December 4, 2019

TO: San Joaquin River Conservancy Governing Board

FROM: John M. Shelton, Executive Officer

SUBJECT: Authorize Bond Funds and Grant to the San Joaquin River Parkway and Conservation Trust to Implement Habitat Enhancement Project at River West Fresno

RECOMMENDATION:
It is recommended the Board approve $588,000 in Prop 40 bond funds and a grant agreement with the San Joaquin River Parkway and Conservation Trust to implement the River West Fresno E-Pond Habitat Enhancement Project on 23 acres of Conservancy property within River West Fresno. Wildlife Conservation Board (WCB) authorization would be requested at their February 2020 meeting.

SUMMARY:
The San Joaquin River Parkway and Conservation Trust (River Parkway Trust) proposes to revegetate 23 acres of riparian and upland habitat within the San Joaquin River Conservancy’s (Conservancy) River West Fresno site. This project would expand upon the soon to be completed habitat enhancement of 100 acres around the adjacent H-pond including the development of irrigation infrastructure from an existing well, and extensive planting and plant establishment activities.

This project will improve native habitat connectivity and diversity, while increasing the acreage of habitat within this reach of the river. The habitat to be installed is specifically designed to attract and serve a broad diversity of wildlife species including the following federal and state-listed species: Valley Elderberry Longhorn Beetle, Swainson’s Hawk, Western Yellow-billed Cuckoo, San Joaquin Pocket Mouse, and the San Joaquin Kit Fox. The wildlife benefits would increase throughout the project duration and over time as the restored habitat matures.

The scope of work for the project has four phases: site preparation, habitat enhancement planning, plant installation, and monitoring/adaptive management. Over 4,000 native trees, shrubs and grasses will be planted, with irrigation for approximately three years to establish self-sustaining habitat. River Parkway Trust’s no-till farming technique is designed to provide high growth rates and survivability of installed plants with little to no impact to the existing vegetation and habitat.

The project will not conflict with any of the features proposed in each alternative of the Eaton Trail Extension Project, such as the parking lot in alternative 1 and the southern entrance in
alternative 5b, so that planting will not interfere with any future construction. The project will enhance future visitors’ experience by providing for improved nature observation, environmental education opportunities, and shade.

The proposed Project is consistent with the Conservancy’s mission and the San Joaquin River Parkway Master Plan Update and is an eligible use of Conservancy bond funds.

The detailed project proposal, maps, and line item budget are provided in Attachment 1.

DISCUSSION:

Location
The proposed project is east of the “E”-shaped gravel excavation pond within the Conservancy’s 291-acre River West Fresno property near the geographic center of the planned San Joaquin River Parkway. The proposed project is approximately one mile downstream of the State Route 41 bridge on the left bank of the river in Fresno County and the City of Fresno.

Project Goals and Objectives
The proposed Project is consistent with the Conservancy’s statutory mission. The San Joaquin River Conservancy Act at Public Resources Code §32533 states, “The conservancy may undertake site improvement projects; regulate public access; revegetate and otherwise rehabilitate degraded areas, in consultation with other public agencies with appropriate jurisdiction and expertise; upgrade deteriorating facilities; and construct new facilities as needed for outdoor recreation, nature appreciation and interpretation, and natural resource protection.”

The proposed project will meet fundamental goals of the adopted San Joaquin River Parkway Master Plan:

- Preserve and restore a riparian and floodplain corridor or statewide and regional significance along the San Joaquin River from Friant Dam to the Highway 99; (FG 1);
- Conserve wildlife species that depend on the river environment. (FG 2); and
- Conserve, restore, and enhance natural resources and protect cultural resources while also meeting recreational and educational needs; (FG 4).

The proposed project is consistent with Parkway Master Plan policies, including:

- Enhance, restore, and maintain native vegetation, riparian, wetland, woodland, and grassland habitats within natural reserves, open spaces, and wildlife corridors; (Habitat P7);
- Areas suitable for habitat restoration shall be restored by replanting or habitat management to encourage the establishment and growth of natural vegetation. Selection of restoration species shall be made primarily based on the hydrologic, climatic, and soil conditions, and secondarily on the objectives for recreational uses. Native indigenous riparian species shall be used to the greatest extent possible. Areas damaged by facilities placement shall be mitigated on a no-net-loss basis by restoring habitat in the immediate or adjacent vicinity (NRD1.3).
- Revegetation with native species to close gaps in the wildlife corridor or enhance the effectiveness of buffer zones (NRO5).
- Design restoration projects based on site-specific studies of soils, water availability, slopes, hydrology, and other environmental conditions. (Habitat P15).
- Use native plant species for landscaping and vegetation restoration to the greatest extent possible; (Habitat P16);
• Generally, use locally-sourced native plant species for habitat restoration projects; (Habitat P17);
• Use appropriate best management practices and protection measures for restoration projects to limit damage by animals; (Habitat P22); and
• Plan for transit connections/stops at trailheads, Parkway staging areas, and activity centers during project development; (Access P17).
• To the extent feasible, conserve and re-establish the upper canopy of riparian habitat (i.e., oaks, cottonwoods, sycamores) to provide roosting and nesting habitat for raptors, herons and egrets, and other bird species; (Habitat P21);
• To the extent possible, restore a continuous distribution of elderberry shrubs throughout public Parkway lands striving for a distance no greater than 0.25 mile between elderberry plants; (Habitat P32);
• Place a high priority on riparian habitat conservation and restoration to establish and enhance wildlife habitat and corridors and improve aquatic habitat. (Habitat P36)
• Restore a variety of habitat types, such as Great Valley cottonwood riparian forest, cottonwood willow riparian forest, and Great Valley willow scrub, taking into account the needs of varied species; (Habitat P37);

The primary goals of the proposed project are to increase and improve quality riparian and upland habitat that will simultaneously provide multi-species benefits. Once implemented the project should meet the following objectives:
• Establish self-sustaining native plant communities at the site;
• Achieve a sufficient survival rate and canopy cover of installed plants ;
• Control nonnative invasive plant species including yellow star-thistle and prickly lettuce.
• Improve the scenery, recreational opportunities, and provide shade and screening for the future Eaton Trail Extension Project; and
• Use an adaptive management approach to ensure project success.

Budget and Funding
The total budgeted cost of the project is $596,000 with the proposed Conservancy grant funding direct costs not to exceed $588,000. River Parkway Trust will provide in-kind funding in the amount of $8,000. The budget detail is shown in Attachment 1, page 21.

The proposed project is an eligible use of Conservancy bond funds. Bond funds are appropriated in WCB’s budget to be directed to projects at the Conservancy Board’s discretion for land acquisition, and habitat enhancement, public access, and recreation capital improvements. Balances totaling approximately $25 million remain in the Conservancy’s voter-approved bond funds from the Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Bond Act (Proposition 40, 2002), and the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act (Proposition 84, 2006). The WCB will determine which of the appropriations will be used. (The unobligated total does not include Proposition 1 watershed protection and restoration funds.)

Schedule
The project schedule is shown in Attachment 1, page 10. Year 1 will consist largely of preparing the site, planning, collecting and propagating plants, installing irrigation, and plant installation. Years 2 and 3 will consist of planting and irrigating as necessary to establish self-sustaining native vegetation. Year 4 will consists of understory seeding as needed, continued maintenance, and eventually decommissioning the project. Monitoring and adaptive management will be performed throughout the project.
Long Term Management
The project site is preserved in perpetuity for conservation purposes under the state’s ownership and Conservancy management. The Conservancy provides fundamental property management, such as maintaining fences, gates, and signs; removing illegally dumped materials; fire prevention; etc. The River Parkway Trust will be responsible for a 25-year maintenance period for the habitat improvements funded by the bond funds.

CEQA Compliance and Permits
The proposed habitat restoration project will involve minor alterations to land (tree and shrub planting, irrigation, and maintenance), with no grading or removal of mature native vegetation. It meets the criteria for CEQA categorical exemption Class 4, 15304. Upon Board approval, a Notice of Exemption will be filed by the Conservancy as the Lead Agency.

A Streambank Alteration Agreement with the Department of Fish and Wildlife will be submitted by the River Parkway Trust. (No part of the project is within State Sovereign Lands under the jurisdiction of the State Lands Commission or within the designated floodway under the jurisdiction of the Central Valley Flood Protection Board.)

Rebecca Raus
Associate Governmental Program Analyst

Attachment 1: River Parkway Trust’s Proposal, River West Fresno E-Pond Habitat Enhancement
Attachment 1

River West Fresno

E - Pond
Habitat Enhancement Project

A Proposal to the San Joaquin River Conservancy
San Joaquin River Conservancy
5469 E. Olive Ave
Fresno, CA 93727

Restoration Funding Application

APPLICANT INFORMATION

Full Legal Title of Organization Requesting Funding: San Joaquin River Parkway & Conservation Trust, Inc.
Mailing Address: 11605 Old Friant Road
Fresno, CA 93730
Federal Employee Identification Number: 77-0196692
Person Representing Organization: Jake Salimbene
Title: Project Manager
Telephone: (559)248-8480 ext. 152
Email address: jsalimbene@riverparkway.org

PROJECT INFORMATION

Project Title: River West Fresno E-pond Habitat Enhancement Project
County: Fresno
Funding Request $588,000.00
Total Project Cost (include in-kind contributions): $596,000
Project Location: Distance and direction from nearest city: 1.17 miles SSW from Highway of Highway 41 crossing over the San Joaquin River within Fresno City Limits.
Assessor’s Parcel Number(s) (APN) 402-030-069ST
Current Zoning and Master Plan Designation: San Joaquin River Master Plan
Landowner (name(s), address(es) and (optional) email address(es)): San Joaquin River Conservancy, 5469 E. Olive Ave, Fresno, CA 93727
Proposed starting date: April 1, 2020
Estimated completion date: March 31, 2023
Legislative District: Senate: 14, Assembly: 23
Project Elements (Check the program(s) that applies to your project):

☐ Enhancement or Restoration of Inland Wetlands (Central Valley only)
☐ Enhancement or Restoration of Riparian Habitat (Statewide)
☒ Habitat Enhancement and Restoration Program (General)
  ☐ Wetlands outside the Central Valley
  ☐ Endangered Species Habitat (Statewide)
  ☐ Forest Land Habitat (Statewide)
  ☐ Ecosystem Restoration on Agricultural Land (ERAL) (Statewide)
I. Project Location and Description

Introduction

The San Joaquin River Parkway & Conservation Trust (Trust) proposes to revegetate 23 acres of riparian and upland habitat within the San Joaquin River Conservancy’s (Conservancy) River West Fresno site. This project would expand upon the soon to be completed habitat enhancement around the adjacent H-pond. When completed, this project will improve habitat connectivity and diversity, while increasing the acreage of riparian and woodland habitat for resident and migrating wildlife.

River West Fresno is located at the northern edge of the City of Fresno, just west of Highway 41 within the San Joaquin River’s historical floodplain. The San Joaquin River borders the property to the west, while the Bluffs neighborhood and Highway 41 is directly to the east. Across the river to the west are Sycamore Island and the Van Buren unit, which are similar open spaces that offer public access and habitat. This region of the San Joaquin River, between river mile 255 and 250, is surrounded by a mosaic of abandoned gravel quarries confined by higher elevation river bluffs. The Bluffs to the southeast are in residential housing while the bluffs to the northwest are still primarily in agriculture.

The proposed project area, hereby referred to as the E-pond, is located at the southern end of River West Fresno, which is owned and managed by the Conservancy and constitutes a section of the San Joaquin River Parkway (Parkway); a 22-mile regional green space and wildlife corridor along both sides of the river from Friant Dam to Highway 99. This property is of special importance as it will be home to the next addition to the Lewis S. Eaton Trail. The project site is positioned on the east side of the E-pond, below the bluffs, and adjacent to the future trail location so that it will provide recreational benefits in addition to improved habitat. The layout is designed to provide space for the features proposed in each alternative of the Eaton Trail Extension Project, such as the parking lot in alternative 1 and the southern entrance in alternative 5b, so that plantings will not interfere with any future construction.

Prior to its acquisition by the Conservancy, the 290-acre property was owned by the Spano family. During this time, it was primarily a working family farm supporting crops and rangeland. Sometime in the late 1950’s or early 1960’s gravel operations began to dramatically change the landscape on the north side of the river as is evident through historical photos of the project area. Large portions of the river were excavated for sand and gravel leaving a severely altered river system. These gravel operations continued to expand and in the mid-70’s excavation started on the south side of the river adjacent to the project site. In the late 70’s or early 80’s, mining began carving out the E-pond and adjacent H-pond, and by 1989, the E-pond had reached its current shape. The E-pond became directly connected to the San Joaquin River when a levee failed around 2006, but enough debris remained in the breach over the next few years to cause the pond to be intermittently disconnected during periods of low river levels. Between 2010 and 2011 that debris was dislodged and the E-pond remained connected to the river until the levee was reconstructed in 2016.

The property’s agricultural and mining past left it devoid of any remnant riparian vegetation save for approximately eight western sycamore trees located immediately south of the project site at the base of the bluffs by a small flood control district ponding basin. These trees are at risk for removal under alternative 5b of the Eaton Trail Extension Project. For some reason reclamation was not completed after mining, which means that the ponds on the site have steep slopes and very little
riparian vegetation. Due to subsequent flooding and levee break, the margins of the E-pond became dominated by the invasive species scarlet wisteria. The upland areas around the pond became dominated by annual grasses, yellow star-thistle and prickly lettuce. These factors have severely limited the ability for natural recruitment of native riparian vegetation to take place. In the two-decades after mining, only 0.85 acres on the southern corner of the E-pond established with species such as willow, sycamore, and elderberry. With the Trust’s annual treatments of the scarlet wisteria at the pond since 2012, riparian vegetation has slowly expanded to nearly 2 acres today. Without active management, such as the habitat enhancement proposed in this project, the more upland areas around the E-pond are likely to remain devoid of native vegetation due to the absence of a natural disturbance regime.

The goals and objectives for this habitat enhancement project are the following:

- Increase and improve quality riparian and upland habitat that will provide multi-species benefits through the restoration of 23 acres of nonnative grassland to mixed riparian woodland and Oak woodland.
- Provide habitat for Federal- and State-listed species including Swainson’s hawk, western yellow-billed cuckoo, and the valley elderberry longhorn beetle.
- Create a wildlife corridor through the site that connects adjacent properties, existing habitat, and expands upon nearby habitat enhancement projects.
- Locate plant communities where they will be supported by existing soils, hydrology, naturally regenerate, and require minimal long-term maintenance.
- Establish self-sustaining native plant communities within a 3-year period.
- Achieve a 75% survival rate among planted species at the end of the intensive management period.
- Control nonnative invasive plant species including yellow star-thistle and prickly lettuce.
- Improve the scenery, recreational opportunities, and provide shade and screening for the future Eaton Trail Extension Project.
- Use an adaptive management approach to ensure project success.
Location Maps

River West Fresno E-pond Habitat Enhancement Project – A Proposal to the San Joaquin River Conservancy
Regional Parks, Open Spaces, & Recreational Areas Near the Project Site

- E-Pond Project Boundary
- River West Fresno - SJRC
- Fort Washington Beach - Private
- Fresno County Sportsmen's Club - Private
- Caglia CSA - River Parkway Trust
- Jensen River Ranch - SJRC
- Wildwood Park - SJRC
- Woodward Park - City of Fresno
- Van Buren Unit - SJRC
- Sycamore Island - SJRC
Scope of Work and Schedule

Design and Environmental review – Approximately 6 months

Permits that may be required are listed in the ‘deliverables’ section below. A goal for the design element of all project components will be to avoid designs that might trigger extensive earthwork and permitting process. The Trust will contract with a qualified firm to complete the irrigation system plan, while the planting plan will be completed in-house.

- Design
  - Coordinate with the Conservancy and irrigation firms to define the requirements for tying into the existing irrigation system used at the adjacent H-pond habitat enhancement project.
  - Design preliminary irrigation system plans for the add-on to the existing system on the property
  - Draft the Planting Plan
  - Contract with a local irrigation specialist for the final design of the irrigation system add-on.
- Environmental Review
  - Coordinate with the Conservancy on Notice of Exemption.
  - Submit Streambank Alteration notification to the Department of Fish & Wildlife.
- Deliverables
  - Report of site soil and hydrological characteristics and draft planting plan for review
  - Final irrigation system plan
  - Final planting plan
  - CEQA Notice of Exemption
  - CA Dept. of Fish & Wildlife Streambed alteration agreement
  - CA Dept. of Fish & Wildlife Incidental Take Permit

Planting and Plant Establishment Phase – Approximately 3 years

- Site Preparation
  - Mow annual grasses and remove weeds present
  - Conduct initial pre-emergent and follow-up post-emergent chemical treatment to manage broadleaf weeds
  - Establish layout for Restoration
  - Install underground components of the irrigation system, such as the main lines, lateral lines, flushout valves, and risers
  - Install irrigation system’s dripline above-ground
- Planting
  - Install trees and shrubs
  - Install any necessary protective cages. Above and below ground cages will likely be required based on experience.
  - Perform understory seeding during the final rainy season within the project duration.
- Maintenance and Monitoring
  - Perform any necessary repairs to the irrigation system or protective cages.
o Manage aggressive vegetation throughout the project site through mowing and post-emergent chemical treatments to achieve high growth rates and increase the chance of survival.
o Replant as needed to achieve 75% survival.
o Conduct a full census at the end of each growing season to measure an exact survival rate, survivorship patterns, and determine the initial success of the project.
o Perform photo monitoring using monumented photo points to document change over time.
o Analyze the data, review the findings, and adjust field design accordingly.
o Produce all necessary reports.

Completed Project Statistics

- Add approximately 1,500 feet of underground pipe to the existing irrigation system on site.
- Install approximately 62,030 feet of drip line to deliver water to installed plants.
- Install 4,135 native plants with a row spacing of 15 feet and plant spacing 15 feet.
  o Achieve a plant density of 179.78 plants/acre.
- Perform understory seeding over the 23 acres project site if needed based on site conditions.
- Manage invasive weeds over the 23 acres project site.

Timeline for the Scope of Work Tasks:

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<th>Tasks</th>
<th>Year 1</th>
<th>Year 2</th>
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<th>Year 4</th>
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<td>Planning and Permitting</td>
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<td>Contract Irrigation System Design</td>
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<td>Site Preparation</td>
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<td>Install irrigation System</td>
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<td>Plant vegetation</td>
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<td>Maintain plantings</td>
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<td>Monitor and Report Results</td>
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<td>Decommission Site</td>
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II. Probability of Success

River Partners conducted studies into the project site's ecology, hydrology, and soils during the conceptual planning of the immediately adjacent H-pond habitat enhancement project. The findings of those studies contained in the “Conceptual Restoration Plan for the Spano River Ranch Habitat Enhancement Project” and excerpted in sections below, along with the subsequent knowledge and experience gained by the Trust during the establishment phase will provide a solid starting point for planning habitat enhancement at the E-pond. During the initial phase of the E-pond project, a more recent examination of the project site's characteristics will be completed to further inform project planning and enhance long-term viability of the project.
**Project Site Ecology**

The Fresno River West E-pond is located within the historical floodplain of the San Joaquin River. All of the plant associations used for this restoration project will consist of plants typically found in the riparian and adjacent upland habitats of Central Valley river systems and will be tailored to the project site's specific characteristics. The chosen plant associations will be designed to promote quick growth of trees and shrubs to provide a diversity of niches for wildlife. The vegetation and habitat types proposed for this restoration project include: Mixed Riparian Woodland, and Valley Oak Woodland. The soon-to-be completed restoration work at the adjacent H-pond and current work at the nearby Jensen River Ranch will serve as a valuable guide to the site-specific success rate of selected species and potential challenges.

**Hydrology**

The E-pond receives approximately 10 inches of rainfall per year with most falling between the late fall to early spring. Knowing the depth to the water table over time is critical for an accurate site assessment of riparian and associated communities. Flood frequency and duration directly affect ground water elevations, which in turn influence the level of the E-pond. Judging from shoreline erosion, water levels in the pond fluctuate between 10 to 15 feet annually. The depth to ground water is likely <30 feet in the higher upland fields which sit at an elevation of roughly 280 feet. Plant communities that can thrive on these drier upland areas adjacent to the pond are likely to be recommended.

An existing irrigation pump is in place next to the H-pond that is capable of supplying irrigation water to the project site. Restoration plantings will require irrigation during the late spring, summer, and early fall while they become established. Irrigation will be scheduled such that root growth is driven down towards existing soil moisture.

Additional research into the project site's hydrology will be conducted to more closely understand the short- and long-term groundwater availability and further guide the planting plan. This would include, but is not limited to, additional analysis of historical imagery from varying water years, soliciting any relevant monitoring data from the Department of Water Resources relating to the recent pond-closure project at the E-pond, and contracting the excavation of temporary pits to explore the depth to ground water under current conditions.

**Soils**

River West Fresno sits on a relict floodplain terrace of the San Joaquin River below a bluff of nonmarine Pleistocene materials that confines the floodplain on the Fresno County Side. The floodplain sediment has origins from the Sierra Nevada Mountain Range that lies to the east. Intrusive igneous rocks such as granite, tonalite, monzonite, and granodiorite are the dominant rock types that compose the range. The rock types of the nearby Sierra Nevada foothills differ though and are primarily metavolcanic and metasedimentary rocks such as serpentine, metagabbro, and hornfels.
Based on the USDA Soil Series of Fresno County, the E-pond is within the Grangeville-Chino soil association. These soils are deep to very deep, somewhat poorly drained sandy loam to loam soils, and are commonly found on the alluvial fans and floodplains of the San Joaquin Valley. The main soil series found on the project site is the Grangeville series and specifically the Grangeville fine sandy loam. These nearly level soils were formed from recent granitic alluvium and are found on the secondary floodplains along rivers and alluvial fans. Because the soil is nearly level (0-2% slopes), it has a slow runoff rate and a high water holding capacity. The effective root zone is 60 inches deep. The project site also contains some regions of the Hesperia series and specifically Hesperia fine sandy loam. These soils contain a silt layer averaging 5 feet deep and have moderate water holding capacity.

Initial historical air photo analysis completed by the Trust during the creation of this proposal shows the majority of the project site’s soil profile being largely unaffected during the property’s history of gravel mining. However as mentioned in hydrology section above, additional research into the site’s characteristics will be conducted and would include the excavation of temporary pits that would allow view and analysis of the site’s soil profile. Additional soil boring and chemistry analysis may be completed.

Wildlife

The River West Fresno E-pond Habitat Enhancement project will aim to restore 23 acres of Mixed Riparian Woodland and Valley Oak Woodland so as to increase habitat diversity for multiple species. Quantifiable benefits would include the number of native plant species installed, the quantity of invasive species removed, and the number of native species observed colonizing the site naturally including desirable herbaceous species such as milkweed.

Based on the CNDDB there are no records of threatened or endangered fauna occurring on the project site, but this year a pair of Swainson’s hawks nested about a half-mile north of the project site along the San Joaquin River at the Van Buren Unit and were successful in reproducing. With a high likelihood that Swainson’s hawks will continue to nest in the area and the large no-disturbance buffers put in place around such nesting by Fish and Wildlife streambank alteration permits, the Trust will be applying for an incidental take permit to ensure vital project work can occur during nesting season each year.

The following is a list of Federal- and State-listed endangered, threatened, and candidate species potentially occurring near the habitat enhancement project:

<table>
<thead>
<tr>
<th>Common Name and Scientific Name</th>
<th>Status Federal/State</th>
<th>Habitats</th>
<th>Design Considerations</th>
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<tbody>
<tr>
<td>Valley Elderberry Longhorn Beetle <em>(Desmocerus californicus diamorphus)</em></td>
<td>T/--</td>
<td>Riparian and oak savannah habitats with elderberry shrubs to serve as the host plant</td>
<td>Plant elderberry shrubs among riparian and oak savanna habitats</td>
</tr>
<tr>
<td>Swainson’s Hawk <em>(Buteo swainsoni)</em></td>
<td>SC/T</td>
<td>Nests in oaks or cottonwoods in or near riparian habitats.</td>
<td>Preserve existing mature Oaks and Cottonwoods; plant oak and cottonwoods</td>
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Forages in open savanna for future nesting; Include region of oak savanna.

| Western Yellow-billed Cuckoo (Coccyzus americanus occidentalis) | C/E | Dense riparian habitat | Preserve existing riparian vegetation; plant shrub clusters and willow thickets |
| San Joaquin Pocket Mouse (Perognathus inornatus) | SC/-- | Favors grasslands and oak savannas | Include region of oak savanna |
| San Joaquin Kit Fox (Vulpes macrotis mutica) | E/T | Saltbush scrub and oak savanna | Plant Quailbush and include region of oak savanna |

E – Endangered   C – Candidate Species   SC – Species of Concern

Planting Plan

A site-specific planting plan will be created after conducting further research into the site’s soils and hydrology as described above. A report of that study along with a draft planting plan based on the findings will be submitted to WCB and the San Joaquin River Conservancy for review and comments ahead of drafting the final planting plan. The draft planting plan will include a map and written justifications for species selected, plant groupings, and species positioning throughout the project site with the goal of enhancing long-term viability.

Select species of trees and shrubs will be installed in rows across the entire project site. However, no plants will be installed within 30 feet of existing or proposed roads and trails. Installing plantings in rows allows for maximum efficiency during all aspects of this project, including planting, installation of protective measures, weed management, and monitoring. The proposed 15 foot row and plant spacing was based on previous project experience. It is designed to allow space for the Trust’s tractor and rotary mower between rows and account for the size of expansive understory species, specifically the quick-growing quail bush (Atriplex lentiformis), that is likely to be a widely-used species on this project.

In addition to the installation of select trees and shrubs, understory seeding of the project site may be completed during the final rainy season of the project duration depending on site conditions. The seeding would be done at this time so it is unaffected by mechanical and chemical weed treatment during the project duration that will in-turn aid in the success rate of the seeding. The seeding should then provide lasting weed abatement beyond the project duration and contribute toward enhancing the long term viability of the project. Species could include turkey mullein (Crotin setigerus), vinegar weed (Trichostema lanceolatum), great valley gumweed (Grindelia camporum), yarrow (Achillea millefolium) among others.
Restoration Strategies

Many of the methods and techniques proposed for this project evolved over the course of managing nearby restoration projects. The following describes how the Trust will achieve the objectives of this proposal using best management practices and adaptations specific to this project:

Restoration strategies utilized at the project site will seek to employ active restoration methods involving modern farming techniques to quickly establish select trees and shrubs on this parcel. This approach will work to jump start the natural regenerative processes, suppress weed growth, and quickly create a more diverse habitat that is suitable for a wider variety of species. Plant associations are based on the vegetation series concept described by Sawyer and Keeler-wolf (1995). Plant series are named for the dominant plant species, but every series contains other associated plant species. The similar “association” concept provides a useful descriptive label for vegetation differences that allows for design flexibility depending upon project goals. Site-specific planting designs have been successful in establishing native vegetation on similar projects.

Additionally, an adaptive management approach is planned and will provide a framework to evaluate project progress and respond to new information. On similar projects, these practices have resulted in high plant survival rates, accelerated natural recruitment of native species (through changes in microclimate, presence of seed sources, and weed suppression), and documented wildlife benefits in short periods of time (3 years).

Nursery stock of species appropriate for the area and habitat desired will be locally sourced and planted. Seed and cuttings needed to provide nursery stock will be collected from the project site and adjacent properties as allowed. Above and below ground protective cages will be used to reduce herbivory of the new plants.

Irrigation will be used during the 3-year duration of the project to assist the plants in becoming established. Water will be provided through the existing groundwater pump in place at the adjacent H-pond. This will require the installation of additional underground mainlines. **Underground mainlines are required to handle the flow rate and pressure required to deliver an adequate amount of irrigation water to the project site.** Low maintenance above-ground drip line will then be used to deliver water to the root zones of the plants. During the 3-year duration of the project, the plants will be deep-watered to encourage significant root growth. Plants will be weaned off of irrigation during the final year of establishment.

High survival rates among restoration plantings are achieved by providing the installed plants with the two necessary elements that they cannot initially provide for themselves: water and space. Accomplishing that requires regular monitoring of the irrigation system and weed treatments including some herbicide usage. The irrigation installation, restoration planting, and establishment phase work will be completed by Trust staff, volunteers, and contract labor.

Long-term maintenance of the project will be minimal as it is designed to be self-sustaining after the first few years of plant establishment. As with any habitat enhancement project, some plant die-off is to be expected after irrigation is removed. However, the density of the installed plantings will provide long-term habitat benefits with very little maintenance required by the landowning agency – the San Joaquin River Conservancy.
New and Innovative Technology

The successful restoration of the E-pond at River West Fresno will come from the use of tried-and-true methodology honed to the site-specific characteristics of lands within the San Joaquin River Parkway. Through years of performing habitat enhancement at sites that have nearly identical physical characteristics to the project site; such as the adjacent H-pond and all three phases of revegetation at the nearby Jensen River Ranch; the Trust has had ample opportunity to identify methods that worked well, didn’t work, or that needed tweaking to be more suited to the existing climatic conditions, soil types, and wildlife needs. This experience has allowed for higher growth rates, increased survivability, quicker wildlife benefits, and reduced potential for negative impacts.

The Trust has innovated over the years by adopting no-till practices to their site preparation methods. Conventional methods, including extensive disking and clearing, were utilized during the past enhancement of the adjacent Phase I and Phase II at the Jensen River Ranch and any benefits observed were minimal. The cleared land created an advantage for the many hard-to-treat aggressive weeds that were present in the soil and on nearby properties, such as shortpod mustard, blessed milk thistle, and Russian thistle. From a conservation standpoint, tillage tends to eliminate the existing plant residue on the soil surface, which decreases the soil organic matter present, reduces soil moisture retention rates, increases the potential for erosion, and may adversely affect soil structure and tilth. Conventional tillage is often used for the installation of habitat enhancement projects. However, tillage is known to destroy soil structure and kills microorganisms that live in the upper soil layers. Since this project is designed to restore a functional ecosystem, we’re proposing that restoration starts with maintaining healthy soils. In areas with a greater drought potential, such as Fresno County, no-till systems have been shown to have a yield advantage over conventional systems.

No-till methodology implemented in habitat enhancement projects has the added benefit of reducing disturbance to the existing ecosystem. Plant residues provide shelter and food for wildlife and the project site is currently utilized by quail, doves, egrets, herons, western toads, western fence lizards, and ground squirrels among others. Preserving this existing habitat and not displacing the wildlife currently utilizing the project site while simultaneously working to improve the quality and add diversity will allow for the quicker utilization of installed habitat elements by new wildlife.

Additionally, no-till systems help improve water quality by better filtering runoff and reducing the potential for fine sediment input into waterways. Conventional methods leave the ground bare around planting during the fall, winter and early spring at the same time when Fresno County receives all of its precipitation. This combined with the close proximity to waterways when performing floodplain restoration and the soil types prevalent in the region creates a high potential for fine sediment input into our waterways. Implementing methodology that improves water quality is directly in line with the purposes and intent of Proposition 1 and has increased importance due to the project site being located within the spawning reach of the San Joaquin River Restoration Program, designated as reach 1A.

Climate Change Considerations

A changing climate presents serious challenges as we plan for the future. Our current planning strategies rely on historical data to predict future conditions, but the future is no longer expected to
closely resemble the past. Throughout the rest of this century there will likely be more frequent and intense storms and floods, extended drought, increased wildfire, and more heat waves locally. The impacts of climate change are inevitable with the current levels of greenhouse gases in the atmosphere and some are already occurring. Adaptation to these changes will be vital to the success of all past, present, and future restoration projects.

Projections from three separate models show, with a high likelihood, that River West Fresno will experience annual temperature increases of 2.3°F to 4.3°F between 2035 and 2045. Between 2075 and 2085 temperatures could rise by 4.7°F to 8.2°F. Precipitation predictions varied between the three models but generally agreed that drier conditions, on average and especially in the spring, should be expected by late century. Additionally, soil moisture is expected to decline due to increased air temperatures even during wet years (MAPPS Team at the Pacific Northwest Research Station, 2010).

Plant communities selected for this project will take into account the climate change projections for the project site. Since water supplies could dwindle and soil moisture decrease, the plant design will seek to incorporate more xeric species to increase drought tolerance. The Trust’s no-till farming techniques will be utilized to preserve the existing plant residues and organic matter in the soil to increase the soil moisture retention rate.

**Monitoring**

Monitoring during the plant establishment phase would document survivorship of planted material, the extent of natural colonization, and the degree of success for each installed species. Quantitative data on survivorship and recruitment would be collected through plant counts where monitors would document the number and survival rates of planted species and volunteer plants. Qualitative data on vegetation would be collected using visual inspection, data collected from photo monitoring, and direct observation of the habitat quality and health of installed plants.

The following vegetation characteristics would be observed:

- Plant survival, vigor, and height by species.
- Success of installed vegetation to form desired habitat elements for targeted species such as shrub clusters and willow thickets for nesting.
- Native woody and herbaceous species that are observed colonizing the site naturally and their relative abundance.
- Weed problems and recommendations for removal of invasive exotics such as blessed milk thistle, yellow star-thistle, prickly lettuce, and/or Bermuda grass.

The project is designed to provide some wildlife benefits almost immediately therefore wildlife monitoring would occur throughout the duration of the project. Quantitative and qualitative data on wildlife would include identifying and counting species observed and documenting observations of animal behavior within the project site.

Monitoring information will be collected by trained staff in the field with handheld GPS equipment and field journals. Local Audubon Society members will be sought to help gather wildlife data to monitor the success of the restored ecosystems. Information such as plant condition and wildlife statistics will be collected regularly throughout all phases of implementation. An adaptive management approach will be used to immediately address signs of stress or slow growth.
Additionally, a full census will be completed at the end of each growing season. Collected data will be digitized and stored on Trust computers using GIS software. Photo documentation of progress will be gathered yearly and will also be stored on Trust computers. Progress reports will be given with each invoice and a final report will be provided upon project completion.

Our Monitoring approach includes the following:

1. Conduct a full census at the end of the first growing season. This allows the field managers to measure an exact survival rate and determine the initial success of the project. Survivorship patterns (e.g., survival of a single species in a specific soil type) can also be derived from this information and provide information for adaptive management of the site.
2. Conduct an additional full census at the end of the growing season in years 2 and 3 to provide comparisons and gather growth statistics.
3. Compare plant growth and coverage with several physical parameters such as topography, soils, and hydrology.
4. Collect photo documentation yearly using monumented photo points to show change over time.
5. Analyze the data, review findings, and adjust the field design accordingly.
6. Host an end of season meeting with staff to discuss the project and make adaptive management recommendations.

Project information will be made available online through the Trust’s website and will be further disseminated by newsletters, and social media. The Trust will also encourage community involvement and provide additional information through their River Stewards Community Volunteer program. Last year over 500 volunteers contributed 19,065 hours to the Trust toward creating and protecting the San Joaquin River Parkway. Volunteers are a driving force of the Trust’s land stewardship programs. Public volunteer workdays are held at least monthly and each event is led by multiple experienced staff members.

III. Project Significance

In the past 150 years the Central Valley has lost over 90% of its riparian habitat. The transition zone between the San Joaquin River and the drier uplands is among the richest hotspots for biodiversity in the region. In California, the loss of riparian habitat is one of the major causes for the declining populations of native bird species. The Central Valley has historically been one of the most important wintering areas for waterfowl in North America. In the 1800s, the Valley had more than four million acres of wetland habitat. Today just over 205,000 acres of managed wetlands remain. With nearly 2/3 of that land in private ownership it is vital to restore high quality habitat to protected areas to avoid risking the continued decline of wetland wildlife populations.

The surrounding riparian woodlands of the Valley are just as important as the wetlands. Only about 1% of the original riparian woodlands can be considered intact. They serve as migratory pathways and breeding areas for many neotropical migratory birds. The western yellow-billed cuckoo and the yellow-breasted chat, as well as other riparian specialists, have all declined significantly in California due to the loss of riparian forests. Valley Oak Woodland is worth specific mention as the natural process needed for Valley Oak regeneration, such as periodic floods and fires, are repressed by current flood control projects and fire suppression. Without active restoration natural valley oak
recruitment will not meet the rate of mature tree losses due to suppression and moisture competition from annual grasses and forbs.

The proposed project would help remedy this loss of valuable habitat by actively restoring 23 acres of the San Joaquin River’s historic floodplain back to a mixture of Riparian Woodland, Valley Oak Woodland, and Valley Oak Savanna. The habitat installed is specifically designed to attract and serve a broad diversity of wildlife species throughout all of their life stages including the following federal- and state-listed species: Valley Elderberry Longhorn Beetle, Swainson’s Hawk, Western Yellow-billed Cuckoo, San Joaquin Pocket Mouse, and the San Joaquin Kit Fox.

The restoration of this parcel is of particular importance due to its location in-between a string of protected open space areas within the River Parkway and its ability to serve as a wildlife corridor. Located in the immediate vicinity are the Jensen River Ranch, Wildwood Native Park, and Madera River West.

Benefits to wildlife would be seen as early as the first growing season through the use of the Trust’s no-till farming techniques that are designed to provide high growth rates and survivability of installed plants with little to no impact to the existing vegetation and habitat. The Wildlife benefits would continue to increase throughout the 3-year project duration and beyond as installed plants become fully established and work to change the microclimate and ecosystem of the property. The benefits are expected to last as long as the project site remains a protected space since the project is designed to restart the natural processes of native plant recruitment and provide seed source for future regeneration.

IV. Public Support

Local and Regional Plans

The San Joaquin River Parkway Master Plan lays out the goals, objectives, and policies required for the consistent implementation of a San Joaquin River Parkway. The elements contained within this proposal are consistent with the general plans and community plans of all affected jurisdictions including: the County of Madera, the County of Fresno, and the City of Fresno. The River West Fresno E-pond Habitat Enhancement Project is in direct agreement with the natural resources and recreational elements stated within the master plan.

<table>
<thead>
<tr>
<th>San Joaquin River Parkway Master Plan Component</th>
<th>River West Fresno E-pond Habitat Enhancement Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Resource Elements</td>
<td>1. This project will restore native vegetation to upland habitat so as to provide high quality continuous riparian and upland habitat between Friant Dam and Highway 99.</td>
</tr>
<tr>
<td>• NRG2: Preserve existing habitat and maintain, enhance, or restore native vegetation to provide essentially continuous riparian and upland habitat for wildlife along the river between Friant Dam and Highway 99.</td>
<td>2. The habitat enhancement will include the control and removal of exotic plant species from the Parkway through removal and treatment of existing exotics and the</td>
</tr>
<tr>
<td>• NRO4: Control and remove exotic plant species from the Parkway, including the river channel, where they threaten to</td>
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</tbody>
</table>

River West Fresno E-pond Habitat Enhancement Project – A Proposal to the San Joaquin River Conservancy 18
displace native plant species or disrupt natural plant community structure.

- NROS: Revegetation with native species to close gaps in the wildlife corridor or enhance the effectiveness of buffer zones.
- NRD1.3: Areas suitable for habitat restoration shall be restored by replanting or habitat management to encourage the establishment and growth of natural vegetation. Selection of restoration species shall be made primarily based on the hydrologic, climatic, and soil conditions, and secondarily on the objectives for recreational uses. Native indigenous riparian species shall be used to the greatest extent possible. Areas damaged by facilities placement shall be mitigated on a no-net-loss basis by restoring habitat in the immediate or adjacent vicinity.
- NP8.2: Preserve and incorporate natural features (e.g., wetlands, grasslands, woodlands, and other native vegetation) and supporting artificial features (e.g., lakes on reclaimed mine lands) into the development's site design such that those features can serve as a buffer for, and enhance the ecological values of, the river, the wildlife corridor, a natural reserve, or the multipurpose trail.
- NP8.3: Incorporate the site's natural topography with respect to the design and sitting of all physical improvements in order to minimize grading.

Recreational Elements

- RO4: Unify Parkway elements into a recognizable unit and a visually integrated park system.
- RP3: Minimize potential impacts to sensitive natural resources by concentrating proposed recreational facilities and areas near or adjacent to existing parks or recreation areas whenever feasible.
- ROPS: Participate, promote, or organize community-based litter removal programs for the parkway.

1. The proposed improvements to River West Fresno will utilize a similar design layout to the H-pond Habitat Enhancement Project.
2. River West Fresno is adjacent to existing parks and recreational areas.
3. The Trust's River Stewards Volunteer Program will promote and organize community-based litter removal events at River West Fresno as they have done throughout the Parkway.

Partnerships
Partnering with other organizations and agencies is vital to complete habitat enhancement projects such as this, regardless of their size. The Trust intends to collaborate with the Local Conservation Corps and/or California Conservation Corps on site planting and will collaborate with the Conservancy and Private irrigation firms to design and install the new irrigation system. Additionally, the Trust will work with Fresno County Department of Education's Scout Island to propagate some plant species in-house. The size of the project doesn't lend itself to larger scale partnerships; however, the Trust is always open to collaborating with other like-minded organizations during the implementation of habitat enhancement projects.

**Community Engagements**

Last year over 500 volunteers contributed 19,065 hours to the Trust toward creating and protecting the San Joaquin River Parkway. Volunteers are a driving force of the Trust’s land stewardship programs. Public volunteer workdays are held at least monthly and each event is led by multiple experienced staff members. Trust staff identifies tasks suitable for a variety of skill levels prior to an event and fully trains all volunteers before work begins.

Another way the Trust engages with the community is through our education programs. Between River Camp, guided canoe tours, field trips, nature walks, or simply visiting the River Center we provide learning opportunities for over 25,000 people annually. The project described in this proposal will build on the experience of the Trust to engage and educate the community on the San Joaquin River and the Parkway. This serves not only to provide people with a meaningful way to experience the river; it also doubles as a way to promote the project without Conservancy funding. Through involvement with our community programs the project will be promoted through our newsletters and social media applications.

**V. Project Readiness**

The funding requested below in this proposal includes the finalization of project designs and permitting, in addition to implementation and establishment. Due to the Trust’s intimate knowledge with the project site from previous project experience, the lack of grading or earthwork involved, and the presence of an existing irrigation system on site; there are no known complications anticipated that will delay the completion of this project. Work will begin as soon as funding is approved.

**VI. Experience**

The mission of the San Joaquin River Parkway and Conservation Trust is to preserve and restore San Joaquin River lands having ecological, scenic or historical significance, to educate the public on the need for stewardship, to research issues affecting the river, and to promote educational and recreational uses consistent with the protection of the river’s resources. Since its inception in 1988, the Trust has completed numerous trail, public access, and habitat enhancement projects under grants from the Wildlife Conservation Board, San Joaquin River Conservancy, and Bureau of Reclamation, among others.

Among its major accomplishments, the Trust has:

- Helped acquire or over 4,000 acres of land along the San Joaquin River
• Built 7+ miles of a planned 22-mile, multi-purpose trail, with a major trail extension currently undergoing CEQA review by the Conservancy
• Partnered with the Fresno County of Office of Education to provide high quality local environmental education to thousands of children each year.
• Brought over $35 million into the region through existing land acquisition, restoration, and trail projects
• Partnered with the Madera Unified School District to provide a low cost alternative to sixth grade science camp

Related project experience includes the implementation of Phases 1, 2, and 3 of the Jensen River Ranch Habitat Enhancement and Public Access Project, implementation of the Weed Management and Jobs Creation Project funded by the San Joaquin River Restoration Program, and implementation of the Spano River Ranch Habitat Enhancement Project funded by the Wildlife Conservation Board and Ducks Unlimited.

VII. Funding

<table>
<thead>
<tr>
<th>Implementation/ Restoration/ Construction</th>
<th>Grant Funded</th>
<th>Applicant/ Other Funding</th>
<th>Applicant/ Other In-Kind Services</th>
<th>Total per Task</th>
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<tr>
<td>Direct Costs</td>
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<tr>
<td>Irrigation system design &amp; installation with site prep</td>
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<td>Habitat plans, permits, &amp; env. compliance monitoring</td>
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<td>Nursery stock, planting, and plant protection</td>
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<td>Project Management</td>
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<td><strong>Negotiated Federal Indirect Cost Rate of 17.26% (Provisional rate for 2019) (Indirect Charges cannot be applied to subcontracts or equipment)</strong></td>
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<td><strong>Total</strong></td>
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<td><strong>Percent of Total</strong></td>
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<td><strong>1%</strong></td>
<td><strong>100%</strong></td>
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*Describe indirect cost methodology and provide detailed calculations: See attached Federal Negotiated Indirect Cost Agreement