



SACRAMENTO - SAN JOAQUIN

DELTA CONSERVANCY

A California State Agency



Proposition 1 Grant Program

2015-16 Staff Recommendation

I. Project Overview

Project Title	Sherman Island Wetland Restoration Project Phase III		
Applicant	Ducks Unlimited		
Project Number	Prop 1-Y1-2015-008	Category	1
County	Sacramento	Funding Request	\$100,000
Score	85.1	Total Project Cost	\$200,000
Staff Recommendation: Approval of funds conditional upon submittal of a copy of the applicant's bylaws.		Funding Recommended	\$100,000

II. Staff Recommendations

Delta Conservancy staff recommends that the Board conditionally approve funding for the Sherman Island Wetland Restoration Project Phase III project (#Prop 1-Y1-2015-008) proposed by Ducks Unlimited. This approval will be conditional upon the applicant providing a copy of their bylaws to staff prior to execution of the grant agreement. Staff anticipates receiving the bylaws by July 2016. The project to which this category 1 planning project relates to is eligible for category 2 funding, should it make it to the category 2 stage. The awarding of a category 1 grant for a project does not guarantee that a category 2 grant will be awarded for the same project.

This category 1 proposal focuses on planning and pre-project work for a restoration project that would restore up to 1,600 acres of palustrine emergent wetlands, reverse subsidence while sequestering carbon, and improve the habitat value of land on Sherman Island. The outputs of the planning grant will be a wetland delineation report and map, as well as a 60 percent engineering design for the restoration project. These baseline documents are critical for preparing the project for environmental review, permitting the project, and moving forward to break ground on restoration. Planning will begin upon execution of a grant agreement. The project is consistent with ongoing carbon sequestration efforts on Sherman Island and nearby on Twitchell Island.

This project contributes to multiple state priorities to restore habitat, increase resilience to and mitigate for climate change, and reduce subsidence. This project is consistent with the

goal of reducing carbon emissions stated in California Executive Order S-3-05. Carbon sequestration projects through wetland restoration are also recommended in the 2009 California Climate Adaptation Plan as an opportunity to provide significant reduction of emissions and sequester greenhouse gases while simultaneously providing habitat necessary for the long-term conservation of California's biodiversity. In the Delta this would serve to reverse subsidence and create equilibrium between land and estuary elevations along select Delta fringes and islands. Best available science substantiates that restoration of wetlands reduces atmospheric carbon dioxide through carbon sequestration while providing additional ecosystem benefits. Project team members have an existing robust monitoring program in place. It is the expectation that as the proposed project is developed, further monitoring and assessment components will be developed. Conservancy staff recommends that the grant agreement include provisions for the development of an adaptive management plan, which will be needed before the project is constructed.

This project contributes significantly to acting on climate change in California. In the Delta, carbon sequestration projects through wetland restoration are recognized as key opportunities to provide significant reduction of emissions, and to capture and sequester greenhouse gases while simultaneously reversing subsidence and providing habitats necessary for the long-term conservation of California's biodiversity. In addition, this project, in the context of other immediately adjacent project sites, is part of a mosaic of carbon sequestration wetlands on Sherman Island. The project partners have a track record of success in completing extremely similar projects on Sherman Island and have program infrastructure in place for the monitoring, assessment, and management of these wetlands.

Staff has prepared the text and tables below based on staff's best understanding of the information provided in the application. The Conservancy has received comments on the proposal from the Delta Stewardship Council and the Delta Protection Commission. If approved, staff will work with the applicant to further refine the project's scope of work and performance measures, and to address comments prior to entering into a grant agreement.

III. Project Summary

Project Description:

This project will conduct planning and pre-project work necessary to restore up to 1,600 acres of palustrine emergent wetlands on Sherman Island that would reverse subsidence while sequestering carbon. The applicant will work closely with the Department of Water Resources (DWR), the landowner. The documents produced by this project – a wetland delineation report and map, as well as a 60 percent engineering design – are critical for permitting the project and taking a baseline measurement to establish wetland acres created moving forward. The restoration design focuses on palustrine emergent wetlands, complemented with upland riparian forest, scrub shrub, and grassland to add diversity of structure and habitat to the site. Upland vegetation planting will be planned for higher elevation area adjacent to the wetland. The restoration design includes upgrading existing water management infrastructure and installing new infrastructure such as water control

structures and water conveyance channels and swales. This project advances the combined benefits of wetland restoration for wildlife with the importance of reversing Delta island subsidence and acting to arrest climate change.

Location (Site Description):

The project is located on Sherman Island within Reclamation District 341. Sherman Island is located southwest of the city of Rio Vista and northeast of the city of Antioch, and lies within the jurisdiction of Sacramento County. Sherman Island is significantly subsided, with land elevations between 10 and 25 feet below sea level. The restoration site is located on a portion of Sherman Island owned by DWR, an active partner in this project. The property is currently managed for flood irrigated pasture. The proposed project site is immediately adjacent to 907 acres of restored wetlands on Sherman Island, which Ducks Unlimited has worked with DWR to restore. The proposed project is also immediately adjacent to another 1,500 acres being planned for the Whale’s Belly restoration project. Together this suite of projects restores the southern portion of Sherman Island immediately northeast of the Lower Sherman Island Wildlife Area.

IV. Implementation of California Water Action Plan and Consistency with Prop 1 and Conservancy Enabling Legislation

State Priority/Plan	Action	Project Benefits
Proposition 1	Ch. 6 79732(a)(1) Protect and increase the economic benefits arising from healthy watersheds, fishery resources, and instream flow.	Close coordination for this project is ongoing with efforts to develop a GHG protocol for California wetlands, which will provide economic benefits from sequestering carbon by resorting wetlands in the Delta.
	Ch. 6 79732(a)(2) Implement watershed adaptation projects in order to reduce the impacts of climate change on California’s communities and ecosystems.	Reverses subsidence and acts to ameliorate climate change (and therefore climate change impacts) while simultaneously providing habitat necessary for the long-term conservation of California's biodiversity threatened by climate change impacts.
	Ch. 6 79732(a)(4) Protect and restore aquatic, wetland, and migratory bird ecosystems, including fish and wildlife corridors and the acquisition of water rights for instream flow.	Restores up to 1,600 acres of palustrine emergent wetlands. The project will be designed to combine the wildlife benefits of wetland restoration with the importance of reversing Delta island subsidence.

State Priority/Plan	Action	Project Benefits
Proposition 1	Ch. 6 79732(a)(9) Protect and restore rural and urban watershed health to improve watershed storage capacity, forest health, protection of life and property, stormwater resource management, and greenhouse gas reduction.	This greenhouse gas and wetland restoration project contributes to protecting and restoring the Delta watershed.
California Water Action Plan	Action 3. Achieve the co-equal goals for the Delta.	Restores/enhances approximately 1,600 acres of wetland habitat.
	Action 4. Protect and restore important ecosystems.	Restores/enhances approximately 1,600 acres of wetland habitat. This wetland will include tule marsh, once prevalent throughout the historical Delta but now extremely rare.
Conservancy's Enabling Legislation	§32320(b)(1) Protect and enhance habitat and habitat restoration.	Restores, 1,600 acres of wetland habitat and enhances the existing wetland restoration/carbon sequestration projects immediately adjacent to project site.
	§32320(b)(9) Protect, conserve, and restore the region's physical, agricultural, cultural, historical, and living resources.	Restores wetland habitat and soil that have been lost due to oxidation.
Delta Conservancy Strategic Plan	<p>Objective 1.4: Aid in protecting and improving water quality to protect the Delta ecosystem and economy.</p> <p>Strategy 1.4.2: Collaborate on development of eco-friendly levee designs and subsidence reversal for incorporation into Conservancy projects or projects of the Delta Restoration Network.</p> <p>Strategy 1.4.4: Work with Delta growers and landowners and the Independent Technical Advisory Board to identify areas for implementation of subsidence mitigation, potentially including rice and carbon sequestration wetlands, and promote best management practices resulting from current research on subsidence reversal.</p>	<p>Reverses subsidence on Sherman Island.</p> <p>Mitigates for subsidence while sequestering carbon and restoring wetlands on land owned by DWR. This proposal describes using best-available science and management practices as well as leveraging lessons learned from existing carbon sequestration wetland projects on Sherman Island.</p>

State Priority/Plan	Action	Project Benefits
Delta Conservancy Strategic Plan	Objective 3.2: Lead Delta ecosystem restoration activities consistent with Conservancy authorities, the Delta Plan and other regional plans and guidance, through a voluntary Delta Restoration Network, and based on adaptive management. Strategy 3.2.3: Protect and enhance wetland and upland habitats on subsided lands, as consistent with agricultural operations.	Restores wetland habitat. State-owned lands are the best place to restore wetlands for consistency with agricultural operations in the Delta.
Delta Plan	DP R7. Subsidence Reversal and Reduction.	Supports significantly expanding the acreage on Sherman Island devoted to subsidence reversal.
	ER P2. Restore Habitats at Appropriate Elevations.	Subsidence reversal/carbon sequestration on deeply subsided islands is consistent with the Conservation Strategy for Restoration of the Sacramento-San Joaquin Delta Ecological Management Zone and the Sacramento and San Joaquin Valley Regions.

V. Outcomes/Outputs

Project Goals	Desired Project Outcomes	Output Indicators
Goal 1. Develop critical baseline documents to support permitting efforts.	60 % Engineering Design. Wetland Delineation and Report.	Conceptual Engineering Design. 30% Engineering Design. 60% Engineering Design. Preliminary Wetland Delineation Report.

VI. Budget

Total cost for this proposal is \$200,000. The Delta Conservancy is being asked to approve \$100,000 in Prop 1 funds. The remainder will come from DWR, which is contributing a cost share of \$100,000 (in-kind).

VII. Consistency with Grant Program Guidelines

Readiness (Including CEQA Status if Applicable):

Once the grant agreement is executed, Ducks Unlimited will be ready to proceed with planning. As soon as funds are awarded, DWR will conduct a topographic survey of the project area to support the engineering design, as funded by a portion of DWR's in kind services contribution. Ducks Unlimited will utilize the topographic survey to develop the conceptual, 30 percent, and 60 percent engineering designs collaboratively with DWR. Additionally, Ducks Unlimited staff will conduct a wetland delineation of the project area to facilitate submission of the US Army Corps of Engineers 404 permit and other environmental documents. The wetland delineation determines the location of existing wetlands and upland areas and functions as a baseline for new acres of wetland restored to be identified. With the 60 percent engineering design and wetland delineation completed, the project proponent will be able to apply for the permits necessary to implement the construction and restoration.

The project has well established practices and methodologies that have been successfully utilized throughout the restoration community and, specifically, for three extremely similar projects recently completed by the partners. Ducks Unlimited and the project partners have the expertise and capacity to develop all needed environmental documents and engineering plans as exhibited by the previous three projects. The CEQA environmental document for the restoration project will be prepared with RD 341 as the lead agency and DWR as the responsible agency. The project is within the Central Valley Flood Protection Board's jurisdiction pursuant to Title 23, California Code of Regulations Section 112 and may require encroachment permits prior to project construction. Award of the planning grant is not a "project" for purposes of CEQA.

Local Support:

The restoration project for which the proposed project is planning is well-supported locally. It was included as one of the 65 projects identified by the Coalition to Support Delta Projects, an ad hoc group representing a broad cross section of Delta stakeholder interests. The applicant has consulted with the Delta Protection Commission regarding this project. A letter of support was submitted by DWR, the landowner, as a part of this application. The applicant indicated that a resolution from local government supporting this project was secured, but it was not provided as a part of the application. As described in previous sections, the project proponents are part of an effective partnership working to advance the project, and the project is consistent with local land use.

Scientific Merit:

DWR and collaborating partners have been studying carbon sequestration on Sherman and Twitchell Island since the 1990s. The best available science substantiates that restoration of freshwater wetlands reduce atmospheric carbon dioxide through carbon sequestration in the long-term. Additionally, best available science substantiates that wetland restoration can also provide many other ecosystem services including land surface accretion, and relieving hydrostatic pressure on flood control infrastructure thus improving flood protection, and improving water quality. Recent studies have called for the need to quantify

the short-term carbon balance and have highlighted the need for long-term continuous monitoring of these restoration/carbon sequestration projects.

While there is a paucity of literature on the habitat benefit of carbon capture wetlands, it follows that balancing the wetland design for carbon sequestration and habitat benefit will provide substantive habitat benefits. Ducks Unlimited has extensive background designing wetland for habitat. The wetland design includes a mosaic of open water channels and emergent vegetation comprised predominantly of species such as California bulrush and narrow leaved cattails. Other native plant restoration components will include installation of native trees and shrubs as well as a substantial amount of upland transitional area, all of which will provide increased diversity and habitat opportunity for wildlife.

Long Term Management & Adaptive Management Plan:

Long term management, operation, and maintenance of the restoration project will be conducted by DWR. Previous projects that are very similar to this have developed Habitat and Water Management Plans. They will be the foundation of the future Habitat and Water Management and Adaptive Management Plan for the proposed project. Currently, the Twitchell Island East End project's Management Plan is being updated to include a more robust adaptive management plan. This project will utilize that ongoing effort in the future development of a management plan. Conservancy staff recommends that the applicant develop an adaptive management plan as part of its project development.

Monitoring and Assessment:

The restoration project builds upon a Delta-wide monitoring program for carbon dioxide, methane and nitrous oxide, which utilizes data already collected by DWR and UC Berkeley. These data sets will be used to further develop and calibrate models allowing for greenhouse gas predictions of both baseline and treatment impacts Delta-wide. This project is also being closely coordinated with other Delta efforts to develop a protocol for both the voluntary and regulatory compliance markets. Short- and long-term monitoring to quantify greenhouse gas emission and uptake by wetlands is stressed as critical in recent studies, and is expected to be a rigorous part of the implementation of a category 2 project related to this category 1 project.

DWR biologists will monitor and assess native plant species annually within these restoration areas, and bi-annual bird surveys will be conducted and compared to pre-project conditions. DWR engineers will monitor subsidence reversal rates by utilizing survey techniques. Project team members have an existing robust monitoring program in place. It is highly likely that as the proposed project is developed, further monitoring and assessment will be developed.

Climate Change Considerations:

In the Delta, the specter of sea level rise and its impact upon terrestrial habitats is particularly taxing due to the continuing subsidence of Delta islands. Through the subsidence reversal projects, rising land elevations will provide marsh habitats that will be at less risk in the case of levee failure. Not only do these projects increase land elevations and the subsequent decrease of future flood risk, they also provide sustainable freshwater tule marsh, once prevalent throughout the historical Delta but now extremely rare. The

freshwater marsh created will have increasing elevations and provide viable habitat in the present and refugia well into the future.

The 2009 California Climate Adaptation Plan summarizes the best known science on climate change impacts to California and outlines strategies to increase California's resiliency from the impacts from climate change. Carbon sequestration projects through wetland restoration is recommended in this plan as an opportunity to provide significant reduction of emissions, capture and sequestration of greenhouse gases while simultaneously providing habitats necessary for the long-term conservation of California's biodiversity. This plan also recommends prioritizing and expanding Delta island subsidence reversal and land accretion projects to create equilibrium between land and estuary elevations along select Delta fringes and islands, and identifies further degradation of water quality and the Delta ecosystem as significant impacts of climate change.



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Project Location Map

Project Name: Sherman Island Wetland Restoration Project Phase III
 Applicant Name: Ducks Unlimited, Inc.

 Project Area

