.[6] We fully agree that a trained workforce initiative is necessary to fill these job roles and re-tool workers from other rural sectors toward a rewarding career in restoration. CalERBA industry leaders have already started to invest in this training initiative at a regional level and we welcome the opportunity to coordinate with CNRA at the state level to maximize and scale this effort.[7]

Lastly, CalERBA offers our strong support for the strategic action "Institutionalize Advance Mitigation." CalERBA members are experts in delivery of advance mitigation from our years of successful mitigation development under wetland, stream, and conservation banks, and more recently members' experience collaborating with CalTrans and the Project Delivery Team on advance mitigation options and templates. In implementing this strategic action, we urge all state agencies to enforce CalERBA's durability, science-based, and equivalency principles in requirements for all advance mitigation models and mechanisms, including NCCPs, HCPs, RCISs, and banks. For further discussion on our support for advance mitigation and restoration to reduce temporal loss, we refer to pages 12 through 14 of the enclosed *Principles*.

II. Recommendations to Strengthen the Pathways Plan:

a. The Unique Value of Ecological Restoration.

CalERBA appreciates the Pathway Plan's vision for 30x30 as a mosaic of conserved areas working in concert to deliver connectivity and conservation outcomes at scale. Ecological restoration, i.e. the generation of ecological uplift, is an essential part of creating the 30x30 mosaic and reversing unique habitats' and ecosystem functions' degradation to achieve biodiversity and resiliency results. Looking at CalERBA members' portfolios of projects, we are specialists in siting, constructing, and managing ecological restoration projects at scale and adjacent to or maximizing existing conservation designations. We see that restoration is often the final but critical outstanding piece in landscape or watershed scale conservation efforts, yet it is left for last and hardest to complete because successful restoration typically requires greater planning, time, and upfront cost expenditures than traditional conservation or preservation efforts.

To help offset these risks and incentivize valuable restoration investments under the 30x30 framework, CalERBA recommends that the Pathways Plan elevate the role of restoration in the plan. We acknowledge that the Pathways Plan does include mentions of restoration throughout, and we particularly support reference in the "conserved" definition via "land and coastal waters… both intact and *restored*." However, we currently read the Pathways Plan to characterize restoration as on par with preservation efforts. Preservation of unique and irreplaceable resources and areas is essential, but once preservation options for conservation are exhausted, restoration is necessary to provide ecological uplift in degraded areas and maximize their conservation value. It would be a missed opportunity for the Pathways Plan to not acknowledge this value of restoration activities and incentivize investment towards restoration under the 30x30 framework.

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[5] BenDor T, Lester TW, Livengood A, Davis A, and Yonavjak L. (2015) Estimating the Size and Impact of the Ecological Restoration Economy. PLoS ONE 10(6): e0128339. https://doi.org/10.1371/journal.pone.0128339.
[6] *Id.*
[7] *See* the Ecological Restoration Workforce webpage available at https://www.ecologicalworkforce.org/ (last accessed 2.7.22).

Specifically, CalERBA recommends that the state adopt a policy preference for restoration or a sliding preference scale for restoration, establishment, enhancement, and preservation, accounting for warranted exceptions such as unique or a protected species' stronghold habitat that warrants protection and preservation. For language on this preference, the agencies should consider the 2008 Compensatory Mitigation Rule's (2008 Rule) provisions at 33 CFR 332.3(a)(2), including: "Restoration should generally be the first option considered because… the potential gains in terms of aquatic resource functions are greater, compared to enhancement and preservation." When preservation is acceptable, state agencies should note that preservation still entails certain restoration activities and skills, particularly the long term management actions required to ensure a site remains preserved and ecologically productive. Beyond this preference, CalERBA additionally recommends that CNRA and partner agencies commit to programmatic policy incentives and "cutting green tape" targeted actions to expedite ecological restoration project approvals.

b. The Meaning of Durability & Mechanisms to Ensure Durability.

CalERBA supports the Pathways Plan's inclusion of a definition for "conserved" to consistently measure which lands or waters may count or not count towards the 30x30 goal, and use of the phrase "durably protected or managed" within the conservation definition. Durability is a leading fundamental principle for CalERBA and documented within CalERBA's enclosed Principles for Nature-Based Solutions. CalERBA members are in the business of delivering and managing restoration projects that meet stringent "durability" criteria. We [*embrace and support*] these high standards to achieve durability of industry projects because we know such measures and mechanisms are necessary for perpetual management and protection of restored conservation areas. Specifically, our experience shows that durability is achieved through a multi-faceted approach of real estate site protection (typically through a conservation easement), design and construction for self-sustaining ecosystems, adaptive management plan, long-term management plan, and, critically, a financial endowment with adequate funding to support perpetual stewardship (see (c) below for further discussion on this point).

The Pathways Plan addresses the real estate site protection factor primarily through discussion of conservation easements and designations that will classify an area as "durably protected or managed." The report hints at the other factors underpinning durability, i.e. management planning and funding, with the sentence "Effective conservation is an active process that requires continued monitoring and caretaking," but does not go into specific requirements. CalERBA recommends that the Pathways Plan supplement the conservation designations discussion with additional criteria focused on the planning, long term stewardship, and funding that enable "continued monitoring and caretaking." Backing durability with these proven safeguards would also help the state implement the Strategic Action to "Evaluate Conservation Outcomes and Adaptively Manage," which outcomes are difficult to monitor in areas that only have a conservation easement in place and lack management plans and funding.

Similarly, under action 14 "invest in long-term adaptive management, monitoring and stewardship," we recommend adding a sub-action(s) solely focused on effective proven financial models and tools to fund this perpetual stewardship. We encourage CNRA to consider the durability requirements for wetland, stream, and conservation banks as instructive examples and consider precedent from the 2008 Rule and federal and state banking guidance documents, including Bank Enabling Instrument's template provisions on site protection, financial assurances, and endowments. We welcome the opportunity to provide additional practitioner information as helpful and support any training and webinars, particularly on best practices for financial assurance mechanisms and endowments.

c. The Importance of Financial Requirements and Funding Eligibility to Act on the Pathways Plan.

Financial funding is a prerequisite for successful conservation at every stage of the effort. First, upfront capital investment and short term assurances are needed to finance the property acquisition and restoration activities. Then, an endowment or trust is needed to finance perpetual stewardship monitoring and maintenance to ensure durability. Importantly, financial concerns for conservation do not stop at property acquisition. While the Pathways Plan mentions financial incentives and strategic actions to align investments and increase conservation easements, the plan does not dedicate discussion or outline requirements on the proven financial mechanisms necessary to achieve durability. Based on our experience implementing mitigation in compliance with federal and state requirements, CalERBA recommends revising the definition of "conserved" and "durably managed" to include reference to short- and long-term financial mechanisms, and correspondingly revise several strategic actions to incorporate financial considerations, education, and training. We recommend reviewing mitigation and conservation bank requirements for proven examples of the permissible types of short term assurances and long term endowment models.

Lastly, private investment must be leveraged alongside limited public and philanthropic funding to accelerate conservation on private lands and achieve our 30x30 goals.[8] CalERBA supports the Pathway Plan's mention of public-private partnerships under the Strategic Action to "Align Investments to Maximize Conservation Benefits" as "innovative solutions." We recommend building on this theme by directly acknowledging the current impact and potential role of private capital to supplement periodic budget funding. We also urge the state to maximize efficiencies and that application of dedicated public fund commitments identified on page 63 of the Pathways Plan towards 30x30 related efforts through i) the use of RFPs and other creative procurement mechanisms and ii) flexible funding eligibility that allows the private sector to participate and compete with proposals.

III. Brief Comments on a few specifics of the Pathways Plan.

a. CalERBA supports the state's investment in the use of technology and databases to track progress towards 30x30 goals, particularly the development of the CA Nature hub and RAPTR tracking database. To the maximum extent possible, we recommend integrating these initiatives with existing tools, particularly RIBITS. We want to also use this opportunity to highlight two prior CalERBA recommendations[9]:

1. Develop a publicly available dashboard that tracks statewide progress on ecological restoration permitting and priority projects. This dashboard would provide an accountable, transparent record on permitting times across project types and track application of fees collected for agency services towards staff training, permit review, and program oversight. CA may look to build on and improve the federal permitting dashboard framework. The dashboard should also monitor progress on restoration and mitigation projects that qualify towards the state's 30 by 30 goal.

[8] Consider the opportunity for the environment and more efficient use of public dollars if our biodiversity and conservation policies tap into the expanding ESG movement of institutional investors and funds with an environmental mission. *See https://www.esa.org/wp-content/uploads/2020/11/ESA_IssuesInEcology_no.22.pdf*.

[9] *See Cutting Green Tape to Achieve 30x30*, November 2020, available at: https://img1.wsimg.com/blobby/go/db964621-d130-41a2-bec9-dd5503ee92cd/downloads/CalERBA%20CGT%2030X30%20White%20Paper%20(Nov%202020).pdf?ver=1643383006798

State Agencies should coordinate with the Army Corps' RIBITS platform to provide a special designation for pending mitigation projects designated as a high priority for meeting EO goals.

2. Through the dashboard or other public notice mechanism, send clear market signals on mitigation and restoration needs for federal and state agency objectives and state infrastructure plans. Facilitate a forum for public, NGO, and private sponsors of restoration to convene and coordinate on restoration responses and the goals of state programs, such as the RCIS. To the extent possible, CA should also consider the requirements and standards for mitigation projects established by federal partners to maximize efficiencies and coordination across programs. When the fundamental requirements of mitigation align at the state and federal levels, restoration providers are incentivized to pursue more multi-benefit projects with diverse ecosystem services since there are multiple regulatory programs driving demand and consistency across programs.

b. CalERBA recommends revising the term "Voluntary Conservation Easements" in Strategic Action 2 to "Increase the Use of Conservation Easements." By practice, conservation easements are entered into willingly and cooperatively by landowners and easement holders. Typically, through the facilitation of a conservation sponsor, an economic incentive to the landowner allows an easement to be placed on title of the property, and may include but is not limited to restoration, preservation, management in perpetuity.

c. CalERBA recommends that federal and state agencies evaluate the utility and implementation of Safe Harbor Agreements (SHA), which are referenced in strategic action 15.4. CalERBA members have not seen SHA's widely used or embraced (by agencies or landowners); however, we believe these can be an effective conservation tool if applied to the "neighboring landowners" of conservation and restoration projects when listed species are involved.

d. CalERBA applauds the dynamic presentation of the Pathways Plan with a mix of text, call-out boxes, photos and other visuals to better convey the Plan's objectives and engage the reader. However, we see an opportunity to further tailor the visuals to fully represent the scale of restoration needed to implement the Plan's objectives and educate the reader on more complex concepts, requirements, and project models through the use of graphics. Specifically, CalERBA recommends incorporation of: images of large scale restoration sites from various views showing the level of civil construction activity that is typical at hundred to thousand acre project sites; team photos of workers at these sites to convey the job potential and present opportunities; and graphics of project timelines and corresponding durability measures (i.e. real estate protection and financial requirements at each project stage). We are happy to help source images from relevant project sites and teams, and shared a link to a few such images in our transmittal email.

IV. Thank You and Summary.

Thank you for your consideration of the ecological restoration industry perspective and our recommendations on durability, restoration, and funding. CalERBA strongly supports the objectives of the Pathways Plan and state commitments on economic prosperity from ecological prosperity. Additionally, CalERBA offers our support for recommendations submitted by peer organizations that also share first-hand experience as sponsors of restoration projects, especially those of the California Landscape Stewardship Network on the spectrum of long term management and stewardship strategies and actions that inform durability.

Thank you for your efforts and dedication to accelerate ecological restoration and biodiversity outcomes. CalERBA is available as an industry resource and welcomes the opportunity for further discussion on these recommendations.

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Enclosure:
CalERBA's *Principles for Nature-Based Solutions*

Principles for Nature-Based Solutions

I. Preface

The California Ecological Restoration Business Association (CalERBA) represents California businesses and jobs specializing in the delivery of ecological outcomes. CalERBA members provide critical conservation and ecological services spanning from wetland and habitat restoration to water quality and floodplain resiliency. Members' investment in restoring California's natural systems and our long-term protection of those ecosystems addresses our state's urgent need to answer biodiversity and climate change challenges while bolstering California communities' natural resilience. To support expanding investment in these high-quality nature-based solutions, CalERBA is resolutely committed to the promotion of best practices and science for ecological restoration, including certain practices unique to successful ecological restoration projects developed under a compensatory mitigation program.

In this paper CalERBA outlines a set of fundamental *Principles for Nature-Based Solutions* (the Principles), based on reflection of CalERBA's collective decades of practitioner experience and members' diverse environmental portfolios. We believe these Principles should apply across all forms and programs facilitating ecological restoration. CalERBA members typically deliver restoration through one of two pathways: i) either under a resource offset program where an offset is legally required to negate impacts to a protected resource, such as a compensatory mitigation framework, or ii) through a procurement model where a public interest directly contracts for a defined environmental result. Regardless of the pathway, in both scenarios the public outcome sought is protected and restoration has met performance standards to reverse present or prior land and ecosystem degradation. While some of the terms and concepts referenced below are typically unique to mitigation, several are also instructive as best practices and should be incorporated into any ecological restoration project model.

These Principles and all of CalERBA's policy positions are grounded in the association's purpose to advance state policies that support and incentivize private investment in ecological restoration. We believe that private investment in nature-based solutions accelerates and complements tax-payer and grant funded initiatives, and is essential to our state's ability to answer escalating environmental, economic, and social public challenges. Private capital mobilizes at scale when market signals are clear and government policy is applied consistently and equivalently. Sustainable environmental markets rely on predictable government regulations and enforcement. Otherwise, market participants will logically pursue the lowest cost option, undercutting the intent, credibility and success of our environmental policies. CalERBA devotes a section of this paper to the topic of "Incentivizing Investments" to address the reality of these regulatory and market dynamics.

CalERBA's dedication to high and consistent standards for all forms of ecological restoration and services is reflected in these Principles. Policymakers and restoration sponsors' adherence to these Principles will advance environmental markets, ensure science-based, high quality, and cost-effective offsets are available for permittees, and incentivize more investment towards resilient natural infrastructure systems.

II. Overview

Both in California and nationally, CalERBA members have been at the center of the ecological restoration sector's evolution into what it is today – a mature, highly skilled field that supports billions in annual economic output and thousands of jobs. Companies in the business of ecological restoration comprise a growing sector of sophisticated firms backed by substantial capital, from green investors to pension funds. This growth was catalyzed by the adoption of federal and state policies that clearly outline the requirements for environmental outcomes. Nationally, the 2008 Compensatory Mitigation Rule (the "Rule") laid out the framework for delivery of permissible wetland and stream mitigation to offset the unavoidable impacts of development in accordance with Section 404 of the Clean Water Act (CWA). In California, pioneering state policies on advance mitigation and species conservation banking serve as a model for other states and federal policy to follow, and support the case for increased interest in joint wetland and species conservation banks, or multi-benefit projects.

The environment, restoration sponsors and permittees alike benefit from the durability, consistency and transparency provided by stable regulation. However, these benefits are lost without effective implementation. The past decade has shown that ecological restoration suffers when regulations are not enforced equivalently across regions and projects, regulator partners and agencies are underfunded, or permitting schemes inadvertently impose "green tape" that hinders expeditious ecological restoration. During the same time, we've also seen that investment in ecological restoration thrives when a regulatory program is collaboratively developed, fully funded and staffed, and we adopt a partnership approach with regulators to efficiently achieve our shared goals for restoration outcomes.

From this experienced perspective, CalERBA presents these Principles as enduring guidance and foundational to successful delivery of ecological restoration. Again, we recommend that these Principles apply across project types and government programs, including compensatory mitigation for wetlands or streams, water quality, protected species habitat, coastal resiliency, flood mitigation, and turn-key conservation and restoration projects. We identify that Three Foundational Concepts are essential in any of these contexts:

i) Durability: Perpetual Land Protection & Stewardship,
ii) Science-Based Design & Performance Criteria, and
iii) Risk Reduction Mechanisms.

In the first part of this report, we address these Three Foundational Concepts and underlying principles within each that are critical to successful ecological restoration and high-quality, accountable conservation outcomes. In the second part, "Incentivizing Investment in Ecological Restoration," we outline the principles that are necessary for market growth and sustainability. When relevant, we highlight elements that are specific to compensatory mitigation, but also instructive on the development of emerging environmental programs and policies.

Part I: Principles for All Ecological Restoration Projects

I. Durability: Perpetual Land Protection & Stewardship

Ecological restoration projects must be durable and designed with permanency in mind. In the mitigation context, offsets must endure for the life of a project's impacts to achieve conservation goals, such as the CWA's "no net loss" goal. In most instances, impacts result in a permanent loss of ecological function and services and thus necessitate an offset of permanent ecological uplift. Even outside of an offset program, public mandates for environmental outcomes often seek to achieve ecological benefits in perpetuity.

Practitioners' experience finds that a single project element does not deliver "durability," but rather multiple factors working together are necessary. At a minimum, the restoration site must be legally protected through a site protection instrument, such as a conservation easement or deed covenant if the land is under private ownership, or, if the land is under public ownership, a functionally equivalent protection mechanism as permissible by policy or statute. In addition to land use restrictions, there must be adequate funding for perpetual stewardship and adaptive management to ensure durability. Initial project planning and design set a restoration project on a path for success, but monitoring, regular maintenance, and use of adaptive measures, as included in the site's management plan, are necessary to reach long-term sustainable success. This perpetual management plan is only effective if financial resources are in place through an endowment or trust to implement the plan for the life of the project, or in many cases for perpetuity.

The natural world is dynamic and healthy ecosystems have evolved to respond to environmental changes and extreme events with resiliency. Regulators, practitioners, and land stewards benefit from a shared mindset of flexibility to address environmental challenges at restoration sites through the best available sciences. This is particularly true as our country faces a rise in natural disasters and the impacts of climate change. While the risk profile has changed in some regions, ecological restoration sites should not be expected to perform superiorly to naturally occurring features. Current scientific understandings of durability and site resiliency should afford restoration projects realistic expectations to respond to and adjust course after a disrupting natural event.

Note that implementation of two durability elements – the site protection instrument and financial endowment – may be more complex for restoration sited on public lands than restoration under private ownership. In many instances, public lands are not eligible for the same level of land protection as private lands, and financing for long-term management may be subject to the political process of appropriations. For these reasons, policymakers should carefully review restoration proposed on public lands and evaluate if the project meets the same durability standards required for restoration on private lands. Whether on public or private lands, site and financial protection instruments should be transparent, readily available and verifiable to ensure the restoration is permanent.

II. Science-Based Design and Success Criteria

A scientific understanding of a site's potential ecological functional value is foundational to any restoration project. Science informs every major decision, from initial site selection to the hydrology and

plantings to ecological performance standards. While relevant at each stage, science is particularly important in project siting and design planning for success and tracking site performance.

Restoring a tract of land to reintegrate and uplift watershed or habitat functions requires looking beyond the specific tract of land to the broader landscape. A landscape approach uses data to analyze how a specific restoration project could most contribute to the sustainability and resource health of the overall watershed or habitat. This approach leads to better restoration positioning at a scale that accounts for changing watershed or habitat conditions and builds resiliency into an ecosystem. The State-of-the-Art practices for wetland and habitat restoration have advanced dramatically over the past decade, and are now well demonstrated in our private sector industry through engineering design and biological expertise. Our industry's understanding and ability to build in resiliency and connectivity under a watershed and landscape approach are second to none and leading projects for successful restoration.

Scientific assessments, data, and metrics should underpin all restoration project's ecological performance standards. While some flexibility may be built into performance standards, general terms like "trending towards success" are subjective and not clearly defined for purposes of evaluating performance. Science-based metrics are objectively measurable and create a transparent record of ecological performance. A site's baseline data should be compared against progressive monitoring reports to demonstrate the delta of change and progression toward ecological uplift targets. This record creates accountability, builds trust in the project's success, and ensures the project contributes additional ecological benefits to the landscape beyond those that would have been otherwise generated in the absence of restoration.

In the offsetting context, mitigation bank and ILF projects constructed in advance of impacts can most maximize the benefits of science because they have the time to use baseline data in site selection and to conduct robust scientific analyses that inform the site's restoration plan. Compensatory mitigation projects in the monitoring and performance stages can best use science to evaluate and correct course on ecological performance in advance of permitted impacts.

III. Risk Reduction Mechanisms

Ecological restoration requires substantial upfront resource and capital investment in the project planning, construction, and establishment stages. At each project stage, there are varying degrees of uncertainties and unknowns that influence whether a project will meet milestones and adapt to new challenges. Fortunately, multiple proven mechanisms are available to reduce these risks and keep projects on track with restoration targets through the transition to perpetual stewardship. When used in varying combinations, these mechanisms—including adaptive management, implementation of financial assurances, performance criteria, and, for mitigation, credit release schedules—provide risk reduction both to the regulator and the ecological restoration practitioner.

Periodic monitoring reports typically offer the first indication that a project may need adaptive management measures to meet performance standards. Even at the most well-designed sites, some level of adaptive management is often necessary due to the inherently complex and evolving nature of

biological and physical systems, particularly in the context of climate change. Adaptive management mobilizes the project sponsor or land manager to modify restoration activities in accordance with the approved restoration plan. The flexible approach of adaptive management allows a project to stay on course without changing the performance standard or causing regulatory delays through a compliance action.

Implementation of short-term financial assurances guarantee the construction and establishment of a restoration project, up to the project's transition to long-term management. These financial assurances safeguard against the risks of site performance failure that cannot be addressed by adaptive management or a project sponsor being unable to complete the project. Typical financial mechanisms include letters of credit, escrow accounts, surety bonds and casualty insurance. Key considerations on the best financial assurance for a project are the adequacy of funds to address foreseeable failures and the ease of accessing funds in a timely manner, particularly for projects designed to reduce or eliminate temporal loss.

During project planning, the restoration sponsor and regulator should identify the triggering events for use of financial assurances, exactly how the assurance may be called upon if needed, timeline for doing so, and responsible parties to act on the assurances and correct the performance issue. As the project proceeds through the construction and establishment stages, performance risk reduces and the potential costs to correct a project failure are lower. Implementation financial assurances should be structured as commensurate with a project's perceived risk, and thus should step down as the project moves closer to long-term management.

Specific to mitigation, credit release schedules are used to reduce risk and establish trust between the mitigation bank sponsor and regulators. Credit releases can be tied to specific performance actions such as approval of the mitigation plan or mitigation banking instrument, establishment of the long-term land protection controls, completion of construction, and demonstrated achievement of ecological performance milestones. This tool incentivizes ecological restoration practitioners to complete actions towards the defined restoration outcome in exchange for the release of credits that are sold to recoup the sponsor's investment. If a bank does not meet a certain performance milestone, the regulator can withhold the credit release and prompt the sponsor to pursue adaptive management or other corrective action.

Again in an offsetting context, mitigation achieving performance standards in advance of impacts presents the lowest risk to a regulatory program when compared to offsets developed concurrent to or after an impact occurs. Mitigation in advance of impacts allows for robust scientific due diligence that maximizes the likelihood of success and reduces or eliminates temporal loss of ecological services. Advance mitigation also affords time for a project sponsor and regulator to collaboratively address changing ecological conditions, whether through adaptive management or financial assurances, and still meet performance milestones.

Environmental programs and policies should incentivize mitigation in advance of impacts to bolster continued industry investment in advance mitigation models and promote the least temporal loss of

ecological services. All forms of restoration delivery and the environment benefit from oversight and monitoring to ensure implementation is timely and in advance of connected impacts as often as possible. When restoration projects do not timely apply funds or otherwise fail to take action towards their targeted ecological outcomes, then risk increases for all parties and jeopardizes trust in our environmental programs. Regulators and restoration sponsors should collaborate to reduce these risks by utilizing market-based strategies and innovative partnerships for timely implementation and work towards our ecological restoration goals. Collectively, risk reduction measures and policies are proven to limit environmental programs' liabilities for permittees and government, and reduce reliance on finite taxpayer dollars.

Part II: Incentivizing Investment in Ecological Restoration

The demand for ecological restoration is pressing across the board: escalating natural disasters call for more resilient natural defenses, infrastructure seeks efficient and accountable environmental offsets, and public need grows for clean water, clean air, and protected natural spaces. But these environmental challenges cannot be met by public funds and actions alone. Meaningful progress requires engagement of all potential resources, including private capital, towards ecological restoration and resiliency results. Private capital flows to environmental markets when market signals are clear, standards are predictable and consistent, and government implementation is equivalent and fair across market players.

Beyond the policies discussed below, a collaborative partnership between restoration sponsors and the government authorities overseeing restoration implementation is a foundational element for sustained investment. Despite the best policies and programs in place, if agencies are not funded and equipped to implement those programs, investment will shrink due to the lack of certainty and unpredictability in review timelines, communication and requirements. CalERBA believes in strong relationships and open communication with state and federal agencies to invest more capital in on the ground, performing ecological restoration. We are committed to communication and improvement opportunities for both restoration sponsors and regulators, such as advocacy for sustainable program funding levels and best industry practices, to achieve our shared goals for biodiversity, conservation, and resiliency.

Fundamental Policies for Environmental Offset Markets: Advance & Additionality

Offsets completed and monitored in advance of impacts reduce the temporal loss of ecological services and ecological performance risk. Accordingly, advance offsets or mitigation are the environmentally preferable option. For CWA wetland offsets, the Rule grants mitigation bank credits a preference over other mitigation forms because banks must accomplish site identification and approvals, construction, and attainment of some ecological performance standards in advance of permitted impacts. The same preference is granted to released In-Lieu Fee (ILF) credits on the basis that these credits represent mitigation benchmarks completed in advance of impacts. Government policies should distinguish between restoration project's planning stages versus the construction, monitoring, and performance stages, and then incentivize the latter in both policy and implementation. Failure to consistently give preference to and invest regulator time in development of advance mitigation forms, i.e. mitigation bank credits and released ILF credits, discourages high standards and investment in the best environmental outcome.

While banks are the common form of mitigation used to deliver ecological outcomes in advance of impacts, well-designed ILF and Permittee-Responsible Mitigation (PRM) projects can deliver comparable robust environmental outcomes. For example, ILF programs can direct offsets to locations that will most effectively support large-scale conservation outcomes. Availability of these other mitigation forms is particularly important for permittees in markets where bank credits are limited or non-existent. Through their review and oversight authority, regulators should consistently hold all forms of mitigation to high standards for project planning and performance to ensure all mitigation forms achieve the desired environmental outcomes.

Importantly, legislators and agencies should manage mitigation programs to ensure staffing and funding are sufficient to meet statutory timelines for review and implementation of advance mitigation, i.e. banks and released ILF credits. Otherwise, sponsors are disincentivized from investing in advance mitigation and more permittees will turn to mitigation options that are concurrent or after the time of environmental impact, which is worse for the environment and ultimately results in a larger administrative workload to oversee.

To effectively achieve a "no net loss" or other target goal for ecological benefits, mitigation must add quantifiable ecological function to the landscape beyond the identified baseline. When regulators approve a mitigation project that proposes to merely preserve or minimally enhance the landscape, it undercuts investment in more expensive mitigation endeavors to restore, connect or create new landscapes that generate ecological uplift. Consequently, preservation and minimal enhancement should typically be accounted for with greater mitigation-to-impact ratios and reserved for situations when restoration is impracticable or when preservation is complementary to a project with a primary focus on restoration.] As agencies trend towards multi-benefit mitigation policies, additionality concerns should also underscore the importance of intelligible crediting methodologies that clearly distinguish restoration values and avoid double counting mitigation measures.

Equivalency and Fairness in Government Implementation

Since promulgation of the 2008 Compensatory Mitigation Rule, the wetlands mitigation market has enjoyed an investment influx and the national number of mitigation banks and ILF Programs has more than doubled. The corresponding increase in available advance mitigation credits benefits infrastructure projects because Clean Water Act permit processing time is typically 50% faster when readily available third-party credits are used versus other mitigation forms. While federal and state policies have established a framework for regulatory predictability, market potential is hampered by uncertain implementation and inconsistent application of policies' requirements and standards. In some regions, investment in banks and ILF programs is chilled due to unequal enforcement of standards across all forms of mitigation.

This equivalency issue is not just disruptive in the mitigation sector, but provides a lesson for incentivizing investment in other environmental offset markets as well. Regulators must hold all restoration forms under an offset program to equivalent compliance standards, otherwise market demand will shift to the lowest cost option permissible under the lowest enforced standard. As new restoration programs emerge for compliance with mitigation and other offset needs, it is crucial that these ventures are held to the same high standards and equivalent requirements as existing advance mitigation mechanisms, including measurable administrative and ecological performance milestones. Ultimately, restoration businesses need marketplace fairness where all restoration sponsors and project forms are treated with equal application of law and policy for predictable outcomes.

Viewed in another context, equivalency or parity is also essential for accountability in mitigation and other offsetting programs. CalERBA strongly supports the long-standing national goal of "no net loss" of aquatic resources, which is fulfilled when the amount of mitigation or offset required is commensurate to the scale of the impact and loss of ecological function. Specific amount calculations are typically implemented through the specific methodologies and ratios established for impacts to the protected

resource. Ensuring parity between impact and offset is also another fundamental element of restoration achieved through commitment to the scientific principle.

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Through years of collaboration between industry, policy-makers, and regulators, these Principles for Nature-Based Solutions have emerged as foundational to successful, enduring ecological restoration and environmental markets. CalERBA is committed to upholding these Principles in our policy positions, educational and advocacy work. With the guidance of these Principles, we invite discussion with the broader ecological restoration sector to improve practices, policies, and program implementation for better environmental outcomes and partnerships.

Principles for Nature-Based Solutions

Three Foundational Concepts for all Restoration

i) Durability: Perpetual Land Protection & Stewardship,
ii) Science-Based Design & Performance Criteria, and
iii) Risk Reduction Mechanisms

Principles for Investment in Environmental Markets

iv) Advance,
v) Additionality, and
vi) Equivalency & Fairness

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