

# Bushy Lake Conceptual Restoration Plan

Sacramento County

\$716,507.00

This proposal is to consider the allocation for a grant to University Enterprises, Inc. (on behalf of California State University, Sacramento (Sacramento State)) for a habitat restoration and education and interpretation planning project at Bushy Lake in Sacramento County.

## LOCATION

Bushy Lake is located within the lower American River floodplain and is part of the California Exposition and State Fair (Cal Expo) Area Plan of the 2008 American River Parkway Plan (Parkway Plan). The State of California acquired the undeveloped land near Cal Expo in the 1940's with the intent of developing a golf course. Developers compacted soils and altered the bathymetry of the Bushy Lake depression to include fingerlike 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 (Act) (1976), with the intent of protecting the remaining riparian area. The Act 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. The Act requires the California Exposition and State Fair Board of Directors to preserve, for public day use and enjoyment, the Cal Expo floodplain in a manner consistent with the definition of a state park, and consistent with the Parkway Plan which designates it as a Nature Study Area.

Located on approximately 408 acres on the north side of the American River, Bushy Lake is 1000 feet from the river and between Woodlake 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 site is crossed in a north/south direction by the Capital City Freeway and in an east/ west direction by SMUD and PG&E overhead 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 and water table conditions. Its water level is currently maintained by groundwater pumping by Cal Expo in accordance with the Act.

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. Cal Expo uses an unpaved 11-acre area for parking during the State Fair.

The site is increasingly subject to frequent and severe anthropogenic disturbance through wildfires, human intrusion and trash. In 2014 and 2016, wildfires at Cal Expo burned over 160 acres around Bushy Lake. Local utilities, fire departments, and community members have all expressed concerns about the ever-increasing wildfire risk which potentially threatens the utility corridor, human structures and ecosystems.

The Cal Expo Area Plan is managed by Sacramento County Department of Regional Parks through an agreement with Cal Expo consistent with the Parkway Plan and the Act. This area plan is located within the Arden Arcade area of the City of Sacramento and is broadly identified as a Disadvantaged Community and a Severely Disadvantaged Community.

## PROJECT DESCRIPTION

In January 2015, Sacramento State began the Bushy Lake Restoration Demonstration Project (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. Under the direction of Dr. Michelle Stevens (Professor, Department of Environmental Studies) the Demonstration Project has initiated four years of research, a pilot adaptive restoration project, monitoring and adaptive management, and public involvement. In the process of monitoring, it was discovered the site is a refuge for Western pond turtles (pond turtle), a state-listed species of special concern. The proposed project is also informed by ongoing threats of wildfire and human intrusion into the Bushy Lake area.

The goal of this project is to create a conceptual restoration plan for the Bushy Lake Area with the following objectives: 1) protect, enhance and restore a sustainable habitat refuge for the pond turtle; 2) enhance habitat for fire-resilient native flora and fauna; and evaluate potential storm water inputs from Chicken Ranch and Strong Ranch Sloughs. The plan will integrate ways to enhance the education and interpretation of resources in the Parkway, specifically showcasing tribal cultural use of the Parkway.

### **Objective 1: Protect, Enhance and Restore a Sustainable Habitat Refuge for the Pond Turtle**

The pond turtle is the only native freshwater turtle left in California. It 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 preliminary turtle monitoring data, Bushy Lake provides a high quality refugia for pond turtles on the lower American River. Pond 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. Preliminary research also suggests an increasing density and dominance of another species of turtle at Bushy Lake, the invasive red-eared slider. Two years of visual turtle surveys at Bushy Lake reveal approximately 80% red-eared vs. only 20% pond turtle. The project will conduct studies on the pond turtle and red-eared slider to evaluate species competition, invasive turtle impacts on native turtles, occupation of basking sites, suitability of habitat, water quality, and the aquatic ecosystem.

Monitoring and understanding the critical habitat needs of the pond turtle will help determine what biological conditions occur at the site to optimize pond turtle habitat. This study would contribute to vitally needed literature on competition with non-native turtles, habitat requirements in an urban setting, and sustainable conservation.

This information will be used to map and design physical space for critical pond turtle habitat, including nesting and upland habitats. The aquatic/ terrestrial nexus is critical for nesting turtles and the survival of young turtles.

In collaboration with the Sacramento Zoo, a plan will be developed for public education and advocacy for the pond turtle to develop future written materials and public programs for use at the zoo and at Bushy Lake.

### **Objective 2: Enhance Habitat for Fire Resilient Native Flora and Fauna**

Approximately two to seven percent of riparian habitat remains in the Central Valley due to urban development, agricultural alterations to the land, and other anthropogenic activities. 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. Riparian vegetation plays a major role in influencing biodiversity and ecosystem functions in a riparian ecosystem. Resident and migratory bird species, native plants, and wildlife depend on healthy ecosystems where suitable habitats and natural resources are available.

The project will maintain the Demonstration Project onsite as an in-situ reference area and incorporate the data and results of its monitoring and adaptive management into the plan. Additionally, a fire resilient native plant palette will be designed with emphasis on culturally significant plants, pollinators, and aesthetically pleasing species for public recreation and education. Culturally significant plant species, adapted to centuries of traditional fire management, will be incorporated into the planting design to promote fire resiliency. Plant species selection will further provide an opportunity to showcase Native American cultural knowledge and ethnobotany to the public.

The following surveys and studies will be completed to support this objective:

- Valley elderberry longhorn beetle habitat survey
- Nesting bird survey
- Algae, crustacean, and aquatic insects and wildlife survey
- Hydrologic characterization of surface flows
- Wetlands and Waters of the U.S. and State delineation

### **Objective 3: Evaluate Potential Storm Water Inputs**

Chicken Ranch and Strong Ranch Sloughs pass through the urbanized Arden-Arcade area into a regional storm water detention pond and into the American River. These seasonal creeks have been channelized and lined with concrete to collect storm water and convey it quickly into the American River.

The project will evaluate the potential timing and environmental impacts of stormwater inputs on the water quality and quantity of Bushy Lake by completing the following tasks:

- Install stilling well and stage logger to gauge discharge at the outfall into the American River
- Collect and analyze water samples
- Coordinate hydrology data of Bushy Lake and stormwater inputs
- Evaluate potential impacts of routing stormwater into Bushy Lake
- Characterize influence of hydrology on the ecosystem

Based on results from the previous objectives, a Draft Bushy Lake Conceptual Restoration Plan (Draft Plan) will be prepared that includes a long-term management plan for monitoring and adaptive management.

The Draft Plan will also outline future mechanisms to promote public education and engagement. Community engagement 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.

The Draft Plan will be developed with outreach meetings and presentations to all identified stakeholders and the public. The project team technical experts will review the Draft Plan, followed by the Final Conceptual Restoration Plan which will incorporate technical and public comments. A public event will be held at the final approval of the plan to showcase the proposed restoration, conservation, and public outreach of Bushy Lake.

## PROJECT FUNDING

Project Task	WCB Funds	Total Cost
Terrestrial Studies and Reports	\$189,522	\$189,522
Aquatic Studies and Reports	\$238,776	\$238,776
Outreach	\$23,544	\$23,544
Conceptual Restoration Plan	\$113,032	\$113,032
Other Direct Costs	\$32,215	\$32,215
Indirect Costs	\$119,418	\$119,418
Totals	\$716,507	\$716,507

Project costs will be for data collection and reporting, designing critical habitat for pond turtle, drafting and finalizing conceptual plan, and outreach.

No cost share funds were identified for this project.

## CONSISTENCY WITH AMERICAN RIVER PARKWAY PLAN

In accordance with Public Resources Code Section 5845.5, the American River Parkway Compliance Analysis will be completed for the project at the November 2019 Recreation and Parks Commission meeting.

## STAFF RECOMMENDATION

Staff recommends that the Advisory Committee of the Lower American River Conservancy Program recommend one of two Project alternatives:

1. Partial funding up to \$370,000 with a scope of work revision, including a restoration plan focus on pond turtle restoration, habitat fire resiliency, education and engagement, and project completion by 2023 or,
2. Recommend no funding in the current PSN cycle but offer technical assistance to scope a focused planning project for the pond turtle at Bushy Lake.

Following the choice of Alternative 1, recommend that WCB staff present this project to the Wildlife Conservation Board for approval at a 2020 Board meeting.