

MEMORANDUM

Date: March 11, 2020
To: Board of Directors, California Exposition & State Fair
Via: Rick K. Pickering, Chief Executive Officer
From: Tom Martinez, Chief Deputy General Manager
Subject: Presentation – Proposed Bushy Lake Conceptual Restoration Plan

BACKGROUND

This item is being brought to your attention at the request of California State University Sacramento Professor Michelle Stevens. Professor Stevens has applied to the California Wildlife Conservation Board for a \$375,000 grant, which would provide for the development of a draft conceptual plan for Bushy Lake habitat and education. This grant application is currently before the Wildlife Conservation Board for consideration and approval. Since the grant applicant must obtain the permission of the property owner, Professor Stevens is seeking a letter of support from the California Exposition & State Fair Board of Directors for her application.

Bushy Lake is located on Cal Expo property within the Lower American River Parkway. In accordance with the Bushy Lake Preservation Act of 1976, Cal Expo coordinates with the Sacramento County Department of Regional Parks to maintain the area. As required by the Act, one of Cal Expo's maintenance activities is to provide Bushy Lake with water. Annually, depending on the amount of rain, Cal Expo provides Bushy Lake with some 50,000,000 gallons of pumped ground water to keep it viable. This 50,000,000 gallons represents more than 1/3rd of the 140,000,000 gallons of ground water pumped by Cal Expo each year.

PROJECT DESCRIPTION

Professor Stevens describes the objective of her project is to create a Conceptual Restoration Plan for Bushy Lake with the following goals:

- 1) Protect, enhance and restore a sustainable habitat refuge for western pond turtles
- 2) To enhance habitat for fire resilient native flora and fauna and
- 3) Enhance the education and interpretation of resources in the Parkway, specifically showcasing tribal cultural use of the Parkway.

STAKEHOLDERS

After being made aware of the proposed grant application, Cal Expo provided a letter to the Wildlife Conservation Board on February 13, 2020, to advise them of the planned widening of the freeway adjacent to Bushy Lake.

The California Department of Transportation (Cal Trans) is currently undertaking appropriate environmental review related to its planned widening of State Route 51 (Capital City Freeway.) According to Cal Trans, this is the most congested corridor in the Sacramento region. The project calls for widening the freeway and the American River Bridge to accommodate a bus/carpool lane, an auxiliary lane, and a Class 1 bike path. This portion of the Business 80 sees more incidents each year than all the Sacramento region freeways combined. Consequently, this widening is critical to providing safe transportation for thousands of people traveling to their homes, jobs, schools, appointments and more. Given Cal Expo's location on the Parkway, Cal Trans has requested that a portion of Cal Expo's developed property (north of the levee) serve as a possible staging site for the construction contractor.

Since Cal Trans' freeway-widening project will necessitate that the contractor somehow access and traverse the Lower American River Parkway near Bushy Lake, Cal Expo's February 13th letter respectfully recommended that award of this particular grant be prudently postponed until Cal Trans completes its work in this area.

On February 21, 2020, Cal Expo and California Department of Transportation staff met with Professor Stevens to learn more about her project and its projected footprint. Also in attendance at this site visit were representatives of the County of Sacramento Regional Parks, and representatives of the Wildlife Conservation Board.

Professor Stevens has asked to make a presentation to the Cal Expo Board on her proposed grant application.



Cara Allen, Sr. Environmental Scientist
Wildlife Conservation Board
P.O. Box 944209
Sacramento, CA 94244-2090

February 13, 2020


Dear Ms. Allen:

Thank you for taking the time to speak with me regarding the grant application that is under consideration by the Wildlife Conservation Board (Bushy Lake Conceptual Restoration Plan). As the landowner of some 408 acres of the Lower American River Parkway, the California Exposition and State Fair (Cal Expo) has longed worked jointly with the County of Sacramento to protect and enhance the area, as well as facilitate public access and enjoyment (in accordance with the 2008 American River Parkway Plan and the 1976 Bushy Lake Preservation Act). Cal Expo appreciates the work of the California State University Sacramento students and faculty that have participated in cleanup and conservation efforts on our Parkway property in the past. We have reviewed Professor Michelle Stevens grant application to perform work on Cal Expo's property in the Parkway, specifically at Bushy Lake.

Please be advised that the California Department of Transportation (Cal Trans) is currently undertaking appropriate environmental review related to its planned widening of State Route 51 (Capital City Freeway). According to Cal Trans, this is the most congested corridor in the Sacramento region. The project calls for widening the freeway and the American River Bridge to accommodate a bus/carpool lane, an auxiliary lane, and a Class 1 bike path. Given Cal Expo's location on the Parkway, Cal Trans has requested that a portion of Cal Expo's developed property (north of the levee) serve as a possible staging site for the construction contractor.

Since Cal Trans freeway-widening project will necessitate that the contractor somehow access and traverse the Lower American River Parkway near Bushy Lake, Cal Expo respectfully recommends that award of this particular grant be prudently postponed until Cal Trans completes its work in this area.

Sincerely,



Rick K. Pickering
CEO

cc: Senator Dr Richard Pan
Assembly Member Kevin McCarty
John P. Donnelly, Executive Director, Wildlife Conservation Board
Nav Gill, County Executive, County of Sacramento
Liz Bellas, Director, County of Sacramento Regional Parks
Michelle L. Stevens, PhD, California State University Sacramento



**Wildlife Conservation Board
LOWER AMERICAN RIVER CONSERVANCY PROGRAM
2019 GRANT APPLICATION FORM**

**NOTE: EVERY QUESTION MUST BE ANSWERED IN ORDER FOR THE APPLICATION TO BE
CONSIDERED FOR FUNDING**

APPLICANT INFORMATION

- 1. Name of Organization:** Office of Research, Innovation, and Economic Development (ORIED)
- 2. Address of Organization:** California State University Sacramento, Library 2520, MS 6093, 6000 J St., Sacramento, CA 95819
- 3. Federal Tax Identification Number:**
- 4. Organization Type (check one):**
 Local Public Agency Nonprofit Organization Other:
- 5. Project Manager Name and Title:** Professor Michelle Stevens
Telephone: 916-765-7397 **Email:** stevensm@csus.edu
- 6. Name and Title of Authorized Signatory Representing Organization:**
- 7. State Senate District(s) with Senator Name:** District 6; Richard Pan
- 8. Assembly District(s) with Assembly member Name:** District 8; Ken Cooley

PROJECT INFORMATION

- 9. Project Name:** Bushy Lake Conceptual Restoration Plan
- 10. County:** Sacramento
- 11. City:** Sacramento
- 12. Funding Request:** \$370,000.00
Dollar amount needs to match what is provided in Appendix C – Budget, Total WCB Requested Cost.
- 13. Total Project Cost (include all matching funds and in-kind contributions):** \$370,000.00

Dollar amount needs to match what is provided in Appendix C – Budget, Total Cost.

14. **Proposed Start Date:** When will it be awarded? **March 15, 2020**

15. **Estimated Completion Date:** **July 31, 2023**

16. **Project Type (check all that apply)**

- Land acquisition
- Habitat restoration
- Education and interpretation
- Public access
- Other:** Sensitive Species Habitat Enhancement - western pond turtle habitat (CA Wildlife Conservation Strategy)

17. **In one to three sentences summarize how the project will meet the requirement of an eligible project type.**

The goal of this project is to create a Conceptual Restoration Plan for the Bushy Lake area to: 1) protect, enhance and restore a sustainable habitat refuge for western pond turtles; 2) to enhance habitat for fire resilient native flora and fauna; and 3) enhance the education and interpretation of resources in the Parkway, specifically showcasing tribal cultural use of the Parkway.

18. **Name and Address of Landowner(s):** California Exposition and State Fair, 1600 Exposition Blvd, Sacramento, CA 95815

19. **Assessor's Parcel Number(s):** APN277-0250-024

20. **Is the Project Area within the American River Parkway Boundary (check one):**

- Completely** **Partially** **Immediately Adjacent**
 Other:

21. **Current Zoning (for projects outside the Parkway boundary):** The Project is entirely within the American River Parkway.

22. **What is the project site's Land Designation and what Area Plan is it within from the [2008 American River Parkway Plan \(PDF\)](#) (for projects within or partially within the Parkway boundary):**

Bushy Lake is located within the Cal Expo Area of the 2008 American River Parkway Plan. The Cal Expo floodplain and Bushy Lake are owned by the California Exposition and State Fair. The Cal Expo Area is managed by Sacramento County Department of Regional Parks through an agreement with Cal Expo consistent with the Parkway Plan and the Bushy Lake Preservation Act. Designated in 1976 as a Protected Area, the Bushy Lake Preservation Act (California Public Resources Code, Chapter 9, beginning with Section 5830) designates the approximately 86 acre site as a State Nature Preserve, with the primary intent of preserving important vegetation and wildlife species and their supporting ecosystems. Bushy Lake itself is

designated a Nature Study Area in the Parkway. The Busy Lake Area is located within the Arden Arcade area broadly identified as a Disadvantaged Community and Tract 2016 (GEO10 06067005509) identified as a Severely Disadvantaged Community.

- 23. Mitigation cannot be funded under this program. Is any portion of the project a required mitigation or to be used for mitigation under State or federal environmental laws or regulations?**

Yes No

PROJECT LOCATION AND HISTORY

- 24. Describe the project location and boundaries. Alternatively, an ESRI-formatted shapefile can be provided or a KMZ file.**

Bushy Lake is located within the Cal Expo Area of the 2008 American River Parkway Plan, which is located on 408.22 acres on the north of the river, between Wood Lake on the west and the outfall of Chicken and Strong Ranch Slough storm drains on the east. The North side of Bushy Lake abuts the Cal Expo levee. The American River is 1000 ft. to the south. The site is crossed in a north/south direction by the Capital City Freeway and in an east/ west direction by SMUD and PG&E electrical power lines. Bushy Lake is a body of water that varies in size between 11 and 80 acres, depending upon rainfall, overland flow and groundwater pumping from Cal Expo and water table conditions. The site is currently maintained by groundwater pumping by Cal Expo.

- 25. Provide the latitude/longitude coordinates for the center of the project area. Preferred format is decimal degrees. If another format is provided, provide the datum and projection used.**

Latitude: N 38.58922

Longitude: W -121.43635

Other format:

Datum:

Projection:

- 26. Describe the historic and current land uses of the project site.**

This land is within the prehistoric and historic territory of the Nissenan people. The Traditional Ecological Knowledge and Traditional Resource Management of honored California Indian people will be incorporated into the Conceptual Restoration Plan. There is at least one archaeological site approximately ½ mile west of Bushy Lake, and records indicate it is eligible for listing on the National Register of Historic Places under Criterion D of Section 106

Bushy Lake is located within the lower American River floodplain. Historically, the river channel meandered and shifted from year-to-year within this floodplain. Since Folsom dam was built in the middle of the last century, water releases to the lower American River have been controlled. Today, the hydrology that currently feeds Bushy Lake includes precipitation, overland flow and a groundwater well. Cal Expo also operates the pump to maintain the lake level in accordance with the Bushy Lake Preservation Act of 1976.

The State of California acquired the undeveloped land near Cal Expo in the 1940's. A structure was built in the 1960s, followed by a proposed golf course development. Developers compacted soils and altered the bathymetry of the Bushy Lake depression to include finger-like projections on the south side. The golf course development was halted by Save the American River Association and passage of the Bushy Lake Preservation Act, with the intent of protecting the remaining riparian area. The Bushy Lake Preservation Act requires the California Exposition and State Fair Board of Directors to preserve, for public day use and enjoyment, the California Exposition flood plain in a manner consistent with the definition of a state park. The Act mandates that Bushy Lake be preserved with the features of a natural preserve, consistent with the American River Parkway Plan (ARPP).

The Earth Stewardship Initiative Post Burn Demonstration Project was initiated in 2014 to develop an adaptive restoration demonstration project to create a wildfire resilient landscape on the lower American River Parkway. In January 2015, Sacramento State began the Bushy Lake Restoration Demonstration Project with the primary goal of providing a cost-effective, ecologically relevant restoration prescription for sustainable wildlife habitat with fire resilient native understory vegetation. The Project has initiated four years of research; a pilot adaptive restoration project; monitoring and adaptive management; and public involvement. We have also monitored avian habitat (s birds are diagnostic environmental indicators), the valley elderberry longhorn beetle (VELB) and Western pond turtles (designated "sensitive species" by CDFWS).

The Cal Expo floodplain is used for various types of recreation. The area is crossed by the Jedidiah Smith Memorial bicycle trail and designated equestrian/hiking trail, both of which are located along the southern and western portions of the property. An equestrian access is located at the end of Ethan Way. Several undesignated and unimproved trails interlace the area and are used for passive recreation such as bird watching, walking dogs, and enjoying nature. From 2017-2020, an Off-Paved Trail Cycling Pilot Program is testing the impacts of allowing cyclists to ride on designated off-paved trails in the Woodlake and Cal Expo areas. There is an unpaved 11-acre area used for parking by Cal Expo during the State Fair.

The site is increasingly subject to frequent and severe anthropogenic disturbance through wildfires, human intrusion and trash. In 2014 (and again in 2016) wildfires at Cal Expo burned over 160 acres around Bushy Lake. Sacramento Regional County Parks has provided data that fire frequency, severity, and aerial extent continue to increase. Concern has been expressed by local utilities, fire departments, and community members about the ever-increasing wildlife risk, threatening the utility corridor, human structures and ecosystems.

The Bushy Lake project is located within the designated Arden Arcade area, which is identified as a severely disadvantaged community.

Sacramento State's Bushy Lake Demonstration Project has provided an exceptional opportunity for high-impact student-faculty research, participatory citizen science, environmental education, and community engagement in implementing restoration experiments, monitoring, and adaptive management. Citizen science, positive publicity

through Sacramento State, and public restoration projects all create goodwill in the greater community.

PURPOSE AND BACKGROUND

- 27. Provide a detailed project description of the project purpose and background, including sufficient rationale to justify the project need, appropriate underlying scientific basis for the project work, and clearly articulated goals and objectives. Include photos of the project site. Attach additional pages as needed.**

The overarching goal of this project is to create a Conceptual Restoration Plan for the Bushy Lake Area with the following goals: 1) protect, enhance and restore a sustainable habitat refuge for Western pond turtles; 2) to enhance habitat for fire resilient native flora and fauna; and 3) enhance the education and interpretation of resources in the Parkway, specifically showcasing tribal cultural use of the Parkway.

The description below details the background to the proposed project and three project objectives including a scientific rationale and work plan for each. During this planning phase, signage on site will convey that project funds were received from The Wildlife Conservation Board's Lower American River Conservancy Program and from the California Drought, Water, Parks, Climate, Coastal Protection and Outdoor Access for All Act of 2018. With the completion of the Conceptual Restoration Plan we will design and implement an event open to the public, other organizations and elected officials on the lower American River to showcase the plan's vision.

Project Background

Since 2015, Dr. Michelle Stevens (Professor, Department of Environmental Studies, Sacramento State) has overseen the Bushy Lake Pilot Restoration Project (Project), a pilot eco-cultural restoration project that has incorporated experimental design and adaptive restoration methods to inform restoration practice, wildlife monitoring and adaptive management. The Project is a collaborative effort involving Sacramento County Parks; local community engagement; environmental groups interested in the lower American River as well as Sacramento State faculty, students, the University's offices of Public Affairs and Advocacy and Sustainability

The six-acre restoration project on the east side of the 36 acre Bushy Lake provides an *in situ* reference site and template for the proposed Conceptual Restoration Plan (sizes based on June 2019 water levels). Through experimental design, we created a fire-resilient habitat island in the southeast corner of Bushy Lake. In the process of monitoring, we discovered the site is a refuge for Western pond turtles. Unfortunately, we also discovered that the invasive red eared slider turtles seem to be outcompeting the Western pond turtles by approximately 80%. Therefore, sustainable conservation and public education about Western pond turtles is the focus for Objective 1 of this Conceptual Restoration Plan.

The proposed Conceptual Restoration Plan is also informed by ongoing threats of wildfire and human intrusion into the Bushy Lake and lower American River Parkway area. In 2014, a fire at Cal Expo burned over 160 acres of the Parkway. That wildfire coincided with the Ecological Society of America (ESA) Conference held in Sacramento. An Earth Stewardship Initiative was initiated between Sacramento State; Yale University; University of California, Davis; Sacramento County Department of Regional Parks (County Parks); and American River Parkway Foundation (Foundation) prior to the conference. The goal was to create a fire-resilient landscape and long-term monitoring and adaptive management at Bushy Lake and in the Parkway. The Project began in January 2015, with help from volunteers from the Foundation and County. Through restoration, monitoring, and adaptive management we have created a fire-resilient habitat island in the southeast corner of Bushy Lake. When another large fire occurred in September 2016, wildlife species were observed taking refuge in the unburned restoration area.

The proposed Conceptual Restoration Plan (CRP) thus aims to use the reference site completed in the southeast corner of Bushy Lake as a model for a conceptual restoration plan using fire resilient native vegetation. The CRP also aims to conserve and enhance habitat for the Western pond turtle. The ultimate goal of this plan is to build public knowledge and appreciation for diverse native flora and fauna in the Bushy Lake Area. Participatory citizen science and self-guided recreation will allow people to see a refugia for basking Western pond turtles, denning river otters, and the songs of birds passing and soaring through the seasons and the years.

Objective 1: Conduct studies and develop a plan for Western pond turtles and other sensitive wildlife species conservation

The Western pond turtle (*Emys* (= *Actinemys*) *marmorata*) (WPT), is the only native freshwater turtle left in California and are designated a “Species of Special Concern”. In 2004 the turtles were identified as a priority species needing more information for conservation and management (Jennings and Hayes 1994; Hays et al. 1999; Bury and Germano 2008). Western pond turtles are identified as “wildlife species at risk” in the California Comprehensive Wildlife Conservation Strategy. The Western pond turtle is also currently listed as an endangered species in Washington State and in 1992 the WPT was petitioned for listing under the federal Endangered Species Act. The Western pond turtle is primarily at risk due to habitat alteration and destruction. Ongoing drought and elimination of wetland and aquatic habitats continue to raise concerns about California’s sustainable native turtle populations.

Based on our preliminary turtle monitoring data, Bushy Lake provides a high quality refugia for Western pond turtles on the lower American River. The turtles rely on a permanent water source with floating woody vegetation and muddy banks for basking, which is plentiful at Bushy Lake. These turtles have high site fidelity, and can live for over 30 years. We propose carefully monitoring and developing scientific data on the Western pond turtle for the Conceptual Restoration Plan.

The proposed Conceptual Restoration Plan will focus on restoring the Bushy Lake landscape to better support Western pond turtle populations. For the proposed plan we will first evaluate species competition, occupation of basking sites, suitability of the habitat, water quality, and the aquatic ecosystem. We will attempt to gain information on nesting and hatchling recruitment into the adult population. Monitoring and understanding the critical habitat needs of the WPT will enable us to determine what biological conditions occur at the site to optimize western pond turtle habitat.

Our preliminary research suggests an increasing density and dominance of another species of turtle, the red eared slider (*Trachemys scripta elegans*) in the Western pond turtle habitat. A similar trend has been noted in other regional observations. Two years of visual turtle surveys at Bushy Lake reveal approximately 80% invasive red-eared vs only 20% Western pond turtles. It has been well-documented that many invasive species have explosive population growth after an initial phase of population stability. We will survey for invasive aquatic species and develop a removal plan to be included in the Draft and Final Conceptual Restoration Plan.

Task 1.1 Collect Western Pond Turtle Baseline Data

For one and a half years, Dr. Michelle Stevens and Sacramento State students will conduct ongoing scientific studies on western pond turtles (Task 1.1) collecting data using visual surveys and mark recapture sampling techniques. Specifically, we will use the USGS Western Pond Turtle Visual Survey Protocol for the South Coast Region, which represents scientific studies that are conducted to determine population relative abundance, size classes, nesting and basking habitat, and reproductive success. This process will be overseen by Jeff Alvarez, a turtle expert with direct experience in Western pond turtle restoration. A report will be produced on Western Pond Turtle biology and habitat that will be included in the CRP.

**Deliverables:*

- *Summary report on WPT population abundance, size classes, nesting and basking habitat, and reproductive success. Report due by January 31, 2022.*
- *WPT data submitted to California Natural Diversity Database (CNDDDB)*

Task 1.2 Identify Invasive Aquatic Species Threats to Western Pond Turtle

Dr. Michelle Stevens will work collaboratively with team specialists to determine invasive aquatic species present within the Bushy Lake system and identify threats to Western Pond Turtle conservation. A report will be developed to identify invasive species, determine degree of threat, and recommend methodologies for control and management of these species. The team will develop a strategy that prioritizes removal efforts of these threats. Invasive species control recommendations will be included in the Conceptual Restoration Plan, with specific recommendations for long term monitoring and management.

**Deliverable: Summary report on invasive species surveys that provides an assessment of each species and its degree of threat on the Bushy Lake ecosystem including threats to WPT, a strategy for prioritizing control efforts, and recommendations for control methods. Report due by January 31, 2022.*

Task 1.3 Identify Critical Habitat Elements for Western Pond Turtle

The team will review existing and site specific scientific data to identify the habitat elements necessary for Western pond turtles to successfully reproduce and forage at Bushy Lake. This information will be used to inform the restoration design and will include key turtle habitat characteristics.

**Deliverable: Section in CRP that identifies critical habitat needs of WPT.*

Task 1.4 Public Education Plan

We will develop public education and advocacy plan for the Western pond turtles, by collaborating with the Sacramento Zoo to develop future written materials and public programs both for use at the zoo and at Bushy Lake.

**Deliverable: Public Education Plan section in CRP that identifies WPT written materials and WPT programs that can be used at Bushy Lake and contribute to Sacramento Zoo educational materials.*

Objective 2. Conduct studies and design a plan for fire resilient refuge for native flora and fauna

Approximately two to seven percent of riparian habitat remains in the Central Valley of California due to urban development, agricultural alterations to the land, and other anthropogenic activities (Vaghti and Greco, 2007; Moore et al., 2011). Consequently, restoration of riparian areas has become increasingly important as riparian loss has adversely impacted the environment and wildlife while significantly reducing cultural resources for indigenous groups (Hankins 2013; Seavy et al., 2009; Stevens 2004a; Stevens 2015; Smith 1977). Riparian vegetation plays a major role in influencing biodiversity and ecosystem functions in a riparian ecosystem (Alpert et al., 1999). Resident and migratory bird species, native plants, and wildlife depend on healthy ecosystems where suitable habitats and natural resources are available (Gaines 1977).

We will continue using high impact experiential education to include Sacramento State faculty and students in restoration projects. We also will continue involving local middle and high school students in the project monitoring. In the past we have involved students from George Washington Carver, School of Arts and Science; McClatchy High School American River Club; and Sheldon FFA at Sheldon High School. Members of the public have also been involved in adaptive management (weeding invasive species) and preventing human impacts such removing biohazards and notifying ranger stewards of human encroachment.

The following tasks will be completed to support this objective.

Task 2.1. Monitor Pilot Restoration Project

Dr. Michelle Stevens and CSUS students will monitor the existing on site pilot restoration project. Results of the monitoring will be incorporated into the Conceptual Restoration Plan planting design to promote fire resiliency. Plant species selection will focus on showcasing Native American cultural knowledge and ethnobotany to the public. Recommendations for a

fire resilient and culturally significant plant palette and revegetation recommendations will be included in the Conceptual Restoration Plan.

**Deliverables:*

- *Summary Report of monitoring data. Report due by January 31, 2022*
- *Plant palette that includes species that are native to Bushy Lake, resilient to fire, and will enhance habitat for the Bushy Lake ecosystem including its riparian community.*

Task 2.2 Aquatic Habitat and Water Quality Surveys (Dr. Jamie Kneitel and Dr. Tim Davidson, Sacramento State)

To address the aquatic ecosystem, including identification of invasive species, biologists will conduct aquatic habitat surveys of algae, crustaceans, and aquatic insects in Bushy Lake. Sampling will occur for one and a half years. Dr. Jamie Kneitel and student research assistants will conduct the surveys on a monthly basis to quantify seasonal dynamics. Dr. Tim Davidson, Sacramento State, will conduct trap surveys on Crayfish and freshwater crustaceans. These measurements are important to understand the base of the food web for the Western Pond Turtle. Invertebrate sampling will consist of 5-minute sweeps distributed evenly among different zones (e.g., benthic, littoral). Algae and invertebrates will be enumerated, and vouchers will be collected for identification in the Kneitel lab. Water quality will be sampled for dissolved oxygen, TSS, pH, and nutrients. A scientific report based on the water quality, invasive species, and other aquatic life will be included in the conceptual restoration plan.

**Deliverables:*

- *Summary report of aquatic surveys. Report will include assessment of invasive aquatic species (such as crayfish and bullfrogs) that may prey on WPT young. Report due by January 31, 2022.*
- *Summary report of water quality in Bushy Lake. Report due by January 31, 2022.*
- *Section in CRP that discusses aquatic habitat and species at Bushy Lake and how this data is incorporated in the basis of design for WPT habitat restoration, Bushy Lake habitat enhancement, and /or scoping public access opportunities.*
- *Environmental data uploaded into statewide data systems (e.g., California Environmental Data Exchange Network)*

Task 2.3 Hydrology Characterization (Dr. Kevin Cornwell, Sacramento State)

Dr. Kevin Cornwell will conduct the hydrologic characterization of surface water flow into and conditions at Bushy Lake. The objectives of the hydrologic assessment task will be to:

- a) clarify the land surface drainage conditions that contribute to surface water flow and storage at Bushy Lake,
- b) determine surface water elevations (through land surveying) at Bushy Lake and the river and assess how they change throughout the year with respect to each other,

- c) assess the surface and subsurface connection with the American River,
- d) determine how the river (and subsequently Bushy Lake) responds to upstream dam releases and what impact high discharge flow events may have on Bushy Lake over time, and,
- e) determine the rate of inflow into Bushy Lake from the groundwater pumping pipe from Cal-Expo.

This information will be used to determine where trail/boardwalks can be placed such that they do not negatively affect surface flow conditions within the floodway and that proposed restoration concepts will be resilient to flood and drought conditions. These objectives will be accomplished by mapping the land surface and drainage network that exists at the proposed restoration site clarify surface water flow to the Lake. Drones will be used to collect high resolution aerial photography to aid in developing a digital elevation model and topographic landscape map. Surface hydrology data will be collected on a seasonal basis. Once the land surface is mapped a flow model will be developed that provides conceptual information on the seasonal fluctuations in surface water flow between the American River and Bushy Lake. This flow model will help to identify baseline conditions for both low flow and flooding. From a hydrology perspective, knowing how water flows onto and off the study site will allow planners to predict water needs for biological stability.

**Deliverables:*

- *Summary report of hydrology assessment. Report due by January 31, 2022.*
- *High-resolution digital elevation model of the Bushy Lake site.*
- *High-resolution contour map*
- *Aid in the upload of environmental data uploaded into statewide data systems (e.g., California Environmental Data Exchange Network)*
- *Help craft section in CRP that discusses Bushy Lake's hydrology characterization and how the results contribute to the basis of design for WPT habitat restoration, Bushy Lake habitat enhancement, and /or scoping public access opportunities.*

Task 2.4 Wetland Boundary Mapping and California Rapid Assessment Method (CRAM)

Dr. Michelle Stevens and another qualified wetland ecologist will determine wetland-upland boundaries at the Bushy Lake site. The boundary will be mapped and the location data collected with GIS-grade GPS units. The resulting data will be overlain on an aerial photograph in GIS. The wetland-upland boundary determination will be mapped, and the wetland boundary information will be included in the Conceptual Restoration Plan. Identification of the wetland-upland boundary provides critical information on the limits for planting vegetation appropriate for the hydraulic conditions and limits of regulatory agencies so that if viewing platforms/boardwalks are proposed, potential impacts can be minimized.

Dr. Michelle Stevens and another qualified CRAM practitioner will conduct a CRAM for depression wetlands and submit to eCRAM data base. CRAM is a field-based rapid assessment method that evaluates wetland condition in relation to the broadest suite of possible ecological and social services, and beneficial uses. CRAM was created in response to a recognized lack of systematic, standardized, and scientifically defensible statewide data on wetland condition, readily available to agencies, land managers, scientists and the public, to inform and evaluate policies, programs and projects. CRAM is well suited for providing wetland condition data on specific wetland restoration projects, and since we conducted an assessment in 2016 the data can be used to assess changing site conditions. Changes in site conditions that result in lower CRAM scores indicate a need for monitoring and adaptive management, to be included in Section 4.3 of the CRP, development of a long-term management plan. The results of the 2020 CRAM data will be compared with previous CRAM results and included in the CRP.

*Deliverables:

- ESRI-formatted shapefiles and map of wetland and upland boundaries
- CRAM data uploaded into statewide data system
- Section in CRP that discusses wetlands, an assessment of change between the 2016 and 2020 CRAM, and how this informs that basis of design for habitat restoration, enhancement, monitoring, long term management and/or public access opportunities.

Objective 3. Draft and Final Conceptual Restoration Plan (Dr. Michelle Stevens, Area West and all contributors)

Task 3.1 Draft Conceptual Restoration Plan

The Draft Conceptual Restoration Plan will incorporate the following: 1) baseline condition studies and surveys; 2) provide goals and objectives; 3) identify locations, species composition and quantity of plantings; 4) identify potential irrigation needs; 5) timing for restoration activities, 6) identify locations and mechanisms for weedy plant removal; and 7) identify monitoring methods and adaptive management strategies to ensure successful restoration. Dr. Stevens and Ms. Rozumowicz-Kodsuntie will ensure completion of the draft conceptual restoration plan. Baseline data collected as part of the tasks listed above will be synthesized and integrated into the draft report.

**Deliverable: Draft Conceptual Restoration Plan due by January 31, 2023.*

Task 3.2 Task 6 Final Conceptual Restoration Plan Completion and Dissemination (Dr. Michelle Stevens and Area West)

The Draft Conceptual Plan will be reviewed by each of the technical experts on our team and input will be solicited from stakeholders. Comments will be addressed and where appropriate incorporated into the plan to create a Final Conceptual Restoration Plan. The final conceptual plan will meet 35% design specifications.

**Deliverable: Final Bushy Lake Conceptual Restoration Plan with 35% designs for habitat restoration and a Response to Comments section. Final Plan due July 31, 2023.*

Task 3.3 Development of Long-term Management Plan for Bushy Lake (Dr. Michelle Stevens and Area West)

A component of the final conceptual restoration plan will be a long-term management plan for recommendations for monitoring and adaptive management. Monitoring and management are the most critical component for sustainability of conservation, restoration, and recreational areas. Recommendations will follow guidelines outlined in the lower American River Parkway Plan.

**Deliverable: Long-term Management, Monitoring, and Adaptive Management section of CRP.*

Objective 4. Community Engagement and Stakeholder Input to Draft Conceptual Restoration Plan (Dr. Michelle Stevens and Area West plus all contributors)

The conceptual restoration plan will outline future mechanisms to promote public education and engagement. This includes recommendations for expanding the Bushy Lake web site (www.bushylake.com); developing brochures and expanding educational materials for public and schools; developing trails and/ or a boardwalk with interpretive signage. This public education plan will be developed with other stakeholders on the Parkway to target outreach to, and community service projects with, schools in the Arden Arcade area to promote inclusivity and integration of the underserved public. Recommendations will follow guidelines outlined in the lower American River Parkway Plan.

Task 4.1 Public and Stakeholder Outreach

We will schedule meetings with each of the stakeholders and present public presentations, including but not limited to Sacramento County Regional Parks, Cal Expo, SARA, Sacramento Zoo, California Department Fish and Wildlife, SAFCA, the Water Forum, Lower American River Task Force, Sacramento Valley Conservancy (Camp Pollock), Gardenland Northgate Neighborhood Association; Woodlake Neighborhood Association; American River Parkway Coalition, American River Parkway Advisory Committee, Natomas Community Association, U.S. Army Corps of Engineers, American River Parkway Foundation, Sacramento Audubon Society, Friends of the River, Friends of the River Bank, Environmental Council of Sacramento (ECOS), and Habitat 2020. We will specifically include Nissenan, southern Maidu, Mewuk, and other tribal groups in our stakeholder outreach and input.

**Deliverables:*

- *Public event held onsite at Bushy Lake in spring 2023*
- *Summary of community engagement and stakeholder outreach and input in progress reports.*
- *Updated Bushy Lake website*
- *Public Access and Education section in CRP.*

28. Explain how the project is compatible and consistent with the [2008 American River Parkway Plan](#). In particular, how the project is compatible with the project site's land use designation and if the proposed facilities, activities, and uses are permitted within the specific area plan of the Parkway.

The goals of the American River Parkway Plan are to *preserve, protect, interpret and improve the natural, archeological, historical and recreational resources of the Parkway, including an adequate flow of high-quality water, anadromous and resident fishes, migratory and resident wildlife and diverse natural vegetation.*

The proposed Conceptual Restoration Plan is designed to conserve, restore and protect the diverse natural plant and wildlife habitat on the Parkway specifically within the Bushy Lake area.

The Conceptual Restoration Plan will recommend creation of a *beautiful, peaceful and vibrant habitat that changes through the seasons and through the years.* The proposed plan will build on lessons learned from Sacramento State's pilot restoration project to design a fire resistant and successful native plant species palette, based on traditional cultural plants important to Native Californians. The vegetation composition will provide habitat connectivity and wildlife travel corridors on the Parkway. The elderberry bushes will be mapped and incorporated into the conceptual restoration plan, as they provide for the habitat needs of the endangered valley elder berry longhorn beetle (VELB). Bushy Lake has remained a wildlife refuge during many disturbances including wildfires, human intrusion, and invasive species degrading habitat.

The Conceptual Restoration Plan will be designed to operate and maintain Bushy Lake in a manner that maximized its value to fish and wildlife. This includes *monitoring and adaptive management to reduce invasive plant species* such as poison hemlock (*Conium maculatum*) star thistle (*Centaurea solstitialis*), perennial pepperweed (*Lepidium latifolium*), Himalayan blackberry (*Rubus armeniacus*) and other weedy species in the project area. The outcome of this plan is to create a path for restoring wetland and riparian habitat around Bushy Lake. A key element of restoration is removing non-native (and highly flammable) weedy plant species. Opening up the grassland area further provides nesting habitat for western pond turtles and foraging habitat for raptor species.

To provide, protect, and enhance for public use a continuous open space greenbelt along the American River extending from the Sacramento River to Folsom Dam.

A component of the conceptual plan is to increase the public enjoyment, education and citizen science of the valuable native plant and wildlife species. The Bushy Lake Conceptual

Restoration Plan will collaborate and propose linkages with other nature education and recreation sites on the Parkway. The conceptual plan will also explore ways to build on public education. One way of reaching the public is through our existing Bushy Lake web site (<https://bushylake.com/>), and Sacramento State students created a Wikipedia page (https://en.wikipedia.org/wiki/Bushy_Lake). Through the planning process, we will work with a landscape architect, and solicit stakeholder input to gather ideas to expand the web site, develop a proposed trail and brochure trail guide when the project is implemented in the future. We will expand our mailing list to advertise public events/ workdays at Bushy Lake to engage Sacramento State students, local middle and high school students, and the general local community. Michelle Stevens has established an Earth Day "Adaptive Management" tradition at the site.

To provide public safety and protection within and adjacent to the Parkway.

Bushy Lake has been subject to human intrusion. We have requested assistance from our Sacramento County Park Rangers (ranger stewards) to help remove encampments in the restoration project, and discourage using the area as an unsafe garbage dump. By continuously monitoring the wildlife and vegetation at the site, we have been able to prevent unauthorized trespassing and remove trash. Ultimately through the studies and plans detailed in this project, we will present well developed concepts to attract future users who will appreciate and take pride in the wildlife and scenic value of Bushy Lake as it changes through the seasons. This is an excellent site for public education (leave no child inside), citizen science, and passive recreation. Recommendations will follow guidelines outlined in the ARPP and the Bushy Lake Preservation Act.

CONSERVATION EFFICIENCIES

29. Does the project include any design features that were purposefully included to reduce the effects of climate change or to address water efficiencies, stormwater capture for infiltration or reuse, species recovery, etc.? Please describe.

The Conceptual Restoration Plan will address climate change, water efficiencies, and species recovery. The Conceptual Restoration Plan will develop mechanisms for building climate resiliency into the restoration of native flora and fauna species. Climate projections indicate we will be dealing with hotter temperatures, more erratic rainfall patterns, and increased risk of fire. The vegetation palette we will design will incorporate xeriscaping (to use less water) and fire resiliency.

Finally, we will also plan to assist in sensitive species recovery and habitat conservation of the western pond turtle (CDFWS species of concern).

PROJECT READINESS

30. Has the project been reviewed in accordance with the California Environmental Quality Act?

Yes

State Clearinghouse number:

Document type:

File date:

No

Anticipated document type (if filing a Notice of Exemption, specify the categorical exemption and how the project qualifies):

Anticipated filing date:

Lead agency:

If CEQA review will not be completed explain why in CEQA terms.

The proposed Project includes the development of a Conceptual Restoration Plans. As such, the activity does not have the potential for a direct physical change or a reasonable foreseeable indirect physical change in the environment and there is no discretionary action by a California lead agency.

31. List all applicable State, federal and local permits or agreements that need to be obtained for the project and the status of each:

We will obtain permits from Sacramento Regional Parks Department for all work on the proposed Conceptual Restoration Plan. We will obtain a permit from Sacramento State on Animal Care and Handling. No state, federal or local permits are required. At the time elements of this plan progress to implementation, we will we would apply for the following permits if applicable to the final restoration plan: California Environmental Quality Act Compliance – Initial Study/ Mitigated Negative Declaration; Clean Water Act Section 404; Clean Water Act Section 401; California Fish and Game Code 1602; California Fish and Game Code 2081; Endangered Species Act Section 7 Consultation – U.S. Fish and Wildlife Biological Assessment. In order to National Historic Preservation Act Section 106 – Cultural Resources Report.

32. Does applicant have long-term land tenure for projects proposing on-the-ground work?

Bushy Lake is located within the Cal Expo Area of the 2008 American River Parkway Plan and is the property owner. We have a letter from Liz Bellas, Sacramento County Regional Parks Department, stating "Regional Parks would be able to accommodate a Bushy Lake Conceptual Restoration Project, upon Project approval by the Recreation and Parks commission and if needed, the County Board of Supervisors" (attached). We plan to discuss the project with both entities as soon as possible.

We also received the following email from Kristina Kazer, Grants Analyst, California Exposition & State Fair (attached).

“In order to see if we (Cal Expo) could support your work out at Bushy Lake, we did a bit more research into the processes of Land Use out there. As you know, the Cal Expo area of the American River Parkway is managed by Sacramento County, therefore, the County is the entity that you would need to gain permission/support from. Although the land is Cal Expo’s, even we need to gain the proper permissions and approvals from the County to use the space (i.e.: extra parking during fair time etc.). Since this is the case, the letter of support from Liz Bellas should be sufficient to support your grant proposal. Unfortunately, if you do require additional support from Cal Expo, your only option would be to get the necessary permissions from the County and then present it to [Cal Expo’s] Board in September. Because the Board is our governing body, we are not in a position to “tentatively” support or sign anything without their Therefore, we will request permission to attend the September Cal Expo Board meeting and request support for our Bushy Lake Conceptual Restoration Plan.

33. Has any work been completed for the project that would facilitate timely project implementation (e.g., community outreach, agency consultation, planning, etc.)?

Sacramento State Professor Michelle Stevens and Principal Investigator, has led six research studies on the Bushy Lake Pilot Restoration Project since 2015 focused on a six acre area on the southeast side of Bushy Lake. This site provides an important wildlife refuge in the lower American River Parkway. Data from the pilot project will provide a template for the proposed studies addressing the 36-acre site to ensure that science- based resources that inform the Conceptual Restoration Plan are consistent with those in the Protected Area designated in the American River Parkway Plan. Moreover, the pilot restoration project will provide a sustainable plant palette of diverse habitat of fire resilient native vegetation dominated by creeping wildrye (*Leymus triticoides*), Santa Barbara sedge (*Carex barbarae*), and mugwort (*Artemisia douglasiana*) which will provide a plant design for the Conceptual Restoration Plan to optimize successful revegetation efforts.

Finally, the proposed public outreach builds on previous community engagement in the area. In 2016 we launched a public event Unveiling of Bushy Lake Restoration and Environmental Education Event that included local dignitaries such as Will Harris, Sacramento County Supervisor Phil Serna, and Congressman Kevin McCarty. Building on this template, we intend to repeat a similar event with guided tours to announce the final plan including Parkway engaged environmental and scientific organizations, the public, Sacramento State students, teachers and students in the Arden Arcade area.

34. If the project includes acquisition of land, describe the status of landowner negotiations, and any due diligence that has been initiated. This project does not require land acquisition.

35. What would happen to the project if no funds were available from WCB? The project would continue at a small scale and patchwork approach. We would not be able to develop a conceptual restoration for the entire Bushy Lake. We would continue the pilot restoration experimental

project with Sacramento State's Environmental Studies students and faculty with very limited funding. Research on the western pond turtle will continue and both restoration and monitoring will continue slowly. Without funding, our capacity to actively enhance and restore a sustainable habitat for western pond turtle populations on the lower American River would be severely curtailed. Ongoing stressors on the site like trespass, human intrusion and trash would continue or grow worse. Fire is certainly a worse threat with the weedy vegetation, rather than a native plant palette that is resilient to wildfire. The opportunity to showcase tribal cultural use of the Parkway would be very limited.

SCOPE, SCHEDULE AND BUDGET

36. Provide a detailed Scope of Work, Timeline, Budget, Cost Share, and Summary using appendices A, B, C and D, and E, respectively.

Note: Project approval expected in February 2020. Work may not begin until a grant agreement is fully executed, which may not be until May 1, 2020. Work must be completed prior to March 15, 2024.

[Appendix A – Scope of Work \(Word\)](#)

[Appendices B, C, D and E \(Excel\)](#) (each worksheet represents a single appendix)

PROJECT MONITORING AND REPORTING

37. Include a Monitoring and Reporting Plan that explains how improvements will be measured and quantified during the project and how project success will be evaluated and reported. See the current Proposal Solicitation Notice for more information. Attached additional pages as needed.

Dr. Michelle Stevens, Principal Investigator (PI, Sacramento State), will serve as the scientific lead. She will ensure the integrity of the data collected, is the main point of contact to the Wildlife Conservation Board (WCB), and will be the point of contact for stakeholders. Becky Rozumowicz-Kodsuntie (Area West Environmental Inc.) will coordinate the team and ensure the schedule is met and deliverables are of high quality. She will communicate regularly with WCB staff and the team via email, telephone, and in-person meetings to keep them abreast of progress on the work and findings. As progress is made, regular status reports will be submitted to WCB.

Sacramento State will closely monitor and approve all expenditures of time and materials. Sacramento State will provide the WCB with a regular status report to document work completed and budget status at the end of each month of the project period.

Frequent communication with the team is critical. Becky Rozumowicz-Kodsuntie will be responsible for management control strategies. She will keep the team sufficiently informed in advance of

deadlines to ensure timely delivery of their work products, and she will receive regular status updates from the team.

Dr. Stevens, Ms. Rozumowicz-Kodsuntie, and the team from Sacramento State, The Wildlife Project, and Tallac Applied Ecology and Design will develop a schedule that accurately identifies deadlines and key milestones necessary to keeping the schedule on track.

Ms. Rozumowicz-Kodsuntie will ensure that the work produced reflects the goals laid out in the grant proposal and budget. It will be of high quality, meeting or exceeding expectations, applicable professional standards, and regulatory requirements. Our team has an excellent record of delivering high quality, comprehensive plans and documents on time and within defined budgets. Quality Control/Quality Assurance (QA/QC) procedures will be used on all documentation to ensure work products that are comprehensive and meets the intended need. Our team employs a three-tier quality control system that includes (1) an in-house editor who reviews all materials, (2) independent review by technical experts, and (3) in-house scheduling and management tools. All members involved have the authority to identify problems and to initiate, recommend, and verify solutions. All work products will be reviewed by Dr. Stevens or Ms. Rozumowicz-Kodsuntie to ensure completeness, accuracy, quality, and consistency.

Progress reports will be submitted no less than quarterly to document the progress of all tasks outlined in this grant proposal. Success will be measured by meeting QA/QC requirements for the work and meeting milestones as identified in this proposal. The incorporation of recommendations from highly qualified scientists and advisors will ensure the rigor and quality of the work.

As a planning project, we will use output performance measures (studies and planning deliverables) to monitor our performance as detailed in section 27 and Appendix A.

DURABILITY OF INVESTMENT

38. Describe the long-term management that will deliver enduring, sustainable benefits of the project beyond the term of the grant agreement. Include duration of the proposed long-term management and the entity responsible for carrying out the long-term management tasks.

We will develop a long-term management plan that includes recommended monitoring and adaptive management as an integral component of the final Conceptual Restoration Plan. The site is owned by Cal Expo and managed by Sacramento County Parks. All management must be approved by Parks, ensuring that any proposed management, restoration or conservation measures fall within the Parkway Plan goals and guidelines. Cal Expo also must approve any actions taken based on the Conceptual Restoration Plan and public outreach.

The Conceptual Restoration Plan will include a long-term management plan included as a key component. The biggest needs for the site are control of invasive species, maintaining water quality and flows into Bushy Lake during summer low flows, maintaining native vegetation, and preventing human trespass and damage. Currently, there is an ever-increasing homeless population with trash and biological waste degrading the site. Without a presence and stewardship by Sacramento County Rangers, the site would be destroyed. There is a safety concern at this time, and will require stewardship.

From a hydrology perspective, knowing when water flows onto and off the study site will allow researchers to predict water needs for biological stability. How the water chemistry may change throughout the water year will also allow researchers to predict potential impacts to biologic stability as water chemistry changes throughout the water year.

CCC/CALCC SERVICES

- 39. Did applicant consult with the California Conservation Corps or the California Association of Local Conservation Corps to use the services of the Corps for any portion of the project?**

Yes No

If yes, submit consultation form with this application. If the Corps will be used, they must be included in the Budget. Consultation form and instructions are included in [Appendix F \(PDF\)](#).

This is a conceptual plan, so there not be implementation of the restoration project or need for the California Conservation Corps or California Association of Local Conservation Corps at this time. We would love to contact them and have their assistance at the implementation phase.

SERVING SEVERELY DISADVANTAGED COMMUNITIES

- 40. Will the project provide benefits to one or more severely disadvantaged communities?**

See the current Proposal Solicitation Notice for a two-step process to evaluate whether the project will benefit a severely disadvantaged community.

Yes No

If yes, describe the benefit(s) provided and attach a map print-out from the [Disadvantaged Communities Mapping Tool](#) that shows the location of the project site and the severely disadvantaged community the project will benefit.

Bushy Lake is within the Arden Arcade area broadly identified as a severely disadvantaged community under Disadvantaged Communities and Tract 2016 (GEO10 06067005509). The proposed plan aims to preserve and restore a site that ultimately will result in expanded public access and educational opportunities including future public education and habitat restoration efforts that will engage students from middle schools in the Arden Arcade Area.

COMMUNITY ACCESS

- 41. Will the project improve or expand community access to the Parkway through engagement programs, technical assistance, or facilities that maximize safe and equitable physical**

**admittance, to natural or cultural resources, community education, or recreational amenities?
If yes, describe how.**

The Conceptual Restoration Plan will outline future mechanisms to promote public education and engagement. This includes recommendations for expanding the Bushy Lake web site (www.bushylake.com); developing brochures and expanding educational materials for public and schools; developing trails and/ or a boardwalk with interpretive signage. This public education plan will be developed with other stakeholders on the Parkway to target outreach to, and community service projects with schools in the Arden Arcade area to promote inclusivity and integration of the underserved public. We plan a launching event upon completion and approval of the Bushy Lake Conceptual Plan.

SUPPORT AND COLLABORATION

42. Explain how the project is compatible and consistent with relevant State, federal or regional plans, and the [2014 WCB Strategic Plan \(PDF\)](#).

This project is compatible and consistent with the Wildlife Conservation Board Strategic Plan and California Wildlife Protection Act of 1990. This project is in alignment with WCB Goals of Environmental Protection and Conservation; Environmental Restoration and Enhancement; and Public Awareness and Education. The Bushy Lake Conceptual Restoration Plan uses science-based decision making through the adaptive restoration process to identify the significance of the area as a refuge for western pond turtles. The habitat has been resilient to wildfire and provided a refuge for songbirds, deer, small mammals (otters and beavers), and Valley elderberry longhorn beetle habitat. It is the only open water wetland habitat on the lower American River providing this habitat, augmented by our pilot eco-cultural restoration project.

Goal A.1 – The proposed Conceptual Restoration Plan provides resiliency in this wildlife habitat refuge and corridor to climate change including increased drought, threat of wildfire, invasion of exotic plant and animal species, and human encroachment. Western pond turtles are particularly vulnerable to climate change due to increased temperatures and drought.

Goal A.2 - Restore habitat of the most viable populations or areas with high habitat integrity; wetland habitats supporting water birds, including migratory waterfowl and shorebirds.

Goal C-1. – Promote wildlife dependent recreation, education and citizen science. This project will provide education and public outreach to disadvantaged communities.

43. Describe how your project has community and regional support.

Letters of support are highly encouraged and should be provided with the application and addressed to the executive director of WCB. We have included the following letter(s) of permission / support: 1) Liz Bellas, Director Sacramento County District Parks;; 2) Laura Patterson, Matt McKim, Director of Animal Care, Sacramento Zoo

44. Describe any in-kind services and their significance for the project. This project enables faculty and students at Sacramento State to engage in high impact student faculty research.



Figure 1. Bushy Lake Location

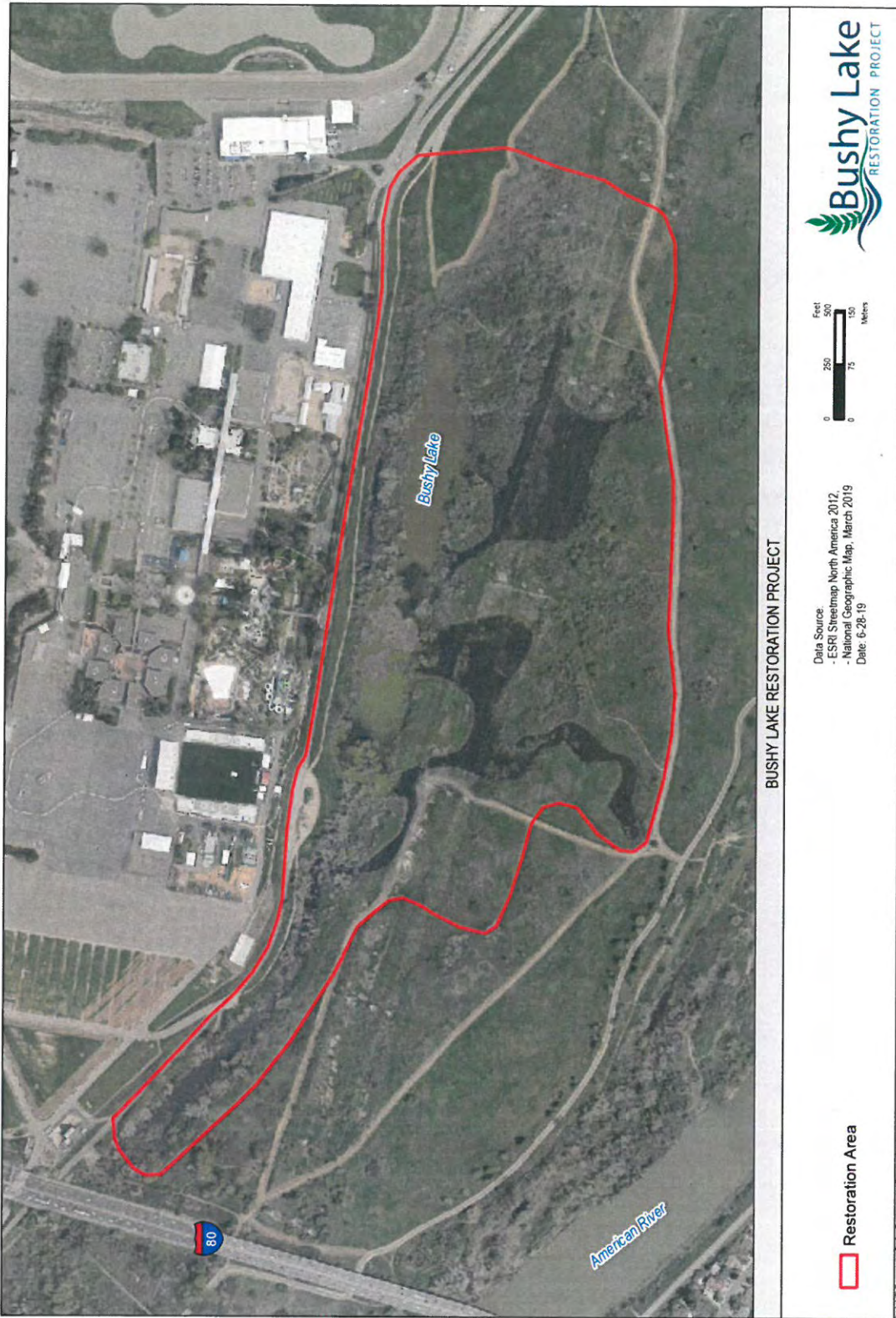


Figure 2. Bushy Lake Restoration Site

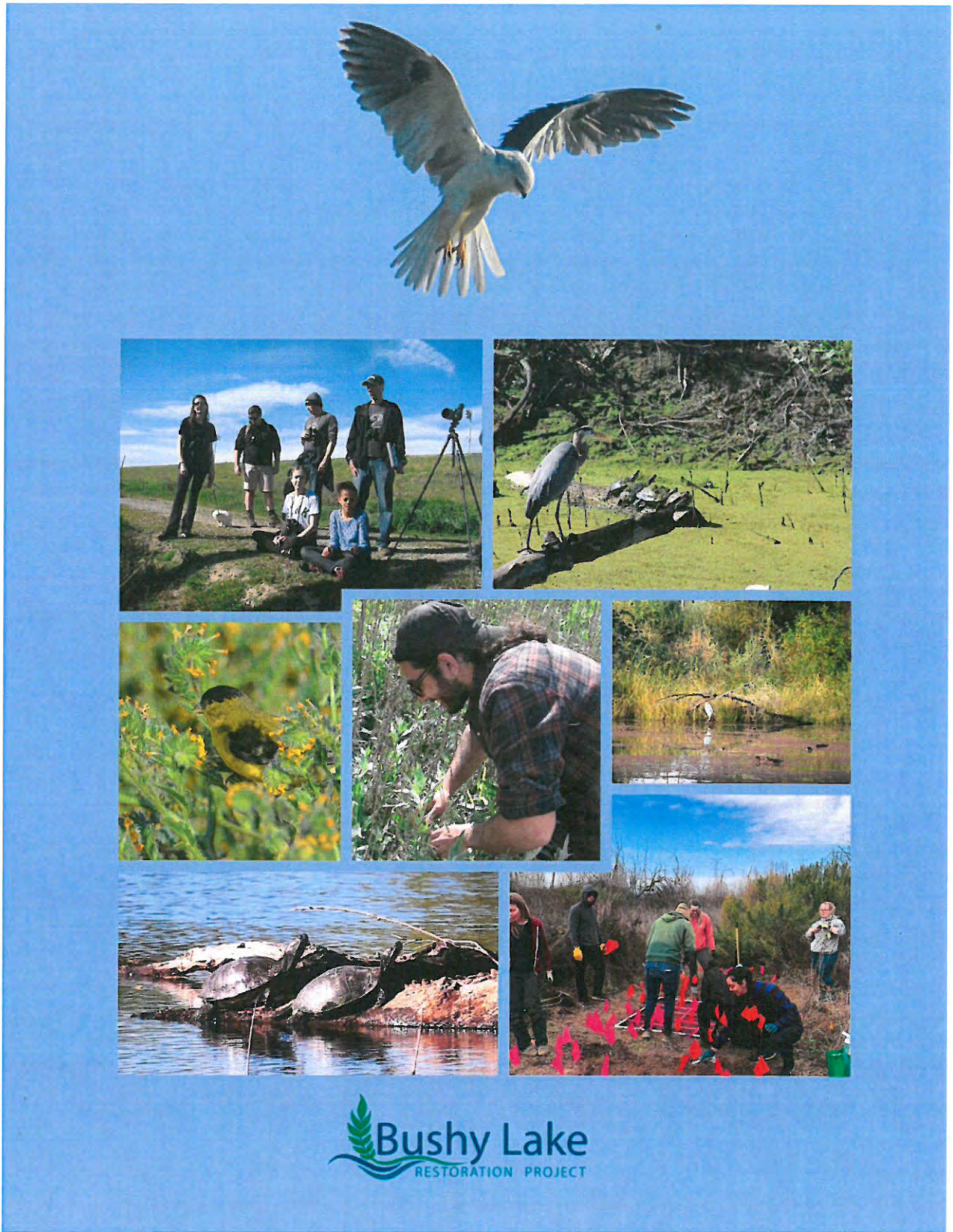


Figure 3. Bushy Lake Photos