Laguna Wetlands Preserve
Restoration and Management Plan - DRAFT

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1 Introduction

Vision for Preserve Use and Management

The City of Sebastopol's Laguna Wetlands Preserve, a suite of five properties along the eastern boundary of Sebastopol, is both a valuable open space amenity for residents and visitors and an important ecological resource for the community at large. The Preserve's protected lands surround downtown Sebastopol's reach of the Laguna de Santa Rosa. Within a ten-minute walk of downtown are roosting black-crowned night herons, trails for a quiet walk, a place for young people to gather after school, and opportunities to view the slow moving Laguna--the largest freshwater wetland on the northern California coast and the largest tributary to the Russian River. The Laguna's 250-square mile watershed drains the Santa Rosa Plain including the cities of Cotati, Rohnert Park, much of Santa Rosa, and the eastern part of Sebastopol. The Laguna as a whole, and the Preserve itself, provide habitat for a suite of wetland- and riparian-dependent wildlife species, as well as critical flood protection and water storage for the lower Russian River region by retaining floodwaters during high winter flows.

The Laguna de Santa Rosa watershed and its creeks have been highly altered since European immigrants first described them in the late 1700s. During the years that Spain and then Mexico claimed California, cattle grazing began the introduction of non-native grasses that now dominate the grassland. American colonization brought commercial hunting, large-scale harvesting of the magnificent oak cover for charcoal production, cultivation of rich wetland soils for grain and hay, and construction of a network of roads and railroads. Channels were straightened and deepened to drain farm fields and protect property. In addition to these changes, Sebastopol's Laguna lands were also used for an airfield, seasonal camping, sewage treatment, apple processing, and other purposes that flattened topography, altered drainage patterns, and modified the composition and structure of the remaining riparian and wetland habitats.

Efforts to protect and restore Sebastopol area lands adjoining the Laguna began in the 1970s. The Laguna de Santa Rosa Master Plan was adopted by the City of Sebastopol (City) in 1992 and led to the establishment of the Preserve in 1998 to provide public access, passive recreation, and a venue for outdoor education in addition to natural resource protection. ("Passive recreation" refers to activities that require little infrastructure and result in relatively little alteration to the natural environment. For instance, hiking and bird-watching are typically considered passive recreation, while development of ball fields would be considered "active recreation.") Since then, the City's efforts to protect and enhance its Laguna lands have included development of trails and other public access features, restoration plantings, invasive plant removal, and trash cleanup. The Laguna Wetlands Preserve Restoration and Management Plan is intended to guide and unify future work. The foundation of this Plan is the desire for a vibrant, resilient ecosystem that is cherished and enjoyed by its human neighbors.

Regional Setting and Conservation Values

The Laguna Wetland Preserve is at the center of a network of protected properties along the Laguna de Santa Rosa (Figure 1). The adjacent properties include parcels protected by conservation easements as well as several owned by the California Department of Fish and Wildlife (CDFW). Sonoma County Regional Parks (SCRP) manages a multi-use trail between Highway 12 and Occidental Road that connects to the Laguna Preserve through Meadowlark Field. The Preserve's Railroad Forest Trail forms the Sebastopol entrance to the Joe Rodota Trail that extends 8.5 miles east into Santa Rosa.

These linkages magnify the value of both the recreational and natural resources of the Laguna Preserve. A one-mile trail, for example, that provides access to many more miles of bike riding or hiking will attract a greater range and number of users than a stand-alone trail. Similarly, coordinated management of an invasive plant such as pepperweed across a long swath of lands will be much more effective at controlling populations than isolated treatments. Connected landscapes can also support animals with large home ranges or the need for varied habitats, like the bald eagles that have now returned to the Laguna.

The Laguna Wetland Preserve provides the following conservation values:

- Plant and Wildlife Habitat. The Preserve supports riparian, wetland, and upland plant communities including valley oak stands, structurally diverse forests of boxelder, ash, and willow, and native sedge beds and other seasonal wetlands, as well as the aquatic habitats of Calder Creek and the Laguna itself. These habitats are especially valuable as they are linked to adjacent native habitat north and south along the Laguna. They provide year-round resources for a rich diversity of wildlife species, especially birds, as well as seasonal habitat for many others that migrate through, such as waterfowl and steelhead trout.
- Open Space/Parkland. The Preserve offers over 100 acres of easily accessible open space with a range of amenities including paved and unpaved trails, an interpretive trail and other educational signage, an amphitheater, a group picnic area at the Youth Park as well as more secluded picnic spots at Tomodachi Park and Meadowlark Field, two baseball fields, and play structures. The Preserve also provides unique opportunities to observe and experience the main channel of the Laguna directly, as much of the waterway is in under private ownership. Warbler songs and bobcat sightings, 15-foot tall elderberries in full and fragrant bloom, a handful of wild blackberries, and even an occasional glimpse of a peregrine falcon are among the experiences the Preserve provides.
- Flood Mitigation. The Preserve lies within the 100-year floodplain. As largely undeveloped open space, it is able to absorb and retain stormflow to reduce downstream flooding and moderate stream velocities.
- Water Storage. Slowing runoff not only minimizes flooding, it also allows water to percolate into the soil. In the Preserve, this stored water is gradually released into waterways, supporting perennial flows essential for riparian plant and wildlife survival.
- Water Quality. Native wetland and riparian vegetation help moderate high summer water temperatures, filter sediments before they reach waterways, and capture other pollutants before they enter Sebastopol's reach of the Laguna.
- Carbon Sequestration. All plants use carbon dioxide from the air to create new growth.

Long-lived, large trees like the valley oaks in Tomodachi Park and Meadowlark Field perform this function over hundreds of years. Soils with high organic content, such as healthy wetland and forest soils in the Preserve, are also good carbon sinks.

- Education. The Laguna Wetlands Preserve provides stellar opportunities for people of all ages to learn about the plants, animals, and ecology of the region, as well as how humans, from the first people to the waves of more recent settlement, have shaped and continue to shape our landscape. As the need to protect the environment grows ever more urgent, the Preserve can demonstrate ways for visitors to care for their own lands, however small, to contribute to healthier communities.

Plan Purpose

The purpose of the Laguna Wetlands Preserve Restoration and Management Plan is to guide the City's long-term management of the properties consistent with the Laguna Master Plan, City policies, and the terms of the conservation easements held by the Sonoma County Agriculture and Open Space Preserve (SCAPOSD) on Meadowlark Field, Tomodachi Park, and Railroad Forest. The Plan will also support meeting the City's requirements of the matching grant agreements with SCAPOSD for the purchase of Tomodachi Park and restoration efforts in Meadowlark Field. The Restoration and Management Plan also identifies regional efforts, such as coordinated management of the entire middle reach of the Laguna, and describes how the City can contribute to them.

The Plan includes an inventory of the natural, cultural, and recreational resources of the Preserve; describes restoration and management objectives and actions as well as environmental compliance requirements; provides a typical calendar of annual maintenance and monitoring activities; and includes a cost estimate for implementation. The Plan also acknowledges the critical role of volunteers in caring for the Preserve and identifies actions that are particularly well-suited for community participation.

To assist in implementation, the actions described under each objective are marked as short-term (S), ongoing (O), and/or long-term (L) activities. Short-term actions are those that could or should take place within the next two years, while long-term actions may require additional planning or fundraising, are non-urgent, and are recommended for implementation within the next 10 years. Ongoing actions are those that will need to continue in perpetuity to protect and conserve resources on the Preserve. For each objective, short-term actions are listed first, followed by ongoing actions, and then long-term activities. All of these actions are considered high priority activities for the City.

Plan Development Methods

The Plan is based on an extensive literature review; interviews with City, SCAPOSD, CDFW, and other agency staff; field assessments of each of the five properties; public input; and the existing knowledge of both Prunuske Chatham, Inc. (PCI) and the Laguna de Santa Rosa Foundation (Laguna Foundation) from their long histories of work in the Laguna de Santa Rosa. Sebastopol community members contributed ideas and concerns through the City's on-line outreach process, one well-attended public meeting and site tour, individual meetings with the Plan team, and comments on the Draft Plan. The Draft Plan was also considered in public session at

meetings of the Sebastopol Planning Commission and City Council. [TO UPDATE]

The Plan should be reviewed at least every five years and updated as needed to incorporate lessons learned, new scientific information, and changes in regulations and policies.

2 Setting

Property Descriptions

The Preserve is comprised of five properties. From north to south, these properties are the Laguna Youth Park, Meadowlark Field, the Americorps Trail, Tomodachi Park, and the Railroad Forest. This section provides an overview of each property, their historic and current uses, previous restoration efforts, and conservation easement requirements where applicable. Key management needs and restoration opportunities are briefly listed but are further developed in subsequent sections of the plan.

Laguna Youth Park

The Laguna Youth Park (22 acres) is located at the north end of Morris Street, on the east side of the Laguna. This area historically included a dump site (closed in 1966) and ponds built for the storage of raw sewage and later used for apple processing wastewater (closed in 1975). The site was developed as a park in 1987.

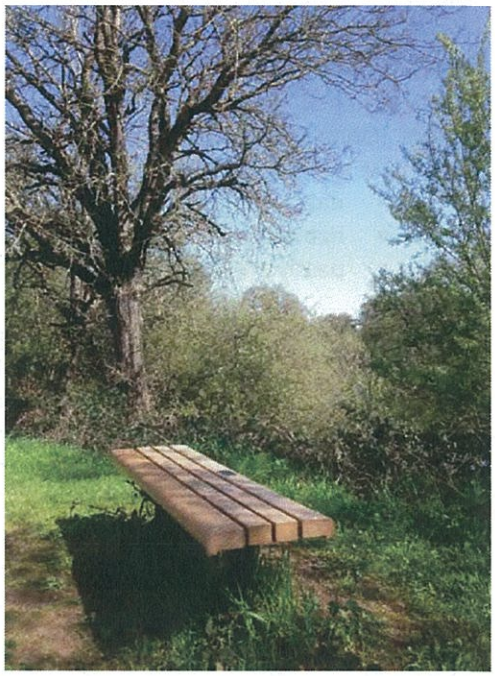
Entry signage at the Youth Park.

The former sewage ponds are no longer in use. Two of the ponds were filled and support native tree plantings and an outdoor amphitheater. The others remain and now function as wetlands, filling naturally with rainfall, runoff, and flood waters in winter. Restoration plantings have been installed in many parts of the park, beginning in 1998. Most of these are well-established trees and shrubs today.

Two Little League ball fields were developed where the dump site once was; these are now maintained by the Little League. Two wooden entry arbors are present, with display cases for educational signage. An interpretive trail leads from parking areas around the ponds, along the edge of the Laguna, and to a seasonal (May – October) bridge crossing the Laguna and connecting to Meadowlark Field. Pamphlets describing the interpretive trail were once available

at the entry arbors but are not currently kept stocked. Facilities also include the Sebastopol Community Center; the Youth Annex; Wischemann Hall, leased to a local square dance association; a gravel parking area; and a playground. Restrooms are available at the Community Center and Youth Annex when these are open, and at the ball fields during games, but not at other times.

The Youth Park is probably the most heavily used part of the Preserve, and the most visible. Key management needs here include maintaining or improving interpretive and educational signage, maintaining younger restoration plantings, managing invasive species, and considering development of a public restroom.



Youth Park bench with a view of the Laguna.

Meadowlark Field

Meadowlark Field (59 acres) lies across the Laguna from the Youth Park, extending south to Highway 12. This area was historically used in a number of ways. It served as the Cnopius Air Field in the 1920s, and later as a disposal area for the Barlow Company's apple cannery wastewater effluent. The Master Plan notes that this effluent was damaging to native oaks; some were subject to ponding of effluent at time of Master Plan writing, resulting in the death of several mature trees. The Master Plan directed the reduction or elimination of effluent irrigation, and irrigation ended in the 2000s.

The Master Plan also indicates that dredging and wetland fill occurred in the past during mosquito abatement activities, including some designed to help support mosquito fish. A deep, linear ditch, which may be a remnant from apple cannery or mosquito abatement efforts, remains along the northwest corner of the site.

The site was grazed by livestock at the time of Master Plan development, and a lack of regeneration prompted recommendations to fence areas to allow for regeneration. No livestock currently graze the site.

Since these activities ended, the Laguna Foundation, the City, the Coastal Conservancy, and SCAPOSD have worked together to implement extensive restoration of native woody trees and shrubs. Under a Matching Grant Agreement, SCAPOSD provided funding which matched money from the Wildlife Conservation Board's Habitat Conservation Fund and the State Department of Parks and Recreation's Habitat Conservation Fund. Between 2008 and 2013, over 4,500 woody plants were installed. The Laguna Foundation also undertook trials of perennial pepperweed removal on the site from 2007-2013 (Laguna de Santa Rosa Foundation 2015). Trails, including part of the interpretive trail that starts at the Youth Park, follow the perimeter of the field as

well as crossing it. Several picnic tables and benches are located along trails. The trails are well-used by the public, and now connect to Regional Parks' Laguna de Santa Rosa Trail, which extends from Occidental Road to Highway 12. Regional Parks has requested a trail easement over the trail segment along the eastern edge of Meadowlark, and the City plans to grant this request. This will allow Regional Parks to maintain and patrol that segment, along with the remainder of the Laguna Trail.

SCAPOSD holds a conservation easement over the Meadowlark Field property. The purpose of the easement is to protect natural resources, including riparian habitat and oak woodland, wildlife habitat, and protection of water quality and quantity; scenic values; and opportunities for passive recreation and environmental education. Use of the property is restricted to:

- natural resource protection,
- habitat restoration and enhancement, and
- passive recreational and educational uses.

The conservation easement document provides further detail of allowable and restricted activities (SCAPOSD 2011). Activities described in the Laguna Master Plan have already received approval from SCAPOSD and do not technically need any further notice to or approval from them. However, SCAPOSD has expressed interest in ongoing consultation and partnership with the City as this Management and Restoration Plan is being developed and implemented.

The 2014 easement monitoring report noted that many park benches and picnic tables were overgrown with vegetation, reducing the recreational values of the property, and that there are remnant pieces of broken concrete infrastructure (pipes) in the former waste containment swales. Other key management needs on this property include maintaining the large suite of restoration plantings, managing off-leash dogs, improving signage, and managing invasive species. There is public interest in having a restroom available during all park hours. There are also continuing restoration opportunities on the property, including reestablishment of native herbaceous understory species.

Wetland swale along the Americorps Trail.

Americorps Trail

This 7-acre parcel extends from the southern end of the Youth Park property to Highway 12. It is bounded by the Laguna to the east, and industrial development along Morris Street to the west. Historically, land between Morris Street and the Laguna was filled with dredged spoils from Laguna by the City (Cummings 2003) in order to make it useful for commercial and industrial purposes.

The Americorps Trail was built by community volunteers in 2003. It extends from the Youth Park

to Zimpher Creek, with connections to Morris Street just north of the now-defunct cement plant and just south of the City's wastewater lift station. Originally, it was intended to extend across Zimpher and extend to Highway 12. However, that portion is now overgrown and no crossing of Zimpher is provided, so trail use and maintenance effectively ends directly east of the wastewater lift station. Encampments are typically present just north of Zimpher, as well as further north, behind the former cement plant. Restoration plantings of native trees have been installed in previous years on the southern end of the property, south of Zimpher Creek.

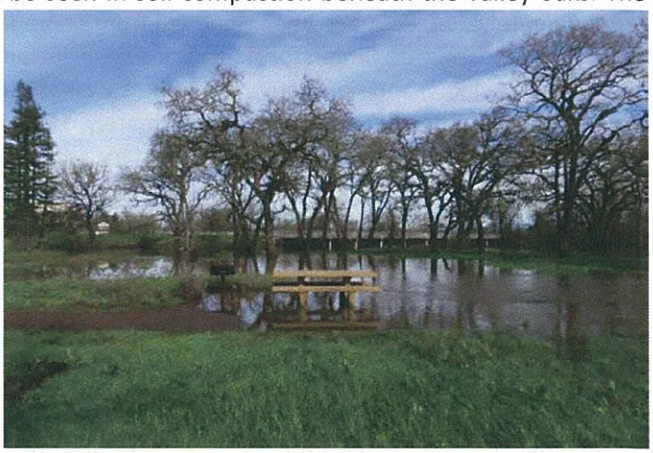
Key management needs on this property include improved directional signage and trail connectivity, and a reduction of illegal camping and littering.

Tomodachi Park

With the assistance of SCAPOSD, the City purchased the 13-acre Village Park property in 2007. It is located on Highway 12 at the eastern gateway to Sebastopol, and includes land on both sides of the Laguna. The western portion of the property has a long history of use for mobile home residences and seasonal camping. The mobile home park is still in use, while seasonal camping has been discontinued. A garden, currently managed by the non-profit Global Student Embassy (GSE), is located on the northwestern part of Village Park. The garden is tended by GSE coordinators and high school volunteers. The old camping area, adjacent land along the Laguna channel, and a strip along the eastern side of the Laguna, now comprise the 9-acre Tomodachi Park. The entire park is frequently inundated in winter storms.

On the east side of the Laguna, there is relatively undisturbed riparian forest. On the west side, the effects of long-term camping can be seen in soil compaction beneath the valley oaks. The Master Plan notes that 1'-2' of soil was historically placed around the oaks in this area to support camping in the past; this has since been pulled back to protect oaks' root crowns.

The park includes picnic tables and barbeque grills, restoration plantings along the entry road, a few designated parking spaces, and limited entry signage. A new sign is being developed to identify the park from Highway 12.



Tomodachi Park floods frequently in winter.

SCAPOSD maintains a conservation easement over the Tomodachi Park portion of the property. The purpose of the easement is to preserve the open space, scenic, and natural resource values of the property, including its "unique natural wetlands, native plant occurrences and upland area....and the riparian zone of the Laguna de Santa Rosa." Uses are restricted to:

- habitat restoration and enhancement,
- management and conservation of natural resources, including related scientific research, and

- low intensity outdoor public educational and recreational activities.

Installation of improvements such as interpretive signage, single-track pedestrian trails and foot bridges, are allowed if consistent with the easement purpose, but require prior written approval from SCAPOSD. Restoration activities themselves such as bank and soil stabilization, planting of native riparian species, and control of invasive species, do not require prior approval.

The Matching Grant Agreement entered into by the City and SCAPOSD also states that the City's total expenditures and/or in-kind contributions used for acquisition, management, and operation of the Project represent its contribution to the agreement and will equal or exceed SCAPOSD's grant of $800,000. The development of this Restoration and Management Plan fulfills another requirement of the Agreement.

See the Related Plans and Policies section, below, for information on the Village Park Feasibility and Planning Study completed in 2012.

Caltrans plans to replace the existing bridge on Highway 12 over the Laguna in 2015-2016. Bridge inspections had revealed structural deficiencies, including scouring of the bridge foundation due to the silty conditions and water flows of the Laguna. The existing bridge is 33' wide; the new structure will be 70' wide. Sidewalks will be added on both sides of the bridge. Retaining walls (up to 16' high) will be added along the bridge abutments at each end. The bridge alignment will be shifted south of its current configuration—adjacent to Tomodachi. Caltrans has acquired a strip of land along the entire frontage of Tomodachi and Village Park to allow a transition to the newly elevated structure. The street frontage will include pavement widening, curb, gutter, sidewalk, new driveway, and reconstruction of the bus shelter. Approximately 40 trees have been removed from Tomodachi Park in preparation for the project, as well as clearing of understory species. These include mature valley oaks, coast live oak, Oregon ash, willow, and non-native species, as well as native understory rose and basket sedge. CalTrans replanting plans include approximately 150 native riparian trees and shrubs along Tomodachi and Village Park's northern boundary.

In addition to CalTrans' restoration efforts after the bridge replacement is complete, other key management needs at this property include improved park accessibility and connectivity; additional educational signage; and potential restoration in select locations.

Railroad Forest

The 7-acre Railroad Forest property was purchased from Southern Pacific Railroad Company in the late 1980s. It is bounded to the south by the Joe Rodota Trail (once part of the Southern Pacific Railroad line, and prior to that, the Petaluma and Santa Rosa Railroad), and by Tomodachi Park and Village Park to the northeast. Commercial development lies to the north and west. The paved Railroad Forest Trail connects the Rodota Trail to Highway 12 at Morris Street. Calder Creek exits a culvert on the western end of the site (adjacent to the Abbott Avenue connection to the trail), and then flows aboveground to its juncture with the Laguna near the eastern end of the site. A portion of the old railroad spur line that once served canneries around Sebastopol Avenue remains in place, mostly hidden under dense riparian growth.

The paved trails in and adjacent to the site are heavily used by the public, serving as important links for bicycle and pedestrian travel and recreation between Sebastopol and Santa Rosa. The area is also heavily used for unauthorized camping, especially where vegetation is dense and provides privacy.

Looking down Calder Creek at the Railroad Forest bridge.

SCAPOSD holds a conservation easement over the Railroad Forest property. The purpose of the easement is 'to preserve the natural habitat (terrestrial and aquatic) and the open space and scenic values of the Property', and 'confine the use of the Property to passive recreational activities that are consistent with the purpose' (SCAPOSD 1993). The conservation easement restricts use of the property to:

- habitat enhancement, nature study, passive recreational and scenic uses,
- maintenance of existing flood control features,
- installation of underground utility systems, with prior approval from SCAPOSD
- maintenance or development of fencing and signage as needed to identify and secure the property
- removal of exotic invasive plant species.

The conservation easement document provides further detail of allowable and prohibited activities.

The 2014 easement monitoring report identified homeless encampments, associated unauthorized trails, and extensive growth of invasive Himalayan blackberry as conditions observed on the site which could threaten conservation values. Other key management needs on this property include reduction of littering, potential installation of benches and limited interpretive signage, other invasive species management, and habitat restoration.

Adjacent Ownership and Land Uses

The Preserve is surrounded by a variety of land uses, with primarily open space and agricultural lands immediately to the north, east, and south, and more developed lands to the west. The condition and management of these lands can influence the Preserve itself in many ways (and vice versa), so maintaining relationships with adjacent property owners, and communicating with those owners as appropriate, will be valuable to Preserve management.

City of Santa Rosa Farms

Kelly Farm is adjacent to Meadowlark to the east. It is used for treated wastewater disposal and hay and silage production. Kelly Pond and Kelly Marsh, at the center of the property, are storage areas for treated wastewater and also provide wildlife habitat. The Laguna Trail traverses Kelly Farm.

Brown Farm is adjacent to Tomodachi Park to the east. It also receives treated wastewater and is managed for hay and silage production, as well as some cattle grazing. It also includes ponds for wastewater storage and for treatment.

Both Kelly and Brown Farms, as well as the City's other two nearby farms, Stone and Alpha Farms, are protected by a conservation easement held by SCAPOSD. These four farms, and the conservation easement, cover 1,433 acres.

Regional Parks Laguna de Santa Rosa Trail

With the assistance of SCAPOSD, Sonoma County Regional Parks recently developed and maintains a multi-use trail extending north-south between Highway 12 and Occidental Road, with parking lots at both ends for trail users. The eastern part of Meadowlark's perimeter trail forms the southern part of this trail. The trail is popular with walkers and runners, dog-walkers, and bird-watchers and is occasionally used by cyclists and equestrians. The new trailhead provides greater public access to the Preserve, especially Meadowlark Field in winter, when the seasonal bridge between the Youth Park and Meadowlark is not installed. The increased visitation to Meadowlark, as well as increased potential for off-leash dogs, are management considerations for the Preserve.

Regional Parks land includes a 65-acre parcel immediately north of Meadowlark Field. This parcel includes Duer Creek and riparian woodland along the Laguna. It has a SCAPOSD Forever Wild easement and has not been used for agriculture since the 1990s. The land includes vernal pools and swales which support a population of endangered Sebastopol meadowfoam as well as other native vernal pool plant species. Just north of this parcel lies the 253-acre Balletto property, which is privately owned and is used for wine grape growing and wine production, but is also protected by a SCAPOSD conservation easement.

California Department of Fish and Wildlife Lands

The California Department of Fish and Wildlife (CDFW) owns two parcels adjacent to and near the Preserve: the Laguna channel adjacent to the Youth Park and Americorps Trail, and the parcel immediately south of Tomodachi Park and southeast of Railroad Forest, which includes both the Laguna channel and adjacent land. These CDFW lands are part of a suite of properties referred to collectively as the Laguna Wildlife Area or separately as the Timber Hill, Blucher Creek, Cooper Road, and Occidental Road units. Although all of these lands except the Occidental Road unit are closed to the public without prior written access, some of them do receive informal public use. The parcel south of Tomodachi, part of the Cooper Road unit, supports riparian forest and oak woodland, and is used to some extent for illegal camping. Further south, this unit also includes a dense stand of eucalyptus trees with regenerating native species, vernal pools and valley oak savanna. The property has a complex of informal trails regularly used by area residents. The Occidental Road unit of the Laguna Wildlife Area is used

for hunting. No hunting is permitted on other CDFW lands and hunting is only accessible by boat. (See Safety section below for details.)

Laguna Uplands

The Laguna de Santa Rosa Foundation owns the 8 acre Laguna Uplands property. The property is located south of the Preserve, west of the City of Santa Rosa's Brown Farm, and east of Sonoma West Medical Center. The property was protected via a SCAPOSD conservation easement in 1996. The property has publicly accessible walking trails and has been considered as a site for a multiuse trail paralleling Hwy 116 south of the Joe Rodota trail through Sebastopol. It is occasionally used for public education and houses an outdoor classroom which is also used by the hospital as a helicopter landing pad.

CalTrans

CalTrans has jurisdiction over the land directly north and south of the Highway 12 bridge over the Laguna. CalTrans will be responsible for the replanting and maintenance of native vegetation in these areas once bridge construction is complete. See Tomodachi Park section, above, for detail on the bridge replacement project.

Private Lands

The remainder of the lands adjacent to the Preserve are privately owned and include residential, industrial, agricultural (hayfield and dairy), and commercial development.

Related Local Plans

In addition to conservation easement requirements described above, there are a number of local planning documents that are relevant to Preserve Management. Chapter 10 identifies regional efforts that are supported by protection and management of the Laguna Preserve.

Laguna de Santa Rosa Park Master Plan

The Laguna de Santa Rosa Park Master Plan (Master Plan) was adopted by the City Council in 1993. The Master Plan outlines the development of a linear park along the Laguna and addresses relevant ecological, recreational, and management issues. It provides guidance on protecting the Laguna's natural resources while incorporating recreational uses and commercial uses. The second volume of the Master Plan provides extensive technical background information on soils, hydrology, plants and wildlife, archaeological resources, and recreational and management concerns.

The Master Plan provides goals, objectives and policies that serve as a framework for this management plan. All of the goals of the Master Plan are relevant to restoration and management of the Laguna Wetlands Preserve. These goals, along with the Master Plan objectives and policies most relevant to this document, and references to the corresponding portions of this document, are:

A. Preservation of Laguna habitats, including sensitive habitats and lands that serve as buffers between the Laguna and urban or agricultural development.
   - Establish a City-sponsored educational program to seek voluntary compliance with best management practices that will promote and enhance riparian habitats and

endangered species on privately owned land. *See Objectives RM-4 and PU-4.*

B. Restoration and enhancement of Laguna habitats, including wetlands and oak woodlands.

- Restore freshwater marsh by renovating the City owned sewer farm ponds. This plan proposed "removal of fill, reshaping to a more natural configuration, replanting with wetland plants, and the possible reintroduction of water level fluctuation from the Laguna." Existing 2:1 slopes were to be regraded to a gentler, less geometric slope. *See Objective RM-3, Item H.*

- Protect all oaks on City owned land from grazing and irrigation impacts. Plant oak trees in areas designated for restoration of oak or riparian woodland. *Oaks are currently protected from grazing and irrigation impacts, and over 1400 valley oaks are now established through restoration plantings on Meadowlark Field alone. See Objective RM-3.*

C. Recovery of Declining, Rare or Endangered Species

- Enhance the native salmonid fishery, by revegetating Laguna banks and increasing shade and placing instream cover (boulders, logs). *Laguna banks within the Preserve are now well vegetated, with an upper canopy becoming established in most locations. Small woody debris is present in a number of locations throughout the Preserve. Additional woody debris could be added; however, this is not a high priority restoration effort.*

- Reintroduce the California freshwater shrimp in cooperation with CDFW, USFWS, NMFS, and Trout Unlimited, and restore Laguna banks and tributaries to provide below-water root structure needed by the shrimp. *No active reintroduction program exists for this species. Shrimp are unlikely to colonize the mainstem of the Laguna within the Preserve and tributaries given current distribution within the watershed.*

- Reintroduce the California yellow-billed cuckoo, by restoring willow woodland in cooperation with CDFW and the Audubon Society. *No active reintroduction program exists for this species. Cuckoos have experienced a decline across their range. No records of breeding cuckoos have been reported in Sonoma County since the mid-1900s. Preservation and enhancement of riparian habitat will be beneficial to the species if they ever recover.*

- Reintroduce white sedge, beaked rushes, and other rare or uncommon plants, in cooperation with CNPS and CDFW, in existing or restored marshes. *White sedge is no longer considered a distinct or rare taxon. Habitat on the Preserve is not highly suitable for beaked rushes, and no active reintroduction programs exist for these species, but see Objective RM-3 for items increasing native plant diversity in wetlands.*

- Expand populations of endangered plants, in cooperation with USFWS, CDFW, and CNPS: Sebastopol meadowfoam, Burke's goldfields, and Sonoma sunshine.

Sebastopol meadowfoam is known to occur immediately adjacent to the Preserve. Protection and enhancement of habitat on Meadowlark Field could allow for the natural expansion of this population onto City lands. See Objective RM-3, Item A.

- Expand populations of rare or uncommon animals, including yellow warbler and yellow-breasted chat, by restoring riparian habitat. Also, install wood duck nest boxes. *Preservation and enhancement of riparian habitat will be beneficial to riparian nesting birds. Proper sizing and installation of nest boxes and a commitment to long-term maintenance could be beneficial for wood ducks and other cavity-nesting birds.*

D. Monitoring Program
   - Ensure that preservation and restoration efforts are implemented and effective, through establishment period monitoring of restoration plantings. See Methods section of Restoration Opportunities, below.

   - Develop a salmonid restocking program in cooperation with local agencies. Coho salmon have been reintroduced to the Russian River watershed as part of the Captive Broodstock Program run through the Warm Springs Hatchery. Preservation and enhancement of riparian and aquatic habitats within the Preserve will be beneficial to the Program. The tributary streams of the Preserve do not sustain salmonids; however, salmonids may use the Laguna through the Preserve during migration (see Biological Resources below).

E. Barlow Field Interim Management. Most of these items have been accomplished, such as cessation of effluent irrigation that was damaging to mature oaks.
   - Maintain dead or downed trees on site for wildlife habitat. See Objective MM-2.

F. Preserve and Enhance the Visual Character of the Laguna. These items relate primarily to future construction in the Laguna area. No building construction is proposed in this plan. For reference, the policies include:
   - Limit additional building construction in the Youth Park area to no more than 200 feet from the center line of Morris Street.

   - No additional building on the Barlow (Meadowlark) Field.

   - Analyze proposed structures within 1250' of the Laguna channel center line for potential effect on Laguna skyline. Do not allow massive uninterrupted penetrations of the tree line by roofs or other building structures.

G. Develop a Comprehensive Recreation and Interpretive Trail System. Most of these items have been accomplished, including development of the Youth Park, establishment of the Railroad Forest trail, installation of a traffic light at Morris and 12, and a bridge for pedestrians over the Laguna. The policy of prohibiting equestrian use on the City portions of the recreation trail, and prohibiting bicycle use on interpretive trails (i.e. on all the Preserve's unpaved trails), has been implemented. Items not yet implemented

include:

- Develop a system of trails that provide access to the Laguna and its environs for nature study and hiking. Include a sub-system of controlled interpretive trails that allow limited access to sensitive habitats, for environmental education, on a trial basis. Trail development shall be an unpaved hiking path 4-5' wide with minimal disturbance to the natural topography and vegetation. The Preserve now has a system of trails, including an interpretive trail. See Objectives PU-4 and MM-8. Current Americans with Disabilities Act (ADA) policies may also apply to trail design.

- Develop a nature interpretive center. Although the Youth Park entry sign indicates that an interpretive center is part of the park, the center was not built because no practical building site was identified based on unknown qualities of fill at potential sites and location relative to the 100 year floodplain. The Plan encourages finding an alternative site for the center. While not within City limits, the Laguna Foundation has established a Laguna Environmental Center nearby, just north of Occidental Road. See Objective PU-4.

H. Establish a Specific Park Development Plan Compatible with Protection and Enhancement Goals. Many of these are developments at the Youth Park that have been completed. Of note are:

- New open water configuration. Open water with an overlook was planned for the area south of the Youth Park near Morris St; the overlook is present but the open water area has filled in with willows and other trees and views into the Laguna are not possible. See Objective RM-3, Items E and G.

- Native tree buffer between park uses and adjacent land uses, from 8-40' wide, designed to provide wildlife resources as well as screening. This buffer now exists in most places where it is feasible. See Objective RM-3, Item D.

- Renovated ponds: removal of fill, reshaping to a more natural configuration, planting of native wetland plants, and possible introduction of water level fluctuation from the Laguna. See Objective RM-3, Item H.

I. Preserve and Protect Archaeological Resources of the Study Area. *See Objective RM-10.*

Village Park Feasibility and Planning Study

The Village Park Feasibility and Planning Study was completed in 2012. The Study, which addressed the area that is now Tomodachi Park as well as the trailer park area, was developed with public input and provides recommendations for amenities associated with a passive day use park, and also provides guidance on future park uses and frontage improvements. The Study outlines four possible conceptual designs; Concept A, focusing on passive park activities and environmental restoration, is the design selected by the City to pursue. Most of the recommendations for the passive day use park have been implemented, including installation of pathways, picnic tables, allocation of parking spaces, and restoration plantings along the entrance drive.

Recommendations not yet implemented include:

- Enhance seasonal wetland (area south of picnic tables) and vernal pool (in old campground area, just west of tree canopy). *See Objective RM-3, Item I.*
- Removal of invasive species. *See Objectives RM-5, RM-6.*
- If and when the mobile home area is decommissioned, restoration of oak woodland and riparian habitat. *The City is not actively planning to decommission the mobile home area.*
- Mown path from seasonal wetland area to Joe Rodota Trail. *See Objective PU-2.*

Other relevant guidelines include:

- Explore opportunities for stormwater retention and rainwater infiltration. *See Objective RM-3, Item I.*
- In designing future park improvements, consider regular flooding, potential for vandalism/theft, and visibility of Village Park for law enforcement.

Laguna de Santa Rosa Protected Trails Plan (SCAPOSD)

This 2006 plan focused on existing and potential trails within and connecting City of Santa Rosa's lands along the Laguna (Alpha, Brown, Kelly, and Stone Farms) as well as the Balletto property. The study also notes the value of a connector trail and pedestrian undercrossing of Highway 12 along the Laguna, linking the Joe Rodota Trail with Meadowlark Field trails. The connector trail is shown primarily on CalTrans and City of Santa Rosa property. The study also notes the challenges of such a trail given sensitive wetland habitat and seasonal flooding. This path is already informally used by the public in the dry season.

City of Sebastopol Bicycle and Pedestrian Master Plan

The City adopted the Bicycle and Pedestrian Master Plan in 2008. The Plan outlines policies, programs, and projects to facilitate bicycle and pedestrian access within the City as well as recommending connections to regional trails. Morris Street, along the western edge of the Preserve, is considered part of the downtown "pedestrian district," important to pedestrian access and meriting improvements. The Joe Rodota Trail and the Railroad Forest Bike Path are part of this Plan. Potential projects in the Preserve vicinity include:

- Proposed path from the Joe Rodota Trail south to Petaluma
- Class II bikeway (on-street marked bike lanes) along Morris Street from Eddie Lane to Sebastopol Avenue
- Shared lane markings along Sebastopol Avenue between Main Street and Morris Street
- Street trees on Sebastopol Avenue
- Gateway treatment on Sebastopol Avenue
- Addition of bike racks and directional signage downtown

Applicable County, State, and Federal Regulations

Natural resources are protected by regulations established by State, federal, and local agencies. These regulations are in place to protect native plant communities, aquatic resources, and other vegetation and wildlife resources. The following includes a description of the applicable regulations and the agencies responsible for enforcing regulations relevant to potential future

activities on Preserve lands. The list is not exhaustive and additional regulations may apply.

Local Regulations

Sebastopol General Plan

The City of Sebastopol General Plan (General Plan; Sebastopol 2008) is a blueprint for how land is used in Sebastopol. The plan is currently being updated and is expected to be completed in 2016. Policies set forth in the General Plan guide decisions about conservation of resources within the City and surrounding environs. The Open Space and Conservation Element addresses the preservation of biological resources, including special-status species, aquatic habitats, sensitive natural communities, and wildlife corridors. The Open Space and Conservation Element specifically incorporates the goals, policies, and programs of the Laguna de Santa Rosa Park Master Plan. The goals and objectives in the General Plan reflect the two components: ecological preservation and enhancement, and recreation and public access.

The City of Sebastopol seeks to protect and enhance biological resources including critical habitat areas, riparian corridors, and native trees through various codes and ordinances. The Laguna Wetland Preserve is located within the Open Space and Community Facilities Land Use Designations and within the City of Sebastopol Community Facilities and Primary Wetlands Zoning Special Districts with several combining districts: Environmental and Scenic Open Space (ESOS), Wetlands Fringe (W-F), and Secondary Wetland (W-S) (Sebastopol 2009).

The purpose of the Wetlands Districts is to preserve and protect environmentally sensitive waterways and/or wetland areas (Zoning Code Chapter 17.88, Wetland Districts and Wetland Combining Districts). The Districts establish land use limitations consistent with natural resource preservation of wetland areas. Permitted uses include passive recreational areas, parks, and wildlife preserves, including environmental restoration and accessory facilities related to use of the open space (Sebastopol 2015). Development in the Primary Wetlands (W) and Secondary Wetlands (WS) Combining District require written comments and recommendations from the California Department of Fish and Wildlife, the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service and the Regional Water Quality Control Board. Comments from the California Native Plant Society, the Mosquito Abatement District, the Laguna de Santa Rosa Foundation, and the Madrone Audubon Society must also be considered. A survey of vegetation, vernal pool habitat, and rare plants is required in these areas. Excavation and earthmoving must be conducted in a manner that does not cause erosion or result in surface water runoff into a wetland area. No filling of natural lands is permitted south of Highway 12. "Natural lands" are those that are below the 78-foot elevation and are classified as riparian woodland, seasonal wetlands, annual grassland, marsh, vernal pool, pasture and oak woodland. This includes virtually all of the Preserve.

The purpose of the ESOS Combining District is to control land use within areas of great scenic or environmental value to citizens, to control any alteration of the natural environment and terrain in areas of special ecological and educational significance as unique vegetative units or wildlife habitats or as unique geological or botanic specimens, and to enhance and maintain for the public welfare and well-being the public amenities accrued from the preservation of the scenic beauty and environmental quality of Sebastopol. The ESOS Combining District was established to implement the goals, policies and objectives of the Conservation, Open Space and Parks

Element of the General Plan.

The ESOS Combining District includes setback requirements to protect the quality and integrity of certain unique scenic, ecologic or biotic environments (Zoning Code Chapter 17.92, ESOS – Environmental and Scenic Open Space District). Development in the District requires analysis of the visual, vegetation, and biotic characteristics of the property and the changes that may occur as a result of a development project. In addition to protection of wetland, rare plants, vernal pools, riparian vegetation, wildlife habitat, and other resources, the Tree Protection Ordinance (Chapter 8.12) regulates the installation, maintenance, preservation, and selected removal of trees within the City.

Sustainable Sebastopol Policies

The Sustainable Sebastopol policies and programs establish the City's commitment to "responsible stewardship of its environmental, economic, and social resources, so that its exceptional quality of life for this and future generations is maintained and improved." The policies are intended to guide the City in making environmentally-sensitive choices and in helping the City become a model of sustainability. Several City policies are of particular relevance to this Plan, including:

- Resolution 5108 - Voluntary Toxics Free Zone. This resolution expresses the City's commitment to reducing toxic chemicals in the environment, and prohibits the application of "pesticides or other toxic chemicals on or in City owned property and discourages their use on private property unless it can be demonstrated that no viable environmentally safe alternatives exist and applications are made by or under the direct supervision of a licensed applicator." In particular, the resolution "opposes the use of pesticides or herbicides that carry a 'Danger,' Toxicity Category 1, EPA Hazard rating." The EPA rates chemicals for their toxicity, and Category 1 representing the most highly toxic out of four categories. Note that while many common synthetic herbicides are not in that EPA toxicity category (for example, Roundup Pro, an herbicide based on the active ingredient glyphosate, is in lower toxicity category 3/4 for acute toxicity and carries a "Caution" label), they are still avoided by the City. In practice, the City avoids the use of all synthetic herbicides and pesticides.
- Resolution 5222 - Use of Biodegradable Materials in Landscaping. This policy states that only biodegradable materials be used in or on City-owned landscaped areas, with exceptions for temporary items and irrigation materials.

State and Federal Regulations

Environmental Quality Acts

The California Environmental Quality Act (CEQA) was passed in 1970 to institute a statewide policy of environmental protection. Projects undertaken, funded, or requiring a permit by a state or local public agency must comply with CEQA. The primary purposes of CEQA are to inform decision-makers and the public about the potential environmental impacts of the proposed activities, identify ways that environmental damage can be avoided or significantly reduced, require changes in projects through the use of alternatives or mitigation measures when feasible, and disclose to the public the reasons why a project was approved if significant environmental effects are determined.

Preserve development activities (e.g., construction of connector trails) in the Preserve would likely require CEQA compliance and the CEQA documentation needs would vary depending on the proposed project and environmental impact levels. Some projects may be statutorily or categorically exempt from the provisions of CEQA. The City will have to determine which development activities are subject to CEQA and which are exempt based on the type of and the location of proposed development activities.

Similarly, the National Environmental Policy Act (NEPA) requires federal agencies to integrate environmental values into their decision-making processes by considering the environmental impacts of their proposed actions and analyzing reasonable alternatives to those actions. NEPA review is not necessary unless project activities are undertaken, permitted, or funded by a federal agency. For activities utilizing a federal Clean Water Act Section 404 Nationwide Permit from the U.S. Army Corps of Engineers (Corps), NEPA review is already complete.

Jurisdictional Wetlands and Waters

Jurisdictional wetlands and other waters of the U.S., including stream channels, are regulated by the Corps under the provisions of Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Any disposal of dredged or fill material and structures, as well as work in wetlands or other waters, requires a permit from the Corps. Future activities on the Preserve such as trail and bridge construction or restoration will require consultation with the Corps and issuance of a permit if work is proposed in any wetland or other waters of the U.S. Significant portions of the Preserve are likely to qualify as jurisdictional wetlands or other waters of the U.S. A wetland delineation was performed for Tomodachi Park prior to its development but has not been done for other portions of the Preserve.

Under Section 401 of the federal Clean Water Act, the Corps is required to meet state water quality regulations prior to granting a Section 404 permit. This is accomplished by application to the local Regional Water Quality Control Board (RWQCB) for Section 401 certification that requirements have been met. Future projects on the Preserve will require consultation with the RWQCB and issuance of a permit if work is proposed in any wetland or other waters of the U.S.

Water Quality Control Board, North Coast Region

Under Section 13263 of the Porter-Cologne Water Quality Act, the Regional Water Quality Control Board (RWQCB) is authorized to regulate discharge and fill within waters of the State and wetlands, including isolated features. Through this process the local RWCQB issues a Waste Discharge Requirement (WDR). Future projects on the Preserve will require consultation with the RWQCB and issuance of a permit if work is proposed in any wetland or other waters of the State, including isolated or constructed wetlands. Issuance of a WDR requires CEQA compliance. For routine maintenance work with no permanent impacts, such as ongoing invasive species removal from channel banks, the City can apply for a programmatic permit.

California Department of Fish and Wildlife/California Department of Fish and Game Code

The California Department of Fish and Wildlife (CDFW) is responsible for managing, conserving, and protecting the state's biological resources including fish, wildlife, and plants. Under the

California Fish and Game Code, CDFW must be notified when work is proposed in a creek, river, or lake that would divert or obstruct flows or change the bed, channel, or bank. CDFW requires a Lake or Streambed Alteration (LSA) agreement when project have the potential to adversely affect existing fish or wildlife resources. Acquisition of an LSA requires compliance with CEQA. Future projects on the Preserve will require consultation with CDFW and issuance of a permit if work is proposed in any aquatic resources or where native species would derive benefit.

Under sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) of the California Fish and Game Code, CDFW designates certain animal species as "fully protected." Fully protected species may not be taken or possessed at any time. Future development of the Preserve will require avoidance of fully protected species. Two fully protected species have been documented on the Preserve or in nearby areas – American peregrine falcon (unlikely to nest on the Preserve, but may forage and roost there) and white-tailed kite (occurs year-round; suitable nesting habitat present).

State and Federal Endangered Species Act Compliance

Under the federal Endangered Species Act of 1973 (FESA), the Secretary of the Interior and the Secretary of Commerce have joint authority to list a species as threatened or endangered. Two federal agencies oversee FESA: the U.S. Fish and Wildlife Service (USFWS), a part of the Department of the Interior, has jurisdiction over plants, wildlife, and resident fish, while NOAA's National Marine Fisheries Service (NOAA Fisheries Service), a part of the Commerce Department, has jurisdiction over anadromous fish and marine fish and mammals. Section 7 of FESA mandates that all federal agencies consult with USFWS and NOAA Fisheries Service to ensure that federal agency actions do not jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat for listed species.

FESA prohibits "take" of any fish or wildlife species listed as threatened or endangered, including the destruction of habitat that could hinder species recovery. Section 10 of the FESA requires the issuance of an incidental take permit before any public or private action may be taken that would potentially result in "take," which is defined as actions that would potentially harm, harass, injure, kill, capture, collect, or otherwise hurt any individual of an endangered or threatened species. Future projects on the Preserve that will result in take or habitat modification for listed species will require consultation with USFWS and/or NOAA Fisheries issuance of a permit.

Under the California Endangered Species Act of 1984 (CESA), CDFW is responsible for maintaining a list of endangered and threatened species. The list also includes federally proposed and state candidate species, which are species that CDFW has formally identified as being under review for addition to either the list of endangered species or the list of threatened species. CDFW also maintains lists of California special concern species that serve as watch lists. Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed as endangered or threatened species may be present in the project area and determine whether the proposed project will have a potentially significant impact on such species. In addition, CDFW encourages informal consultation on any proposed project that may affect candidate species.

Protected Bird Species

Nesting native bird species are protected under both federal and state regulations. Under the federal Migratory Bird Treaty Act (MBTA), it is unlawful to take, kill, and/or possess migratory birds at any time or in any manner, unless the appropriate permits are obtained. Protections extend to active nests, eggs, and young birds still in the nest. Birds and their nests are also protected under the California Fish and Game Code. Most bird species, with a few specific exceptions, are protected under the MBTA and California Fish and Game Code. Heron and egret rookeries are also protected under the above-mentioned regulations. Future development of the property must consider the protection of bird species; specific avoidance measures will be addressed during CEQA and consultation with CDFW.

Historic Resource Registries

Historic resource registries provide official acknowledgement of the value of historic and archaeologic resources, and can be valuable in securing their protection. The National Register of Historic Places is the official list of the Nation's historic places worthy of preservation. Authorized by the NHPA of 1966 and administered by the National Park Service, the NRHP is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archaeological resources. To be eligible for recognition on the register, the property must be "associated with an important historic context," among other criteria. The California Register of Historical Resources is a similar state-level resource. The only remnant structures still visible on the Preserve are railroad tracks in the Railroad Forest, and livestock infrastructure at the southeastern entry to Meadowlark Field.

Remnant tracks in the Railroad Forest.

California Public Resources Code

Several sections of the PRC protect cultural resources and PRC Section 5097.5 protects vertebrate paleontological sites located on public land. Under Section 5097.5, no person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface, any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site (including fossilized footprints), inscriptions made by human agency, rock art, or any other archaeological, paleontological, or historical feature situated on public lands, except with the express permission of the public agency that has jurisdiction over the lands. Violation of this section is a

misdemeanor.

PRC Section 5097.98 states that if Native American human remains are identified within a project area, the landowner must work with the Native American Most Likely Descendant as identified by the NAHC to develop a plan for the treatment or disposition of the human remains and any items associated with Native American burials with appropriate dignity. California Health and Safety Code Section 7050.5 prohibits disinterring, disturbing, or removing human remains from a location other than a dedicated cemetery. Section 30244 of the PRC requires reasonable mitigation for impacts on paleontological and archaeological resources that occur as a result of development on public lands.

3 Physical Features

Hydrology and Topography

The Preserve is part of the Laguna de Santa Rosa watershed, the largest wetland complex on the northern California coast. The Laguna watershed encompasses 250 square miles and is flanked to the east by the Mayacamas and Sonoma Mountains, to the west by the Goldridge Hills, and to the south by the low-lying hills that separate Cotati and Petaluma. The Laguna flows in a northwest direction and drains nearly the entire Santa Rosa Plain. The 14-mile long channel is the largest tributary to the Russian River, flowing into the river near Forestville. The gradient of the Laguna is extremely low and much of the flow through the system is very slow. This results in the slough-like condition that characterizes the Laguna, especially in winter when back-ups from the Russian River reverse the flow and inundate this low-lying wetland complex. Several major tributaries drain into the Laguna to the north and south of the Preserve: Copeland, Blucher, Colgan, Roseland, Santa Rosa, and Mark West Creeks. Several small tributaries flow into the Laguna within the Preserve: Calder and Zimpher Creeks, which flow perennially, and several unnamed seasonal drainages near the Youth Park and Americorps Trail. All of these creeks have been channelized in portions to quickly drain the urban landscapes through which they flow, including those within the Preserve.

The Preserve borders approximately 0.7 miles of the Laguna channel. North of Highway 12, this section of the Laguna is relatively straight and open, with riparian trees along each bank but open water in the center. South of the highway, through Tomodachi, the channel is more complex and riparian tree canopy covers the water surface almost completely. See Figures 2a-2d for detailed topography of the Preserve.

Calder Creek flows into the Laguna near the southeastern corner of Tomodachi Park. It is the largest tributary creek on the Preserve. Its upper watershed is near Robinson and Pleasant Hill Roads, where it is fed by an artesian spring and several other springs. The creek flows through residential neighborhoods and the City's Ives Park. It enters the Preserve in the southwestern arm of the Railroad Forest, where it flows in a culvert until just east of Barnes Avenue, where it daylights. The second main tributary within the Preserve is Zimpher Creek. It originates near Brookhaven School and is fed primarily by a spring between Viola and Patricia Courts. Zimpher flows through the residential areas west of downtown, mostly through culverts, under Whole Foods and the Barlow, before emerging from a culvert on the Preserve just south of the wastewater lift station. It joins the Laguna in just a few hundred feet. A remnant seasonal channel lies just to the north, running along the south side of the wastewater lift station. Several other small unnamed drainages flow from the east side of Morris Street into the Laguna within the Youth Park and northern Americorps Trail.

Digital elevation model of the Preserve shows its limited—but still important--topographic relief.

Like the larger watershed, the topography of the Preserve is low gradient, with an elevation change of only 18 feet. Elevations range from 76 feet on the west side of the Preserve at the Youth Park and the southwestern corner of the Railroad Forest to 58 feet along the banks of the Laguna, and the terrain rises again to 68 feet on the east side of Meadowlark Field. The current topographic features of the Preserve are largely a product of anthropogenic alterations to the natural system. The construction of the sewage ponds, airfield, apple processing plant, channel straightening, and agricultural development have resulted in substantial changes to the shape of the land. Some remnant natural topography is present including the seasonal swales in Meadowlark Field, and the complex, hummocky terrain near the confluence of Calder Creek and the Laguna.

Despite its history of alteration, the Preserve's topography plays an important role in the floodplain and wetland characteristics of the area and its function for flood mitigation and groundwater recharge. Its mostly gentle terrain and mostly permeable surfaces, along with its natural vegetation, allow it to absorb, filter, store, and gradually release water from winter storms. In contrast, the urban and some of the agricultural land uses surrounding the Preserve

have contributed to water quality impairments in the Laguna. Protecting the lands of the Preserve to sustain our water resources will be a critical component of future land management.

Geology and Soils

The surface geology and soils of the Preserve have been shaped by the Laguna and its processes. As described in the Master Plan, "The down faulting of the Santa Rosa Valley, which began approximately one million years ago during the Pleistocene epoch, has helped cause the low gradient of the Laguna de Santa Rosa and its tributaries. The low energy of streams in the valley favors the deposition of sediments and the development of wetlands. The predominant surface geology in the study area is fine-grained alluvium, indicative of wetland origins where small particles suspended in the currents of the Laguna settle. The distribution of these deposits corresponds with the historic boundaries of the pre-settlement riparian forest and freshwater marsh."

Soils on the Preserve are mostly derived from alluvium, but their composition varies from clayey to sandy loam, influencing their drainage, erosiveness, and typical vegetation (NRCS 2015). The majority of the western parts of the Preserve (Youth Park, Railroad forest, Tomodachi/Village park) are made up of Blucher fine sandy loam while Meadowlark field also includes Clear lake clay, Cortina gravelly sandy loam, and Wright loam (see Figure 3). The table below summarizes traits for each soil type, including typical vegetation on that type in the county and within the Preserve.

Table 1. Soil Types of the Preserve

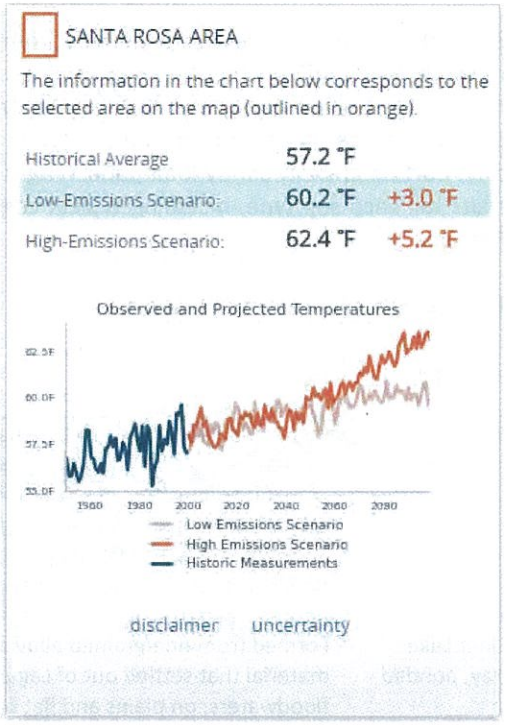
Soil Type	Traits	Location on Preserve	Typical Habitats on the Preserve
Blucher fine sandy loam	Found on alluvial fans and drainageways, as where high flows of tributaries empty into still floodwaters of Laguna, depositing coarse and medium-grained alluvium. Subject to flooding, ongoing deposition and scouring. Somewhat poorly drained.	Western and southern portions	Riparian forest
Clear Lake clay, ponded	Formed from fine-grained alluvial material that settled out of Laguna floodwaters; on plains and flat basins. Subject to temporary ponding; poorly drained.	Eastern edge of Youth Park, central swale in Meadowlark	Riparian forest, seasonal wetlands including vernal swales (and pools in other Santa Rosa Plain locations), grassland. Large cracks visible in soil when dry.
Cortina very gravelly sandy loam	Found along stream bottoms and alluvial plains. Subject to frequent deposition and removal resulting from adjacent waterways. Excessively drained.	Northwestern portion of Meadowlark	Valley oak woodland/savanna
Sebastopol sandy loam	Well-drained, formed from soft sandstone. Has clay subsoil.	Very limited portions at western edges of Preserve	Upland oak woodland (coast live oak, black oak, Oregon oak)

Soil Type	Traits	Location on Preserve	Typical Habitats on the Preserve
Wright loam, shallow, wet	Somewhat poorly drained. Found on low terraces. Underlain by clay, often on hummocky terrain with vernal pools in depressions.	Eastern portion of Meadowlark; Oak savanna and seasonal wetlands	Valley oak savanna and seasonal wetlands (including vernal pools and swales in other Santa Rosa Plain locations)

Climate

The Preserve and the Sebastopol area in general have a Mediterranean climate, with a rainy, cool season typically lasting from October through April and generally dry, warm conditions the rest of the year. Compared to more inland parts of Sonoma County, Sebastopol's proximity to the coast tempers summer heat, with frequent morning and evening fog. For the period from 1926 to 2014, mean daily minimum and maximum temperatures in the region (based on Graton weather station data) averaged 36 to 56° F in December and 46 to 84° F in August (Western Regional Climate Center, 2015). Average rainfall for that period was 41 inches. Approximately half of the annual rainfall in the region occurs in winter, with almost all of the rest occurring in fall and spring.

For the past four years, Sebastopol and California in general have experienced extreme drought. The 2013-2014 water year was the third driest for the state in 119 years of record, and it was also the warmest year on record (USGS 2015a). In the water years 2011-12, 2012-13, and 2013-14, a USGS stream gage on the Laguna at the Occidental bridge has measured mean annual discharge as ranging between 48% and 66% of the 1999-2014 average (USGS 2015b).



Temperature projections for the Sebastopol area from CalAdapt.org.

The likelihood and intensity of droughts like the current one are increasing as climate changes due to rising carbon dioxide in our atmosphere. Based on USGS data, between 1911 and 2000, average maximum temperatures in the North Bay Region (Sonoma, Marin, and Napa Counties) have increased approximately 1.0°F while average minimum temperatures have increased approximately 1.7°F (NBCAI, 2013). Climate models released by the International Panel on Climate Change in 2007 have been down sampled to develop regional predictions. These predictions suggest that these increases will continue, with summer temperatures rising by approximately 6 to 8°F, on average, by approximately the end of the century in this region

(NBCAI, 2013). Average annual temperatures in the Sebastopol area are predicted to increase from 3 to 5°F above their recent historic (1961-1990) average of 57.2°F (California Energy Commission, 2015) in that time.

Regional climate predictions differ in terms of trends in overall precipitation. However, all models predict that weather will be more variable in the future, with extreme events like droughts and floods becoming more common and more intense. Also, due to rising temperatures and the greater concentration of precipitation into short, extreme events, drought stress on soils and plants is expected to increase even if precipitation increases in the North Bay. This stress is modeled as climatic water deficit, which integrates measures of solar radiation, evapo-transpiration, and air temperature given available soil moisture derived from precipitation. According to NBCAI (2013), even in scenarios predicting wetter winters, measures of drought stress on soils in late summer are projected to increase approximately 10% in the North Bay.

These changes in climate pose a serious challenge to natural systems and human uses in and around the Preserve, as they do throughout California and the globe. Native plant and wildlife communities may change in composition and distribution, with potential losses of species that are less tolerant of higher temperatures and weather extremes. Water resources for humans, plants, and animals may decline, as a result of either lower overall precipitation or of more extreme storm events with less opportunity for rainwater infiltration. Flooding and disease may become more common. At the same time, the Preserve's riparian and wetland habitats and aquatic resources will be of ever-increasing importance in these changing times. See *Climate Change Adaptation* section for additional discussion.

4 Biological Resources

The Preserve contains rich biological resources, many of which are closely linked to the waters of the Laguna and its tributaries and wetlands. The aquatic habitats themselves, the adjacent wetlands and riparian forests, and the oak woodland or savanna on higher ground all support dense plant life and an abundance of wildlife. Some of these habitats are relatively intact, some are recovering from disturbance or are undergoing active restoration, and some are degraded by human land uses and in need of active management. A few species that occurred here in the past may never exist here again. Natural communities adjacent to urban and agricultural development are subject to many stresses, and the Preserve is no exception. At the same time, these wildlands at the urban interface provide essential services to humans, made even more important by their location.

This section describes the plant communities and aquatic habitats present on the Preserve and the wildlife associated with each. Ecological functions and key management considerations are also described for each. Special-status wildlife species present or documented historically are included in the relevant community descriptions. Figure 4 provides a map of the habitat types on the Preserve. See appendices for complete lists of plants observed during the plan development, special-status plants, and animals observed or potentially occurring within the Preserve. Common plant and animal names are used here. For Latin names, see appendices.

Valley Oak Woodland/Savanna

Plant Life

Valley oak woodland or savanna occurs on the Preserve primarily as scattered remnant stands and in newly planted form on Meadowlark Field, in the floodplain of the Laguna where inundation occurs during and briefly after large winter storms. Open stands of valley oak, with scattered trees in a matrix of grassland and wet meadow species, are considered "savanna" while "woodland" refers to areas with a greater density of trees. On the Preserve and elsewhere, these two habitat types intergrade, shaped by local soil and moisture conditions as well as by human impacts and restoration efforts. Historically, the terrain of Meadowlark Field was probably more hummocky than it is today, supporting valley oaks on higher ground and vernal pools and swales forming in between. Clearing and leveling of land for agriculture, charcoal production, and the airstrip, as well as intensive livestock grazing and wastewater irrigation practices, have all contributed to losses of valley oaks and vernal pools and swales on the Preserve—and all across the Santa Rosa Plain. Remnant valley oak stands are present on the nearby City of Santa Rosa farms to the north and south, however, and the restored habitat on Meadowlark will provide a significant additional "island" of valley oak habitat in that chain.

Valley oak woodland at Tomodachi.

A small stand of mature oaks still remains on Meadowlark Field, primarily in the northwest corner. There appears to be little natural regeneration under these trees. The understory (where not enhanced by restoration plantings) is dominated by non-native perennial Harding grass and velvet grass, although native perennial meadow barley is also common. There are also scattered stands of basket sedge in slightly wetter areas. Dense stands of non-native poison hemlock are present surrounding dead oaks or where oaks once stood. Stands of both native California blackberry and non-native Himalayan blackberry are also common. Introduced perennial pepperweed is present in seasonally wet areas. (See Laguna Foundation 2015 for a map).

A stand of mature valley oaks is also present on Tomodachi, on the west side of the Laguna, in the area historically used for camping. The topography, hydrology and vegetation of this area have been altered by historic filling and leveling. Fill from 1-2' deep was placed in areas of the campground, then later pulled back away from the bases of valley oaks to avoid damage to the trees (Questa Engineering 2012). Remnants of an old campground access road loop through the area, and old ruts as well as apparently natural low spots support vernal pool vegetation. (See Wetlands section). The understory under the valley oaks is closely mowed each spring to maintain an open area for park visitors, but is composed of herbaceous species tolerant of seasonal flooding, including natives (California buttercup and meadow barley, and in lower areas, coyote thistle and popcorn flower) and common non-natives.

Red-shouldered hawk in Meadowlark Field.

For a description of restoration plantings in oak woodland settings, see Protecting Existing Habitat in Section 7. No special-status plant species are likely to be present in the valley oak woodland of the Preserve, but see Restoration Opportunities section for discussion of potential for reintroduction of special-status vernal pool species.

Animal Life

Remnant valley oak trees within the Preserve support habitat for a number of terrestrial wildlife species. The oak trees provide a significant resource for wildlife in the form of both food and shelter. Every part of the oak tree is used as forage by native wildlife species including acorns, leaves, twigs, pollen, roots, and sap. Acorns are consumed by a number of wildlife occurring in the Preserve including acorn woodpecker, western-scrub jay, and western gray squirrel. Individual trees are also important food storage sites for acorn woodpeckers, which cache acorns for future consumption, particularly in dead and dying oak trees. Many acorn caches occur throughout the Preserve. The use of acorns by wildlife species is important for oak dispersal and regeneration.

Birds represent the most prominent wildlife taxa utilizing the valley oak woodlands. Both resident and seasonal species can be observed nesting, foraging, and perching within the large trees. Throughout spring and summer, tree swallows, oak titmice, western bluebirds, and woodpeckers nest in large oak tree hollows. Raptors, including red-shouldered and red-tailed

hawks, find the tree tops ideal perches from which to forage, and nest in concealed locations within the trees. In addition, white tailed-kite, a fully protected species, can frequently be seen perched atop trees in Meadowlark Field, as these high perches provide good vantage points of the adjacent fields where they hunt for ground-dwelling animals. Larger nest structures within the oak trees are frequently occupied by western gray squirrel. The layer of detritus around the base of an oak is used by amphibians; arboreal and slender salamanders can frequently be found there. Tree hollows and crevices within the mature trees provide roosting habitat for bats, including special-status hoary and pallid bats. Existing mature valley oaks and the growing woodland in Meadowlark provide many opportunities for the Preserve's human visitors to encounter wildlife.

Grasslands interspersed within the mature valley oaks and plantings provide additional habitat complexity within Meadowlark Field. Grasslands provide cover for birds, small mammals, and reptiles and foraging opportunities in the form of seeds, other plant parts, and insects. Grassland songbirds, including special-status grasshopper and savannah sparrow, may use the Preserve, especially Meadowlark Field, for nesting; these species have been seen nearby during the breeding season. Subterranean foragers, such as Botta's pocket gopher and California mole, are found throughout the Preserve as indicated by the presence of underground digging and mounds. Black-tailed jackrabbit can frequently be seen within Meadowlark Field. Historically, the open habitats along the east side of the Laguna may have provided burrowing habitat for California tiger salamander (see Wetlands section below).

Throughout the Santa Rosa Plain, American badger, a California Species of Special Concern, is an uncommon resident in a variety of habitat types, especially grasslands with dry, friable soil. Badgers are characterized by their large claws, short legs, and black and white striped face. They are carnivorous and consume primarily burrowing rodents, but will also eat reptiles, insects, eggs, birds, and carrion. Badgers dig their own extensive tunnel system. They are active year-round, although less active in winter. Threats to this species include the loss and fragmentation of habitat. No badgers have been recently reported within the Preserve; however, they may occur infrequently in Meadowlark Field and the edges of Tomodachi Park. Maintenance of open habitats free of human disturbance is important for this species within the Preserve.

Ecological Functions and Management Considerations

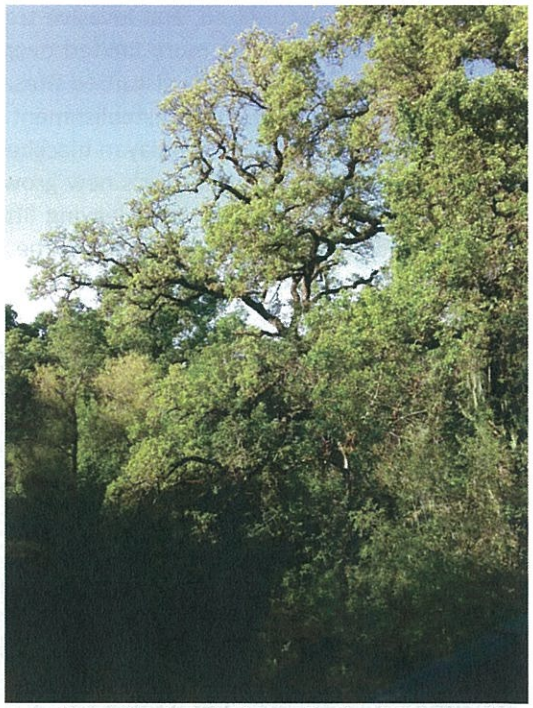
The valley oak woodland and savanna on the Preserve provide important ecological functions now, and these functions will develop over time as restoration plantings grow to maturity. Key functions include provision of wildlife habitat, carbon sequestration, and soil and water quality protection. Valley oaks (like other mature native trees near urban areas) also provide scenic beauty and shade for human visitors, as well as cooling through evapotranspiration and reduction of air pollution and noise.

Key management considerations for valley oak habitat on the Preserve are restoration of native herbaceous components, management of invasive species, and monitoring over time to determine whether natural regeneration is eventually reestablished on these disturbed soils.

Riparian Forest

Plant Life

Riparian forest occurs on the Preserve immediately along the Laguna, and along the creeks (Calder, Zimpher, and the unnamed drainages), in areas that are inundated for extended periods during the winter rainy season. These habitats form a significant part of the Laguna's Middle Reach riparian corridor. To the north and south of the Preserve, riparian forest continues only sporadically, with tree cover lost in many places where livestock grazing and other agricultural uses occur up to the Laguna's edge.



Above: Structurally diverse riparian forest along the Laguna in Tomodachi. Below: Dense stand of native bulbs soaproot (white) and Ithuriel's spear (purple) in riparian forest along the east edge of the Laguna.

The structure and composition of the Preserve's riparian forest varies depending on the disturbance history at each location. Where it has been least disturbed by human activity, as on the east side of the Laguna in Tomodachi Park and the immediate edge of the Laguna on the west side of Meadowlark Field, it is strongly dominated by native species, including a nearly continuous canopy of tall deciduous trees (valley oak, boxelder, ash, red and shining willow), an intermittent canopy of deciduous shrubs (creek dogwood, poison oak, wood rose, snowberry), and an intermittent layer of herbaceous species (soaproot, basket sedge, common rush, wood fern, Pacific sanicle, iris-leaf rush). The terrain is hummocky and frequently flooded in winter, with small pools and swales remaining full of water into the spring. Canopy cover is nearly continuous across the width of the Laguna channel in these places.

In areas where there has been more intensive human activity, including Railroad Forest and the Americorps Trail, riparian forest is recovering from historic clearing and soil disturbances and has a somewhat different structure and composition. Historic (1942) aerial photos show that almost no riparian cover existed along that stretch of Calder Creek at that time. Today, the upper canopy of tall

trees is present in some places but is limited. Canopy cover typically does not reach across the Laguna. Planted, naturalized, and invasive tree species are present, including walnut, weeping willow, and acacia. With a more limited overstory, the fast-growing, shrubby arroyo willow is much more abundant in these disturbed sites. In many places, the soil has been altered by fill or compaction, facilitating the establishment of invasives including non-native Himalayan blackberry and English ivy. Himalayan blackberry and a thornless blackberry cultivar cover large swaths of ground, with each year's new growth climbing over the previous year's dead canes, creating a tall, dense thicket and leaving little light or space for other species to take hold. Invasive wild plum is also common along the creek, and French broom is abundant along dryer trail and road edges.

Occasional remnants of native riparian understory, like this fern, occur among the Himalayan blackberry in Railroad Forest.

Immediately along Calder Creek, where regular flooding and shifting of sandy substrates occurs, some native herbaceous species are present, including sword fern, tall flatsedge, panicled bulrush, American brooklime, self-heal, and water cress. There are also dense clusters of invasive non-native yellow flag iris and Harding grass. In more upland areas of the Railroad Forest, native coast live oak is also present.

In the Railroad Forest, volunteers undertook cutting of Himalayan blackberry in March 2013. Plants were cut back by hand and by machine. Roots were not removed, and no native plantings were installed. Himalayan blackberry rapidly recovered from being cut.

No special-status plant species are likely to be present in the riparian forest of the Preserve, but see Figure 5 for a map of recorded occurrences in the Preserve vicinity, and Appendix 5 for a discussion of these species' potential to occur on the Preserve.

Animal Life

Riparian forests have an exceptionally high value for terrestrial animals; see Laguna Channel below for further discussion about aquatic species. In general, the densely vegetated riparian habitats along the Laguna provide nesting opportunities, food, and shelter, and may serve as corridors or islands during migration for a variety of wildlife species. These forested areas support riparian obligate birds as well as species also occurring in nearby habitats. Common birds of the riparian habitats within the Preserve include Pacific-slope flycatcher, tree swallow, western-scrub jay, chestnut-backed chickadee, bushtit, Bewick's wren, Swainson's thrush, American robin, warbling vireo, orange-crowned warbler, Wilson's warbler, black-headed

grosbeak, spotted towhee, song sparrow, purple finch, and American goldfinch. The riparian areas also support a number of special-status birds. For example, the yellow warbler, a summer resident in Sonoma County and a Bird of Conservation Concern by U.S. Fish and Wildlife Service, nests in riparian woodlands along the Laguna, as do several other special-status birds.

Black-crowned night heron in riparian forest of the Preserve.

The riparian woodlands also support a variety of mammals. Riparian areas sheltered from human disturbance support larger mammals include coyote, bobcat, gray fox, and the occasional mountain lion, which have been reported near downtown Sebastopol and along the Laguna. Riparian edges provide habitat for more disturbance-adapted mammals; human visitors along the Preserve's trails may encounter northern raccoon, western gray squirrel, and black-tailed deer. Common reptiles of the Laguna include fence lizard, alligator lizard, common kingsnake, garter snake, and gopher snake. Riparian habitats support a variety of native butterflies, other beneficial pollinators, and additional invertebrates.

Ecological Functions and Management Considerations

The ecological functions of riparian forest on the Preserve provide critical ecosystem services. For instance, riparian tree cover provides shading and cooling of the waterways, benefiting salmonids and other fish and wildlife. The varied root systems of native trees, shrubs, and rushes and sedges protect soil from erosion and filter nutrients and sediments from runoff, protecting Laguna water quality. Diverse shrub, willow, and overstory species provide a range of food and shelter resources for birds and other wildlife. These habitats also allow storm floodwaters to spread out and gradually drain into the Laguna or into the soil. This protects nearby developed areas from flooding and adds to water stored in the soil that is released gradually, supporting human, plant, and wildlife uses in the dry season. Like valley oak woodland, riparian forest also provides shade, cooling, noise reduction, and air quality improvement for the people of Sebastopol.

Key management considerations for riparian forest on the Preserve are restoration of a diverse, robust native understory, management of invasive species, and management of illegal camping and littering.

Aquatic Habitats

Laguna Channel

The Laguna channel is a large slow-moving and perennial system that serves as a critical resource for both aquatic and upland species. The channel is highly eutrophic with an abundant accumulation of nutrients and low oxygen concentrations (O'Rear et al. 2008). Spawning occurs

in still water in aquatic vegetation. The fish community is dominated by warm water, non-native species adapted to these environments. Representative species include non-native green sunfish, bluegill, common carp, black crappie, largemouth bass, black bullhead, white catfish, western mosquitofish, and fathead minnow. The Laguna channel is also known to support non-native American bullfrog and red swamp crayfish that also thrive in these conditions. Native fish include Sacramento sucker, Sacramento blackfish, and riffle sculpin. Calder and Zimpher Creeks, flowing into the Laguna, may also support a few fish species. Native threespine stickleback have been documented in Calder Creek.

The mainstem of the Laguna is used primarily as a migration corridor for steelhead and coho salmon. Steelhead are known to occur in tributaries upstream of the Preserve and would be expected to occur in the Preserve in winter and spring during peak migration. Steelhead and coho salmon are both anadromous fish; they are born and rear in freshwater streams, migrate to the ocean to grow and mature, and return to freshwater to reproduce. Steelhead are federally listed as threatened whereas coho salmon are both State and federally listed as endangered. Both species have suffered serious population declines due to a variety of factors. Protecting water quality and quantity within the Laguna is critical for supporting these species.

Western pond turtle.

Along the channel, western pond turtle, a California Species of Special Concern, is a common resident. The pond turtle, the only native turtle in Northern California, is most commonly found in or near permanent or semi-permanent water sources. This omnivorous species requires basking sites, such as emergent logs, rocks, mud banks, or mats of aquatic vegetation, for thermoregulation. Underwater retreats are also required for predator avoidance. Nesting sites, shallow holes dug by females, have been found some distance (1,300 feet or more) from aquatic habitat. Pond turtles experienced a population decline across their range due to commercial hunting during the late 1800s and early 1900s. They continue to be threatened by habitat loss and degradation and the widespread presence of non-native predatory bullfrogs and fish. Protecting this species from the threat of non-native species, maintaining and enhancing areas for basking within and along the channel, and protecting upland nesting sites are important for the preservation of this species within the Preserve.

The Laguna channel also supports several species of aquatic mammals. River otters and mink have been documented along the channel. Northern raccoon frequent the area as well and can often be seen dabbling for aquatic invertebrates along the shoreline. Raccoons are excellent swimmers and often seek refuge within the Laguna during high flows. The Laguna is also

important for a number of bird species. Along the channel within the Preserve, piscivorous (fish-eating) birds like double-crested cormorant, hooded merganser, and belted kingfisher can frequently be seen. The channel supports roosting and foraging habitat for egrets and herons. Nearby nesting colonies of great egret, great blue heron, and double-crested cormorant occur to the north at Delta Pond and south to Alpha Farm.

The Laguna channel provides many important ecological services beneficial to both natural communities and humans. It supports a wide diversity of aquatic species, from native fish to birds, and is intimately tied with the adjacent riparian vegetation, which supports a suite of terrestrial species. The waterway is critical to Sonoma County's water quality, by filtering nutrients and pollutants from agricultural and urban runoff, and to flood control. This slow-moving channel provides floodwater storage, slowing the transport of water and helping protect downstream communities, and allows water to infiltrate back into the groundwater, replenishing our supplies.

Key management considerations for the Laguna channel on the Preserve are protecting water quality from the threats of littering, camping, and runoff from adjacent lands, restoring and enhancing native habitat along the margins, and protecting native animals from the threat of non-native species.

Wetland swale through Meadowlark Field.

Wetlands

Wetlands on the Preserve include a variety of naturally-occurring, altered, and created habitats. All of them hold standing water during and after winter storms, with relatively impermeable soil layers slowing the drainage of water into the ground. Extensive portions of riparian forest habitat would also qualify as wetland habitat under regulatory definitions.

Plant Life

At the Youth Park, the abandoned sewage ponds are inundated, at least in deepest portions, for extended periods in typical winters and into spring. In recent drought years, these ponds have dried in early spring. Within each pond, habitat generally grades from upland grasses and weedy species on the west to seasonal or permanent wetland species on the eastern sides, closest to the Laguna. Stands of emergent freshwater marsh vegetation occur in the eastern edges of the middle and western ponds, including cattail and broadfruit bur reed, as well as several

occurrences of invasive yellow flag iris. Seasonal wetland vegetation is present on the higher portions of these ponds, as well as in the easternmost pond. Seasonal wetland species include common native species such as coyote thistle, water starwort, yellow cress and cocklebur, and non-natives including lanceleaf water plantain and curly dock.

Created wetlands are also present in linear ditches created historically, including one along the northwestern corner of Meadowlark Field, and another along the back side of the old cement plant. These also support a mixture of common native and non-native grasses, rushes, and herbaceous species. According to the Master Plan, the Meadowlark ditch was repeatedly dredged when it began to fill with cattails and tules, and spoils were placed along the banks. This history of repeated disturbance is reflected in the vegetation. The bottom of this channel is sparsely vegetated with species that can withstand seasonal inundation, such as lippie and smooth spike primrose, while the edges are dominated by common wetland monocots such as tall flatsedge, common rush, and spike bentgrass. Along the banks, there are dense stands of remnant agricultural plantings of perennial grasses such as Harding grass, as well as some stands of native creeping wildrye in areas beyond the dredging spoils.

One of several vernal pools at Tomodachi, and two of the vernal pool species present: coyote thistle and popcornflower.

In contrast to these created wetlands, there are several other parts of the Preserve that support naturally-occurring wetlands. Much of Meadowlark Field floods in winter storms, and remnant swales and wetter areas are scattered throughout. One main swale runs north-south through the site. These seasonal wetlands are dominated by grasses, rushes and sedges and again, are a mixture of native and non-native species. Italian ryegrass is common as well as native creeping wildrye and meadow barley. In some wet areas, forbs are also common, including low-growing

non-native lippia and fat-hen, and native sticktight.

At Tomodachi Park, seasonal wetlands are present intermingled with riparian forest. These frequently-flooded areas support a variety of annual and perennial herbaceous species. There are also three remnant vernal pools (Questa 2012). These have been highly altered by human uses over the decades, but despite this history of grading, leveling, and compaction, their signature is still present. They are shallow, but still have distinctive vegetation adapted to seasonal inundation, including native popcornflower, coyote thistle, smooth spike primrose, and rayless goldfields, as well as non-native pricklefruit buttercup and Italian ryegrass.

No special-status plant species are likely to be present in the wetlands of the Preserve, but see Appendix 5 for a list and discussion of recorded occurrences in the Preserve vicinity, and Restoration Opportunities for a discussion of potential for reintroduction of vernal pool species.

Animal Life

Natural and created wetlands are important habitat for wildlife within the Preserve. The abandoned sewage ponds and larger open water wetlands provide foraging opportunities for waterfowl and wading birds who consume aquatic invertebrates and plants. Mallards, pied-billed grebes, and egrets and herons are common visitors to these areas. Smaller songbirds use the habitats for foraging and nesting. Black phoebes and swallows sally over aquatic habitats catching insects on the wing. Red-winged blackbirds commonly nest along margins in emergent vegetation at the Youth Park. Small and large mammals are attracted to these areas not only for a direct source of water, but also to prey on abundant wildlife. Red-eared slider turtles have been documented in the Youth Park ponds. This non-native species can be detrimental to our native pond turtle. They compete directly with pond turtles for nesting and basking sites, food, and cover. They also can be a source of parasites and disease.

Both the created and natural wetlands support a suite of endemic invertebrates that are well-adapted to life in these seasonal environments. These include a variety of crustaceans, aquatic beetles, dragonflies, damselflies, snails and worms, and zooplankton. These invertebrates serve as a food source for amphibians and birds. Standing water provides breeding habitat for common amphibians such as the Sierran treefrog, which is most active during winter months, when its calls can be heard throughout the Preserve and up into town.

California tiger salamander.

Historically, seasonal wetlands on the east side of the Laguna within the Preserve may have supported California tiger salamander. The Sonoma population is a state and federally listed species that at one time occurred throughout the Santa Rosa Plain. It breeds in vernal pools and other seasonal pools. Breeding occurs during the winter after rains have filled pools. Larvae remain in the pools for three to six months. During the non-breeding season, salamanders use upland habitats, largely grasslands, and live underground in burrows. Salamanders are known to migrate long distances, up to 1.3 miles, from upland habitats to breeding sites. Populations have declined due to the loss and destruction of habitat. Currently, tiger salamanders are known to occur directly east of Meadowlark Field on City of Santa Rosa properties and elsewhere on the Plain. Preservation of upland areas with minimal human disturbance will provide opportunities for this species to use the Preserve edges as aestivation habitat.

Ecological Functions and Management Considerations

The aquatic habitats on the Preserve provide essential ecological functions. The supply, storage, and gradual release of water forms the foundation for the lush plant life on the Preserve now, and for fish, bird, and other wildlife populations. By slowing the flow of stormwater runoff, and allowing filtration through plant roots, wetlands allow for the reduction of sediments, nutrients, and other pollutants which seriously threaten the Laguna watershed.

Key management considerations for aquatic and wetland habitat on the Preserve are protection of water quality from threats including littering and camping, and establishment of diverse native herbaceous cover in areas now dominated by introduced species.

Recreational and Ornamental Landscape Areas

The Youth Park also includes some ornamental landscaping, with small areas of lawn as well as ornamental trees and shrubs. Village Park areas adjacent to Tomodachi include some ornamental plantings as well, and a vegetable garden. Recreational landscaping includes the Youth Park ball fields.

The wildlife habitat values of developed and ornamentally landscaped areas are generally considerably less than those of the surrounding natural habitats and the Preserve is no exception. Wildlife in the developed areas are typically more acclimated to human activity and include species common in urban and suburban habitats. Common mammals along the Preserve edges include native raccoon and striped skunk, and non-native Virginia opossum, rats, and mice. Ornamental trees and shrubs provide roosting and potential nesting substrate for numerous species of birds. Non-native birds are also prevalent including house sparrow, European starling, and rock dove. However, man-made structures adjacent to the landscaped areas can often be important resources for wildlife. Evidence of this can be seen on the back side of the Youth Annex where cliff swallows congregate and nest. Of particular concern surrounding the developed areas and within the adjacent native habitats is the presence of feral cats. Feral cats are detrimental to native wildlife and supplemental feedings by human can exacerbate the situation. (See Invasive Wildlife Management).

Key management considerations for the landscaped areas on the Preserve are minimizing the use of fertilizers on the baseball fields, ensuring that ornamental plantings do not spread and, over time, replacing them with native species appropriate to the setting, and managing feral cat

populations.

5 Cultural and Historical Resources

Prior to European settlement, the Laguna region was occupied by three Native American Pomo communities: the Kohnomtara, on the west side of the Laguna; the Bitakcomtara, on the east side; and the Ketaictemi, along the Laguna near Mark West Creek (Master Plan).

In development of the Master Plan, a record and literature review of existing archaeological information on the study area was performed by the Northwest Information Center, Department of Anthropology, Sonoma State University, a branch of the California Archaeological Inventory (CAI). The Master Plan area contains five recorded prehistoric archaeological sites listed with the CAI. No historic properties are listed with state and federal inventories for the area. Approximately 30% of the Master Plan area had been archaeologically surveyed at the time.

The Master Plan area is in an area of high archaeological sensitivity. Identified prehistoric sites range from lithic scatters to habitation sites. Two sites, including what may be the village site of Batinklehcawi, are adjacent to the study area, and 13 additional sites are within a ½ mile radius of the study area. A map delineating these areas, as well as areas not yet surveyed, has been provided to City staff. Due to its sensitive nature, it is not included here.

As described in the Setting section, the Preserve also has a colorful history of human uses in the modern era. These include the airfield and apple processing use that once existed on Meadowlark Field, the old sewage ponds of the Youth Park, the long-standing camping area on Tomodachi, and the railroad line that crossed the Railroad Forest. Most of these uses are not readily visible to the casual observer, but most have left traces on the land, and have potential to be called out in interpretive displays or other educational settings.

6 Facilities

The Preserve includes a number of facilities that support the public's enjoyment, use and education. In addition to the facilities geared toward intensive uses of the land—community buildings, baseball fields, and playground—the Preserve's trails, seasonal bridge, interpretive and directional signage, picnic sites, and benches are all important to supporting enjoyment of the natural landscape. Parking facilities are also available at some Preserve locations. Maintaining and updating all of these facilities will help protect the Preserve's natural resources, and can encourage sensitive public use of the land. See Figure 6 for a map of existing and proposed trails and recreational facilities.

Trails, Signage, and Other Low-Intensity Recreational Facilities

Interpretive trail signage along trail behind baseball field.

Trails on the Youth Park extend from several main entrances around the ponds, ball fields, along the Laguna, to the seasonal bridge, and to the Americorps Trail. These are heavily used by the public, and are also used by the Laguna Foundation's Learning Laguna docent and student groups. These trails are mostly dirt or surfaced with crushed rock or gravel, except for the paved trail leading to the playground from the parking lot. They are typically 6-8' wide and are designed to be accessible to wheelchair users, but in some locations (e.g., around the amphitheater), the surface material is eroding and may be difficult to navigate for some users. Vegetation along trails is mowed and trimmed by City staff, but sometimes still overhangs the walkway and can obscure signage.

Amphitheater at the Youth Park.

An interpretive trail, with numbered signs, begins near the north parking lot and continues throughout the Youth Park and Meadowlark Field. Brochures describing natural points of interest at each numbered stop are sometimes available at the entry arbors, but are not consistently stocked currently. Entry arbors have display cases with a rotating display of educational posters, but some of the display cases are broken and in disrepair. The northern entry arbor on the Youth Park is placed at a distance from the

parking area, the trail to it is somewhat indistinct, and it appears to be little used. There are several benches along the Youth Park trails, typically oriented toward the Laguna. A number of these are in need of repair or replacement. City staff mows around the benches here and throughout the Preserve, but at times, vegetation grows up through the slats of the benches, making them less inviting.

A seasonal floating bridge, which is removed during the rainy season (approximately early October through early April), provides a crossing between the Youth Park and Meadowlark Field. It is the only pedestrian crossing of the Laguna available in Sebastopol, although the Highway 12 bridge reconstruction will include sidewalks. The seasonal bridge also provides a rare chance for pedestrians to view the Laguna from directly over the channel; it provides scenic views of ancient oaks reaching out over the water and herons and other birds nesting and foraging. The bridge is aging and may need replacement soon. Based on input received during development of this plan, there is strong community interest in making the bridge a permanent structure, but that would likely be a very costly effort with serious regulatory challenges. It would also require SCAPOSD approval.

The trails of Meadowlark Field, on the east side of the seasonal bridge, include a peripheral trail, which connects to the Regional Parks Laguna Trail, and several trails that cross the interior of the field. The peripheral trail is 6-8' wide and heavily used in summer, when the bridge is up. The interior trails are narrower and less heavily used. Trail surface is mostly dirt and gravel along the perimeter trail, with a segment of polymerized decomposed granite where it joins the Regional Parks trail on the east side, and dirt on the interior trails. A short length of boardwalk, made of composite boards, spans a wet area on the southwestern part of the perimeter trail. There are several benches along the trail, and picnic tables along the interior trails. Several of these benches and tables are in disrepair, and vegetation around some is not fully cleared, making them less visible and less enjoyable to use. The interpretive trail continues along Meadowlark's perimeter trail. Many small park rules signs are present throughout; these use icons and limited text to convey park usage information. Many of these are fallen, in disrepair, seem out of place, or are uninviting (e.g., "USE PARK AT OWN RISK").

The Americorps Trail's main formal entrance is in the Youth Park, on the south side of the baseball fields. Often this entrance, and the sign denoting it, are obscured by fast-growing Himalayan blackberry. The trail itself is frequently flooded in winter. Two other unmarked entry paths lead from Morris Street to the trail; these are frequently used by illegal campers and are not well known to the general public. Another entry is immediately south of the wastewater lift station. Park signage is present on the back of this property, but is not readily noticeable to passersby on Morris Street. South of this area, the trail is not maintained, and dead ends at Zimpher Creek. Homeless campers and others looking for a hidden place to gather are currently the main users of this section.

Trails at Tomodachi Park are limited to a short length leading from the entry drive to a set of picnic tables. The trail and the areas surrounding the tables are surfaced with a polymerized dirt/gravel mix. Although it was only recently installed, this surface is eroding, and weedy plants are growing through many cracks.

The Railroad Forest property is bisected by the paved Railroad Forest Trail. This trail leads from Highway 12 near Morris Street (beyond the Preserve) south into the Preserve, and ends at Regional Park's paved Joe Rodota Trail, which connects Sebastopol with Santa Rosa. This multi-use trail is well-used by pedestrians and cyclists, and serves both recreational and utilitarian (i.e., bicycle commuting, in-town travel) purposes. The trail includes two bridges; one over the main channel of Calder Creek, and another over a seasonally flooded swale. The trail and bridges are in generally good condition. Clearing of debris is required occasionally when large storms result in sand deposits, particularly around the bridge over the swale. Clear directional signage is present at both ends of the trail. There are also multiple unauthorized dirt trails leading from the Railroad Forest Trail, and from the Joe Rodota Trail, into illegal camps within the dense riparian vegetation.

Baseball Fields and Playground

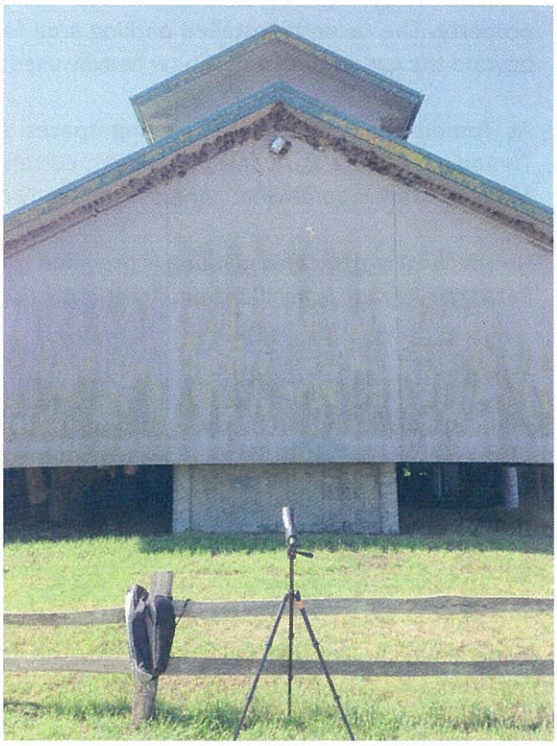
The two baseball fields at the Youth Park are reserved exclusively for the use of Little League players. Little League volunteers oversee the fields' maintenance, run a concession stand during games, and pick up trash from the adjacent seating areas afterwards. Local landscaping contractor Gill Landscape Inc. currently provides field maintenance for the Little League.

The playground at the Youth Field is well-used by families with young children, especially when ball games or other events at the Community Center are in progress. A number of picnic tables surrounding the playground, and grills, are not heavily used but are occasionally used for hosting outdoor children's parties. A water fountain (the only one available on the Preserve) is provided. A set of engraved metal interpretive signs embedded in a wooden stand extends along the eastern side of the playground. These signs were probably oriented to provide a view of the Laguna, but the view is now blocked by a planted redwood, as well as native riparian vegetation. The understated signs appear to go unnoticed by many park visitors.

Other Buildings and Utilities

There are also several City-owned buildings on and immediately adjacent to the Preserve. The Community Center and the Youth Annex, and the adjacent parking areas, serve as well-used community spaces for meetings, classes, and performances. These buildings also provide the only public restrooms regularly available for Preserve users. (During ball games, additional restrooms are available near the fields.) Landscaping around these includes a limited amount of turf, ornamental shrubs and trees. The Youth Annex is extensively used by cliff swallows, which nest along the back eaves of the building and can often be seen swooping through the air, foraging for flying insects, early and late in the day in the warm seasons. On the building's other sides, netting has been installed on the eaves to prevent the swallows from using those areas directly over building entries. Visitors, including Learning Laguna participants, often enjoy bird-watching here. Behind the buildings, a recently-developed Peace Park includes a fanciful metal sculpture entryway, a peace sculpture, and picnic tables. A labyrinth, the Sebastopol Memorial Garden Labyrinth of Life, was developed by community members behind the Youth Annex, in memory of young lives lost. The labyrinth is composed of brick laid into turf.

The wastewater lift station on Morris Street, adjacent to the Americorps Trail, houses pumps to send City wastewater to the Laguna Treatment Plant. Wastewater is piped directly behind the facility, under the Laguna, and under the southeastern corner of Meadowlark Field. From there, the pipeline leaves the Preserve to continue to the southeast. Parking in front of the facility, and the access road along its southern side, must remain available for City use and emergency access. The access road is available for pedestrians to access the Americorps Trail, although no signage indicates that along Morris Street. There is also room for pedestrian access between the paved access road and remnant riparian swale to the south. Immediately behind the facility, an open grassy area is maintained in case of a need for emergency access. This area must remain open but the periphery could be enhanced with additional native plantings, seating, or a nature-based play area. The lift station is located on a berm, which currently supports an assortment of invasive plants and some planted ornamental trees and shrubs.



Swallow nests on the back eaves of the Youth Annex, with a Learning Laguna spotting scope set up to view the birds' activity.

Adjacent to Tomodachi Park, the office and residences of the Village Park are present. The City's original intent was to eventually transform the mobile home area into park for public use, once mobile home park residents left the property by attrition or relocation. Currently, these plans are inactive, allowing current residents to remain in place, with the City continuing to provide low-cost housing stock. The City has made extensive repairs to Village Park facilities and utilities, and more repairs are needed.

Parking

The Youth Park provides the two main parking lots for the Preserve, with a paved southern lot and gravel/dirt northern lot serving Preserve visitors as well as people attending events at the Community Center and Youth Annex. During large events, parking typically overflows onto Morris Street.

No formal parking is provided for the Americorps Trail. The Youth Park lots provide the main parking access, and on-street parking along Morris Street north of Laguna Park Way, and south of Laguna Park Way on the east side, is also typically available.

For Meadowlark Field, a small informal dirt parking area, which accommodates several cars, is

present along Highway 12 just west of the gas station at the southeastern corner of the property. The recently-installed parking area for the Regional Parks Laguna Trail is located just beyond the gas station, and is now heavily used by the community.

At Tomodachi Park, several parking spaces are provided for park visitors along the joint Tomodachi/Village Park entry. However, current signage intended to prevent unwanted visitors to Village Park is somewhat confusing and may deter legitimate park users.

No specifically dedicated parking is provided for Railroad Forest, but some on-street parking on Petaluma Avenue is available and frequently used by visitors to the Joe Rodota Trail.

7 Restoration and Resource Management

Natural Resource Target Conditions and Functions

The natural resources of the Preserve serve valuable ecological functions that sustain people, wildlife, and plant life. In some cases, the habitats of the Preserve are impaired in these functions, indicating needs for resource management or opportunities for restoration. For each habitat type on the Preserve, the table below lists key ecological functions, as well as representative suites of plant species, that the habitat would typically support in an unimpaired state. Reference locations, nearby areas with relatively high habitat quality, are also listed. In some cases, historic changes to the sites included grading and other alterations to hydrology that are difficult to undo today. In these settings, restoration plantings that are adapted to altered conditions may be the most effective stewardship action. In other cases, habitats on the Preserve are already in the process of succession towards target states (e.g., currently have dense stands of arroyo willow and Himalayan blackberry, but also have young valley oak plantings beginning to overtop them), and need only limited management to support them in the transition.

Table 2. Preserve Habitat Types and Target Qualities

Habitat Type (And Reference Locations)	Target Functions	Target Structure and Representative Species
Valley Oak Woodland/Savanna (Western edge of Meadowlark, fragments along Joe Rodota Trail east of Tomodachi, CDFW lands to south)	- Provides diverse structure and food resources for diverse wildlife habitat - Retain open habitat patches to support grassland specialist birds and American badger - Natural regeneration of native species, esp. trees - Resists further invasion by pepperweed and other invasives - Carbon sequestration - Shading/cooling/screening	- Upper canopy – open to nearly continuous canopy of valley oaks, occasional ash and boxelder - Shrubs and small trees –scattered rose, elderberry, coyote brush, buckeye, hawthorn, poison oak - Herbaceous – dense stands of creeping wild rye, meadow barley, CA oatgrass, basket sedge, with scattered stands of soaproot, poppy, buttercup, tule pea, lupine, common meadowfoam, *Brodiaea*, *Wyethia*, etc.
Riparian Forest (Tomodachi east of Laguna, western edge of Meadowlark along Laguna, CDFW land south of Tomodachi)	- Buffers developed areas from floodwaters - Groundwater recharge - Capture/filtration of sediments and pollutants - Provides diverse structure for diverse wildlife habitat - Resists further invasion by Himalayan blackberry - Diverse, relatively open structure (and frequent flooding) provides some visibility into habitat, discouraging camping and littering	- Upper canopy – scattered to continuous canopy of valley oak, boxelder, ash - Shrubs and small trees – diverse, intermittent willow (red, shining, limited arroyo), dogwood, occasional western azalea - Herbaceous – intermittent stands of sedges, rushes, mugwort, soaproot, Pacific sanicle, ferns
Wetlands - retired sewage ponds and ditches (Created habitats with no nearby local reference; some similar habitat elsewhere along Laguna)	- Buffers developed areas from floodwaters - Groundwater recharge - Capture/filtration of sediments and pollutants - Provides water and diverse structure for diverse wildlife habitat - Water supply for wildlife	- Areas of long inundation: Bur reed, tule, cat tail, water plantain, spikerush - Areas of intermittent inundation: creeping wild rye, meadow barley, mugwort, goldenrod, rushes
Wetlands - vernal pools/swales (Regional Parks land north of Meadowlark, CDFW Cooper Road and Todd Road Units)	- Buffers developed areas from floodwaters - Groundwater recharge - Capture/filtration of sediments and pollutants - Rare habitat and potential rare plant habitat	- Primarily annual herbaceous cover: popcornflower, downingia, rayless goldfields, spikerush, coyote thistle, semaphore grass

Protecting and enhancing these resources and their functions will require protecting existing healthy habitat from disturbance, nurturing previous habitat restoration efforts on the Preserve, pursuing high-priority new restoration efforts, and managing introduced species.

Protecting Existing Habitat

The most fundamental requirement of Preserve management is to prevent damage to existing habitats—both naturally-occurring and actively restored—from park maintenance or future development activities. All of the Preserve's properties have received restoration plantings over the past decade. These are mostly thriving, represent extensive community investment, and merit protection during Preserve maintenance activities.

Sapling-sized restoration plantings from 2008 thriving in Meadowlark Field.

The most extensive of these plantings is in Meadowlark Field, which has been fully planted with woody species. Over 5,500 plants were installed between 2008 and 2013, by the City, the Laguna Foundation, and community volunteers. Funding from SCAPOSD also supported these efforts. The northwestern corner of the property was planted in 2008 followed by planting in the southwestern section of the property in 2010. The eastern half of the property was planted in 2011-2013. Species include valley oak, coyote bush, California wild rose, ash, walnut, elderberry, native blackberry, and willow; all were propagated from locally collected material. All plantings were irrigated for 3 years following installation and mowed or weeded to support establishment. Irrigation hardware has been removed or is scheduled to be removed by December 2015 for the most recently installed plants. As of 2014, planting survivorship across the 2010-2013 plantings is approximately 75%. Restoration of native herbaceous species on the property could be valuable to increase habitat diversity and help slow the spread of perennial pepperweed (see Restoration Opportunities).

At Tomodachi, native trees and shrubs were installed during park development in 2013. These are generally thriving and becoming established. However, large areas of mulch in between plantings where no seed or plants were installed are becoming weedy. Tree plantings were installed with nursery stakes still in place; these should always be removed at planting time and, if needed, replaced with tree stakes and ties that are not tightly bound to the tree and will not restrict tree growth.

Existing restoration plantings that are still small in stature, like this oak in the northwest Youth Park, will benefit from weeding and maintenance.

The Youth Park and Americorps Trail have woody plantings ranging from slow-growing seedlings and saplings in areas of difficult soil (e.g., fill near the Youth Park parking lot and the south end of Americorps) to well-established trees and shrubs near the Laguna. Those plantings that are still small will benefit from continued protection from damage by mowing or string trimming, and where feasible, from supplemental water. Adjacent to the northern baseball field to the northeast, a small grassy area was planted with native grasses and poppies. These natives are still surviving, although weedy non-natives are also present.

OBJECTIVE RM-1: Protect intact habitats during Preserve maintenance and improvements.

ACTIONS

- **Limit the development of new trails** on the Preserve to short connector trails described in Objective PU-2. (O)[1]
- **Locate any new Preserve facilities such as interpretive signage and connector trails away from areas of high-quality habitat** including the east side of the Laguna at Tomodachi and

[1] Each action recommended in this plan is marked as a short-term (S), ongoing (O), and/or long-term (L) activity. Short-term actions are those that could or should take place within the next two years, while long-term actions may require additional planning or fundraising, are non-urgent, and are recommended for implementation within the next 10 years. Ongoing actions are those that will need to continue in perpetuity to protect and conserve resources on the Preserve.

the area between the Meadowlark perimeter trail and the Laguna channel. Best locations for any such developments are in areas already disturbed by human activity. See Objective PU-1 for conservation easement restrictions and approval requirements on signage. (O)

- **Avoid ground disturbance in all natural habitats.** (O)

OBJECTIVE RM-2: Protect and maintain existing restoration plantings.

ACTIONS

- **In all locations with established plantings, including along the Americorps Trail and the Youth Park, remove all remaining non-biodegradable restoration hardware** (above-ground irrigation, tree shelters, weed mats). Minimize soil disturbance. This could be a suitable activity for a supervised volunteer effort. (S)
- **At Tomodachi, weed around existing restoration plantings.** Seed mulched area with native annual and perennial grasses and forbs to suppress weeds in future. Remove nursery stakes from plantings and replace with appropriate tree stakes only if needed to support plants. Observe future CalTrans plantings and report any concerns about plant success to CalTrans project manager. (S)
- **At the Youth Park, replace dead plantings along periphery of parking lot if feasible**. Place mulch around existing small plantings to increase visibility and prevent being walked on or damaged by string trimmers or mowing. Remove irrigation materials that are still above ground. If feasible, provide supplemental water or timed-release water to enhance growth. (S)
- **At Meadowlark, informally monitor restoration plantings on an annual basis**, by reviewing representative planting areas in spring or summer, to identify any health or vandalism concerns. This could be a suitable activity for a supervised volunteer effort. If resources are available, long-term survivorship counts (e.g., every 5 years) would provide valuable information for management and future restoration efforts. (O)

Restoration Opportunities and Methods

The table below provides information on key restoration opportunities throughout the habitats of the Preserve.

OBJECTIVE RM-3: Restore habitat functions and native biodiversity where these are impaired on the Preserve.

ACTIONS

- **See Restoration Opportunities in Table 3 below**. These are long-term actions (L).

Table 3. Preserve Restoration Opportunities
See Figure 7 for locations, keyed to letters shown below.

Habitat Type	Project Locations, Impaired Functions and Missing Native Biodiversity	Restoration Opportunities
Valley Oak Woodland/ Savanna	*A. Meadowlark Field* Impaired Functions: ▪ Invasion resistance - pepperweed, dock, Harding grass, etc. ▪ Natural regeneration ▪ Wetland functions reduced by altered terrain and hydrology Missing Natives: Herbaceous species	1. Analyze soil physical, chemical, and biological properties to identify any conditions that may be limiting native plant growth and regeneration. Determine whether soil qualities are correlated with patterns in survivorship of existing plantings. Determine whether any restoration of pool/swale topography may be possible given woody planting configuration and soil conditions. 2. Select target locations for herbaceous restoration: demonstration areas along trails, existing swales, unplanted zones, pepperweed removal sites, areas where pepperweed is otherwise likely to spread, and poison hemlock stands. 3. Mechanically remove existing non-native species. Plant plugs or seed of highly competitive native perennial species of wet meadows to slow the spread of invasives - e.g., rhizomatous species including creeping wildrye, basket sedge, goldenrod, etc. as well as other perennials for diversity. In more upland areas, CA oatgrass. 4. After woody plantings have grown above browse line (10-15 years), consider whether limited, managed livestock grazing would benefit native diversity. Livestock grazing is permitted by the property's conservation easement. 5. Install native bird nest boxes (see Engaging and Managing Volunteers).

Habitat Type	Project Locations, Impaired Functions and Missing Native Biodiversity	Restoration Opportunities
Valley Oak Woodland/ Savanna	*B. Youth Park - NW corner* Impaired Functions: ▪ Natural regeneration ▪ Invasion resistance (fennel, blackberry) ▪ Carbon sequestration, shading/cooling Missing Natives: Shrubs, herbaceous species	1. Analyze soil conditions to determine whether qualities of fill are limiting plant establishment and growth. 2. Remove fennel and blackberry, replace with native upland shrubs, grasses, and herbs. Given its elevation, this area could also support more coast live oak and buckeye. Consider public uses and views towards ponds in locating plantings. 3. Incorporate educational component into planting by labeling plantings, providing explanatory signage, and/or including species of particular cultural importance. 4. Add plantings of native shrubs, perennials, and grasses near the two Youth Park entry arbors and amphitheater. Coordinate with Adopt-a-Landscape volunteers.
Valley Oak Woodland/ Savanna	*C. Americorps - south end* Impaired Functions: ▪ Provision of diverse wildlife habitat ▪ Natural regeneration Missing Natives: Shrubs, herbaceous species	1. Enhance existing tree plantings with shrubs and perennials to diversify and beautify this entryway into the trail. Add bench to encourage public use. 2. Install native bird nest boxes (see Engaging and Managing Volunteers). 3. Add bridge over Zimpher to extend and connect trail; see Objective PU-2.

Habitat Type	Project Locations, Impaired Functions and Missing Native Biodiversity	Restoration Opportunities
Valley Oak Woodland	*D. Tomodachi – old camping area (see also Wetland section)* Impaired Functions: ▪ Provision of diverse wildlife habitat via structural diversity ▪ Natural regeneration of mature oaks ▪ Screening of HWY 12 Missing Natives: Shrubs, native grasses	1. Observe CalTrans mitigation planting effort after bridge replacement is complete; identify any shortcomings (e.g., remaining needs for screening, re-establishment of native sedge beds). 2. On northern periphery of site, plant native trees and shrubs as needed to increase screening of HWY 12. Between entrance road and valley oak stand, restore native perennial grasses and forbs. Encourage natural regeneration of valley oaks by protecting seedlings from mowing as needed. Ensure that mowing is high enough to protect native herbaceous species, and early enough to allow for native species to recover and set seed. Maintain central open area under valley oak stand for gentle public use/access/views. 3. Incorporate educational component into planting by labeling plantings or installing explanatory signage. Ensure that signage meets conservation easement requirements; see Objective PU-1 for detail. 4. See also Vernal Pool section.
Riparian Forest	*E. Youth Park – SW corner* Impaired Functions: ▪ Provision of diverse wildlife habitat via structural diversity ▪ Invasion resistance Missing Natives: Limited upper canopy species, but improving over time; shrubs and herbs	1. Remove Himalayan blackberry in low area intended for overlook, replace with native riparian tree, shrubs, and herbaceous species. 2. Install interpretive signage at overlook identifying riparian trees and their ecological functions, or a map of Preserve trails and local linkages. Repair overlook railing.

Habitat Type	Project Locations, Impaired Functions and Missing Native Biodiversity	Restoration Opportunities
Riparian Forest	*F. Americorps Trail – Remnant swale south of lift station* Impaired Functions: ▪ Provision of diverse wildlife habitat via structural diversity ▪ Invasion resistance Missing Natives: Limited upper canopy species, but improving over time; shrubs and herbs	1. Remove Himalayan blackberry, acacia, privet, and wild plum, replace with native riparian tree, shrubs, and herbaceous species. Include eastern end near Laguna, where Himalayan blackberry is abundant and camping is common. 2. In conjunction with enhancement of the entry by addition of an arbor and/or signage, and possible natural play area (See Public Use section), this restoration would also increase public awareness of the Americorps Trail and the creek, and decrease unwanted uses such as camping.
Riparian Forest	*G. Railroad Forest* Impaired Functions: ▪ Provision of diverse wildlife habitat via structural diversity ▪ Invasion resistance ▪ Views into area (tall, dense Himalayan blackberry thickets facilitate illicit camping) Missing Natives: Limited upper canopy species, but improving over time; shrubs and herbs	1. Working in one quadrant (north or south of Calder Ck, and east or west of paved trail) at a time, remove Himalayan blackberry, acacia, and other invasives and replace with competitive, diverse native riparian tree, shrub, and herbaceous species. Begin with southwest quadrant and monitor outcomes; use lessons learned to inform subsequent work. Identify and protect native species from disturbance by removal work as much as possible. Select species that provide habitat diversity as well as maintain views of passers-by into habitat.

Habitat Type	Project Locations, Impaired Functions and Missing Native Biodiversity	Restoration Opportunities
Wetlands - old sewage ponds	*H. Youth Park ponds* Impaired Functions: ▪ Ponding limited in dry years, reducing wildlife use Missing Natives: Limited natives in drier portions and berms	1. Study potential for hydrologically connecting ponds to Laguna and each other via gravel lenses, which would keep fish and Ludwigia from entering ponds while allowing water flow. Consider regulatory needs, hydrology and hydraulics, and frequency of silting up of lenses. Analyze soil qualities of ponds to identify any qualities of concern from historic uses. 2. Install large woody debris to add structural complexity and habitat components for wildlife, including western pond turtle. Add a viewing platform and educational signage for public. 3. Gradually replace Himalayan blackberry on pond berms with native shrubs and trees. 4. Study potential for creating bioswale to drain parking lot, ball fields, and roof of City buildings into ponds. 5. If water is present, drain annually in late summer/early fall to restrict bullfrog breeding (see Invasive Animal Management).
Wetlands - vernal pools/ swales	*I. Tomodachi vernal pools* Impaired Functions: ▪ Loss of natural microtopography leading to loss of inundation depth and period Missing Natives: Annual vernal pool species	1. Analyze soil conditions to identify extent of fill and compaction, and potential for restoration of hummocky, ponding terrain. 2. If suitable, restore vernal pools by subtle shaping and/or deepening to increase water holding capacity. Seed with inoculum of native vernal pool species from adjacent properties, in consultation with resource agencies and under the guidance of a botanist. 3. Install educational signage about vernal pools. Ensure that signage meets conservation easement requirements; see Objective PU-1 for detail.

Overview of Methods

This document provides only general guidance on restoration planning for the Preserve. Once specific projects are selected for implementation, detailed plans should be developed by a restoration specialist. Plans typically include a statement of project goals, site preparation methods (soil treatments and invasive species control) as needed, planting locations, plant species composition, plant collection and propagation protocols or sourcing criteria, plant protection methods, maintenance and watering protocols, monitoring, success criteria, and potential remedial actions. The level of detail needed for the restoration plan will depend on the scope of the project, and the sensitivity of the habitat involved.

Identifying Project Goals

Clearly identifying project goals from the start provides a basis for success criteria, and for determining whether project efforts were successful. For instance, a goal for a Meadowlark Field project that combines restoration and environmental education could be "to establish diverse stands of native wet meadow species in selected locations along the interior trail system, with interpretive signage identifying the species and their ecological roles."

Preparing the Site

Site preparation methods for Preserve restoration may include soil testing, addressing soil qualities that limit native plant growth, and invasive species control. To conform with conservation easement requirements in applicable areas, consult with SCAPOSD prior to any grading activities. In particular, written SCAPOSD approval is required prior to moving any surface material on Tomodachi Park, and prior to moving more than 50 cubic yards on Meadowlark Field. SCAPOSD has also requested that the City notify them of any grading on Railroad Forest.

Where soil layers have been altered by historic disturbance (e.g., in areas of fill, spoils from dredging channels, or altered chemistry), digging soil pits and/or sending soil samples to a soil analysis lab will help identify treatment needs. In areas of fill and likely compaction, such as the northwest corner of the Youth Park and the southern end of the Americorps Trail, decompaction of soil by tilling and incorporation of weed-free composted plant material may be valuable to improve soil structure, biology, and chemistry. In areas where spoils were placed historically, such as along channel edges, it may be possible to remove fill layers and uncover native topsoil. For Meadowlark Field, where apple processing waste was disposed of, soil chemical analysis is recommended to determine whether any remnant qualities are inhibiting native plant regeneration. Soil samples should be taken both from the proposed project site, as well as from a nearby reference site with desired vegetation, for comparison. Keep in mind that low nutrient levels typically favor native species over introduced species, so high-nitrogen supplements should generally be avoided. Analysis of species-specific survivorship of restoration plantings in Meadowlark field, particularly in areas where soil quality may be poor, may also help guide replacement plantings by identifying those species most successful in different soil conditions.

For projects where substantial grading is planned, topsoil salvage may be beneficial. This entails setting aside the top layer (typically 2-4") of soil during grading, maintaining it separately from subsoils, and replacing it in its original (uppermost) position. In some cases (e.g., where invasive

species are dominant and native species are not present), it may not be desirable to preserve topsoil on the top layer of restored soil. Burial of topsoil can be one strategy for reducing germination of invasive plants in densely infested areas.

Most Preserve sites planned for restoration are likely to have substantial invasive species populations present. Controlling or eradicating these will help improve the establishment of natives. See Invasive Species Management for details. For annual weedy species, where feasible, repeated cycles of watering and cultivation to germinate and kill seedlings can help reduce seedbanks. In grassland areas, reduction of thatch layers by mowing prior to herbaceous plantings will facilitate establishment.

Planting Design

Planting design may be illustrated in detail (i.e., all plants individually called out on drawings) or more generally (i.e., appropriate planting zones identified). If the site includes a variety of microhabitats, appropriate species for each setting should be called out. Generally, mimicking natural distribution of plants is desirable for an open space setting. Creating same-species clusters, rather than dispersing all species evenly over the site, can facilitate wildlife use. For large-scale, multi-acre projects with drip irrigation systems, it may be efficient to plant in rows, allowing natural regeneration and attrition to gradually soften the linear look that results. Plant spacing and total plant numbers should be guided by expected mortality and project goals as well as by each species' typical growth patterns. For plantings intended to slow the spread of invasive species, dense plantings may be crucial to success.

Selecting a Plant Palette and Propagule Types

Appendix 4 provides lists of species suitable for restoration seeding or planting in each of the Preserve's habitat types. These lists are not exhaustive, but any additional species selected should be reviewed by a botanist or revegetation specialist. Appropriate native species for planting at a site will be based on existing and historic vegetation, or vegetation of similar reference sites. As we change the Earth's climate, we also need to consider what species are likely to thrive in more volatile, warming conditions. (See Climate Change Adaptation section.) In general, including a diversity of plant types appropriate to the habitat (e.g., shrubs, vines, perennials, and herbaceous species rather than only trees in a woodland setting) will provide the greatest ecological benefits. Even within these plant types, including species with diverse phenology and life histories is usually beneficial and provides insurance against unknowns. For instance, for restoration of herbaceous species on Meadowlark Field, including some species that are nitrogen-fixing forbs, some that are fast-growing annuals, and some that are late-blooming annuals in addition to a core palette of rhizomatous grasses, rushes and sedges will increase habitat diversity and may help fill ecological niches that will otherwise be occupied by invasives. Reviewing conditions at a nearby reference site is highly recommended, as is considering the life histories of the invasive species that you are aiming to replace. Other constraints such as propagule availability, ease of establishment, and irrigation needs should also be considered in species selection.

Suitable propagule types will depend on plans for irrigation, maintenance, and plant protection, and on availability. On the Preserve, native trees should generally be planted directly from seed,

or from restoration nursery containers (e.g. deep, narrow containers such as Deepots or Treepots); in focal areas with more traffic, larger specimens may be desirable but are likely to need more irrigation to establish. Shrubs will typically be planted from restoration containers; willows and dogwood can be propagated from local cuttings. Herbaceous perennials can be planted from plugs or in some cases or for extensive areas, from seed.

Seed or Plant Collection/Propagation

Revegetation efforts should use genetically-appropriate local plant material. In general, seed sources should be from the Preserve itself, from within the Laguna watershed, or at least from the larger Russian River watershed. For vernal pool restoration, use of inoculum from adjacent pool complexes is strongly recommended as these habitats are relatively isolated habitats and may support populations with distinct genetic traits. Consultation with local vernal pool specialists is recommended.

As climate continues to change, it may be desirable to select species or seed sources from nearby but slightly hotter, dryer, or more exposed locations or topographic positions, in an attempt to incorporate the genetic stock of individuals tolerant of likely new conditions. This approach is still under consideration by restoration scientists and should be carefully researched to avoid unintentional deleterious effects on local genetic diversity.

Occasionally, appropriate material may be available commercially from local nurseries or regional native seed producers. More often, custom collection and/or propagation will need to take place. This may be done in partnership with local organizations that operate restoration nurseries, such as the Laguna Foundation and the county jail, or with commercial restoration nurseries. Seed collection will frequently be possible on the Preserve itself, or on adjacent publicly-owned lands with landowner permission. Seed collection can be a good activity for supervised volunteers under the guidance of a restoration specialist. Seed collection efforts must be certain not to damage donor populations, and should aim to incorporate an array of the existing diversity in the donor population.

Planting from Seed

Seeding may be accomplished by drilling (for large, relatively level areas), hydroseeding (for large areas on any kind of terrain), or broadcasting and raking in (for small areas). All seeding methods must ensure that seed is in contact with soil, and is covered by appropriate mulch. Mulch helps protect seeds from predation and helps soil retain moisture. Mulch may consist of a variety of weed-free materials such as weed-free straw or native grass hay, hydromulch, or biodegradable erosion control mats.

Planting from Containers and Plant Protection

Planting holes should generally be as deep as the root ball of container plants, and approximately twice as wide as the root mass. Providing a soil berm around the plant helps retain water. Mulching with clean, weed-free, chipped woody material (typically to a depth of 3", and a diameter of 2') helps retain soil moisture and reduce weed growth. Weed mats of biodegradable material such as cardboard or burlap may also be used, but must be securely anchored in areas of seasonal flooding. Protective netting, tubing, or fencing is usually needed

to protect Preserve woody plantings from herbivory by deer, rabbits, and rodents, and from string trimming damage.

Irrigation

For woody plantings outside of an active channel, irrigation is usually very helpful in establishing native species. Typically, plantings are irrigated for 3-5 years after planting, and waterings are gradually reduced in frequency as plants become established. Two common approaches to irrigation in open space settings are drip systems or time-release water products such as DriWater™. Drip irrigation generally produces best results in plant survival and growth, but can be expensive and requires a water source. DriWater™, a gel installed in plastic tubes that slowly releases water as natural bacterial action breaks down the gel, can be used where no water source is available. The product is installed at planting time and the gel is replaced on an approximately monthly basis during the dry season. While not as effective as drip irrigation or hand watering, DriWater™ may increase plant survival where no other irrigation method is feasible.

Monitoring and Maintenance

Maintenance and monitoring of revegetation efforts typically continues for at least three to five years after planting. Monitoring results will help identify maintenance needs, show project progress or lack thereof, and help inform future efforts. Success criteria may include measures of variables such as survivorship, growth, native plant cover or richness, and invasive species abundance. Remedial actions may include replanting (often with different species better suited to site conditions), increased irrigation or plant protection, erosion repair, and weed control.

Monitoring methods should reflect success criteria. Counts of surviving plants, measurement of height, and assessments of plant health and vigor are generally appropriate for plantings of woody species. Photomonitoring can be helpful to show qualitative changes in the site over time. To assess herbaceous establishment, either formal (e.g., line intercept or quadrat-based) or informal (e.g., visually estimated) quantitative assessment of plant cover can be used.

Schedule of Work

Most native plant installation should occur in October through December, when rainfall supports plant establishment. Planting at other times of year may reduce likelihood of establishment, or may require additional irrigation. Weed control and irrigation is usually needed from approximately April through September, depending on annual weather conditions. Maintenance of plant protection may be needed throughout the year, depending on pressure from livestock and other site conditions. Formal monitoring for herbaceous species is easiest to conduct when most species are blooming, in April or May. Formal monitoring for planted woody species can be conducted at any time when deciduous plants are in full leaf, but monitoring in late summer will provide the best assessment of dead plants if replacement plantings are planned.

Invasive Plant Management

Invasive plant species are abundant on the Preserve, especially in areas of historic disturbance

from human activities. These are species, introduced from other parts of the world, which tend to grow and spread rapidly, often create dense monotypic stands, and often change habitat conditions in ways that are detrimental to native plant species, native wildlife, aquatic resources, or other natural resources. In many cases, the presence of these species indicates underlying soil or other environmental conditions that make it difficult for native species to establish. On the Preserve, these conditions can include imported soil, compacted soil, changed hydrologic conditions, and lack of native seed source or missing suites of native plants. A few of the species of greatest concern on the Preserve include Himalayan blackberry, perennial pepperweed, yellow flag iris, and fennel.

The highest priority for management of invasive species on the Preserve is to prevent those conditions that encourage their establishment. Second priority is to manage existing populations where they threaten natural resources or other human values. Appendix 6 lists high and moderate priority invasive species currently on the Preserve, and management methods. Priority is based on the feasibility of control, and the level of ecosystem impacts incurred by the species. Eradication is recommended where feasible for species that have very high ecosystem impacts, and for species which are not yet widespread on the Preserve and could be readily removed. Control is recommended for species which are very widespread on the Preserve, or for those with more limited ecosystem impacts. Invasive removal should be accompanied by restoration plantings and other habitat restoration measures. Prevention of new infestations should be a high priority. Figure 7 shows locations of isolated invasive species, and representative locations for widespread invasives.

Yellow flag iris along Calder Creek.

Preferred methods for removing or limiting existing stands of invasive species on the Preserve are manual or mechanical removal, planting with competitive native species, and/or otherwise influencing habitat conditions to suppress undesired species (e.g., by shading out with a native overstory, altering hydrology, etc.). Prescribed fire can be a valuable tool for managing wildland vegetation, but is not currently recommended on the Preserve's urban-edge location due to air quality and property safety concerns. Managed cattle grazing can also be a valuable tool, but requires knowledgeable management and is not currently recommended for Meadowlark Field, where young woody plantings are highly vulnerable to damage. Managed goat grazing could potentially be used to remove above-ground Himalayan blackberry prior to rootstock removal, but may not be feasible or cost-efficient on the Preserve, where pedestrian traffic is high and space is limited. Herbicide use is not recommended, based on current City policy. The City does use a naturally-derived herbicide based on clove oil in limited landscape applications. This herbicide affects only the aboveground portions of plants, and is not effective on perennials. It is not recommended for use on the Preserve.

Dense stand of Himalayan blackberry in Railroad Forest.

As part of their habitat restoration effort on Meadowlark Field, the Laguna Foundation worked extensively to manage perennial pepperweed. Pepperweed is a rapid invader of wetlands throughout California. The California Invasive Plant Council (Cal-IPC) ranks the risk posed by pepperweed to the State's wildlands as "high" in a range of "limited-moderate-high," meaning the species has a severe ecological impact on physical processes, plant and animal communities, and vegetation structure (Cal-IPC 2015). The Laguna Foundation conducted a study to evaluate the use of tarps as an alternative method to herbicide use to control pepperweed in Meadowlark Field (Laguna Foundation 2015). This study was motivated by the desire to control pepperweed without the use of herbicides in accordance with Resolution 5108. While effective at controlling pepperweed, tarps were difficult and costly to install and maintain. Tarping or sheet mulching may be effective with other invasive species, however, especially in areas of less inundation and when used in conjunction with planting of natives.

The Laguna Foundation concluded that tarping was not an effective means of controlling pepperweed, but that repeated mowing in conjunction with mapping, treatment of new patches, and establishment of competitive understory can be an effective alternative to herbicide application, if properly maintained. In addition to control on City properties, coordinated management with neighboring landowners throughout the Middle Reach of the Laguna de Santa Rosa should help to reduce the pepperweed pressure from adjacent parcels. Failure to control pepperweed may result in the loss of habitat and ecological value that

significant funds have been expended to improve.

OBJECTIVE RM-4: Prevent the establishment and spread of invasive plant species.

ACTIONS

- **Train staff to recognize invasive species and help prevent their spread**. Preserve visitors and/or volunteer trail watchers can also serve as valuable eyes on the landscape to spot new infestations. Manual removal of invasive plant species can be a good activity for supervised volunteers. Many resources are available for learning to identify invasive species, including The California Invasive Plant Council (www.cal-ipc.org) and CalFlora (www.calflora.org/). (S)
- **Protect or restore robust, diverse native plant populations.** See Restoration Opportunities for high-priority locations for enhancement or restoration. (O, L)
- **Limit ground-alteration activities in extent and duration.** Grading, disking, digging, and removal of plant cover provide ideal conditions for most invasive species to establish. (O)
- **When ground alteration occurs, revegetate promptly with an appropriate suite of native species.** Among species native to the habitat type, consider including natives that grow rapidly, and/or those that have growth habits and seasonal timing similar to potential invaders, to help suppress invasive populations. (O)
- **All seed, straw, mulch, or other plant material brought onto the site for revegetation, landscaping, or erosion control purposes should be weed-free.** (O)
- **Prevent the introduction of weed seed from other sites into the Preserve via vehicle tires and undercarriages**. Vehicles used in weed-infested off-road settings (e.g., vehicles used for mowing or other maintenance activities) should be cleaned before entering uncontaminated areas. Gravel imported into the Preserve for construction purposes should be weed-free. (O)
- **Use only species native to Sonoma County for restoration, landscaping, and erosion control.** Plants and seeds should be of local provenance if possible – from the Laguna watershed or adjacent areas with similar environmental conditions. (O)
- **At least once annually, document invasive species conditions and develop updated recommendations for management on the Preserve.** This should be conducted by a qualified biologist or staff person trained in natural resources. The effort could be supported by the volunteer patrol program as noted above, and/or conducted in conjunction with regional efforts (see Middle Reach of the Laguna, Section 10). (O)
- **Monitor for any infestation of ludwigia, and avoid changes to channel structure and cover that might facilitate invasion.** This species, of high concern regionally, creates dense stands in many parts of the Laguna, but has not been observed within the Preserve. This may be due to channel topography and relatively dense native riparian tree cover along channel edges. (O)
- **Educate residents and business owners of Sebastopol, especially those adjacent to the Preserve or adjacent to creeks and other natural areas, about invasive species**, and encourage use of native species and other natural resource-friendly practices. This could be accomplished through utility mailings in conjunction with information on the City website, as well as on guided walks through the Preserve. (L)

OBJECTIVE RM-5: Manage existing populations of invasive plant species.

ACTIONS

Below are general strategies for managing existing infestations of all invasive plant species currently documented on the Preserve. Appendix 6 shows recommended treatment methods by species.

- **Eradicate high-priority species with currently limited occurrences on the Preserve**—an "early detection/rapid response" approach. (S)
- **For invasive removal that requires disturbance to channel bed or banks, consult with the North Coast Regional Water Quality Control Board.** Apply for a programmatic permit to cover routine, ongoing operations. (S)
- **Manage infestations of high-priority species with extensive occurrences already on the Preserve.** Although total eradication may not be feasible, spread of these species should be managed. Focus on new occurrences, plants at the edge of an existing infestation, or infestations within high-quality native habitat. In large patches, work from the edges inward. (O)
- **Avoid the use of herbicides, as per City policy**. (O)
- **Avoid denuding large areas at once**. Work on areas of manageable size where you can remove invasives completely and replant with natives rather than attempting to eradicate across an area too big to thoroughly treat and replant. (O)
- **During invasive removal, avoid damage to existing native plants,** which, if left intact, may help suppress the invasive species. Often, small native plants are hidden within non-native brambles. After removal, plant or seed disturbed sites with genetically-appropriate native species as promptly as possible. Protect disturbed ground with weed-free wood chip or leaf mulch in upland areas, or biodegradable erosion control fabric along channels. (O)
- **Remove all invasive plant material with any potential to germinate** (e.g., seeds, rhizomes, stem fragments for stoloniferous species) and burn or dispose of offsite. (O)
- **For removals of large trees (i.e., acacias), pre-removal surveys by a qualified biologist may be needed** to minimize potential impacts on breeding birds and bats. Leave standing dead trees in place unless they pose a safety hazard; these snags can provide valuable wildlife habitat. (O)
- **Schedule vegetation removal to minimize impacts to breeding birds, soil, and water quality**: (O)
    - August 15 - October 15. This is the best time for ground-disturbing work; it avoids impacts to breeding birds; minimizes erosion risk; and allows for prompt replanting with natives in time to take advantage of cool, wet winter weather for establishment. However, it may be more difficult to remove plant roots at this time.
    - October 16 – March 1. Limited ground-disturbing work can proceed with caution if no rain is predicted for 48 hours. Ensure that erosion control BMPs are in place.
    - March 1 – August 15. Limited vegetation removal can take place if bird surveys are completed (see Biological Surveys and Trainings).
- **See Erosion Control and Water Quality Protection section for additional guidance.** (O)
- **Monitor results of invasive species removal efforts annually** to assess effectiveness and identify follow-up needs. Repeat treatments will usually be necessary. (O)
- **Regularly update the map of invasive species on the Preserve**. (O)

Invasive Wildlife Management

Like invasive plants, invasive animal species can have deleterious effects on native biodiversity. Non-native animals displace native species, compete with and consume native wildlife, carry diseases, change the food web by displacing or destroying native food sources, and reduce biodiversity. Without proper management and monitoring, problematic species can quickly become established and abundant.

The Preserve supports a number of non-native wildlife species. Many of these species are ubiquitous throughout the county and are difficult to control. These include many introduced bird species (e.g., house sparrow, European starling, Eurasian collared dove, brown-headed cowbird) and warm water fishes (e.g., bass, sunfish, catfish). However, others are much more limited in extent. Non-native red-eared slider pond turtles occur in the sewage ponds at the Youth Park and may also be utilizing the Laguna channel as well. This species is typically introduced into natural areas when humans release unwanted pets. Naturalized American bullfrogs are also present within the Preserve; this species is fairly widespread.

Feral cat by the Youth Park ponds.

Free-ranging pet cats and feral cats are present within the Preserve. Many feral cats are fed by well-intentioned people at established feeding stations. Free ranging and feral cats are an introduced species that threaten the integrity of native wildlife populations and natural ecosystems (CDFW 2015c). They prey directly on native mammals, birds, reptiles, and amphibians. They can also serve as reservoirs for a variety of diseases that can be transmitted to

native wildlife. Cats that are provided supplemental feed are capable of high rates of reproduction which in turn results in greater predation pressure on native wildlife. Feeding cats also does not deter them from killing wildlife. Nationally, free ranging and feral cats kill billions of birds, rodents, and other small animals annually.

OBJECTIVE RM-6: Prevent the establishment of new populations and control existing populations of non-native fish, wildlife, and domesticated and feral animals.

ACTIONS

- **Remove existing feral cat feeding stations and educate individuals responsible for them** about the importance of keeping the area free of feral animals. To the extent feasible, cats should be trapped and removed from the Preserve. (S, O)
- **Maintain the sewage ponds at the Youth Park so they drain by late summer/early fall to restrict bullfrog breeding**. Under the current configuration, this likely occurs most years. However, if the management of these features changes, this will need to be part of the restoration design. (O)
- **At least once annually, document invasive animal species conditions** (e.g., new species occurrences, sizes of existing populations) and develop updated recommendations for management on the Preserve. This should be conducted by a qualified biologist or staff person trained in natural resources. The effort could be supported by the volunteer patrol program as noted above, and/or conducted in conjunction with regional efforts (see Middle Reach of the Laguna, Section 10). (O)
- **Educate visitors through signage about the importance of keeping the Preserve free of non-native animal and plant species**, avoiding accidental or intentional feeding of wildlife that may attract predators, intentional introductions, and general habitat protection measures. (L)
- **Request that local pet suppliers provide information to their customers about responsible ways of handling unwanted pets, and the importance of not simply releasing them.** (L)

Climate Change Adaptation and Mitigation

Changing climate driven by release of carbon dioxide into the atmosphere is likely to influence many ecological variables relevant to the Preserve's management, from the geographic ranges of species, plant phenology, and species interactions, to stream flows, insect outbreaks, and disease outbreaks. In the face of rapid but uncertain change, an important conservation strategy is to manage for healthy ecosystem function so that the environment can retain maximum ability to adapt. All of the strategies and actions described in the Plan support this goal. But there are several additional objectives and actions to implement that are climate-change specific. For further reading and other local efforts on this emerging topic, see the National Wildlife Federation's Climate Smart Conservation (NWF 2014) and Point Blue's Climate Smart Restoration toolkit (Point Blue 2015).

OBJECTIVE RM-7: Minimize the carbon footprint of Preserve management activities, and support the natural carbon sequestration functions of Preserve habitats.

ACTIONS

- **Where vehicles and gas-powered machinery are needed, use them efficiently. Use hand labor where possible** rather than string trimming around plantings; this can be a good supervised volunteer activity. Avoid the use of leaf blowers. Transition to attractive, low-maintenance native landscaping around Preserve buildings rather than lawns that require frequent mowing. (O)
- **Facilitate the continued establishment of mature native trees and perennial grasses**, and protect soils from disturbance, as all of these provide long-term carbon sequestration. (O)
- **Encourage bicycling or walking to the Preserve** by maintaining safe, accessible approaches to trails and providing bike racks at primary entrances. (L, O)

OBJECTIVE RM-8: Protect the resilience of the Laguna system to climate change by supporting habitat connectivity and protecting water resources.

ACTIONS

- **Protect the riparian corridors of the Preserve,** and its linkages between upland and riparian or wetland habitat. Conserving habitats across environmental gradients such as moisture may help allow for localized shifts within and beyond the property. Riparian woodlands are especially valuable, as these habitats are naturally resilient to changes in moisture, provide thermal refugia for wildlife, and already serve as corridors for wildlife movement. (O)
- **Protect water resources on the Preserve** by maintaining and restoring the capacity of the land to absorb and store rainfall and runoff. Water stress is expected to continue to increase in Sonoma County's habitats as temperatures rise. (O)
- **Manage collaboratively**. Because climate-driven changes encompass lands beyond the Preserve boundaries, working with other local landowners and resource agencies to address management issues collaboratively will be increasingly important. (O)

OBJECTIVE RM-9: In Preserve restoration efforts, plan for current and future conditions, while learning from the past.

ACTIONS

- **Select plant palettes with changing conditions in mind.** This is a new and evolving topic in restoration science, so stay apprised of developments. Based on our current understanding, plant palettes should still be comprised of species known to occur locally, but broadening the scope of a planting may provide insurance against future conditions. For instance, for understory enhancement of the southern end of the Americorps Trail, include shrub species with a range of moisture needs and heat tolerances, using current and historic shrub species occurrences in both riparian and upland habitats of Sebastopol as a guide. Including multiple species from within plant lifeform types also provides redundancy that can serve as "insurance" against unknowns. Review species' known geographic distributions as a guide to how changing conditions may affect plantings. (O)
- **Select plant propagule sources with changing conditions in mind.** This too is relatively uncharted territory for restoration planting. Current understanding suggests that selecting propagules from local (Laguna and Sebastopol) sources, but aiming to capture genetic diversity and a range of environmental tolerances by collecting from a variety of individuals

and a range of microhabitats relative to moisture, solar exposure, and elevation may be beneficial. (O)

- **Monitor restoration outcomes and Preserve conditions such as tree regeneration, to facilitate adjusting management strategies to meet changing circumstances.** (O)

Cultural Resource Protection

Based on the literature and record review performed for the Laguna Master Plan development, the California Archaeological Inventory (CAI) recommended the following to protect archaeological resources in the area.

OBJECTIVE RM-10: Protect cultural resources during Preserve maintenance and improvements.

ACTIONS

- **As needed, retain a qualified archaeologist to evaluate specific project impacts** to archaeological sites within the study area, and provide appropriate recommendations. (O)
- **Any construction or earth-disturbing activities occurring within the area of existing archaeological resources should be conducted following the recommendations provided by the archaeologist.** (O)
- **If cultural resources are encountered during project implementation, project personnel shall avoid altering the materials and their context until a cultural resource consultant has evaluated the situation.** Project personnel should collect no cultural resources. Prehistoric resources include chert or obsidian flakes, projectile points, mortars, and pestles; and dark friable soil containing shell and bone, dietary debris, heat-affected rock, or human burials. (O)
- **Conduct further archival and field study for unsurveyed portions of the Preserve.** (L)

In addition to protection, the rich history and prehistory of the Preserve can be highlighted for educational purposes in displays and tours; see the Educational Opportunities section below for details.

8 Public Use and Engagement

While some parts of the Preserve are well-used and appreciated by local residents, others are little-known and rarely visited. The City can facilitate desirable public uses of the Preserve by clarifying its identity and improving its visibility, and by carefully increasing its accessibility and connectivity in ways that are sensitive to natural resources. Engaging visitors through environmental education and volunteer stewardship are opportunities to connect people to the land in even deeper ways. The Preserve provides many opportunities for both. Volunteer efforts require experienced and knowledgeable leadership to ensure that projects are aligned with Preserve management goals.

Preserve Identity, Accessibility, and Connectivity

The public's awareness of the Preserve as a unified entity can be increased by improving directional signage and maintaining a consistent visual identity among the parcels, and by facilitating links to other local pedestrian or bicycle routes. Even in high-intensity use areas adjacent to the Preserve's wilder lands (e.g., ball fields, playground), the proximity and value of the Laguna can be reinforced for users.

Access road to the wastewater lift station also serves as Americorps Trail entry; adding entry signage will add visibility and welcome users.

Along the Americorps Trail, installation of a bridge crossing Zimpher Creek would allow users access to the southern part of the property, which connects to a sidewalk along Highway 12 with ready access to the Barlow development, Tomodachi Park, and downtown Sebastopol. This will allow pedestrians to avoid walking along Morris Street, and increased foot traffic is likely to decrease undesired illegal camping and littering activity in this area. Adding one or two benches along this trail would also enhance the trail's identity as a formal trail, and would welcome users. Currently, there is a park rules sign in the middle of the open area at the south end of the trail. It is probably rarely seen there, and should be moved to a more visible location. Part of the original impetus for the Americorps Trail's development was to discourage illicit camping. Because of limitations in the trail's current visibility and connectivity, illicit uses are still occurring, and desirable public use is low. Improving signage will improve the Americorps' accessibility, and could subsequently help discourage illicit uses.

Entry signage at Tomodachi and Village Park; making signage clearer and more welcoming will encourage desired uses.

For Tomodachi Park, improved entry signage that differentiates areas for Village Park residents only from those for Tomodachi Park visitors, and welcomes Tomodachi visitors, will encourage public use of the Preserve. The planned

installation of entry signage will also be crucial for increasing public awareness of the park. Any opportunities to unify this planned signage with existing Preserve signage (such as the wooden arbors on the Youth Park) will help the public understand its role in the Preserve.

An undercrossing linking Tomodachi with Meadowlark Field or the Americorps Trail would provide a valuable linkage. CalTrans did not include space for such an undercrossing in their bridge replacement plans, despite strong community interest and requests from the Sebastopol City Council. This area can be, and is, crossed casually during low flows, although abundant poison oak on the north side of the bridge makes this less appealing. Regional Parks has also expressed interest in such a connector trail. This issue should be revisited after the bridge replacement is complete.

No specific kayak access is currently provided from the Preserve, although occasional kayakers do enter the Laguna near the Youth Park bridge or in the southern end of the Americorps property. The best-known kayak put-in nearby is at Occidental Road, where a small pull-out and short trail lead through land owned by SCAPOSD and managed by Regional Parks (the Occidental Road Wetlands Transfer property) to the water. From here, kayakers can paddle upstream towards the Preserve. Often, however, dense willow growth makes passage difficult or impossible just north of the Preserve, as well as through Tomodachi Park. To protect riparian habitat, trimming of willows over the channel is not recommended. An additional consideration is that the Laguna channel, except through Tomodachi, is owned by CDFW, not by the City, so any vegetation clearing efforts there would require cooperation with that agency. Even within City-owned property, significant alteration of overhanging cover would constitute an alteration of riparian habitat and would likely be subject to regulation by CDFW and the Regional Water Quality Control Board. Providing information at Preserve kiosks about kayak access via Occidental Road would support Laguna exploration.

OBJECTIVE PU-1: Provide entry arbors, signage, fencing, and benches that are clear and unified in design, to improve public awareness of the Preserve, its trails, and its regulations.

ACTIONS

- **Ensure that all new signage and other infrastructure improvements meet applicable conservation easement (CE) requirements** and approvals. Meadowlark Field's CE restricts signage to 2 signs up to 32 square feet each and smaller signs, the size and number of which "shall be limited to that which is reasonably necessary to accomplish the permitted uses herein" and "further provided that such signs are sited and constructed in a manner that does not create a visual impact." Tomodachi Park's CE requires prior District approval for all signs. Check with District staff regarding signage restrictions prior to installation.
- **Repair or replace damaged benches and picnic tables**; install additional tables and benches as needed in select locations. In particular, one or two benches are recommended along the Americorps Trail where natural openings onto the Laguna occur, and two in the Railroad Forest on the south side of Calder Creek (one just west of the Calder Creek bridge, and one near the grove of boxelders approximately 250' downstream of the bridge). The Railroad Forest benches should be installed in conjunction with habitat restoration in those areas. They would be accessed by short, informal footpaths, already in place. Benches with backs

are recommended for greater comfort, where views are primarily in one direction. (S)

- **For the Americorps trail, install a small entry arbor (matching in style and materials with those at existing Youth Park entrances) just south of the lift station**, and install simple trailhead signs at the Morris Street entry just north of the retired cement plant, and at the southern end of the trail near the Highway 12 sidewalk. At the lift station entry, guide trail use to the southern side of the property, near the remnant riparian swale, and keep driveway and parking areas available for Public Works use and emergency access to the lift station. (S)
- **Improve Tomodachi Park parking signage, to welcome visitors** while clearly differentiating it from Village Park areas intended for residents only. Incorporate design elements of existing Preserve signage into the planned entry sign for the Park, and/or indicate directly that the Park is part of the Preserve. (S)
- **Rehabilitate existing signage on Meadowlark Field**. Remove or replace broken signs, misleading signs (e.g., sign with icon of dog on leash near an informal wildlife trail—intended to remind users that dogs must be on leash but appearing to suggest that dog walkers take their pets off into natural habitat), and unwelcoming signs (e.g., "Use Park at Own Risk," icons of person with a rifle). Provide simple wayfinding entry signage at the informal trailhead parking lot adjacent to the gas station on Highway 12, or simply move the existing rule signage to a more visible location. (S)

Preserve wayfinding signage along Morris Street, not easy to read while in transit due to sign design and lettering. Ensuring that signage is easy to read and recognize—like the "Bike Route" sign below it--will encourage visitation.

- **Keep signage consistent in style throughout Preserve**, to enhance the sense of identity among the multiple Preserve properties. Ensure that signage does not detract from Preserve views and aesthetics. Maintain a visual hierarchy among signs of different types: entry arbor, directional, and interpretive. Consider development of a formal design plan for signage and other landscape architectural components of the Preserve. (O, L)
- **Ensure that all signage is easily readable** from the appropriate distance or speed of travel. Avoid using compressed all-capital fonts; these are hard to read. Consider use of a consistent graphic icon, such as the heron on the Youth park entry sign, to help establish visual identity and make signage easy to recognize. (O)
- **Where boundary fencing is needed, use split-rail style wooden (preferably) or simulated-wood (for lower-maintenance settings) fence**, to maintain a sense of continuity among

Preserve properties. (O)

- **Encourage nearby tourism-oriented businesses to direct visitors toward the Preserve,** through signage, brochures, or word of mouth. (O)
- **At least once annually, review all signage on the Preserve to identify maintenance needs.** (O)
- **Move existing signage that is not appropriately located in visible locations**, such as the park rules signage on the south end of the Americorps Trail, currently located in the center of the open area; move this toward the Highway 12 sidewalk to increase visibility and the public's awareness of this area as part of the Preserve. Consider relocating the northern entry arbor at the Youth Park to a more visible and well-used location, and/or enhance the current location and trail with native plantings to guide visitors. (L)
- **Consider developing a Preserve brochure**, showing trails and access points and briefly describing or showing the Preserve's features and history. Provide the brochure at public locations such as the Sonoma County Museum and the Sebastopol branch of the County Library, and offer it to nearby businesses that may want to direct visitors to the Preserve. (L)

OBJECTIVE PU-2: Enhance connectivity of trails on the Preserve with other local trails and pedestrian walkways.

ACTIONS

- **Coordinate with local efforts such as Cittaslow's Ped Line** program to enhance directional signage in town toward the Preserve and its trails. (S)
- **On the Americorps Trail, install a foot bridge over Zimpher Creek** to extend the Americorps Trail, and improve and better maintain the section of trail from the lift station to Zimpher. Add 1-2 benches overlooking the Laguna at existing openings in the vegetation. (L)
- **At Tomodachi, develop a seasonal connector trail** from the picnic area south to the Joe Rodota Trail. This trail will cross through existing riparian habitat, and will require regulatory and SCAPOSD approvals. Tomodachi's conservation easement limits trails to "unpaved single-track pedestrian trails" and requires prior SCAPOSD approval. (L)
- **After Highway 12 bridge replacement is complete,** collaborate with other stakeholders (CalTrans, Regional Parks, SCAPOSD) to develop a pedestrian undercrossing linking Tomodachi Park with the Americorps Trail if possible. (L)

OBJECTIVE PU-3: Maintain high-intensity recreational facilities on the Preserve in a way that protects natural resources and increases users' awareness of the nearby natural Laguna setting.

ACTIONS

- **Ensure that landscape contractors hired by Little League to tend Youth Park ball fields follow City standards for avoiding herbicides and limiting fertilizer** use to prevent nutrient runoff into the Laguna. (O)
- **When the Youth Park playground is next renovated, consider incorporating natural materials relevant to the Laguna** such as native trees or wood from downed native trees for seating or climbing, living willow structures, local rock, water, and interpretive signage about, or visual references to, local wildlife. (L)

Educational Opportunities

The Preserve plays a valuable role in educating visitors about the Laguna, through signage, the nature trail, and its extensive use as an outdoor classroom.

Existing educational signage on the Preserve includes displays at entry arbors, numbered signs that link to the interpretive trail brochure, a set of four engraved metal signs about the Laguna's plants, wildlife, water, and geology at the Youth Park playground, and a sign describing the Laguna's historic and ecological context on Meadowlark Field. All but the last (and newest) of these are showing signs of age and deterioration. Refreshing existing signage and adding new interpretive signs in select locations will increase community engagement in the Preserve.

The Preserve is used extensively by the Laguna Foundation, and occasionally by local schools, for outdoor education. The Foundation's Learning Laguna program serves over 1,000 2nd-4th graders from over twenty local schools each year. Students participate in classroom activities and a field trip that occurs on the Youth Park property from March through May annually. Trained docents lead students through several activities on the property including hands-on environmental educational activities about the value of wetlands, watersheds, and foodwebs. Students view wildlife in the Preserve, look for signs of mammals, and hear about the Native American history in the area. The amphitheater, seasonal bridge, and trails on the Youth Park and Meadowlark are currently the main facilities used. City staff currently mows the amphitheater one time per year in advance of Learning Laguna field trips, in February or March. Concerns from the program's trained docents include inaccessibility of and undesired uses of the Americorps Trail, impact and proximity to trails of poison hemlock, and maintaining facilities and connections throughout the preserve. Opportunities to expand on environmental education on the Preserve could include improvements to the amphitheater and enhancing or planting native plant populations that can serve as materials for nature-based learning.

Learning Laguna signage at the Youth Park.

In addition to environmental education, there are opportunities for teaching visitors about the area's human history, from its Native American settlements to its 20th century uses. In particular, some residents have expressed interest in highlighting the Railroad Forest's past as part of the Southern Pacific and Petaluma and Santa Rosa Railroad lines. Limited interpretive signage should be considered in this area, in conjunction with ecological information about the site,

how past uses have affected it, and restoration efforts. Any more intensive developments, such as moving a railroad car to the remnant track and using it to house exhibits, are likely to conflict with the City's and SCAPOSD's primary intent of natural resource conservation on the property.

A web-based audio tour of places or walks of interest in the City in general could include the Railroad Forest and other parts of the Preserve. Teachers from Analy High School have expressed interest in getting students involved in collecting oral histories about Sebastopol's trains (Vejby 2015). The interweaving of resident stories into the Preserve landscape encourages community pride and provides another way for visitors to engage with the properties.

Proposed restoration, including Himalayan blackberry removal, in the Railroad Forest will help make remnant tracks more visible. Intensive public use of the tracks as a trail would result in further fragmentation of riparian habitat and is not recommended, but occasional, informal exploration is consistent with habitat protection.

OBJECTIVE PU-4: Provide and maintain opportunities for public education about the Preserve's natural resources.

ACTIONS

- **Update outdated components of existing interpretive trail brochure.** (S)
- **Provide the interpretive trail brochure through the City website,** in a mobile phone-friendly format. Provide signage directing users to the website at park entries. (S)
- **Maintain displays at the entry arbors to the Preserve.** Replace broken cases, install Preserve maps that show links to adjacent trails, and continue to post a rotating display of educational posters. These posters could address the site's human history and prehistory, plant life, wildlife, and ecological processes. (S)
- **Assign staff to maintain stock of interpretive trail brochure paper copies** at park entries. (O)
- **When resources permit, overhaul nature trail signs to provide descriptive text and images** on signs themselves rather than numbers keyed to a paper brochure. Maintain the unobtrusive style of the existing signage to avoid detracting from views. Ensure that signage meets conservation easement requirements; see Objective PU-1 for detail. (L)
- **Engage further with local schools and students**. Art or science students could be involved in producing seasonally rotating displays for the entry arbor. Children of all ages could be engaged in volunteer stewardship field trips; individual classes could be allowed to "adopt" a portion of the Preserve to visit through the seasons and to tend. Students could develop an oral history of the preserve for inclusion in the web-based audio tour listed below. (L)
- **Provide seasonal public walks through the Preserve,** either through the City itself or a local partner organization (e.g., Laguna Foundation, Sonoma County Agricultural Preservation and Open Space District, Western Sonoma County Historical Society, Sebastopol Walks) which emphasize its natural resources, human prehistory and history, and linkages to other parks and trails. Advertise these walks broadly to Sebastopol residents. Consider developing a Preserve docent program to support these walks. (L)
- **Select areas to develop as demonstration areas for native plants, and/or plants of importance to local native American culture**, and plants that could be integrated into

environmental education programs. (L)

- **Consider installing limited interpretive signage highlighting human history and restoration efforts** at key locations such as Railroad Forest. In particular, design and install a sign mounted on the railing of the Calder Creek bridge to welcome visitors to the Preserve, and to note the site's ecological and human context (e.g., identifying Calder Creek and the nearby confluence with Laguna, and briefly acknowledging the site's prehistoric and historic uses and ecological value). (L)
- **Consider development of an open air structure with interpretive signage,** as an alternative to the originally planned nature interpretive center for the Preserve. Interpretive signage could address human prehistory and history of the site, native Pomo place names or relevant phrases, as well as the plants, wildlife, and ecological functions of the Preserve . (L)
- **Consider development of a web-based audio tour** accessible through a smart phone app.

Engaging and Managing Volunteers

Many local residents care deeply about the Preserve, and harnessing their enthusiasm and energy can have many benefits. Volunteers currently contribute to the Preserve's stewardship primarily through the Laguna Foundation's Laguna Keeper program, but there are also individuals and small groups who have expressed interest or have engaged in their own efforts to improve the Preserve.

The Laguna Keepers meet monthly under the leadership of a Laguna Foundation restoration staff person from October to May to conduct hands-on restoration from invasive species removal to native planting throughout the Laguna watershed. The program originally grew out of a collaboration between the Laguna Foundation and the City, but is no longer specifically focused on City lands.

Volunteer planting with the Laguna Foundation on Meadowlark Field.

Planning additional Keeper events focused specifically on the Preserve is one way to use the volunteer potential within the Sebastopol community. This would ensure that volunteer efforts are supervised by a Laguna Foundation staff person familiar with and committed to the City's management needs. Alternatively, the City could oversee volunteer efforts directly, but this would likely require additional staffing. For some limited efforts, such as trash pickup where no disturbance to channels is planned, small groups of volunteers may be able to work independently without direct supervision. In general, all other volunteer stewardship work should be supervised. See Cost Estimate section for discussion.

OBJECTIVE PU-5: Provide opportunities for the public to volunteer on the Preserve that are aligned with the City's stewardship needs and goals.

ACTIONS

- **Encourage volunteer trash pickup events.** These could be hosted by the City on an annual or seasonal basis, or they could be organized by nearby businesses or local groups such as the Little League, school groups, Boy Scouts. Trash pickups could include a kayak component, as significant trash becomes lodged in tree branches overhanging the Laguna channel. Volunteer efforts should not focus on encampments, as these are better handled by City Public Works and Police Department staff for safety. (O)
- **Engage volunteer help in other appropriate Preserve tasks** including removal of non-biodegradable old restoration planting materials, long-term survivorship monitoring of restoration plantings, supervised invasive species removal, and restoration plantings. Any extensive invasive species removal efforts (i.e., those involving more than a few isolated individual plants) should be part of a comprehensive restoration plan. (O)
- **Consider tasking the Planning Commission with conducting a forum of residents and experts** that would meet twice or more annually to review conditions, uses, and needs of the Preserve and other City parks, and to make recommendations to the City on protecting and enhancing their resources. (O)
- **Add a "Wild" component to the existing "Adopt-a-Landscape" program**. Individual or school groups could be assigned a portion of the Preserve to maintain free of trash, and to report to the City on other conditions such as invasive species or graffiti. (L)
- **Partner with the Laguna Foundation to expand the Laguna Keepers** to a year-round program and plan events focused specifically on the Preserve. (L)
- **Initiate a volunteer bird nest box program**. Trained volunteers could build, install, and maintain nesting boxes in Meadowlark Field and along the Americorps Trail. Nest boxes serve as a great opportunity for Preserve visitors to learn about the nesting behavior of our local birds. Focus species could include wood ducks, barn owl, and small songbirds (e.g., tree swallow, western bluebird). If nesting boxes are installed, they will need to be properly secured and sized to prevent non-native species from colonizing them; they will also require yearly maintenance. Existing dysfunctional and/or improperly sized boxes within the Preserve should be removed. (L)
- **Engage volunteer help in Citizen Scientist monitoring type programs** using cell phone-based technology. Recently developed and accessible tools allow volunteers to identify invasive weed species using an Early Dectection/Rapid Response approach, and/or to track the spread of established invasions. Volunteers could also or monitor the survival of restoration plantings using this technology. (L)
- **Initiate a docent or volunteer patrol program**. Trained docents could lead seasonal walks for the public. Volunteer patrollers could maintain a positive presence on the trails, as well as identify and report litter problem areas, invasive species, and maintenance needs. Volunteers could be identified by a t-shirt or name badge, and could discourage prohibited uses like off-leash dogs simply by their presence. (L)

Guidelines for Managing Volunteers

Successful volunteer programs all have some means of recruiting, training, retaining, and thanking volunteers for their service. A volunteer program, whether developed by the City or through partners, should clearly address how it will meet each of these needs. While any volunteer project should strive to understand and meet the interests and goals of the volunteers themselves, it is still critically important that any volunteer effort chiefly meet the needs of the City.

Recruiting

- Partner with existing community groups or organizations (e.g. Little League, Boy Scouts, school groups) that already have established successful volunteer programs.
- Understand the goals of volunteers via direct engagement or capture this information on a volunteer application form.
- Promote volunteer opportunities through the City's webpage, utility bill mailings, media outlets, and direct outreach.

Training

- Orient volunteers to the Preserve. Develop a short document to distribute or use existing resources to teach volunteers about the history, resources, and needs in the Preserve.
- Explain the purpose for any volunteer activities, and how they fit in to overall Preserve management and needs.
- Provide safety training including any tools used as well as general field hazards (e.g., ticks, poison oak, dehydration, etc.).
- Provide the opportunity for volunteers to develop new skills and knowledge.

Retaining

- Provide a range of activities that vary in timing, location, and ability so volunteers do not tire of recurring events.
- Stress success.
- Provide snacks and water to encourage hydration as well as allow for volunteers to interact.
- Thank volunteers through annual recognition.

9 Maintenance Methods and Best Management Practices

Erosion Control and Water Quality Protection

Restoration, invasive species management, and debris removal all have potential to disturb soils and cause erosion into waterways. The City's Public Works Department is in the process of updating erosion control practices to meet all current regulatory standards.

OBJECTIVE MM-1: Ensure that Preserve management activities protect soil and water quality.

ACTIONS

- **For work that causes ground disturbance, implement erosion control and other water quality BMPs** to avoid sedimentation and disturbance to downstream habitats: (O)
  - Avoid compaction and sediment mobilization.
  - Cover bare areas of soil before rain events. For flat areas away from waterways, a 2"-3" thick layer of weed-free wood chip mulch can be used. Near creek or Laguna channels, 100% biodegradable fiber netting or blankets, held in place with metal pins, may be needed.
  - Where conditions allow, planting of native species should occur in conjunction with mulching or placement of fiber netting or blankets. Willow cuttings, dogwood, and rushes are especially helpful for rapidly stabilizing disturbed stream banks.
  - For extensive ground-disturbing work on steep banks, install silt fences or straw wattles between work area and creek.

- **If gas-powered tools are used, any staging, maintenance, fueling, and storage of the equipment should be conducted in a location and manner that will prevent potential runoff of petroleum products.** Oil-absorbent and spill-containment materials should be on site at all times. (O)

Landscaping and Building Maintenance

In addition to the restoration opportunities described above, landscaping around the City facilities on or adjacent to the Preserve can be fine-tuned to better reflect and enhance their natural setting along the Laguna, and to support wildlife.

OBJECTIVE MM-2: Maintain City buildings and ornamental landscaping on or adjacent to the Preserve in a way that protects and enhances natural resources.

ACTIONS

- **Replace existing weedy and neglected vegetation on the lift station berm with attractive native upland grassland and low-growing shrub species** (e.g., purple needlegrass, yarrow, mule's ears, California fuchsia and poppy, low-growing ceanothus) to beautify the facility, visually help identify the transition from developed areas to the west into the natural areas of the Preserve, and to support pollinators and native wildlife. (S)
- **As existing ornamental landscaping senesces or is revitalized, replace non-native plantings with Laguna-specific native species** that provide habitat value and integrate ecologically and visually with adjacent natural vegetation. These replacements may also reduce irrigation water needs. Shrub plantings at the Youth Park picnic/playground area, and small patches of turf at the entry, are two such opportunities. (O)
- **Remove all non-biodegradable landscape materials**, including plastic-lined wattles on lift station berm, from the Preserve. (S)

- **Continue to allow cliff swallow access to the rear of the Youth Annex building.** (O)
- **Retain dead and downed wood in place** in open space areas unless is obstructing trails or other high-traffic areas, or posing a safety hazard. Such wood is valuable for wildlife. (O)

Unauthorized camping is common in the Railroad Forest.

Managing Camping, Littering, and Informal Trails

Use of informal trails, littering, and illegal camping are common on some parts of the Preserve. Graffiti on trees, signs, and adjacent walls is also present. These interrelated issues result in serious impacts to the habitat quality, water quality, safety, and aesthetics of the Preserve. These activities are also inconsistent with the SCAPOSD conservation easements held over parts of the Preserve. Other uses including dog-walking and hunting on nearby lands also require attention from the City to ensure protection of the Preserve and its visitors.

Trash commonly encountered in the Preserve and its waterways includes: plastic bottles and bags, food packaging, baseballs and other floating toys or sports equipment, tents, clothing, bicycles, toxic waste such as batteries and electronics, drug paraphernalia, and human waste. Illegal camping is likely the most significant single source of trash on the Preserve. Relatively hidden areas in Railroad Forest, eastern Tomodachi Park, and the Americorps Trail have the highest accumulations of illegal camps and trash. Other likely sources of litter include passing Preserve visitors, drivers in passing cars, and trash washed downstream from neighboring public or private properties or encampments and deposited by slow-moving or retreating floodwaters. Once deposited, litter can cause additional accumulation of trash when it causes debris jams in Calder Creek and the Laguna, and also may lead to additional trash being left behind as community standards are lowered. Trash accumulation discourages desired uses and presents a threat to public health and safety, wildlife health, and ecosystem function and is ultimately subject to regulation and fines by the North Coast Regional Water Quality Control Board.

Trash in the Railroad Forest.

For trash collection, the City's Public Works staff currently visits parts of the Preserve weekly to pick up trash from established receptacles. However, other parts of the Preserve trails are not visited weekly, and trash pickup from outside of trash cans is not performed. Little or no trash pickup is performed within the Laguna channel. Where litter in the channel cannot be reached from the banks, in-channel cleanup could be performed with the use of waders, the assistance of the Sebastopol Police Department (which has a boat and boating-trained staff), or the assistance of volunteers in kayaks.

Illegal camping is primarily handled by the Sebastopol Police Department (SPD). The SPD primarily responds to complaints and frequently receives complaints from residents of the neighborhood south of Railroad Forest. Approximately every two years, the SPD makes a concerted effort to remove camps and campers and reports that these

Makeshift bridge over Calder Creek in the Railroad Forest, installed by campers.

cleanups, which were last performed in spring 2013, have gone smoothly and they have generally been met with cooperation from most campers. Some campers have helped in trash removal. Previously, signage was posted at the periphery of Railroad Forest that provided the PD phone number to call if camping was observed. The signs appear to have been removed, and should be replaced.

Recent controversy over a notorious homeless encampment in San Jose (Newman and Rogers 2015) underscores the need for state, county, and city governments to manage homeless encampments on their properties, under threat of fines from Regional Water Quality Control Boards. While no local action has or is likely to occur, the North Coast Regional Water Quality Control Board has the authority to fine land-owners who allow homeless encampments and associated water quality impairments on their properties just as they would regulate unpermitted discharge from an industrial facility.

Cleanup of trash and illegal camping in a waterway or below top of bank is the responsibility of the Municipal Separate Storm Sewer System (MS4) that the waterway falls within. Generally, but not exclusively, fee title ownership by an agency dictates the MS4. Any questions relating to the footprint of an MS4 should be directed to the North Coast Regional Water Quality Control Board. Any impairments of the following waterbodies are the responsibility of the City:

- Zimpher Creek and Calder Creek within the Americorps and Youth Park properties
- The Laguna channel within Tomodachi Park

Other landowners are responsible for adjacent parts of the Laguna:

- The Laguna channel directly north and south of the Highway 12 bridge is within CalTrans' MS4.
- The Laguna channel north of Highway 12, between Meadowlark and the Youth Park and Americorps Trail, is owned by CDFW.

Graffiti along Americorps Trail, on wall of old concrete plant.

If sediment is disturbed as a result of trash clean up in the bed or bank of a waterway or removal of non-native species, it is subject to regulation under the Clean Water Act Section 401 Water Quality Certification (Water Quality Control Board) and California Department of Fish and Wildlife Section 1602 Notification of Lake or Streambed Alteration Agreement. While cleanups can focus on "free" garbage not associated with sediment, in practice, this is difficult due to the sandy, mobile nature of soils on the Preserve. Applying for and maintaining programmatic permits that will address potential disturbance to bed and banks

will help the City ensure that practices comply with these regulations.

OBJECTIVE MM-3: Minimize litter and graffiti on the Preserve to protect wildlife, water quality, public safety, and the Preserve's attractiveness.

ACTIONS

- **Remove old debris** (concrete and asphalt rubble, pipe, tires, tanks, etc.) from throughout Preserve unless deeply embedded in channel or banks, especially in areas with high public visitation. Locations include Laguna channel at Tomodachi, in open area where public access is likely, and among willows in southwest part of park; in ponds on Youth Park; and in ditch on Meadowlark. (S)
- **Apply for and maintain 401 Certification and 1602 Notification** for regular and ongoing City maintenance including both trash removal and invasive species management activities (for material embedded in waterway bed or banks). (S)
- **Install additional trash receptacles** on the Americorps Trail behind the old cement plant. (S)
- **Install recycling receptacles adjacent to heavily-used trash cans** to encourage recycling. Ensure that receptacles are sturdy, vandalism-resistant, and consistent in design throughout the Preserve. In particular, the existing trash can at Railroad Forest is recommended to be replaced with the sturdy, commercial-grade trash can used elsewhere on the Preserve, and a matching recycling can added. (S)
- **Inspect Preserve trails and remove trash on a monthly basis.** Include all formal as well as all informal trails. (O)
- **Empty trash receptacles regularly.** Remove trash from flood-prone receptacles (Tomodachi) prior to major storms, and replace when storms pass. (O)
- **Provide trash bags for campers to clean up their own trash**. (O)
- **Seek community support in keeping the Preserve clean**; See Objective PU-5 and IN-1. (O)
- **For safety during trash cleanup, use "grabbers," gloves, and/or shovels** for trash pickup as hazardous materials could be present. (O)
- **For trash cleanup from the Laguna channel that is inaccessible from the banks, use waders to enter the water, enlist the assistance of the SPD and their boat,** or enlist community help for cleanup from kayaks or canoes. (O)
- **Remove graffiti promptly when found, as feasible**. Request that adjacent landowners remove graffiti on their properties where it is visible from the Preserve, such as the concrete wall along the north side of the old concrete plant. Consider whether developing a public art project in locations like this is feasible and may improve the feeling of safety and enjoyment for Preserve visitors. (O)

OBJECTIVE MM-4: Prevent illegal camping on the Preserve to protect plant and wildlife habitat and water quality.

ACTIONS

- **Replace missing signage in Railroad Forest indicating that camping is prohibited**, and providing the Sebastopol Police Department phone number for reporting. (S)
- **Reduce invasive Himalayan blackberry cover,** which can be very high and dense, to reduce likelihood of illegal camping. See Invasive Management section for further discussion. (O, L)

- **Maintain an active Preserve presence by City staff** and City-managed volunteers. See Objective PU-5. (O)
- **In conjunction with monthly trail surveys and cleanup, report any illegal camping to Sebastopol Police Department.** (O)
- **Conduct timely enforcement and cleanup of active and abandoned homeless encampments in partnership with the Sebastopol Police Department** (SPD) and ideally with neighboring public property owners (City of Santa Rosa, CDFW). Due to the sensitive nature of dealing with campers and the potential hazards of cleaning up encampments, use of volunteers for this task is discouraged. (O)
- **Perform encampment cleanups in the early fall and winter** to occur prior to a significant rain event and resulting dispersal of encampment trash via flood waters. (O)
- **Provide adequate notice to illegal campers prior to cleanup efforts.** Typically, ordinances require at least 72 hours notice be given prior to cleanup of active camps. The Sebastopol Police Department reports that they typically give 1-2 week's notice, which results in greater cooperation in cleanup from the campers. The SPD has offered the City help in providing this advance notification. (O)

Managing Other Public Uses

Other public uses of management concern, on and around the Preserve, are dog walking, bicycling, horseback riding, hunting, and fishing.

Tomodachi Park rule signage.

Dog Walking

Currently, the Preserve is heavily used by dog walkers—including both leashed and unleashed dogs. While man's best friend may seem like a perfect companion for a walk outdoors, domesticated dogs can be detrimental to native habitats and local wildlife populations, and unleashed dogs can affect other visitors' sense of peace and safety. The presence of off-leash dogs was a common concern from participants in the public input process for this plan. The impacts of dogs, especially off-leash, on wildlife may include harassment, injury, or death. When restrained by a leash, these impacts can be reduced. Within the Preserve, dogs must be on leash at all times. Limited signage indicates that dogs are not allowed on trails around the Youth Park ponds, but this signage could be easily overlooked and could be improved.

In 2014, the Laguna Foundation and Regional Parks undertook a camera study of use on the Regional Parks trail leading north from Meadowlark's northwest corner. They found that

although that trail segment is closed to dogs, cameras captured an average of two dogs per day on that segment. Approximately 30% of those dogs were off leash. It is likely that the use by dog walkers in Meadowlark Field follows similar patterns.

Many of the illegal campers on the Preserve also have dogs. These dogs have a high impact on the Preserve, as they are present at night as well as during the day, and they often bark territorially when pedestrians pass by. Addressing illegal camping on the Preserve will also help reduce these impacts.

The City provides dog waste disposal bags at several stations throughout the Preserve. Keeping these stocked will help visitors clean up after their pets.

Bicycling and Horseback Riding

Currently, equestrian use is prohibited on the Preserve, except for the Regional Parks trail segment on the east side of Meadowlark Field. Bicycling is prohibited on the Preserve's unpaved trails, with the same exception. These policies are based on Master Plan guidance. Equestrian use requires facilities not readily available at the Preserve (e.g., parking), requires greater vegetation clearance than pedestrian trails, and would not be accommodated by the seasonal bridge. Bicycling on the Preserve was prohibited in the Master Plan out of concern for pedestrian-cyclist conflict on trails. Both equestrian and bicycle use are allowed on the Regional Parks trails connected to the Preserve.

Hunting Safety

Hunting is not permitted on the Preserve itself, but occurs on some portions of the Laguna near the Preserve, including on CDFW's Laguna Wildlife Area lands, and may be noticed by Preserve visitors. Some concern over hunting safety has been expressed by Sebastopol residents along the Laguna. Within the Laguna Wildlife Area, only the Occidental Road unit's wetland areas are open to hunting, and only when the Laguna is navigable and the wetlands are accessible by boat. Foot or terrestrial access to the Occidental Road Unit is prohibited because there is no visitor right-of-way. Dogs are prohibited from March 2 through June 30. Hunting of waterfowl, coots, and moorhens is allowed only on Saturdays, Sundays, and Wednesdays and only during waterfowl season which typically runs from mid-October to mid-January. Rifles and pistols are prohibited. Any violations of CDFW land use regulations noted by Preserve users should be reported to Californians Turn in Poachers and Polluters (CalTIP; see http://www.dfg.ca.gov/enforcement/caltip.aspx for details).

Fishing

The mainstem Laguna is used extensively by the community for sport fishing. This occurs primarily at the Occidental Road access to the north of the Preserve through county-owned land to the water. Fishing within the Preserve is prohibited, but may occur along the mainstem of the Laguna by visitors (especially children) on a limited basis. Signage is present at each property that states Preserve policies on fishing.

OBJECTIVE MM-5: Manage other public uses on the Preserve to protect plant and wildlife habitat, water quality, and users' experience.

ACTIONS

- **Add dog waste bag and trash receptacles at Tomodachi Park; maintain at other locations.** Ensure that bags are kept stocked. (S, O)
- **Monitor dog usage and modify management strategies and allowable uses as necessary** to protect natural resources. (O)
- **Provide clear signage indicating that dogs must be on leash**, dog waste must be properly disposed of, and that users must keep dogs on established trails. Include educational text on interpretive signage explaining impact of dogs. (L)
- **Improve signage excluding dogs from the trails around the Youth Park ponds**. Add brief explanatory signage indicating why the policy exists (e.g., "Sensitive wildlife use these ponds. No dogs allowed."). (L)
- **Incorporate information about the impacts of dogs on wildlife into Preserve educational activities,** such as Learning Laguna sessions. (L)
- **Develop a volunteer patrol program to monitor dog usage;** See Engaging and Managing Volunteers section. Volunteers would not be expected to approach visitors with off-leash dogs directly, but their presence on the trail could decrease unauthorized uses. (L)
- **Educate visitors through signage about allowable usage and locations for each use at trailheads** and connection points with Regional Park trails. In appropriate locations, consider including contact information for CalTIP on signage in case of safety concerns about hunting or illegal harvest by sport fishermen. (L)
- **Consider whether additional restroom facilities are needed at the Youth Park**. This would entail consultations with the Little League and Community Center, and development of a project concept and cost estimate.

Biological Surveys and Trainings

The Preserve supports a number of sensitive resources, including potential habitat for several special-status species and common wildlife. Many of these species are protected by state and federal regulations. The following survey guidelines include those needed for regulatory compliance and for protection of special-status and common wildlife during site development and ongoing management of the Preserve.

OBJECTIVE MM-6: Protect biological resources during ongoing Preserve management and restoration efforts.

ACTIONS

- **Perform preconstruction surveys prior to significant ground disturbance** (i.e., large scale restoration efforts, trail construction, etc.) within native habitats. Surveys (on the day preceding work and/or ahead of the construction crew) should be performed by a qualified biologist to ensure no special-status species and common wildlife are occupying the area. If wildlife species are observed within the work area or immediate surroundings, these areas must be avoided until the animal(s) has (have) vacated the area, and/or, upon approval by the regulatory agencies for listed species, the animal(s) must be relocated out of the area by a qualified biologist. (O)
- **Conduct an annual training session for all City field staff.** The training should be conducted

by a qualified biologist and should include a discussion of the sensitive biological resources within the Preserve, the potential presence of special-status species, and ongoing management activities. This should include a discussion of special-status species' habitats, protection measures to ensure species are not impacted by project activities, project boundaries, and biological conditions outlined in the project permits. (O)

- **Complete presence/negative finding bat surveys prior to removal or significant trimming of any trees which are over 6 inches in diameter at breast height.** Surveys should be completed by a qualified biologist. Because each individual bat species may use different roosts seasonally and from night to day, surveys must be conducted by a qualified biologist at the appropriate times. (O)
- **As feasible, work outside of the critical breeding bird period (March 1 through August 15) during ongoing Preserve management (i.e., vegetation removal, mowing) and vegetation removal associated with large scale restoration efforts.** If activities must occur during this period, work areas should be surveyed prior to commencing. Complete surveys for all human-related ground disturbance activities in natural habitats and vegetation trimming and removal. Trained City staff would be qualified to complete the surveys. If active nests or behavior indicative of nesting are encountered, those areas plus a 50-foot buffer for small songbirds and 250-foot buffer for larger birds (e.g., owls, raptors) should be avoided until the nests have been vacated. If the work areas are left unattended for more than one week following the initial surveys, additional surveys should be completed. (O)

Trail Maintenance, Construction, and Decommissioning

Keeping established trails clear, visible, and readily passable is important to enabling public use of the Preserve. Earthen trails need generally need little maintenance in this setting but are seasonally unusable in the wettest areas. Gravel placed in some wet areas needs regular replacement. Trails at the Youth Park and Tomodachi which have a polymerized surface are eroding. At Tomodachi, this is likely due to regular inundation. ADA requirements are an important consideration. It is also important to avoid impacts to natural resources in the course of trail maintenance. Because the Preserve already provides extensive trails relative to its size, no new trails other than short connector trails are proposed here. Trail design and construction should protect

Trail at Tomodachi in need of maintenance.

natural resources.

The routes for the two proposed connector trails, shown in Figure 6, were mapped in the field by walking the apparent best routes. For the Tomodachi connector, the route was selected to avoid crossing any channels (other than a small ditch at the northern end). For the Americorps Trail, the route was selected to stay on high ground as much as possible, maximizing the time the trail would be dry and accessible, and minimizing potential flood damage. In both cases, routes were generally straight rather than meandering to minimize trail length, cost, and habitat impacts. In both cases, the ground surface is relatively level, and no surface treatments are recommended. Slight adjustments to routes may be possible. Key components of trail development would be permitting, flagging of final layout, trimming of overhead willows, and mowing or grubbing in areas of herbaceous vegetation. The Americorps Trail connector will also require bridge selection, final siting, and installation. The Tomodachi connector will also require a short climb up the berm of the Rodota Trail.

There are some informal trails present on the Preserve, primarily associated with illegal camping (see Figure 7). The use of these should be discouraged, and vegetation allowed to re-establish naturally.

OBJECTIVE MM-7: Maintain trails, benches, and picnic facilities so that they are clearly visible and comfortably usable to all intended users, using practices that protect wildlife and native plants.

ACTIONS

- **Provide clear, unobstructed access for wheelchair users into Youth Park**. Current entry from handicap parking space is partially blocked by logs. (S)
- **Repair or replace broken benches and picnic tables**; consider adding benches or tables in selected locations. (S, L)
- **Mow vegetation along trails in early and late spring or summer** (e.g., March and May). At Meadowlark, use t-posts as a guide to trail location and to avoid damage to plantings. With two mowings, pathways should be readily visible, reducing likelihood of damage to restoration plantings. (O)
- **Trim back encroaching vegetation**, including Himalayan blackberry, poison oak, and poison hemlock, that obscures trails or signage, or makes passage difficult or unsafe. This will also help reduce exposure to ticks. Key locations include the Americorps trailhead at the Youth Park; the southern section of the Americorps trail; and the Youth Park trail along the Laguna, including northern section between the Laguna and the easternmost pond. (O)
- **Maintain accessibility to benches** by mowing or trimming vegetation leading up to benches as well as underneath them. (O)
- **Review trail surfaces annually** to identify any unsafe conditions or erosion that may pose a risk to water quality. (O)
- **Improve trail segments that are regularly muddy.** In particular, a portion of the trail along the southeastern corner of Meadowlark Field (just south of the junction with the Regional Parks Laguna Trail) becomes very wet and muddy, but continues to be used, in winter. Consider improving drainage and protecting soil by installing geotextile and rock. (S, O)

OBJECTIVE MM-8: For any new trail development, select routes, methods, and surfaces to protect native habitats.

ACTIONS

- **Only two new connector trails are recommended in this plan (See Objective PU-2). To protect natural resources, do not develop any additional trails.** (O)
- **Implement soil protection measures where ground disturbance is unavoidable**. These typically include protecting soil surfaces by seeding or planting promptly with appropriate native species and covering with weed-free straw mulch. See Erosion Control section for details. (O)
- **Consult with a trail designer on the design, layout, construction, and prescribed maintenance procedures of any new trail.** Minimize visual and natural resource impacts and soil disturbance. (L)
- **Follow Best Management Practices to manage potential erosion and flow concentration associated with trail construction and maintenance.** (L)
- **For the proposed Tomodachi to Rodota Trail connection, plan for a summer-only trail** as debris and silt deposited during flooding from both the Laguna and Calder Creek are likely to make boardwalks difficult to maintain. Further analysis of flows in that area may be valuable in trail planning. (L)

OBJECTIVE MM-9: Decommission or discourage the use of informal trails.

ACTIONS

- **Decommission existing unauthorized trails** by installing physical barriers (i.e., downed logs, and native bramble- or thicket-forming plants) at entry points. Consider posting signage to inform the public of the closure and the sensitivity of the habitat. (O)
- **Monitor for the establishment of new unauthorized trails** and take appropriate actions to discourage use and restore disturbed areas. (O)

Mosquito Control

The Marin Sonoma Mosquito and Vector Control District (MSMVCD) treats ponds and wetlands in the Preserve. Treatment typically consists of applying a larvicide (Bti, *Bacillus thuringiensis israelensis*) and, if needed, also an adulticide (*Bacillus sphaericus*). Both of these pesticides are naturally-occurring bacteria that produce compounds toxic to mosquitoes (US EPA 2015). According to the MSMVCD, Bti lasts approximately 48 hours in water, while *Bacillus sphaericus* lasts 12-21 days. The US EPA Information Sheets for these pesticides provide detail on what is known about effects of these treatments on non-target organisms (US EPA 2015).

At the Youth Park ponds, MSMVCD routinely checks for mosquitoes and treats the ponds as needed until they are dry. The ponds were treated with a larvicide once per year in 2014 and 2015, but may be treated more frequently in wetter years. MSMVCD has indicated that these ponds are easy to access and treat.

Wetland areas on the Americorps parcel, Tomodachi Park, and Railroad Forest are also treated regularly. MSMVCD noted that they frequently receives calls from Village Park residents requesting mosquito control, and that the species present in these areas is a relatively aggressive species that is active during the day rather than just early and late in the day. These areas are typically treated with an adulticide, as the larvicide is difficult to apply effectively due to dense Himalayan blackberry growth. MSMVCD has a permit from CDFW to perform brush removal needed for treatment, and typically clears trails into the sites with hand tools. District staff noted that they have equipment for large-scale Himalayan blackberry removal, and they may be able to assist the City with removal efforts.

No treatment is currently performed on Meadowlark Field.

OBJECTIVE MM-10: Support the MSMVCD in minimizing mosquito populations and the potential for mosquito-borne disease on the Preserve. Ensure that water quality, and human and wildlife safety, are protected during mosquito control treatments.

ACTIONS

- **Enlist the assistance of the MSMVCD to remove Himalayan blackberry**, in the context of a habitat restoration effort. See Restoration Opportunities. (S, O)
- **Stay apprised of MSMVCD mosquito treatment methods** to ensure that they meet City standards for non-toxicity to non-target organisms. (O)

10 Integration with Regional Efforts

The resources, and resource management concerns, of the Preserve are clearly linked to lands, waters, and people beyond the Preserve boundaries. Participating in regional conservation efforts will help make Preserve management effective, and offers opportunities to further the City's goals.

Middle Reach of the Laguna Management

The Preserve is located along the Middle Reach of the Laguna de Santa Rosa, which extends from Highway 12 north to Occidental Road. The Middle Reach—as well as the reach extending south of Highway 12--is an area of significant open space protection through public land ownership and conservation easement acquisition. The Middle Reach is comprised of seven linear miles of stream, including the main Laguna channel and tributaries, and is surrounded by over 2,540 acres of contiguous open space and City of Santa Rosa-owned agricultural lands. In aggregate, these properties provide important habitat and migratory corridor, as well as human recreation and enjoyment. Coordinating land management among the Middle Reach's public and private landowners will help strengthen efforts to control invasive species, manage illegal camping, and enhance visitor experience through expanded trail connectivity, interpretive signage, and education. If neighboring landowners agree to control illegal activities and invasive species on their properties, they will avoid trading problems across fencelines. There are also opportunities for public/private land management partnerships and leveraged funding to

support aspects of this plan. Examples could include coordinated mowing or trash receptacle emptying by staff from either the City of Sebastopol or Regional Parks, or conservation grazing of the Regional Parks property north of Meadowlark (or, if it becomes appropriate in the future, Meadowlark Field itself) by neighboring Dei Dairy cattle. Coordinating the look and content of new signage also presents an opportunity to link the Preserve to the greater Middle Reach area properties.

OBJECTIVE IN-1: Coordinate with adjacent landowners on the Middle Reach of the Laguna to strengthen land management efforts.

ACTIONS

- **Meet annually with Sonoma County Regional Parks, City of Santa Rosa, and other adjacent large landowners** to discuss coordinated management. (O)
- **Coordinate with Preserve neighbors annually to map and manage perennial pepperweed** and track successes and failures. The Laguna Foundation is currently developing a citizen science effort for this purpose. (O)
- **Manage invasive species on the Preserve that are of joint concern**, using methods appropriate to the City and the site. See Invasive Species Management section. (O)
- **Jointly organize efforts to clean up trash and encampments**. (O)

Santa Rosa Plain Groundwater Management Program

The Sonoma County Water Agency initiated the Santa Rosa Plain Groundwater Basin Program in 2011. A Basin Advisory Panel was formed with representation from all of the cities in the Basin, including Sebastopol, to develop a collaborative plan to manage groundwater resources in the Santa Rosa Plain. The 2014 Santa Rosa Plain Groundwater Management Plan is a "framework for a comprehensive, long- term voluntary groundwater management program." (Santa Rosa Plain Basin Advisory Council 2014) The Groundwater Plan describes groundwater conditions and processes on the Santa Rosa Plain, and identifies goals and actions needed to protect water quality and availability. The plan notes that increasing rates of groundwater pumping are resulting in a water budget imbalance, with an average groundwater storage loss of 3,300 acre feet per year over the period from 1976-2010. The plan notes that this groundwater loss has also affected surface water flows, with declining streamflows and negative impacts to riparian habitats and species. The plan also describes potential climate change effects on local groundwater. In general, projections indicate that an overall lowering of groundwater levels is likely, as well as reduced baseflow in streams and reduced groundwater discharge to wetlands and springs.

Groundwater management objectives identified in the plan include the maintenance and protection of existing groundwater elevations, water quality, and recharge areas. Recommended actions include encouraging activities that protect surface water quality, with a particular focus on areas where surface water recharges groundwater. Other objectives address monitoring, public awareness, water conservation and reuse, and cooperation among

stakeholders. Protection and sound management of the Laguna Preserve supports the objectives of the Groundwater Management Plan by ensuring that the City's lands adjacent to the Laguna remain undeveloped and well-vegetated, absorbing and filtering precipitation and runoff.

Laguna de Santa Rosa TMDL

In addition to supporting groundwater management efforts, sound management of the Laguna Preserve will contribute to improving water quality in the Laguna de Santa Rosa. The Laguna is listed on the Clean Water Act Section 303(d) list of impaired waterbodies for mercury, nitrogen, dissolved oxygen, phosphorus, sediment, and temperature. Recent findings support adding pathogens/indicator bacteria to the listing. The North Coast Regional Water Quality Control Board is currently underway with Total Maximum Daily Load (TMDL) processes for most of these pollutants. The TMDLs set a budget for the maximum allowable amount of each pollutant and identify load reductions and control actions needed to restore beneficial use of the Laguna.

The following objectives, detailed in Chapter 7, will support water quality in Calder Creek and the Laguna:

- RM-1, RM-2, and RM-3 will provide sediment filtration and nutrient processing of runoff before it enters the Laguna. Dense, multi-layered vegetation will provide shade to moderate high water temperatures and increase dissolved oxygen.
- RM-3 Action H, studying the potential for hydrologic reconnection of Youth Park ponds to the Laguna, would include an assessment of how that would affect water quality.
- RM-5 actions including avoidance of herbicides and denuding large areas at one time will also help reduce pollutants.
- RM-7 (Minimize carbon footprint and support natural carbon sequestration functions), RM-8 (Protect the resilience of the Laguna system to climate change), and RM-9 (Plan for current and future conditions) will result in a sustainable, naturally functioning landscape that will continue to clean and cool water draining into the Laguna from a significant portion of the City.
- MM-1 actions will protect water quality during maintenance activities.
- MM-4 actions to prevent illegal camping, and MM-5 actions to manage dogs and dog waste disposal, will protect water quality from bacterial contamination.
- PU-3, ensuring that ball fields or other ornamental landscapes are maintained with minimal fertilizer use and no herbicide use, will protect water quality from nutrient contamination.

During the public input process for this Plan, several participants expressed strong interest in visibly identifying the paths of Calder Creek, Zimpher Creek, and smaller tributaries as they pass through neighborhoods and underground to raise resident's awareness of how their actions directly affect the Laguna. Although beyond the scope of this plan, participants also identified potential water quality impairments to these drainages from backyard livestock, fertilizers, organic debris, and other sources that could degrade downstream water quality.

Sonoma County Biodiversity Plan

Biodiversity is important to the ability of landscapes and wildlife populations to adjust successfully to changing conditions. According to the Center for Biodiversity (2015), the Bay Area is one of the nation's six most important biodiversity hotspots and supports many plant and animal species found nowhere else. The Sonoma Community Foundation convened an expert advisory committee to bring together local knowledge about how best to protect this biodiversity in Sonoma County. Based on interviews with regional science and policy experts, West Coast Watersheds and Sonoma Ecology Center prepared the Sonoma County Biodiversity Action Plan in 2010. The Action Plan identified habitat fragmentation as one of the largest threats to Sonoma County habitats and called for maintenance or enhancement of existing protected wildlife corridors (West Coast Watersheds and SEC, 2010).

Creation of the Laguna Preserve is a rare example of a reduction in habitat fragmentation. The Preserve serves as a vital urban wildlife corridor connecting protected lands to the north and south. Earthbound animals still need to cross Highway 12, but are often able to travel under the Laguna bridge. Within the Preserve, protecting natural topography and hydrology, maintaining a full suite of plant species from groundcovers to valley oaks, and providing safe habitat for native wildlife all contribute to enriching biodiversity. Almost all of the Plan Objectives, from restoration to education to managing feral cats and illegal camping, ultimately address biodiversity.

11 Data Gaps

The following information is not currently available, but would be helpful in clarifying management needs or restoration potential on the Preserve.

- Soil analysis at Meadowlark Field – Are there lingering effects of historic uses on soil chemistry? Are there any conditions present that contribute to lack of natural woody regeneration?
- Soil and hydrology analysis of retired sewage ponds at Youth Park – Are there any soil chemistry conditions of concern lingering from use for sewage or cannery waste? How is water flowing between the ponds and the Laguna?
- Analysis of soil layers/structure at Tomodachi under valley oaks -- If any restoration of vernal pools is desired, determining where fill remains and what original contours may have been or where water-restricting horizon lies would be helpful.

12 Implementation, Cost Estimates, and Funding

A planning-level cost estimate for implementation of plan elements has been prepared; see Appendix 8. This accounts for both City staff needs and potential consultant or contractor needs. The Plan includes many tasks which could potentially be performed by a new staff person dedicated to Preserve stewardship and planning activities.

The cost estimate shows which Plan costs are one-time (including short-term or long-term), and which are ongoing. Supporting information provided to the City also identifies elements which are likely to be eligible for outside funding, volunteer participation, and/or collaboration with other agencies, and which elements could readily be grouped together for implementation efficiency and for potential grant funding applications.

Once the Plan is adopted, it will be implemented by City staff and, as needed, by other City partners or contractors. In general, the following steps are recommended for Plan implementation:

1. The Public Works Department should review its maintenance protocols relative to the Plan recommendations, and where there are no staffing or budget implications, implement Plan recommendations.
2. City staff should evaluate Plan recommendations regarding communication and collaboration with neighboring landowners and agencies, and develop a plan to implement the recommendations.
3. Plan maintenance or operational recommendations that require additional resources should be reviewed by City staff to determine staffing, equipment, and/or training needs, and to identify budget implications for review by the Planning Commission and City Council.
4. City staff should review the Plan's improvement recommendations (such as trail connectors, benches, comprehensive sign program, interpretive guide, additional restoration planting, etc.) and determine what steps are necessary to develop plans, obtain permits, and provide funding to implement the improvements. This may include identifying a package of improvements for a possible grant-funded project or projects. City staff has initiated this process.

As described in the Introduction, each action recommended in this plan is marked as a short-term (S), ongoing (O) and/or long-term (L) activity. Short-term actions are those that could or should take place within the next two years, while long-term actions may require additional planning or fundraising, are non-urgent, and are recommended for implementation within the next 10 years.

Any future Preserve projects not specifically identified in this Plan should be evaluated for their compliance with the goals and objectives identified herein.

Possible Funding Opportunities

SCAPOSD Matching Grant Program

The City has successfully encumbered funds via this program in the past. Continued application to the program is recommended to fund restoration efforts or any future acquisitions. The program awards grants on a 2-year cycle. The next round of funding will be awarded in 2016.

River Parkways

The California Natural Resources Agency's River Parkways Grant Program is an opportunity to

fund restoration, habitat, flood management, conservation and interpretation such as that identified as needed on the Americorps Trail. Multiple components identified in this Plan could be joined together for a funding request from this program (e.g., connector trail design and implementation, improvements to signage, and restoration efforts).
http://resources.ca.gov/bonds_and_grants/river-parkways/

TMDL Implementation
When complete, the future Laguna TMDL will limit nutrient loading to the Laguna de Santa Rosa. Currently under a no net loading obligation, the City of Santa Rosa offsets discharge of reclaimed water into the Laguna waterway via projects to remove nutrients from the system or prevent them from potentially entering the system. Future Preserve projects including riparian restoration and in-stream modification could be funded via such City of Santa Rosa offsets or credits purchased for discharge under a Water Quality Credit Trading framework.

Supervised Adult Crews (SAC) Youth Ecology Corps (YEC)
These crews provide opportunities for cost-effective restoration and invasive species management.

California Coastal Conservancy Prop 1
This program could provide support for coordinated natural resource management planning or invasive species management planning throughout Middle Reach.

North American Wetland Conservation Act (NAWCA)
Standard and Small Grants Programs support the enhancement, restoration, and long term protection of wetlands. This program could support enhancement/restoration of the Youth Park ponds for waterfowl habitat and viewing.

The Habitat Conservation Fund (HCF) Program
HCF allocates approximately $2 million per year to the California Department of Parks and Recreation for grants to cities, counties, and districts to provide for nature interpretation and other non-capital outlay programs which bring urban residents into park and wildlife areas, to protect fish, wildlife and native plant resources or to acquire or develop wildlife corridors and trails. The HCF Program requires a 1:1 funding match and sunsets in FY 2019/2020.

Environmental Enhancement and Mitigation (EEMP) Program
EEMP grants are administered by the California Natural Resources Agency. Eligible projects must be directly or indirectly related to the environmental impact of the modification of an existing transportation facility or construction of a new transportation facility. Grants are awarded annually for urban forestry projects and for the acquisition, restoration, or enhancement of resource lands to mitigate for the loss or detriment of such lands within or near transportation improvements. For example, if a nearby road improvement project resulted in loss of riparian forest habitat, restoration of marginal Preserve riparian habitat could provide potential mitigation.

Other possible sources of funding for smaller-scale projects such as improved signage include:

- Local Rotary and other public service organizations.
- Private contributions. The City's Laguna Preserve web page notes that the City welcomes contributions to the Laguna Preserve Fund. To increase the visibility of this option, the City could highlight it on utility billing inserts, highlight it on the City's main web page, or print suggested amounts on billing statements themselves (similar to California income tax forms, which allow taxpayers to add to their bill and contribute to a number of funds).

13 Calendar

See Table 4, Calendar of Preserve Maintenance and Monitoring Activities.

Table 4. Calendar of Preserve Maintenance and Monitoring Activities

	Task	Location	Frequency and Season	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Restoration	Weeding around existing young plantings	Tomodachi	Twice annually, early and late spring												
	(Typical) restoration planting	TBD	Fall												
	(Typical) restoration planting maintenance - weeding and irrigation	TBD	Spring through fall												
	(Typical) restoration planting performance monitoring	TBD	Annual, summer												
Invasive Species Management	Remove invasive species as indicated in Appendix Table 6.	All	Annually/ongoing; late summer preferred for resource protection; see text for information on working in other seasons.			annual herbaceous species					trees, shrubs, vines, perennials				
	Cut back or mow invasive species (fennel, pepperweed) where removal is not practical, to prevent setting seed; see Invasive Species table for detail.	All	Spring												
	Conduct annual review of invasive species occurrences on Preserve, and update management recommendations as needed. Annual training of staff on invasive species conditions.	All	Spring												
Educational Opportunities	Restock interpretive trail brochures, and rotate educational posters on display at entry arbors.	Youth Park	Quarterly												
Managing Public Uses	Inspect trails and remove trash. Provide trash bags to campers to clean up their own trash. Restock dog waste bags. Report camping activity to Police.	Railroad Forest, all	Monthly												
	Annual cleanup of encampments in cooperation with Police Department and adjacent landowners.	Railroad Forest, all	Annually, prior to fall rains												
Trail Maintenance	Mow trails and trim back overhanging vegetation.	Meadowlark, all	Twice annually, early and late spring												
	Inspect trail surfaces for safety or erosion; repair as needed. Review all Preserve signage for maintenance or updating needs.	All	Annually, spring												

14 References

California Department of Fish and Wildlife. 2015a. California Natural Diversity Database.

California Department of Fish and Wildlife. 2015b. California Hunting Regulations. Waterfowl, Upland Game, Department Lands, Public Use. Available at: https://www.wildlife.ca.gov/regulations

California Department of Fish and Wildlife (CDFW). 2015c. Cats and Wildlife. http://www.dfg.ca.gov/wildlife/nongame/nuis_exo/dom_cat/

California Invasive Plant Council (Cal-IPC). 2015. California Invasive Plant Inventory.

Center for Biodiversity. 2015. Retrieved from www.biologicaldiversity.org/campaigns.

City of Sebastopol. 2011. Bicycle and Pedestrian Master Plan. Available at: http://ci.sebastopol.ca.us/sites/default/files/suekelly/seb_bike_and_ped_plan_amended_11-1-11_complete.pdf

City of Sebastopol General Plan and Resolutions.

- General Plan. Adopted 1994, revised 1995, 1996, 1998, 2003, 2008. Available at: http://ci.sebastopol.ca.us/page/general-plan
- Resolution 5108. Use of Biodegradable Materials in Landscaping.
- Resolution 5222. Resolution of the Sebastopol City Council Promoting the Use of Biodegradable Materials in Planting of City Owned Landscaping Areas.

Available at: http://ci.sebastopol.ca.us/page/sustainable-sebastopol

Cummings, John. 2003. The Awful Offal of Sebastopol. Manuscript available online in Sonoma State University, Environmental History Digital Collections, at: http://northbaydigital.sonoma.edu/cdm/singleitem/collection/EHDC/id/2438/rec/4

Design Community and Environment. 2006. Laguna de Santa Rosa Protected Lands Trails Plan (draft). Prepared for SCAPOSD.

Hyden Associates et al. 1993 [Adopted by City]. Laguna se Santa Rosa Park Master Plan. Volumes 1 and 2. Prepared for the City of Sebastopol.

Laguna de Santa Rosa Foundation. 2015. Final Report. Perennial Pepperweed (Lepidium latifolium) Control and Study. Prepared for the City of Sebastopol. March 2015.

National Wildlife Federation. 2014. Climate Smart Conservation: Putting Adaptation Principles into Practice. Available at: http://www.nwf.org/pdf/Climate-Smart-Conservation/NWF-Climate-Smart-Conservation_5-08-14.pdf

Newman and Rogers. 2015. State files water pollution complaint against San Jose for failing to clean up homeless encampments. San Jose Mercury News. March 20, 2014. Available at: http://www.mercurynews.com/bay-area-news/ci_25388561/state-files-water-pollution-complaint-against-san-jose?source=pkg

NRCS (Natural Resource Conservation Service). 2015. Web Soil Survey. Available at: http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

NBCAI (North Bay Climate Adaptation Initiative). 2013. Climate Change in the North Bay for Residents of Marin, Sonoma, and Napa Counties. Available at: http://climate.calcommons.org/bib/climate-change-north-bay-residents-marin-sonoma-and-napa-counties

O'Rear, T., N. Karres, C. Sloop. 2008. Laguna de Santa Rosa Aquatic Community Survey. Laguna de Santa Rosa Foundation. Available at: http://www.lagunafoundation.org/knowledgebase/?q=node/256

Point Blue. 2015. Climate Smart Restoration Toolkit. Available at: http://www.pointblue.org/our-science-and-services/conservation-science/habitat-restoration/climate-smart-restorationtoolkit/

Prunuske Chatham, Inc. Biological Resources Assessment. Sebastopol Railroad Forest. Prepared for City of Sebastopol and Laguna de Santa Rosa Foundation. October 2013.

Questa Engineering. 2012. Village Park Feasibility and Planning Study. Prepared for the City of Sebastopol. April 2012.

Santa Rosa Plain Basin Advisory Panel. 2014. Santa Rosa Plain Watershed Groundwater Management Plan. Available at: http://www.scwa.ca.gov/files/docs/projects/srgw/SRP_GMP_12-14.pdf

SCAPOSD, various dates. Conservation Easement Establishment Documents and 2014 Monitoring Reports for: Laguna de Santa Rosa Acquisition and Improvement Project (Tomodachi and Village Park), Meadowlark Field, and Railroad Forest

- 1993. [Railroad Forest] Deed and Agreement by and Between the City of Sebastopol and the Sonoma County Agricultural Preservation and Open Space District Conveying a Conservation Easement and Assigning Development Rights.
- 2008. Matching Grant Agreement. Laguna de Santa Rosa Village Park [Tomodachi Park] Acquisition, Enhancment and Restoration Project.
- 2008. [Tomodachi Park/Laguna de Santa Rosa Acquisition and Improvement Project] Deed and Agreement by and Between the City of Sebastopol and the Sonoma County Agricultural Preservation and Open Space District Conveying a Conservation Easement and Assigning Development Rights.
- 2011. [Meadowlark Field] Deed and Agreement by and Between the City of Sebastopol and the Sonoma County Agricultural Preservation and Open Space

District Conveying a Conservation Easement and Assigning Development Rights.
- 2011. Matching Grant Agreement. Meadowlark Field.
- 2014. Meadowlark Field Conservation Easement, June 2014 Monitoring Report.
- 2014. Sebastopol Railroad Forest Conservation Easement, October 2014 Monitoring Report.

US Environmental Protection Agency. 2015. *Bacillus thuringiensis* Information Sheet, accessed at: http://npic.orst.edu/factsheets/BTgen.pdf and *Bacillus sphaericus* Information Sheet, accessed at: http://www.epa.gov/opp00001/chem_search/reg_actions/registration/fs_PC-119803_06-May-14.pdf

USGS (US Geological Survey). 2015a. California Drought. Accessed at: http://ca.water.usgs.gov/data/drought/

USGS. 2015b. National Water Information System: Web Interface. Water-Year Summaries for USGS 11465750 Laguna de Santa Rosa C Nr Sebastopol CA. Accessed at: http://waterdata.usgs.gov/nwis/wys_rpt/?site_no=11465750

West Coast Watersheds and Sonoma Ecology Center. 2010. Biodiversity Action Plan: Priority Actions to Preserve Biodiversity in Sonoma County. Prepared for the Sonoma Community Foundation and the Sonoma County Water Agency.

Western Regional Climate Center. 2015. Monthly climate summary, Santa Rosa, CA. Available at: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7965

Interviews:

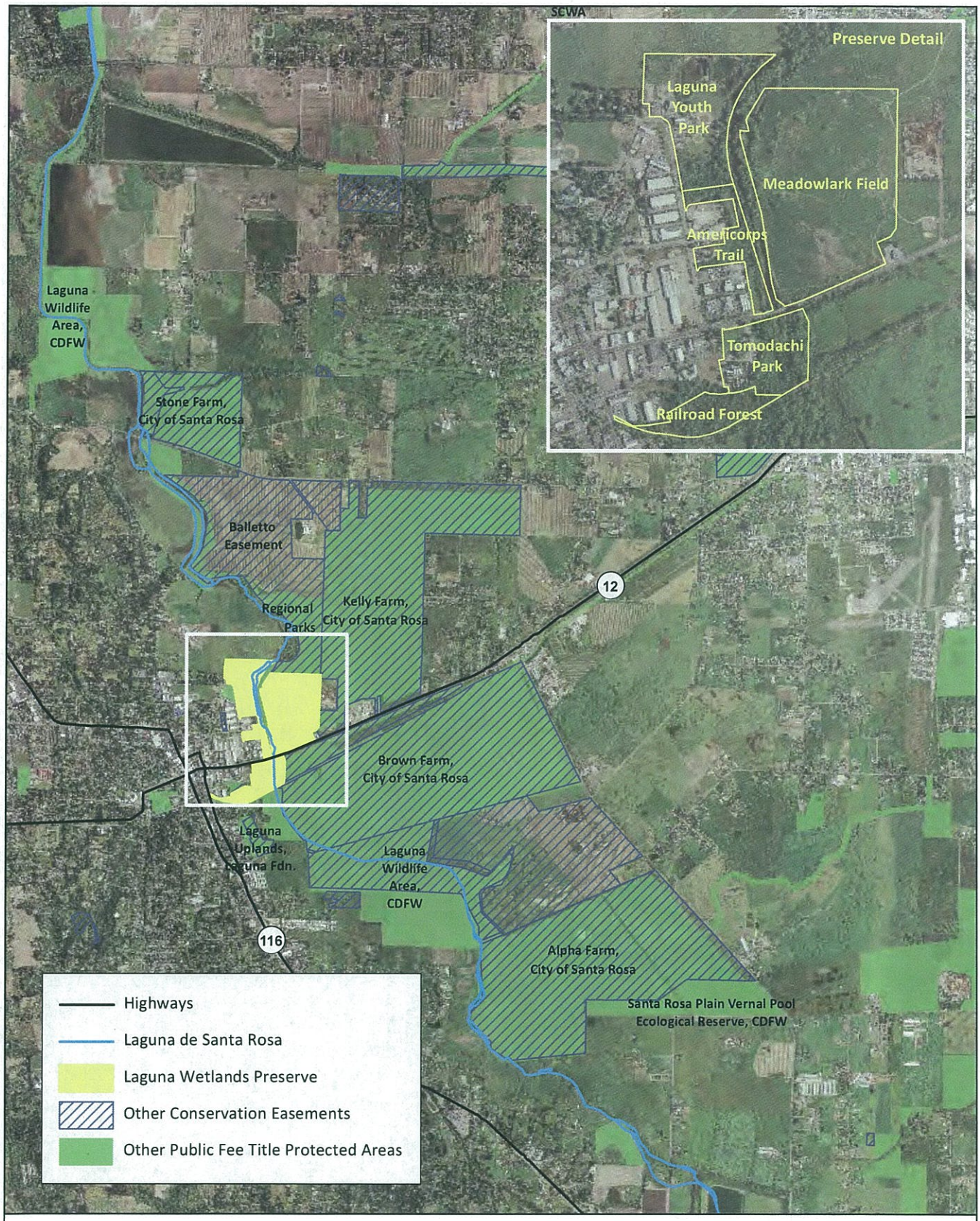
Bargsten, Steven, Regional Water Quality Control Board.

Emig, Rich, Sebastopol Public Works Department.

Sequeira, Jason, Marin Sonoma Mosquito and Vector Control District.

Vejby, Mara and Jay Reti, Locality.

Weaver, Jeff, and David Ginn, Sebastopol Police Department.



0 0.25 0.5 1 Miles

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Figure 1. Location and Regional Context
City of Sebastopol Laguna Wetlands Preserve

Sources
CA Conservation Easement Database
CA Protected Areas Database
Sonoma County 2011 Aerial Imagery

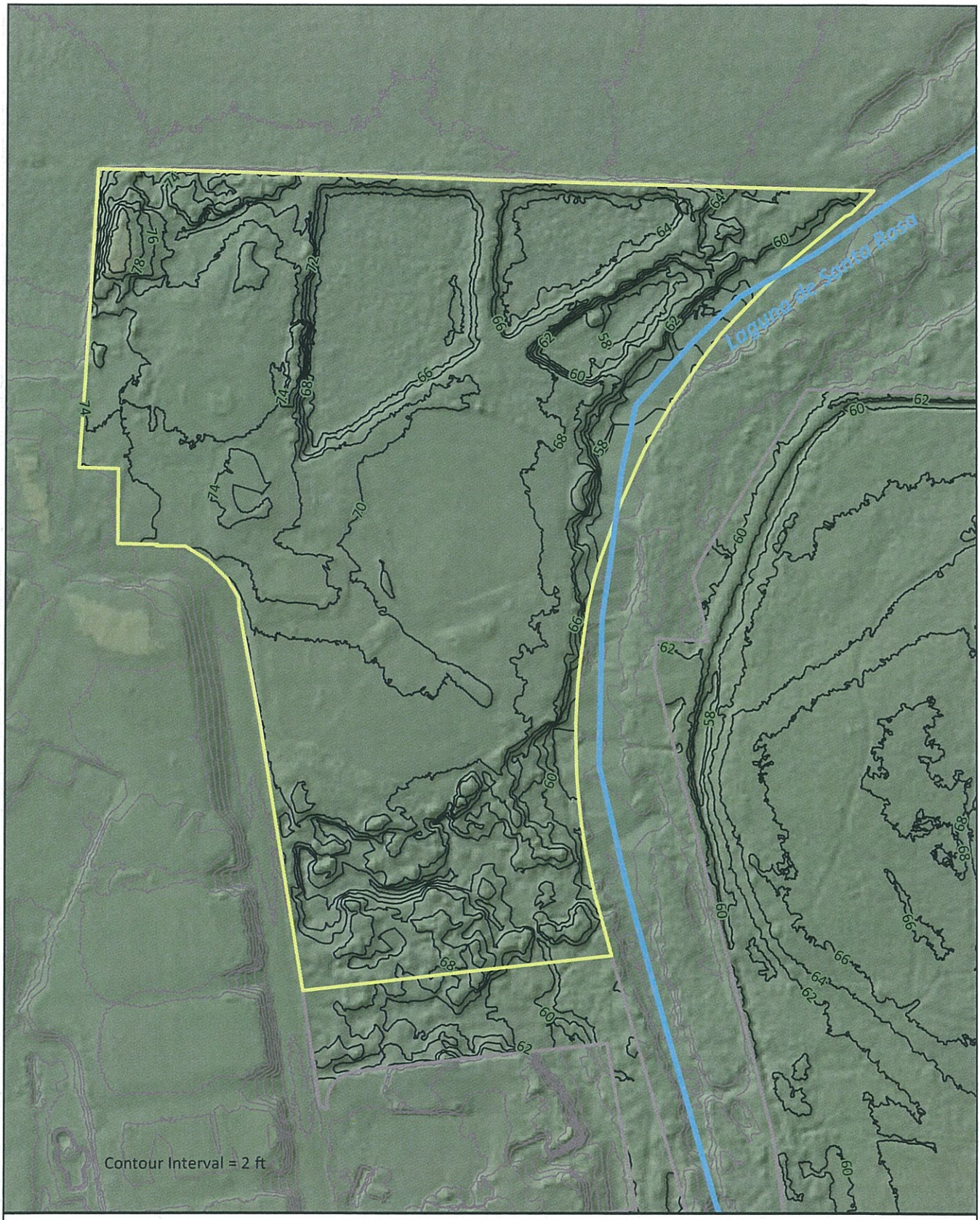

Figure 2a. Topography and Hydrology - Youth Park
City of Sebastopol Laguna Wetlands Preserve

0 50 100 200 Feet

Sources
Contours and DEM: Sonoma County Vegetation & LiDAR Program 2013

N

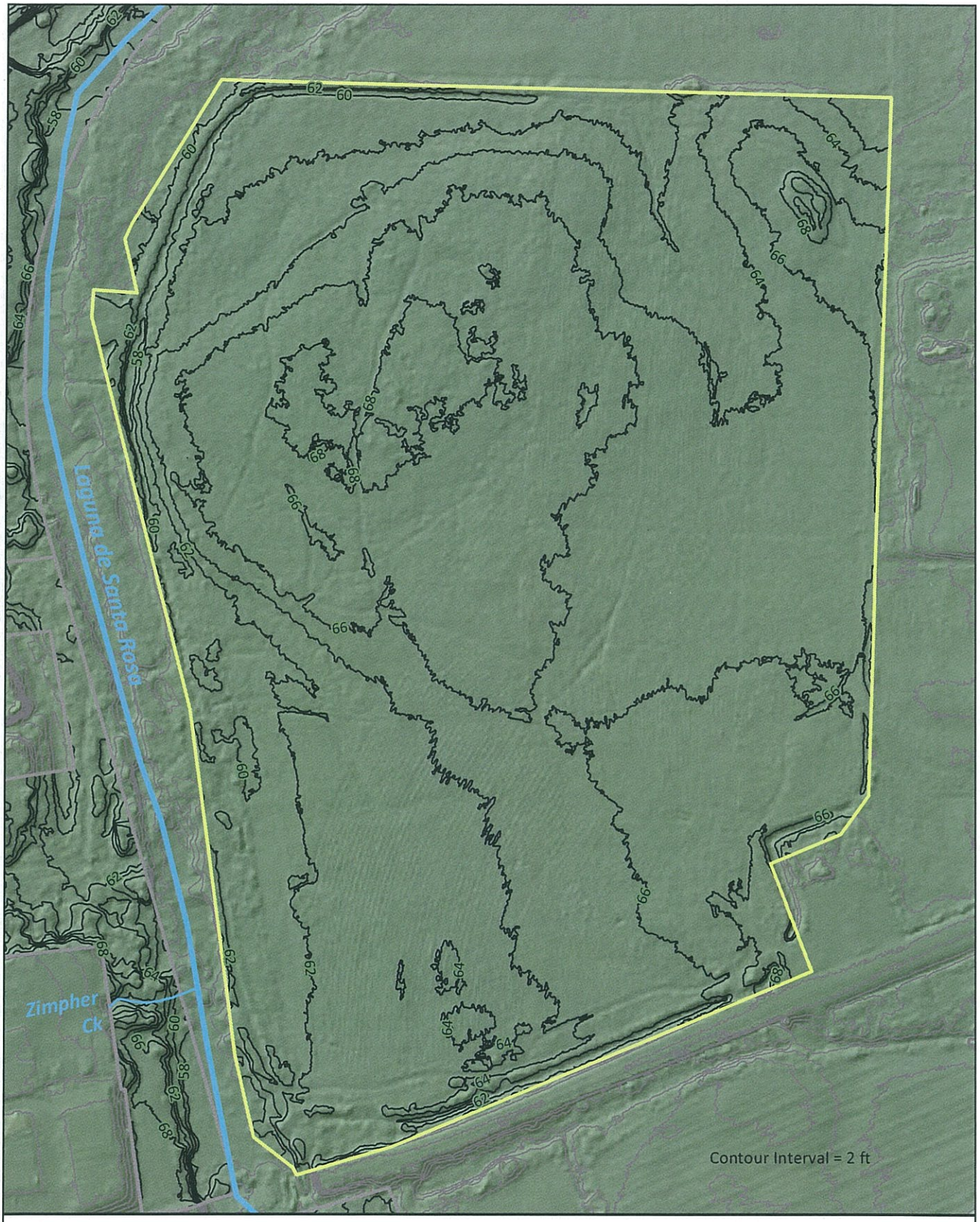

Figure 2b. Topography and Hydrology - Meadowlark Field
City of Sebastopol Laguna Wetlands Preserve

0 50 100 200 Feet

Sources
Contours and DEM: Sonoma County Vegetation & LiDAR Program 2013

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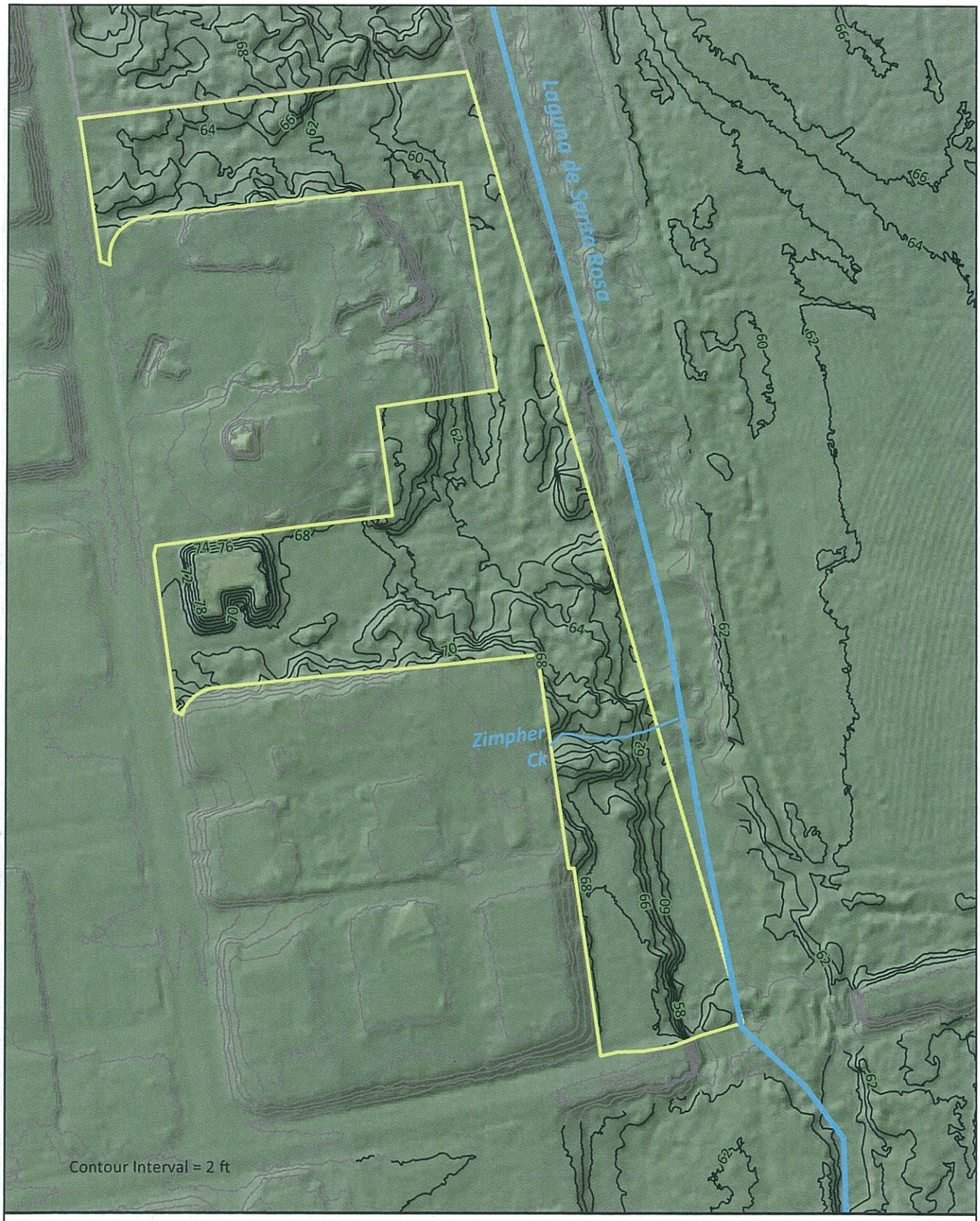

Figure 2c. Topography and Hydrology - Americorps Trail
City of Sebastopol Laguna Wetlands Preserve

0 50 100 200 Feet

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Sources
Contours and DEM: Sonoma County Vegetation & LiDAR Program 2013

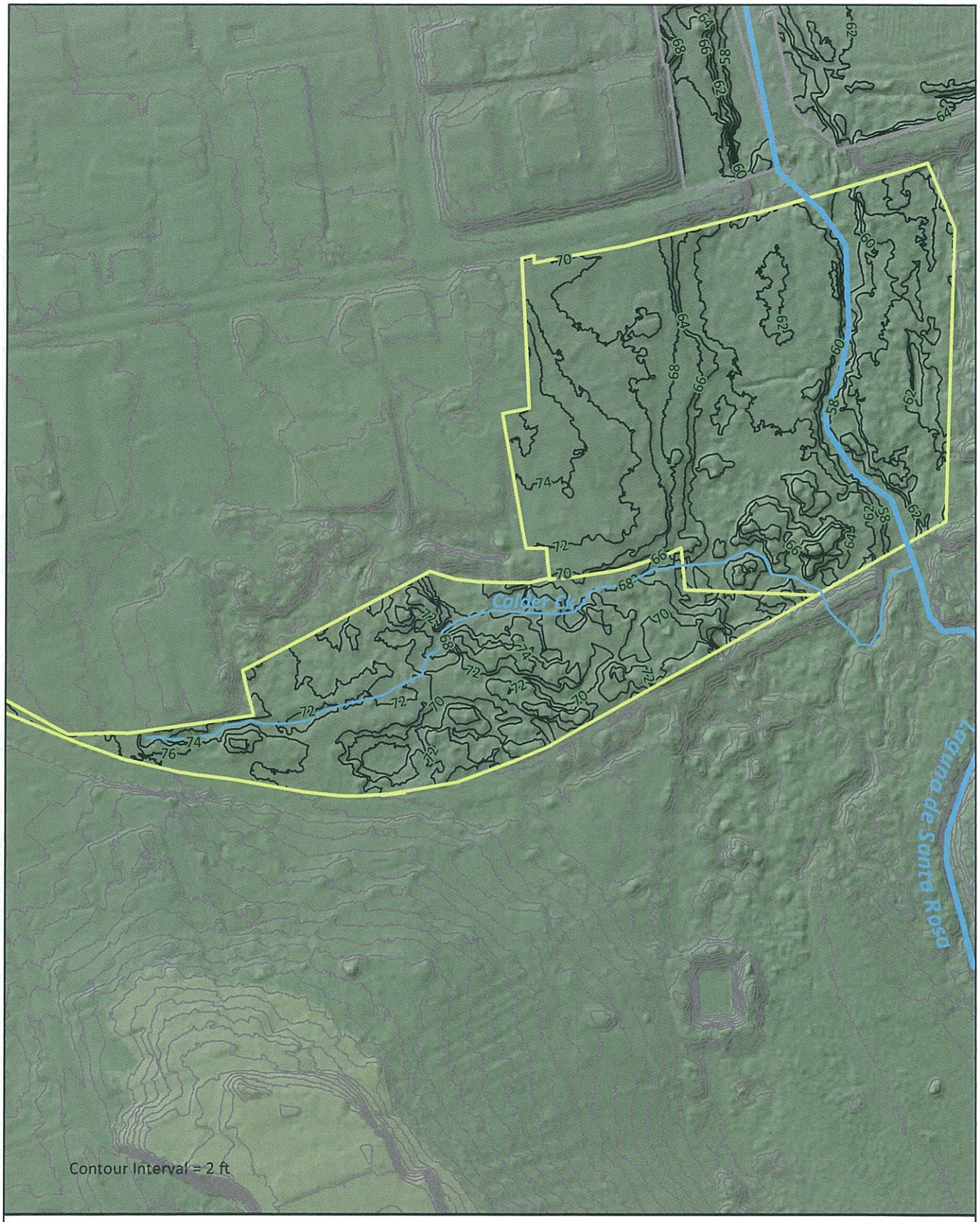

Figure 2d. Topography & Hydrology - Railroad Forest, Tomodachi Park
City of Sebastopol Laguna Wetlands Preserve

0 50 100 200 Feet

N

Sources
Contours and DEM: Sonoma County Vegetation & LiDAR Program 2013

Figure 3. Soils
City of Sebastopol Laguna Wetlands Preserve

0 125 250 500 Feet

Sources
Soils: SSURGO
Aerial Imagery: ESRI

N

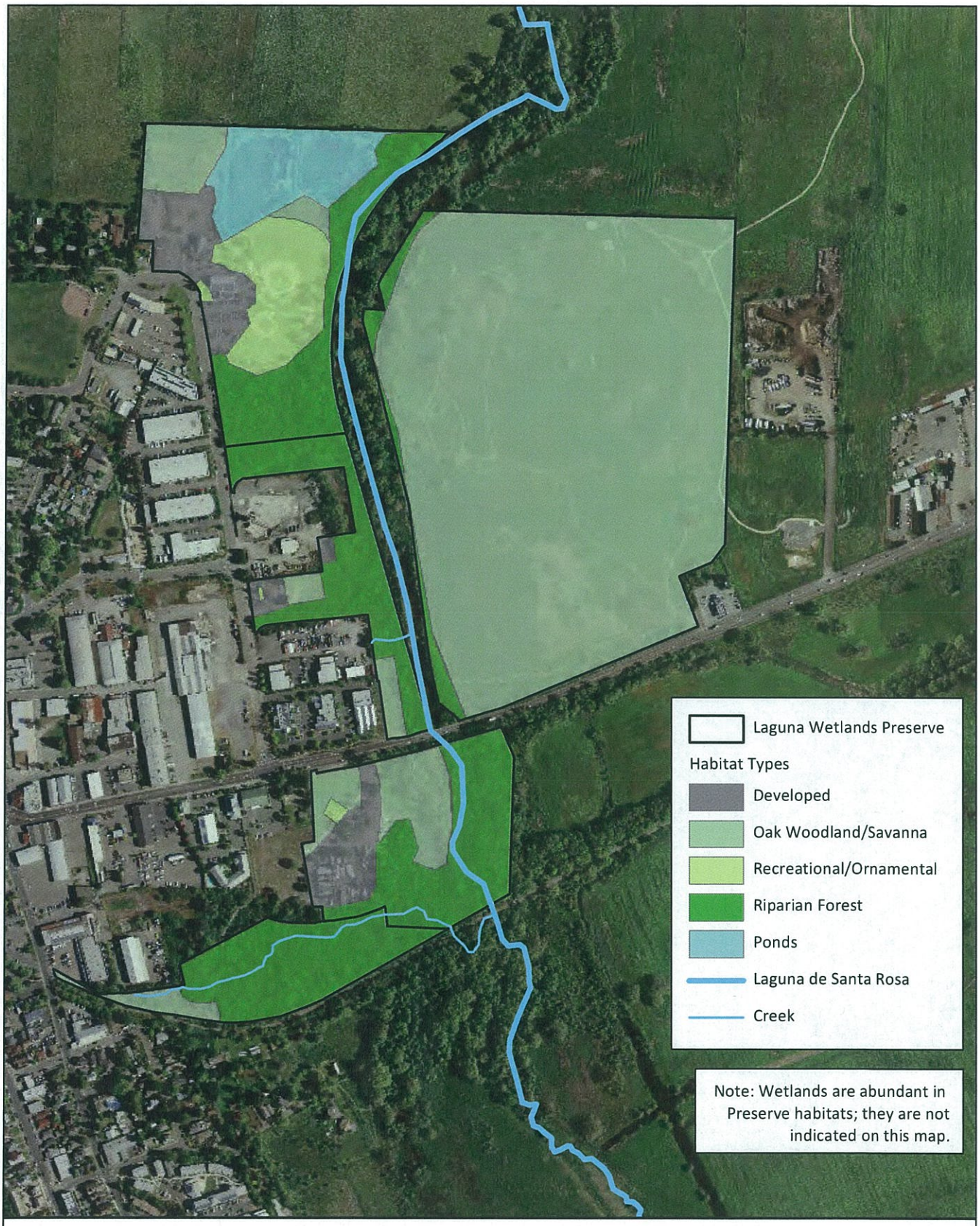

Figure 4. Habitat Types
City of Sebastopol Laguna Wetlands Preserve

0 125 250 500 Feet

N

Sources
Aerial Imagery: ESRI

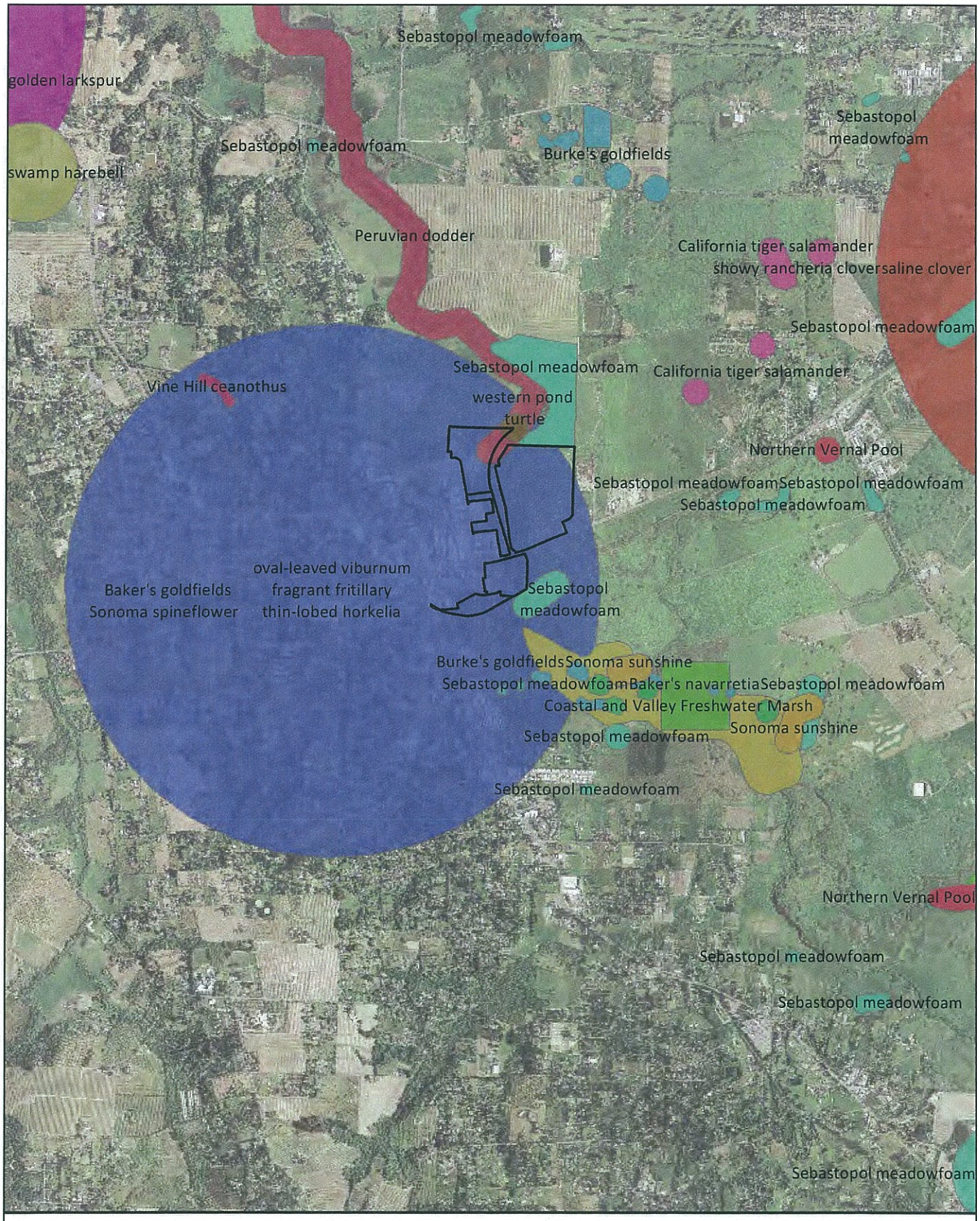

Figure 5. Special-status Species Occurrences in the Vicinity
City of Sebastopol Laguna Wetlands Preserve

0 0.125 0.25 0.5 Miles

Sources
Species: CNDDB, CDFW
Aerial Imagery: ESRI

N

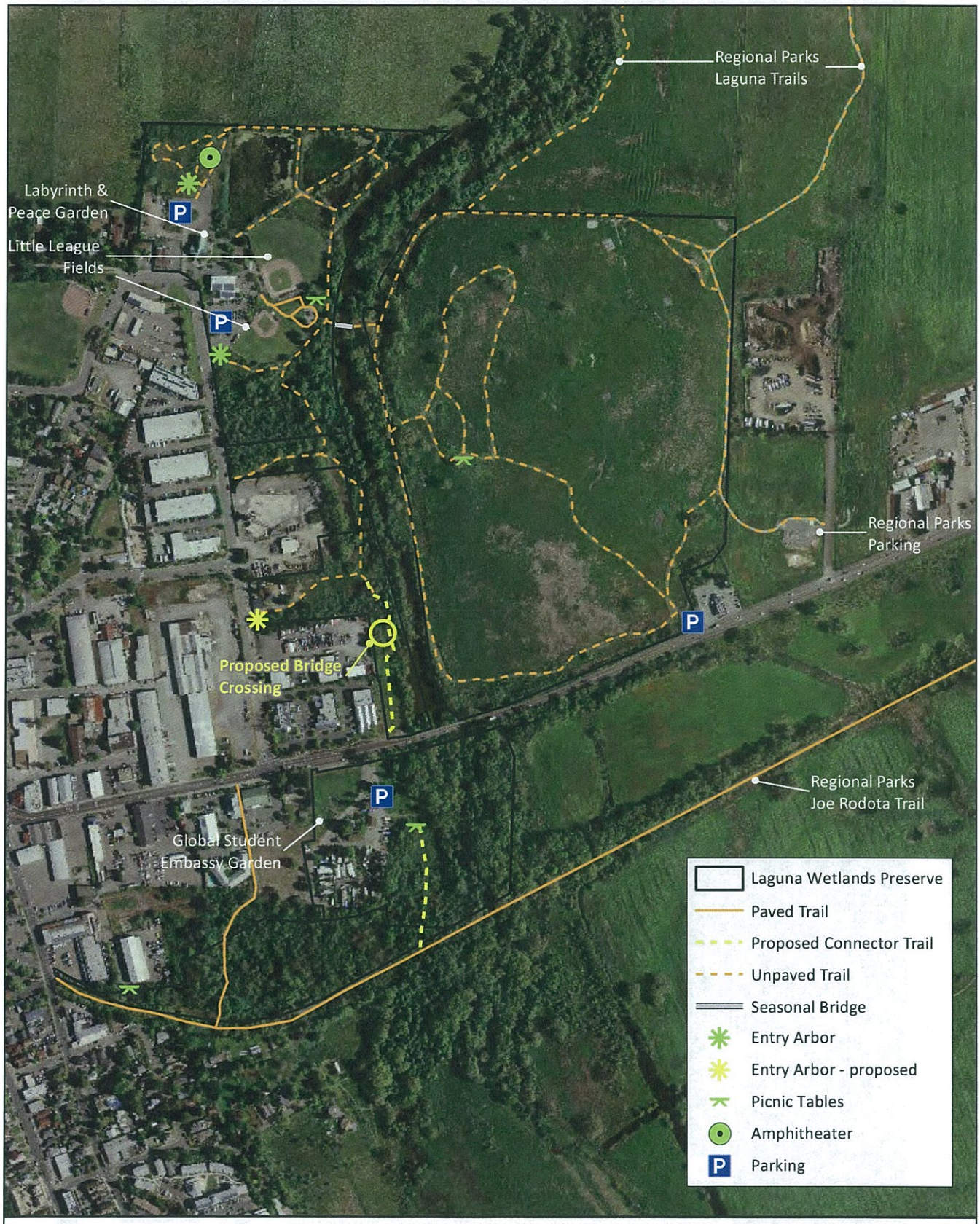

Figure 6. Existing and Proposed Trails and Recreational Facilities
City of Sebastopol Laguna Wetlands Preserve

0 125 250 500 Feet

Sources
Aerial Imagery: ESRI

N

Figure 7. Restoration Opportunities and Other Areas of Management Concern
City of Sebastopol Laguna Wetlands Preserve

0 125 250 500 Feet

Sources
Aerial Imagery: ESRI

N

Appendix 1. Summary of Management Objectives and Actions

Actions are marked as either short-term (S; for implementation immediately or within the next 2 years), long-term (L); within the next 10 years), or ongoing (O).

Restoration and Management

OBJECTIVE RM-1: Protect intact habitats during Preserve maintenance and improvements.

- **Limit the development of new trails** on the Preserve to short connector trails described in Objective PU-2. (O)
- **Locate any new Preserve facilities such as interpretive signage and connector trails away from areas of high-quality habitat** including the east side of the Laguna at Tomodachi and the area between the Meadowlark perimeter trail and the Laguna channel. Best locations for any such developments are in areas already disturbed by human activity. See Objective PU-1 for conservation easement restrictions and approval requirements on signage. (O)
- **Avoid ground disturbance in all natural habitats.** (O)

OBJECTIVE RM-2: Protect and maintain existing restoration plantings.

- **In all locations with established plantings, including along the Americorps Trail and the Youth Park, remove all remaining non-biodegradable restoration hardware** (above-ground irrigation, tree shelters, weed mats). Minimize soil disturbance. This could be a suitable activity for a supervised volunteer effort. (S)
- **At Tomodachi, weed around existing restoration plantings.** Seed mulched area with native annual and perennial grasses and forbs to suppress weeds in future. Remove nursery stakes from plantings and replace with appropriate tree stakes only if needed to support plants. Observe future CalTrans plantings and report any concerns about plant success to CalTrans project manager. (S)
- **At the Youth Park, replace dead plantings along periphery of parking lot if feasible**. Place mulch around existing small plantings to increase visibility and prevent being walked on or damaged by string trimmers or mowing. Remove irrigation materials that are still above ground. If feasible, provide supplemental water or timed-release water to enhance growth. (S)
- **At Meadowlark, informally monitor restoration plantings on an annual basis**, by reviewing representative planting areas in spring or summer, to identify any health or vandalism concerns. This could be a suitable activity for a supervised volunteer effort. If resources are available, long-term survivorship counts (e.g., every 5 years) would provide valuable information for management and future restoration efforts. (O)

OBJECTIVE RM-3: Restore habitat functions and native biodiversity where these are impaired on the Preserve.

- **See Restoration Opportunities in Table 3 below**. These are long-term actions (L).

OBJECTIVE RM-4: Prevent the establishment and spread of invasive plant species.

- **Train staff to recognize invasive species and help prevent their spread**. Preserve visitors and/or volunteer trail watchers can also serve as valuable eyes on the

landscape to spot new infestations. Manual removal of invasive plant species can be a good activity for supervised volunteers. Many resources are available for learning to identify invasive species, including The California Invasive Plant Council (www.cal-ipc.org) and CalFlora (www.calflora.org/). (S)

- **Protect or restore robust, diverse native plant populations.** See Restoration Opportunities for high-priority locations for enhancement or restoration. (O, L)
- **Limit ground-alteration activities in extent and duration.** Grading, disking, digging, and removal of plant cover provide ideal conditions for most invasive species to establish. (O)
- **When ground alteration occurs, revegetate promptly with an appropriate suite of native species.** Among species native to the habitat type, consider including natives that grow rapidly, and/or those that have growth habits and seasonal timing similar to potential invaders, to help suppress invasive populations. (O)
- **All seed, straw, mulch, or other plant material brought onto the site for revegetation, landscaping, or erosion control purposes should be weed-free.** (O)
- **Prevent the introduction of weed seed from other sites into the Preserve via vehicle tires and undercarriages**. Vehicles used in weed-infested off-road settings (e.g., vehicles used for mowing or other maintenance activities) should be cleaned before entering uncontaminated areas. Gravel imported into the Preserve for construction purposes should be weed-free. (O)
- **Use only species native to Sonoma County for restoration, landscaping, and erosion control.** Plants and seeds should be of local provenance if possible – from the Laguna watershed or adjacent areas with similar environmental conditions. (O)
- **At least once annually, document invasive species conditions and develop updated recommendations for management on the Preserve.** This should be conducted by a qualified biologist or staff person trained in natural resources. The effort could be supported by the volunteer patrol program as noted above, and/or conducted in conjunction with regional efforts (see Middle Reach of the Laguna, Section 10). (O)
- **Monitor for any infestation of ludwigia, and avoid changes to channel structure and cover that might facilitate invasion.** This species, of high concern regionally, creates dense stands in many parts of the Laguna, but has not been observed within the Preserve. This may be due to channel topography and relatively dense native riparian tree cover along channel edges. (O)
- **Educate residents and business owners of Sebastopol, especially those adjacent to the Preserve or adjacent to creeks and other natural areas, about invasive species**, and encourage use of native species and other natural resource-friendly practices. This could be accomplished through utility mailings in conjunction with information on the City website, as well as on guided walks through the Preserve. (L)

OBJECTIVE RM-5: Manage existing populations of invasive plant species.

- **Eradicate high-priority species with currently limited occurrences on the Preserve**—an "early detection/rapid response" approach. (S)
- **For invasive removal that requires disturbance to channel bed or banks, consult with the North Coast Regional Water Quality Control Board.** Apply for a programmatic permit to cover routine, ongoing operations. (S)
- **Manage infestations of high-priority species with extensive occurrences already**

on the Preserve. Although total eradication may not be feasible, spread of these species should be managed. Focus on new occurrences, plants at the edge of an existing infestation, or infestations within high-quality native habitat. In large patches, work from the edges inward. (O)

- **Avoid the use of herbicides, as per City policy**. (O)
- **Avoid denuding large areas at once**. Work on areas of manageable size where you can remove invasives completely and replant with natives rather than attempting to eradicate across an area too big to thoroughly treat and replant. (O)
- **During invasive removal, avoid damage to existing native plants,** which, if left intact, may help suppress the invasive species. Often, small native plants are hidden within non-native brambles. After removal, plant or seed disturbed sites with genetically-appropriate native species as promptly as possible. Protect disturbed ground with weed-free wood chip or leaf mulch in upland areas, or biodegradable erosion control fabric along channels. (O)
- **Remove all invasive plant material with any potential to germinate** (e.g., seeds, rhizomes, stem fragments for stoloniferous species) and burn or dispose of offsite. (O)
- **For removals of large trees (i.e., acacias), pre-removal surveys by a qualified biologist may be needed** to minimize potential impacts on breeding birds and bats. Leave standing dead trees in place unless they pose a safety hazard; these snags can provide valuable wildlife habitat. (O)
- **Schedule vegetation removal to minimize impacts to breeding birds, soil, and water quality**: (O)
  - August 15 - October 15. This is the best time for ground-disturbing work; it avoids impacts to breeding birds; minimizes erosion risk; and allows for prompt replanting with natives in time to take advantage of cool, wet winter weather for establishment. However, it may be more difficult to remove plant roots at this time.
  - October 16 – March 1. Limited ground-disturbing work can proceed with caution if no rain is predicted for 48 hours. Ensure that erosion control BMPs are in place.
  - March 1 – August 15. Limited vegetation removal can take place if bird surveys are completed (see Biological Surveys and Trainings).
- **See Erosion Control and Water Quality Protection section for additional guidance.** (O)
- **Monitor results of invasive species removal efforts annually** to assess effectiveness and identify follow-up needs. Repeat treatments will usually be necessary. (O)
- **Regularly update the map of invasive species on the Preserve**. (O)

OBJECTIVE RM-6: Prevent the establishment of new populations and control existing populations of non-native fish, wildlife, and domesticated and feral animals.

- **Remove existing feral cat feeding stations and educate individuals responsible for them** about the importance of keeping the area free of feral animals. To the extent feasible, cats should be trapped and removed from the Preserve. (S, O)
- **Maintain the sewage ponds at the Youth Park so they drain by late summer/early fall to restrict bullfrog breeding**. Under the current configuration, this likely occurs

most years. However, if the management of these features changes, this will need to be part of the restoration design. (O)

- **At least once annually, document invasive animal species conditions** (e.g., new species occurrences, sizes of existing populations) and develop updated recommendations for management on the Preserve. This should be conducted by a qualified biologist or staff person trained in natural resources. The effort could be supported by the volunteer patrol program as noted above, and/or conducted in conjunction with regional efforts (see Middle Reach of the Laguna, Section 10). (O)
- **Educate visitors through signage about the importance of keeping the Preserve free of non-native animal and plant species**, avoiding accidental or intentional feeding of wildlife that may attract predators, intentional introductions, and general habitat protection measures. (L)
- **Request that local pet suppliers provide information to their customers about responsible ways of handling unwanted pets, and the importance of not simply releasing them.** (L)

OBJECTIVE RM-7: Minimize the carbon footprint of Preserve management activities, and support the natural carbon sequestration functions of Preserve habitats.

- **Where vehicles and gas-powered machinery are needed, use them efficiently. Use hand labor where possible** rather than string trimming around plantings; this can be a good supervised volunteer activity. Avoid the use of leaf blowers. Transition to attractive, low-maintenance native landscaping around Preserve buildings rather than lawns that require frequent mowing. (O)
- **Facilitate the continued establishment of mature native trees and perennial grasses**, and protect soils from disturbance, as all of these provide long-term carbon sequestration. (O)
- **Encourage bicycling or walking to the Preserve** by maintaining safe, accessible approaches to trails and providing bike racks at primary entrances. (L, O)

OBJECTIVE RM-8: Protect the resilience of the Laguna system to climate change by supporting habitat connectivity and protecting water resources.

- **Protect the riparian corridors of the Preserve,** and its linkages between upland and riparian or wetland habitat. Conserving habitats across environmental gradients such as moisture may help allow for localized shifts within and beyond the property. Riparian woodlands are especially valuable, as these habitats are naturally resilient to changes in moisture, provide thermal refugia for wildlife, and already serve as corridors for wildlife movement. (O)
- **Protect water resources on the Preserve** by maintaining and restoring the capacity of the land to absorb and store rainfall and runoff. Water stress is expected to continue to increase in Sonoma County's habitats as temperatures rise. (O)
- **Manage collaboratively**. Because climate-driven changes encompass lands beyond the Preserve boundaries, working with other local landowners and resource agencies to address management issues collaboratively will be increasingly important. (O)

OBJECTIVE RM-9: In Preserve restoration efforts, plan for current and future conditions, while learning from the past.

- **Select plant palettes with changing conditions in mind.** This is a new and evolving topic in restoration science, so stay apprised of developments. Based on our current understanding, plant palettes should still be comprised of species known to occur locally, but broadening the scope of a planting may provide insurance against future conditions. For instance, for understory enhancement of the southern end of the Americorps Trail, include shrub species with a range of moisture needs and heat tolerances, using current and historic shrub species occurrences in both riparian and upland habitats of Sebastopol as a guide. Including multiple species from within plant lifeform types also provides redundancy that can serve as "insurance" against unknowns. Review species' known geographic distributions as a guide to how changing conditions may affect plantings. (O)
- **Select plant propagule sources with changing conditions in mind.** This too is relatively uncharted territory for restoration planting. Current understanding suggests that selecting propagules from local (Laguna and Sebastopol) sources, but aiming to capture genetic diversity and a range of environmental tolerances by collecting from a variety of individuals and a range of microhabitats relative to moisture, solar exposure, and elevation may be beneficial. (O)
- **Monitor restoration outcomes and Preserve conditions such as tree regeneration, to facilitate adjusting management strategies to meet changing circumstances.** (O)

OBJECTIVE RM-10: Protect cultural resources during Preserve maintenance and improvements.

- **As needed, retain a qualified archaeologist to evaluate specific project impacts** to archaeological sites within the study area, and provide appropriate recommendations. (O)
- **Any construction or earth-disturbing activities occurring within the area of existing archaeological resources should be conducted following the recommendations provided by the archaeologist.** (O)
- **If cultural resources are encountered during project implementation, project personnel shall avoid altering the materials and their context until a cultural resource consultant has evaluated the situation.** Project personnel should collect no cultural resources. Prehistoric resources include chert or obsidian flakes, projectile points, mortars, and pestles; and dark friable soil containing shell and bone, dietary debris, heat-affected rock, or human burials. (O)
- **Conduct further archival and field study for unsurveyed portions of the Preserve.** (L)

OBJECTIVE PU-1: Provide entry arbors, signage, fencing, and benches that are clear and unified in design, to improve public awareness of the Preserve, its trails, and its regulations.

- **Ensure that all new signage and other infrastructure improvements meet applicable conservation easement (CE) requirements** and approvals. Meadowlark Field's CE restricts signage to 2 signs up to 32 square feet each and smaller signs, the size and number of which "shall be limited to that which is reasonably necessary to accomplish the permitted uses herein" and "further provided that such signs are sited and constructed in a manner that does not create a visual impact." Tomodachi Park's CE requires prior District approval for all signs. Check with District staff regarding signage restrictions prior to installation.

- **Repair or replace damaged benches and picnic tables**; install additional tables and benches as needed in select locations. In particular, one or two benches are recommended along the Americorps Trail where natural openings onto the Laguna occur, and two in the Railroad Forest on the south side of Calder Creek (one just west of the Calder Creek bridge, and one near the grove of boxelders approximately 250' downstream of the bridge). The Railroad Forest benches should be installed in conjunction with habitat restoration in those areas. They would be accessed by short, informal footpaths, already in place. Benches with backs are recommended for greater comfort, where views are primarily in one direction. (S)
- **For the Americorps trail, install a small entry arbor (matching in style and materials with those at existing Youth Park entrances) just south of the lift station**, and install simple trailhead signs at the Morris Street entry just north of the retired cement plant, and at the southern end of the trail near the Highway 12 sidewalk. At the lift station entry, guide trail use to the southern side of the property, near the remnant riparian swale, and keep driveway and parking areas available for Public Works use and emergency access to the lift station. (S)
- **Improve Tomodachi Park parking signage, to welcome visitors** while clearly differentiating it from Village Park areas intended for residents only. Incorporate design elements of existing Preserve signage into the planned entry sign for the Park, and/or indicate directly that the Park is part of the Preserve. (S)
- **Rehabilitate existing signage on Meadowlark Field**. Remove or replace broken signs, misleading signs (e.g., sign with icon of dog on leash near an informal wildlife trail—intended to remind users that dogs must be on leash but appearing to suggest that dog walkers take their pets off into natural habitat), and unwelcoming signs (e.g., "Use Park at Own Risk," icons of person with a rifle). Provide simple wayfinding entry signage at the informal trailhead parking lot adjacent to the gas station on Highway 12, or simply move the existing rule signage to a more visible location. (S)
- **Keep signage consistent in style throughout Preserve**, to enhance the sense of identity among the multiple Preserve properties. Ensure that signage does not detract from Preserve views and aesthetics. Maintain a visual hierarchy among signs of different types: entry arbor, directional, and interpretive. Consider development of a formal design plan for signage and other landscape architectural components of the Preserve. (O, L)
- **Ensure that all signage is easily readable** from the appropriate distance or speed of travel. Avoid using compressed all-capital fonts; these are hard to read. Consider use of a consistent graphic icon, such as the heron on the Youth park entry sign, to help establish visual identity and make signage easy to recognize. (O)
- **Where boundary fencing is needed, use split-rail style wooden (preferably) or simulated-wood (for lower-maintenance settings) fence**, to maintain a sense of continuity among Preserve properties. (O)
- **Encourage nearby tourism-oriented businesses to direct visitors toward the Preserve**, through signage, brochures, or word of mouth. (O)
- **At least once annually, review all signage on the Preserve to identify maintenance needs.** (O)
- **Move existing signage that is not appropriately located in visible locations**, such as the park rules signage on the south end of the Americorps Trail, currently located in

the center of the open area; move this toward the Highway 12 sidewalk to increase visibility and the public's awareness of this area as part of the Preserve. Consider relocating the northern entry arbor at the Youth Park to a more visible and well-used location, and/or enhance the current location and trail with native plantings to guide visitors. (L)

- **Consider developing a Preserve brochure**, showing trails and access points and briefly describing or showing the Preserve's features and history. Provide the brochure at public locations such as the Sonoma County Museum and the Sebastopol branch of the County Library, and offer it to nearby businesses that may want to direct visitors to the Preserve. (L)

OBJECTIVE PU-2: Enhance connectivity of trails on the Preserve with other local trails and pedestrian walkways.

- **Coordinate with local efforts such as Cittaslow's Ped Line** program to enhance directional signage in town toward the Preserve and its trails. (S)
- **On the Americorps Trail, install a foot bridge over Zimpher Creek** to extend the Americorps Trail, and improve and better maintain the section of trail from the lift station to Zimpher. Add 1-2 benches overlooking the Laguna at existing openings in the vegetation. (L)
- **At Tomodachi, develop a seasonal connector trail** from the picnic area south to the Joe Rodota Trail. This trail will cross through existing riparian habitat, and will require regulatory and SCAPOSD approvals. Tomodachi's conservation easement limits trails to "unpaved single-track pedestrian trails" and requires prior SCAPOSD approval. (L)
- **After Highway 12 bridge replacement is complete,** collaborate with other stakeholders (CalTrans, Regional Parks, SCAPOSD) to develop a pedestrian undercrossing linking Tomodachi Park with the Americorps Trail if possible. (L)

OBJECTIVE PU-3: Maintain high-intensity recreational facilities on the Preserve in a way that protects natural resources and increases users' awareness of the nearby natural Laguna setting.

- **Ensure that landscape contractors hired by Little League to tend Youth Park ball fields follow City standards for avoiding herbicides and limiting fertilizer** use to prevent nutrient runoff into the Laguna. (O)
- **When the Youth Park playground is next renovated, consider incorporating natural materials relevant to the Laguna** such as native trees or wood from downed native trees for seating or climbing, living willow structures, local rock, water, and interpretive signage about, or visual references to, local wildlife. (L)

OBJECTIVE PU-4: Provide and maintain opportunities for public education about the Preserve's natural resources.

- **Update outdated components of existing interpretive trail brochure.** (S)
- **Provide the interpretive trail brochure through the City website,** in a mobile phone-friendly format. Provide signage directing users to the website at park entries. (S)
- **Maintain displays at the entry arbors to the Preserve.** Replace broken cases, install Preserve maps that show links to adjacent trails, and continue to post a rotating

display of educational posters. These posters could address the site's human history and prehistory, plant life, wildlife, and ecological processes. (S)

- **Assign staff to maintain stock of interpretive trail brochure paper copies** at park entries. (O)
- **When resources permit, overhaul nature trail signs to provide descriptive text and images** on signs themselves rather than numbers keyed to a paper brochure. Maintain the unobtrusive style of the existing signage to avoid detracting from views. Ensure that signage meets conservation easement requirements; see Objective PU-1 for detail. (L)
- **Engage further with local schools and students**. Art or science students could be involved in producing seasonally rotating displays for the entry arbor. Children of all ages could be engaged in volunteer stewardship field trips; individual classes could be allowed to "adopt" a portion of the Preserve to visit through the seasons and to tend. Students could develop an oral history of the preserve for inclusion in the web-based audio tour listed below. (L)
- **Provide seasonal public walks through the Preserve,** either through the City itself or a local partner organization (e.g., Laguna Foundation, Sonoma County Agricultural Preservation and Open Space District, Western Sonoma County Historical Society, Sebastopol Walks) which emphasize its natural resources, human prehistory and history, and linkages to other parks and trails. Advertise these walks broadly to Sebastopol residents. Consider developing a Preserve docent program to support these walks. (L)
- **Select areas to develop as demonstration areas for native plants, and/or plants of importance to local native American culture**, and plants that could be integrated into environmental education programs. (L)
- **Consider installing limited interpretive signage highlighting human history and restoration efforts** at key locations such as Railroad Forest. In particular, design and install a sign mounted on the railing of the Calder Creek bridge to welcome visitors to the Preserve, and to note the site's ecological and human context (e.g., identifying Calder Creek and the nearby confluence with Laguna, and briefly acknowledging the site's prehistoric and historic uses and ecological value). (L)
- **Consider development of an open air structure with interpretive signage,** as an alternative to the originally planned nature interpretive center for the Preserve. Interpretive signage could address human prehistory and history of the site, native Pomo place names or relevant phrases, as well as the plants, wildlife, and ecological functions of the Preserve . (L)
- **Consider development of a web-based audio tour** accessible through a smart phone app.

OBJECTIVE PU-5: Provide opportunities for the public to volunteer on the Preserve that are aligned with the City's stewardship needs and goals.

- **Encourage volunteer trash pickup events.** These could be hosted by the City on an annual or seasonal basis, or they could be organized by nearby businesses or local groups such as the Little League, school groups, Boy Scouts. Trash pickups could include a kayak component, as significant trash becomes lodged in tree branches overhanging the Laguna channel. Volunteer efforts should not focus on

encampments, as these are better handled by City Public Works and Police Department staff for safety. (O)

- **Engage volunteer help in other appropriate Preserve tasks** including removal of non-biodegradable old restoration planting materials, long-term survivorship monitoring of restoration plantings, supervised invasive species removal, and restoration plantings. Any extensive invasive species removal efforts (i.e., those involving more than a few isolated individual plants) should be part of a comprehensive restoration plan. (O)
- **Consider tasking the Planning Commission with conducting a forum of residents and experts** that would meet twice or more annually to review conditions, uses, and needs of the Preserve and other City parks, and to make recommendations to the City on protecting and enhancing their resources. (O)
- **Add a "Wild" component to the existing "Adopt-a-Landscape" program**. Individual or school groups could be assigned a portion of the Preserve to maintain free of trash, and to report to the City on other conditions such as invasive species or graffiti. (L)
- **Partner with the Laguna Foundation to expand the Laguna Keepers** to a year-round program and plan events focused specifically on the Preserve. (L)
- **Initiate a volunteer bird nest box program**. Trained volunteers could build, install, and maintain nesting boxes in Meadowlark Field and along the Americorps Trail. Nest boxes serve as a great opportunity for Preserve visitors to learn about the nesting behavior of our local birds. Focus species could include wood ducks, barn owl, and small songbirds (e.g., tree swallow, western bluebird). If nesting boxes are installed, they will need to be properly secured and sized to prevent non-native species from colonizing them; they will also require yearly maintenance. Existing dysfunctional and/or improperly sized boxes within the Preserve should be removed. (L)
- **Engage volunteer help in Citizen Scientist monitoring type programs** using cell phone-based technology. Recently developed and accessible tools allow volunteers to identify invasive weed species using an Early Dectection/Rapid Response approach, and/or to track the spread of established invasions. Volunteers could also or monitor the survival of restoration plantings using this technology. (L)
- **Initiate a docent or volunteer patrol program**. Trained docents could lead seasonal walks for the public. Volunteer patrollers could maintain a positive presence on the trails, as well as identify and report litter problem areas, invasive species, and maintenance needs. Volunteers could be identified by a t-shirt or name badge, and could discourage prohibited uses like off-leash dogs simply by their presence. (L)

OBJECTIVE MM-1: Ensure that Preserve management activities protect soil and water quality.

- **For work that causes ground disturbance, implement erosion control and other water quality BMPs** to avoid sedimentation and disturbance to downstream habitats: (O)
  - Avoid compaction and sediment mobilization.
  - Cover bare areas of soil before rain events. For flat areas away from waterways, a 2"-3" thick layer of weed-free wood chip mulch can be used. Near creek or Laguna channels, 100% biodegradable fiber netting or blankets, held in place

with metal pins, may be needed.
  - Where conditions allow, planting of native species should occur in conjunction with mulching or placement of fiber netting or blankets. Willow cuttings, dogwood, and rushes are especially helpful for rapidly stabilizing disturbed stream banks.
  - For extensive ground-disturbing work on steep banks, install silt fences or straw wattles between work area and creek.
- **If gas-powered tools are used, any staging, maintenance, fueling, and storage of the equipment should be conducted in a location and manner that will prevent potential runoff of petroleum products.** Oil-absorbent and spill-containment materials should be on site at all times. (O)

OBJECTIVE MM-2: Maintain City buildings and ornamental landscaping on or adjacent to the Preserve in a way that protects and enhances natural resources.

- **Replace existing weedy and neglected vegetation on the lift station berm with attractive native upland grassland and low-growing shrub species** (e.g., purple needlegrass, yarrow, mule's ears, California fuchsia and poppy, low-growing ceanothus) to beautify the facility, visually help identify the transition from developed areas to the west into the natural areas of the Preserve, and to support pollinators and native wildlife. (S)
- **As existing ornamental landscaping senesces or is revitalized, replace non-native plantings with Laguna-specific native species** that provide habitat value and integrate ecologically and visually with adjacent natural vegetation. These replacements may also reduce irrigation water needs. Shrub plantings at the Youth Park picnic/playground area, and small patches of turf at the entry, are two such opportunities. (O)
- **Remove all non-biodegradable landscape materials**, including plastic-lined wattles on lift station berm, from the Preserve. (S)
- **Continue to allow cliff swallow access to the rear of the Youth Annex building**. (O)
- **Retain dead and downed wood in place** in open space areas unless is obstructing trails or other high-traffic areas, or posing a safety hazard. Such wood is valuable for wildlife. (O)

OBJECTIVE MM-3: Minimize litter and graffiti on the Preserve to protect wildlife, water quality, public safety, and the Preserve's attractiveness.

- **Remove old debris** (concrete and asphalt rubble, pipe, tires, tanks, etc.) from throughout Preserve unless deeply embedded in channel or banks, especially in areas with high public visitation. Locations include Laguna channel at Tomodachi, in open area where public access is likely, and among willows in southwest part of park; in ponds on Youth Park; and in ditch on Meadowlark. (S)
- **Apply for and maintain 401 Certification and 1602 Notification** for regular and ongoing City maintenance including both trash removal and invasive species management activities (for material embedded in waterway bed or banks). (S)
- **Install additional trash receptacles** on the Americorps Trail behind the old cement plant. (S)
- **Install recycling receptacles adjacent to heavily-used trash cans** to encourage recycling. Ensure that receptacles are sturdy, vandalism-resistant, and consistent in

design throughout the Preserve. In particular, the existing trash can at Railroad Forest is recommended to be replaced with the sturdy, commercial-grade trash can used elsewhere on the Preserve, and a matching recycling can added. (S)

- **Inspect Preserve trails and remove trash on a monthly basis.** Include all formal as well as all informal trails. (O)
- **Empty trash receptacles regularly.** Remove trash from flood-prone receptacles (Tomodachi) prior to major storms, and replace when storms pass. (O)
- **Provide trash bags for campers to clean up their own trash**. (O)
- **Seek community support in keeping the Preserve clean**; See Objective PU-5 and IN-1. (O)
- **For safety during trash cleanup, use "grabbers," gloves, and/or shovels** for trash pickup as hazardous materials could be present. (O)
- **For trash cleanup from the Laguna channel that is inaccessible from the banks, use waders to enter the water, enlist the assistance of the SPD and their boat,** or enlist community help for cleanup from kayaks or canoes. (O)
- **Remove graffiti promptly when found, as feasible**. Request that adjacent landowners remove graffiti on their properties where it is visible from the Preserve, such as the concrete wall along the north side of the old concrete plant. Consider whether developing a public art project in locations like this is feasible and may improve the feeling of safety and enjoyment for Preserve visitors. (O)

OBJECTIVE MM-4: Prevent illegal camping on the Preserve to protect plant and wildlife habitat and water quality.

- **Replace missing signage in Railroad Forest indicating that camping is prohibited**, and providing the Sebastopol Police Department phone number for reporting. (S)
- **Reduce invasive Himalayan blackberry cover,** which can be very high and dense, to reduce likelihood of illegal camping. See Invasive Management section for further discussion. (O, L)
- **Maintain an active Preserve presence by City staff** and City-managed volunteers. See Objective PU-5. (O)
- **In conjunction with monthly trail surveys and cleanup, report any illegal camping to Sebastopol Police Department**. (O)
- **Conduct timely enforcement and cleanup of active and abandoned homeless encampments in partnership with the Sebastopol Police Department** (SPD) and ideally with neighboring public property owners (City of Santa Rosa, CDFW). Due to the sensitive nature of dealing with campers and the potential hazards of cleaning up encampments, use of volunteers for this task is discouraged. (O)
- **Perform encampment cleanups in the early fall and winter** to occur prior to a significant rain event and resulting dispersal of encampment trash via flood waters. (O)
- **Provide adequate notice to illegal campers prior to cleanup efforts**. Typically, ordinances require at least 72 hours notice be given prior to cleanup of active camps. The Sebastopol Police Department reports that they typically give 1-2 week's notice, which results in greater cooperation in cleanup from the campers. The SPD has offered the City help in providing this advance notification. (O)

OBJECTIVE MM-5: Manage other public uses on the Preserve to protect plant and wildlife

habitat, water quality, and users' experience.

- **Add dog waste bag and trash receptacles at Tomodachi Park; maintain at other locations.** Ensure that bags are kept stocked. (S, O)
- **Monitor dog usage and modify management strategies and allowable uses as necessary** to protect natural resources. (O)
- **Provide clear signage indicating that dogs must be on leash**, dog waste must be properly disposed of, and that users must keep dogs on established trails. Include educational text on interpretive signage explaining impact of dogs. (L)
- **Improve signage excluding dogs from the trails around the Youth Park ponds**. Add brief explanatory signage indicating why the policy exists (e.g., "Sensitive wildlife use these ponds. No dogs allowed."). (L)
- **Incorporate information about the impacts of dogs on wildlife into Preserve educational activities,** such as Learning Laguna sessions. (L)
- **Develop a volunteer patrol program to monitor dog usage;** See Engaging and Managing Volunteers section. Volunteers would not be expected to approach visitors with off-leash dogs directly, but their presence on the trail could decrease unauthorized uses. (L)
- **Educate visitors through signage about allowable usage and locations for each use at trailheads** and connection points with Regional Park trails. In appropriate locations, consider including contact information for CalTIP on signage in case of safety concerns about hunting or illegal harvest by sport fishermen. (L)
- **Consider whether additional restroom facilities are needed at the Youth Park**. This would entail consultations with the Little League and Community Center, and development of a project concept and cost estimate.

OBJECTIVE MM-6: Protect biological resources during ongoing Preserve management and restoration efforts.

- **Perform preconstruction surveys prior to significant ground disturbance** (i.e., large scale restoration efforts, trail construction, etc.) within native habitats. Surveys (on the day preceding work and/or ahead of the construction crew) should be performed by a qualified biologist to ensure no special-status species and common wildlife are occupying the area. If wildlife species are observed within the work area or immediate surroundings, these areas must be avoided until the animal(s) has (have) vacated the area, and/or, upon approval by the regulatory agencies for listed species, the animal(s) must be relocated out of the area by a qualified biologist. (O)
- **Conduct an annual training session for all City field staff.** The training should be conducted by a qualified biologist and should include a discussion of the sensitive biological resources within the Preserve, the potential presence of special-status species, and ongoing management activities. This should include a discussion of special-status species' habitats, protection measures to ensure species are not impacted by project activities, project boundaries, and biological conditions outlined in the project permits. (O)
- **Complete presence/negative finding bat surveys prior to removal or significant trimming of any trees which are over 6 inches in diameter at breast height**. Surveys should be completed by a qualified biologist. Because each individual bat species may use different roosts seasonally and from night to day, surveys must be

conducted by a qualified biologist at the appropriate times. (O)

- **As feasible, work outside of the critical breeding bird period (March 1 through August 15) during ongoing Preserve management (i.e., vegetation removal, mowing) and vegetation removal associated with large scale restoration efforts.** If activities must occur during this period, work areas should be surveyed prior to commencing. Complete surveys for all human-related ground disturbance activities in natural habitats and vegetation trimming and removal. Trained City staff would be qualified to complete the surveys. If active nests or behavior indicative of nesting are encountered, those areas plus a 50-foot buffer for small songbirds and 250-foot buffer for larger birds (e.g., owls, raptors) should be avoided until the nests have been vacated. If the work areas are left unattended for more than one week following the initial surveys, additional surveys should be completed. (O)

OBJECTIVE MM-7: Maintain trails, benches, and picnic facilities so that they are clearly visible and comfortably usable to all intended users, using practices that protect wildlife and native plants.

- **Provide clear, unobstructed access for wheelchair users into Youth Park**. Current entry from handicap parking space is partially blocked by logs. (S)
- **Repair or replace broken benches and picnic tables**; consider adding benches or tables in selected locations. (S, L)
- **Mow vegetation along trails in early and late spring or summer** (e.g., March and May). At Meadowlark, use t-posts as a guide to trail location and to avoid damage to plantings. With two mowings, pathways should be readily visible, reducing likelihood of damage to restoration plantings. (O)
- **Trim back encroaching vegetation**, including Himalayan blackberry, poison oak, and poison hemlock, that obscures trails or signage, or makes passage difficult or unsafe. This will also help reduce exposure to ticks. Key locations include the Americorps trailhead at the Youth Park; the southern section of the Americorps trail; and the Youth Park trail along the Laguna, including northern section between the Laguna and the easternmost pond. (O)
- **Maintain accessibility to benches** by mowing or trimming vegetation leading up to benches as well as underneath them. (O)
- **Review trail surfaces annually** to identify any unsafe conditions or erosion that may pose a risk to water quality. (O)
- **Improve trail segments that are regularly muddy.** In particular, a portion of the trail along the southeastern corner of Meadowlark Field (just south of the junction with the Regional Parks Laguna Trail) becomes very wet and muddy, but continues to be used, in winter. Consider improving drainage and protecting soil by installing geotextile and rock. (S, O)

OBJECTIVE MM-8: For any new trail development, select routes, methods, and surfaces to protect native habitats.

- **Only two new connector trails are recommended in this plan (See Objective PU-2). To protect natural resources, do not develop any additional trails.** (O)
- **Implement soil protection measures where ground disturbance is unavoidable**. These typically include protecting soil surfaces by seeding or planting promptly with appropriate native species and covering with weed-free straw mulch. See Erosion

Control section for details. (O)

- **Consult with a trail designer on the design, layout, construction, and prescribed maintenance procedures of any new trail.** Minimize visual and natural resource impacts and soil disturbance. (L)
- **Follow Best Management Practices to manage potential erosion and flow concentration associated with trail construction and maintenance.** (L)
- **For the proposed Tomodachi to Rodota Trail connection, plan for a summer-only trail** as debris and silt deposited during flooding from both the Laguna and Calder Creek are likely to make boardwalks difficult to maintain. Further analysis of flows in that area may be valuable in trail planning. (L)

OBJECTIVE MM-9: Decommission or discourage the use of informal trails.

- **Decommission existing unauthorized trails** by installing physical barriers (i.e., downed logs, and native bramble- or thicket-forming plants) at entry points. Consider posting signage to inform the public of the closure and the sensitivity of the habitat. (O)
- **Monitor for the establishment of new unauthorized trails** and take appropriate actions to discourage use and restore disturbed areas. (O)

OBJECTIVE MM-10: Support the MSMVCD in minimizing mosquito populations and the potential for mosquito-borne disease on the Preserve. Ensure that water quality, and human and wildlife safety, are protected during mosquito control treatments.

- **Enlist the assistance of the MSMVCD to remove Himalayan blackberry**, in the context of a habitat restoration effort. See Restoration Opportunities. (S, O)
- **Stay apprised of MSMVCD mosquito treatment methods** to ensure that they meet City standards for non-toxicity to non-target organisms. (O)

OBJECTIVE IN-1: Coordinate with adjacent landowners on the Middle Reach of the Laguna to strengthen land management efforts.

- **Meet annually with Sonoma County Regional Parks, City of Santa Rosa, and other adjacent large landowners** to discuss coordinated management. (O)
- **Coordinate with Preserve neighbors annually to map and manage perennial pepperweed** and track successes and failures. The Laguna Foundation is currently developing a citizen science effort for this purpose. (O)
- **Manage invasive species on the Preserve that are of joint concern**, using methods appropriate to the City and the site. See Invasive Species Management section. (O)
- **Jointly organize efforts to clean up trash and encampments**. (O)

Appendix 2.
Wildlife Observed or Potentially Occurring on the Preserve

Common Name	Scientific Name
Reptiles	
Northern Western Pond Turtle	***Actinemys marmorata***
San Francisco Alligator Lizard (Northern Alligator Lizard)	*Elgaria coerulea coerulea*
California Alligator Lizard (Southern Alligator Lizard)	*Elgaria multicarinata multicarinata*
California Kingsnake	*Lampropeltis getula californiae*
Pacific Gopher Snake	*Pituophis catenifer catenifer*
Skilton's Skink	*Plestiodon skiltonianus skiltonianus*
Coast Range Fence Lizard	*Sceloporus occidentalis bocourtii*
Aquatic Gartersnake	*Thamnophis atratus* (integrades)
Coast Gartersnake	*Thamnophis elegans terrestris*
California Red-sided Gartersnake	*Thamnophis sirtalis infernalis*
Amphibians	
American Bullfrog*	*Lithobates catesbeianus*
Arboreal Salamander	*Aneides lugubris*
California Newt	*Taricha torosa*
California Slender Salamander	*Batrachoseps attenuatus*
California Tiger Salamander	***Ambystoma californiense***
California Toad (Western Toad)	*Anaxyrus boreas halophilus*
Oregon Ensatina	*Ensatina eschscholtzii oregonensis*
Rough-skinned Newt	*Taricha granulosa*
Sierran Treefrog	*Pseudacris sierra*
Mammals	
American Badger	***Taxidea taxus***
American Mink	*Neovison vison*
Big Brown Bat	*Eptesicus fuscus*
Black-tailed Deer	*Odocoileus hemionus*
Black-tailed Jackrabbit	*Lepus californicus*
Bobcat	*Lynx rufus*
Botta's Pocket Gopher	*Thomomys bottae*
Broad-footed Mole	*Scapanus latimanus*
Brush Rabbit	*Sylvilagus bachmani*
California Vole	*Microtus californicus*
Coyote	*Canis latrans*
Dusky-footed Woodrat	*Neotoma fuscipes*
Gray Fox	*Urocyon cinereoargenteus*
Hoary Bat	***Lasiurus cinereus***
Little Brown Myotis	*Myotis lucifugus*
Long-tailed Weasel	*Mustela frenata*
Mountain Lion	*Puma concolor*
Muskrat	*Ondatra zibethicus*
North America Deermouse	*Peromyscus maniculatus*

Asterisk indicates non-native species; bold indicates special-status species.
Wildlife lists based on field surveys of the Preserve and regional occurrence information.

Appendix 2.
Wildlife Observed or Potentially Occurring on the Preserve

Common Name	Scientific Name
Pallid Bat	***Antrozous pallidus***
Raccoon	*Procyon lotor*
River Otter	*Lontra canadensis*
Short-tailed Weasel (Ermine)	*Mustela erminea*
Shrew-mole	*Neurotrichus gibbsii*
Striped Skunk	*Mephitis mephitis*
Vagrant Shrew	*Sorex vagrans*
Virginia Opossum*	*Didelphis virginiana*
Western Gray Squirrel	*Sciurus griseus*
Western Harvest Mouse	*Reithrodontomys megalotis*
Western Red Bat	***Lasiurus blossevillii***
Birds	
Acorn Woodpecker	*Melanerpes formicivorus*
Allen's Hummingbird	***Selasphorus sasin***
American Avocet	*Recurvirostra americana*
American Bittern	***Botaurus lentiginosus***
American Coot	*Fulica americana*
American Crow	*Corvus brachyrhynchos*
American Goldfinch	*Spinus tristis*
American Kestrel	*Falco sparverius*
American Pipit	*Anthus rubescens*
American Robin	*Turdus migratorius*
American White Pelican	***Pelecanus erythrorhynchos***
American Wigeon	*Anas americana*
Anna's Hummingbird	*Calypte anna*
Ash-throated Flycatcher	*Myiarchus cinerascens*
Bald Eagle	***Haliaeetus leucocephalus***
Band-tailed Pigeon	*Patagioenas fasciata*
Barn Owl	*Tyto alba*
Barn Swallow	*Hirundo rustica*
Belted Kingfisher	*Megaceryle alcyon*
Bewick's Wren	*Thryomanes bewickii*
Black Phoebe	*Sayornis nigricans*
Black-crowned Night-Heron	***Nycticorax nycticorax***
Black-headed Grosbeak	*Pheucticus melanocephalus*
Black-necked Stilt	*Himantopus mexicanus*
Black-throated Gray Warbler	*Setophaga nigrescens*
Brewer's Blackbird	*Euphagus cyanocephalus*
Brown Creeper	*Certhia americana*
Brown-headed Cowbird	*Molothrus ater*
Bufflehead	*Bucephala albeola*
Bullock's Oriole	*Icterus bullockii*
Bushtit	*Psaltriparus minimus*
California Gull	***Larus californicus***
California Quail	*Callipepla californica*
California Towhee	*Melozone crissalis*
Canada Goose	*Branta canadensis*

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Appendix 2.
Wildlife Observed or Potentially Occurring on the Preserve

Common Name	Scientific Name
Caspian Tern	***Hydroprogne caspia***
Cassin's Vireo	*Vireo cassinii*
Cattle Egret*	*Bubulcus ibis*
Cedar Waxwing	*Bombycilla cedrorum*
Chestnut-backed Chickadee	*Poecile rufescens*
Chipping Sparrow	*Spizella passerina*
Cinnamon Teal	*Anas cyanoptera*
Cliff Swallow	*Petrochelidon pyrrhonota*
Common Goldeneye	*Bucephala clangula*
Common Merganser	*Mergus merganser*
Common Raven	*Corvus corax*
Common Yellowthroat	*Geothlypis trichas*
Cooper's Hawk	***Accipiter cooperii***
Dark-eyed Junco	*Junco hyemalis*
Double-crested Cormorant	***Phalacrocorax auritus***
Downy Woodpecker	*Picoides pubescens*
Eurasian Collared-Dove	*Streptopelia decaocto*
European Starling*	*Sturnus vulgaris*
Fox Sparrow	*Passerella iliaca*
Gadwall	*Anas strepera*
Glaucous-winged Gull	*Larus glaucescens*
Golden Eagle	***Aquila chrysaetos***
Golden-crowned Kinglet	*Regulus satrapa*
Golden-crowned Sparrow	*Zonotrichia atricapilla*
Grasshopper Sparrow	***Ammodramus savannarum***
Great Blue Heron	***Ardea herodias***
Great Egret	***Ardea alba***
Great Horned Owl	*Bubo virginianus*
Greater Yellowlegs	*Tringa melanoleuca*
Green Heron	*Butorides virescens*
Green-winged Teal	*Anas crecca*
Hairy Woodpecker	*Picoides villosus*
Hermit Thrush	*Catharus guttatus*
Hooded Merganser	*Lophodytes cucullatus*
House Finch	*Carpodacus mexicanus*
House Sparrow*	*Passer domesticus*
House Wren	*Troglodytes aedon*
Hutton's Vireo	*Vireo huttoni*
Killdeer	*Charadrius vociferus*
Least Sandpiper	*Calidris minutilla*
Lesser Goldfinch	*Spinus psaltria*
Lincoln's Sparrow	*Melospiza lincolnii*
Loggerhead Shrike	***Lanius ludovicianus***
Long-billed Curlew	***Numenius americanus***
Mallard	*Anas platyrhynchos*
Marsh Wren	*Cistothorus palustris*
Merlin	***Falco columbarius***
Mew Gull	*Larus canus*

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Appendix 2.
Wildlife Observed or Potentially Occurring on the Preserve

Common Name	Scientific Name
Mourning Dove	*Zenaida macroura*
Northern Flicker	*Colaptes auratus*
Northern Harrier	***Circus cyaneus***
Northern Mockingbird	*Mimus polyglottos*
Northern Pintail	*Anas acuta*
Northern Rough-winged Swallov	*Stelgidopteryx serripennis*
Northern Shoveler	*Anas clypeata*
Nuttall's Woodpecker	***Picoides nuttallii***
Oak Titmouse	***Baeolophus inornatus***
Olive-sided Flycatcher	***Contopus cooperi***
Orange-crowned Warbler	*Oreothlypis celata*
Osprey	***Pandion haliaetus***
Pacific-slope Flycatcher	*Empidonax difficilis*
Peregrine Falcon	***Falco peregrinus***
Pied-billed Grebe	*Podilymbus podiceps*
Pileated Woodpecker	*Dryocopus pileatus*
Pine Siskin	*Spinus pinus*
Purple Finch	*Carpodacus purpureus*
Red-breasted Nuthatch	*Sitta canadensis*
Red-necked Phalarope	*Phalaropus lobatus*
Red-shouldered Hawk	*Buteo lineatus*
Red-tailed Hawk	*Buteo jamaicensis*
Red-winged Blackbird	*Agelaius phoeniceus*
Ring-billed Gull	*Larus delawarensis*
Ring-necked Duck	*Aythya collaris*
Ring-necked Pheasant*	*Phasianus colchicus*
Rock Pigeon	*Columba livia*
Ruby-crowned Kinglet	*Regulus calendula*
Savannah Sparrow	***Passerculus sandwichensis***
Say's Phoebe	*Sayornis saya*
Sharp-shinned Hawk	***Accipiter striatus***
Short-eared Owl	***Asio flammeus***
Snowy Egret	***Egretta thula***
Song Sparrow	*Melospiza melodia*
Spotted Towhee	*Pipilo maculatus*
Swainson's Thrush	*Catharus ustulatus*
Swamp Sparrow	*Melospiza georgiana*
Townsend's Warbler	*Setophaga townsendi*
Tree Swallow	*Tachycineta bicolor*
Turkey Vulture	*Cathartes aura*
Varied Thrush	*Ixoreus naevius*
Vaux's Swift	***Chaetura vauxi***
Violet-green Swallow	*Tachycineta thalassina*
Virginia Rail	*Rallus limicola*
Warbling Vireo	*Vireo gilvus*
Western Bluebird	*Sialia mexicana*
Western Gull	*Larus occidentalis*
Western Kingbird	*Tyrannus verticalis*

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Appendix 2.
Wildlife Observed or Potentially Occurring on the Preserve

Common Name	**Scientific Name**
Western Meadowlark	*Sturnella neglecta*
Western Scrub-Jay	*Aphelocoma californica*
Western Tanager	*Piranga ludoviciana*
Western Wood-Pewee	*Contopus sordidulus*
White-breasted Nuthatch	*Sitta carolinensis*
White-crowned Sparrow	*Zonotrichia leucophrys*
White-tailed Kite	***Elanus leucurus***
White-throated Sparrow	*Zonotrichia albicollis*
Wild Turkey*	*Meleagris gallopavo*
Wilson's Snipe	*Gallinago delicata*
Wilson's Warbler	*Cardellina pusilla*
Wood Duck	*Aix sponsa*
Wrentit	*Chamaea fasciata*
Yellow Warbler	***Setophaga petechia***
Yellow-breasted Chat	***Icteria virens***
Yellow-rumped Warbler	*Setophaga coronata*

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Wildlife lists based on field surveys of the Preserve and regional occurrence information.

Appendix 3.
Plants Species Observed on the Preserve

Common Name	Latin Name	Lifeform (Tree, Shrub/Vine, Herb, Grass/Rush/Sedge)	Habitat (Oak Woodland, Riparian Forest, Wetland)
NATIVE SPECIES			
American black nightshade	*Solanum americanum*	H	O
American brooklime	*Veronica americana*	H	W
arroyo willow	*Salix lasiolepis*	S	R
basket sedge	*Carex barbarae*	G	W,O
black oak	*Quercus kelloggii*	T	O
blue elderberry	*Sambucus nigra ssp. cerulea*	T/S	O
boxelder	*Acer negundo*	T	R
bracken fern	*Pteridium aquilinum var. pubescens*	H	O
broadfruit bur reed	*Sparganium eurycarpum*	G	W
brownhead rush	*Juncus phaeocephalus*	G	W
California bay	*Umbellularia californica*	T	O
California blackberry	*Rubus ursinus*	S	O,R
California brome	*Bromus carinatus*	G	O
California buckeye	*Aesculus californica*	T	O
California buttercup	*Ranunculus californicus*	H	O,R
California grape	*Vitis californica*	S	O
California horkelia	*Horkelia californica*	H	R
California poppy	*Eschscholzia californica*	H	O
California rose	*Rosa californica*	S	O,R
cat-tail	*Typha sp.*	G	W
coast live oak	*Quercus agrifolia*	T	O
cocklebur	*Xanthium strumarium*	H	W
common rush	*Juncus patens*	G	W,R
common tule	*Schoenoplectus acutus*	G	W
cottonwood	*Populus fremontii*	T	R
coyote brush	*Baccharis pilularis*	S	O
coyote thistle	*Eryngium aristulatum*	H	W
creek dogwood	*Cornus sericea ssp. sericea*	S	R
creeping ryegrass	*Elymus triticoides*	G	W,O
creeping spikerush	*Eleocharis macrostachya*	G	W
cudweed	*Gnaphalium sp.*	H	O
dock	*Rumex sp.*	H	W
Dutchman's pipevine	*Aristolochia californica*	S	O,R
field dodder	*Cuscuta campestris*	H	O
goldenback fern	*Pentagramma triangularis*	H	O
hawthorn	*Crataegus douglasii*	S/T	O
honeysuckle	*Lonicera hispidula var. vacillans*	S	O
Ithuriel's spear	*Tritelaiea laxa*	H	O,R
lady fern	*Athyrium filix-fimina*	H	R,O
meadow barley	*Hordeum brachyantherum*	G	W,O
mugwort	*Artemisia douglasiana*	H	W
Northern California black walnut (likely naturalized from orchard plantings, not necessarily native in this location)	*Juglans hindsii*	T	R

* Indicates invasive species of high concern

Appendix 3.
Plants Species Observed on the Preserve

Common Name	Latin Name	Lifeform (Tree, Shrub/Vine, Herb, Grass/Rush/Sedge)	Habitat (Oak Woodland, Riparian Forest, Wetland)
Oregon ash	*Fraxinus latifolia*	T	R
Pacific sanicle	*Sanicula crassicaulis*	H	O,R
panicled bulrush	*Scirpus microcarpus*	H	W
popcornflower	*Plagiobothrys sp.*	H	W
purple needle grass	*Nassella pulchra*	G	O
rayless goldfields	*Lasthenia glaberrima*	H	W
red fescue	*Festuca rubra*	G	O,R
red willow	*Salix laevigata*	T	R
sedge	*Carex sp.*	G	W,O,R
self-heal	*Prunella vulgaris*	H	O
shining or Pacific willow	*Salix lasiandra*	T	R
slender hairgrass	*Deschampsia elongata*	G	R,W
slender-footed sedge	*Carex leptopoda*	G	R,W
slough sedge	*Carex obnupta*	G	W,O
smooth spike primrose	*Epilobium campestre*	H	W
snowberry	*Symphoricarpos albus*	S	O,R
soap plant	*Chlorogalum pomeridianum var. pomeridianum*	H	W,O,R
spike bentgrass	*Agrostis exarata*	G	
sticktight	*Bidens frondosa*	H	W
tall flatsedge	*Cyperus eragrostis*	G	W
toad rush	*Juncus bufonius var. bufonius*	G	W
tule pea	*Lathyrus jepsonii*	H	R,W,O
valley oak	*Quercus lobata*	T	O,R
water parsley	*Oenanthe sarmentosa*	H	W
water pepper	*Persicaria cf. hydropiperoides*	H	W,R
water starwort	*Callitriche sp.*	H	W
watercress	*Nasturtium officinale*	H	W
western poison oak	*Toxicodendron diversilobum*	S	O,R
western sword fern	*Polystichum munitum*	H	O
western yellowcress	*Rorippa curvisiliqua*	H	W
willow herb	*Epilobium sp.*	H	O
wire rush	*Juncus balticus*	G	W,R
wood rose	*Rosa gymnocarpa*	S	R
INTRODUCED SPECIES			
apple	*Malus domestica*	T	R
bermudagrass	*Cynodon dactylon**	G	R/O/W
bindweed	*Convulvulus arvensis*	H	O
bird's foot trefoil	*Lotus corniculatus*	H	R
black mustard	*Brassic nigra*	H	O
bristly ox-tongue	*Picris echioides*	H	W
brome fescue	*Festuca bromoides*	G	O
bull thistle	*Cirsium vulgare*	H	W
Burbank thornless blackberry	*Rubus hybrid**	S	R
burclover	*Medicago polymorpha*	H	O

* Indicates invasive species of high concern

Appendix 3.
Plants Species Observed on the Preserve

Common Name	Latin Name	Lifeform (Tree, Shrub/Vine, Herb, Grass/Rush/Sedge)	Habitat (Oak Woodland, Riparian Forest, Wetland)
chicory	*Cichorium intybus*	H	O
common plantain	*Plantago major*	H	R
common reed	*Phragmites australis - nativity uncertain; mapped by Laguna Foundation*	G	R/W
cotoneaster	*Cotoneaster pannosa**	S	O
crabgrass	*Digitaria sanguinalis*	G	O
curly dock	*Rumex crispus*	H	W
cut-leaf geranium	*Geranium dissectum*	H	O
dog fennel	*Anthemis cotula*	H	O
English ivy	*Hedera helix**	S	R
fat-hen	*Atriplex prostrata*	H	W
fennel	*Foeniculum vulgare**	H	O/R
fiddle dock	*Rumex pulcher*	H	W
field marigold	*Calendula arvensis*	H	O
French broom	*Genista monspessulana**	S	O/R
Harding grass	*Phalaris aquatica**	G	R/W
hawkbit	*Leontodon saxatilis*	H	O/W
Himalayan blackberry	*Rubus armeniacus**	S	R/O/W
Italian ryegrass	*Festuca perennis*	G	R/O/W
Italian thistle	*Carduus pycnocephalus*	H	O
lamb's quarters	*Chenopodium album*	H	W
lanceleaf water plantain	*Alisma lanceolatum*	H	W
lemon balm	*Melissa officinalis*	H	R
lippia	*Phyla nodiflora*	H	W
Mediterranean barley	*Hordeum marinum ssp. gussoneanum*	G	O/W
narrow-leaved plantain	*Plantago lanceolata*	H	R/O
ornamental plum	*Prunus sp.**	T	R
pampas grass	*Cortaderia sp.**	G	O
parrot feather	*Myriophyllum aquaticum*	H	W
pennyroyal	*Mentha pulegium*	H	W
perennial pepperweed	*Lepidium latifolium**	H	R/W
pineapple weed	*Matricaria discoidea*	H	O
poison hemlock	*Conium maculatum**	H	O
pricklefruit buttercup	*Ranunculus muricatus*	H	W
prickly lettuce	*Lactuca serriola*	H	O
privet	*Ligustrum sp.*	T	O/R
rabbitsfoot grass	*Polypogon monspeliensis*	G	W
rattlesnake grass	*Briza maxima*	G	O
reed canarygrass	*Phalaris arundinacea - nativity uncertain; possibly native species hybridizes with cultivars, becomes invasive*	G	R/W
ripgut brome	*Bromus diandrus*	G	O
rough cat's ear	*Hypochaeris radicata*	H	O
salsify	*Tragopogon porrifolius*	H	O

* Indicates invasive species of high concern

Appendix 3.
Plants Species Observed on the Preserve

Common Name	Latin Name	Lifeform (Tree, Shrub/Vine, Herb, Grass/Rush/Sedge)	Habitat (Oak Woodland, Riparian Forest, Wetland)
scarlet pimpernel	*Anagallis arvensis*	H	O
silver wattle, acacia	*Acacia dealbata**	T	O/R
soft chess brome	*Bromus hordeaceus*	G	O
spring vetch	*Vicia sativa*	H	O
sweet pea	*Lathyrus latifolius**	H	R
tall fescue	*Festuca arundinaceae**	G	O/W
velvetgrass	*Holcus lanatus**	G	O/W
vinca, periwinkle	*Vinca major**	S	O
weeping willow	*Salix cf. babylonica*	T	R
western mannagrass	*Glyceria x occidentalis*	G	W
wild carrot	*Daucus carota*	H	O
wild oat	*Avena sp.*	G	O
wild radish	*Raphanus sativus*	H	O
yellow flag iris	*Iris pseudacorus**	H	W

* Indicates invasive species of high concern

Appendix 4.
Plant Species Suitable for Restoration Plantings, By Habitat Type

Valley Oak Woodland	
Common Name	**Latin Name**
TREES	
blue elderberry	*Sambucus nigra ssp. cerulea*
black oak	*Quercus kelloggii*
California bay	*Umbellularia californica*
California buckeye	*Aesculus californica*
coast live oak	*Quercus agrifolia*
hawthorn	*Crataegus douglasii. C. gaylussacia*
valley oak	*Quercus lobata*
SHRUBS & VINES	
California blackberry	*Rubus ursinus*
California grape	*Vitis californica*
California rose	*Rosa californica*
coffeeberry	*Frangula californica*
coyote brush	*Baccharis pilularis*
Dutchman's pipevine	*Aristolochia californica*
honeysuckle	*Lonicera hispidula*
snowberry	*Symphoricarpos albus*
spreading gooseberry	*Ribes divaricatum*
western azalea	*Rhododendron occidentale var. occidentale*
GRASSES, RUSHES, SEDGES	
annual hairgrass	*Deschampsia danthonioides*
basket sedge	*Carex barbarae*
blue wildrye	*Elymus glaucus*
California brome	*Bromus carinatus*
California oatgrass	*Danthonia californica*
creeping ryegrass	*Elymus triticoides*
meadow barley	*Hordeum brachyantherum*
purple needle grass	*Nassella pulchra*
red fescue	*Festuca rubra*
slough sedge	*Carex obnupta*
OTHER HERBACEOUS SPECIES	
bracken fern	*Pteridium aquilinum var. pubescens*
California buttercup	*Ranunculus californicus*
California poppy	*Eschscholzia californica*
common madia	*Madia elegans*
dwarf brodiaea	*Brodiaea terrestris*
goldenback fern	*Pentagramma triangularis*
Ithuriel's spear	*Tritelaiea laxa*
lady fern	*Athyrium filix-fimina*
lupine	*Lupinus bicolor, nanus, and other spp.*
mule's ears	*Wyethia angustifolia*
Pacific sanicle	*Sanicula crassicaulis*
self-heal	*Prunella vulgaris*
soap plant	*Chlorogalum pomeridianum var. pomeridianum*
tule pea	*Lathyrus jepsonii*
turkey mullein	*Croton setigerus*
variegated clover	*Trifolium variegatum*
yampah	*Perideridia gairdneri, P. kelloggii*
yarrow	*Achillea millefollium*

Appendix 4.
Plant Species Suitable for Restoration Plantings, By Habitat Type

Riparian Forest	
Common Name	**Latin Name**
TREES	
boxelder	*Acer negundo*
hawthorn	*Crataegus douglasii, C. gaylussacia*
Oregon ash	*Fraxinus latifolia*
shining willow	*Salix lasiandra*
valley oak	*Quercus lobata*
SHRUBS & VINES	
arroyo willow	*Salix lasiolepis*
brown dogwood	*Cornus glabrata*
California blackberry	*Rubus ursinus*
California rose	*Rosa californica*
creek dogwood	*Cornus sericea ssp. sericea*
Dutchman's pipevine	*Aristolochia californica*
pale-leaved serviceberry	*Amelanchier utahensis*
snowberry	*Symphoricarpos albus*
spreading gooseberry	*Ribes divaricatum*
twinberry	*Lonicera involucrata*
western azalea	*Rhododendron occidentale var. occidentale*
western spicebush	*Calycanthus occidentalis*
wood rose	*Rosa gymnocarpa*
GRASSES, RUSHES, SEDGES	
basket sedge	*Carex barbarae*
blue wildrye	*Elymus glaucus*
bog rush	*Juncus effusus*
common rush	*Juncus patens*
dense sedge	*Carex densa*
red fescue	*Festuca rubra*
slender hairgrass	*Deschampsia elongata*
slender-footed sedge	*Carex leptopoda*
wire rush	*Juncus balticus*
OTHER HERBACEOUS SPECIES	
California buttercup	*Ranunculus californicus*
Ithuriel's spear	*Tritelaiea laxa*
lady fern	*Athyrium filix-fimina*
mugwort	*Artemisia douglasiana*
Pacific sanicle	*Sanicula crassicaulis*
soap plant	*Chlorogalum pomeridianum*
tule pea	*Lathyrus jepsonii*
western sword fern	*Polystichum munitum*

Appendix 4.
Plant Species Suitable for Restoration Plantings, By Habitat Type

Wetlands	
Common Name	**Latin Name**
GRASSES, RUSHES, SEDGES	
annual hairgrass	*Deschampsia danthonioides*
basket sedge	*Carex barbarae*
bog rush	*Juncus effusus*
broadfruit bur reed	*Sparganium eurycarpum*
brownhead rush	*Juncus phaeocephalus*
California oatgrass	*Danthonia californica*
common rush	*Juncus patens*
common tule	*Schoenoplectus acutus*
creeping ryegrass	*Elymus triticoides*
creeping spikerush	*Eleocharis macrostachya*
dense sedge	*Carex densa*
meadow barley	*Hordeum brachyantherum*
semaphore grass*	*Pleuropogon californicus*
slender-footed sedge	*Carex leptopoda*
slender hairgrass	*Deschampsia elongata*
slough sedge	*Carex obnupta*
spike bentgrass	*Agrostis exarata*
wire rush	*Juncus balticus*
OTHER HERBACEOUS SPECIES	
American brooklime	*Veronica americana*
beeplant	*Scrophularia californica*
common horsetail	*Equisetum arvense*
coyote thistle*	*Eryngium aristulatum*
dotted smartweed	*Polygonum punctatum*
dwarf brodiaea	*Brodiaea terrestris*
goldenrod	*Euthamia occidentalis*
Lobb's aquatic buttercup*	*Ranunculus lobbii*
miniature lupine	*Lupinus bicolor*
maroonspot calicoflower*	*Downingia concolor*
common meadowfoam	*Limnanthes douglasii*
mugwort	*Artemisia douglasiana*
panicled bulrush	*Scirpus microcarpus*
popcornflower*	*Plagiobothrys sp.*
rayless goldfields*	*Lasthenia glaberrima*
smooth spike primrose*	*Epilobium campestre*
sticktight	*Bidens frondosa*
water parsley	*Oenanthe sarmentosa*
watercress	*Nasturtium officinale*
**Indicates vernal pool-specific species; potential for seeding via inoculum from nearby pools.*	

Appendix 5.
Special-Status Plant Species Reported in the Preserve Vicinity

Common Name	Scientific Name	Listing Status (Federal/State/ CNPS)*	Life Form, Blooming Period, and General Habitat	Potential for Occurrence (or Reintroduction) within the Preserve
Baker's navarretia	*Navarretia leucocephala ssp. bakeri*	--/--/1B.1	Annual herb. Blooms April-July. Vernal pools and swales; adobe or alkaline soils, in woodland, lower montane coniferous forest, meadows/seeps, valley and foothill grassland. 5-1740 m.	Low (Moderate). Documented occurrences within 0.5 miles (north of Todd Road east of Laguna). Preserve swales and pools currently degraded but restoration potential.
Baker's goldfields	*Lasthenia californica ssp. bakeri*	--/--/1B.2	Perennial herb. Blooms April-October. Closed-cone coniferous forest (openings), coastal scrub, meadows and seeps, marshes and swamps.	Low (Low). Historic occurrence reported in Preserve region; current known locations are coastal. Only marginally suitable habitat present.
brownish beaked-rush	*Rhynchospora capitellata*	--/--/2B.2	Perennial herb. Blooms July-August. Lower montane coniferous forest, meadows and seeps, marshes and swamps, upper montane coniferous forest (mesic). 45-2000 m.	Low (Low). Documented occurrence within five miles (Pitkin Marsh, and extirpated from Perry Marsh), but only marginally suitable habitat present.
Burke's goldfields	*Lasthenia burkei*	FE/SE/1B.1	Annual herb. Blooms April-June. Meadows and seeps (mesic), vernal pools. 15-600 m.	Low (Moderate). Documented occurrences within 0.5 miles to northeast and southeast. Current pools and swales highly degraded but restoration potential.
California beaked-rush	*Rhynchospora californica*	--/--/1B.1	Perennial rhizomatous herb. Blooms May-July. Bogs and fens, lower montane coniferous forest, seeps, freshwater marshes and swamps. Typically freshwater seeps and open marshy areas. 45-1010 m.	Low (Low). Documented occurrence within five miles (Pitkin Marsh, and extirpated from Perry Marsh), but only marginally suitable habitat present.
fragrant fritillary	*Fritillaria liliacea*	--/--/List 1B.2	Perennial bulbiferous herb. Blooms February-April. Woodland, coastal prairie, coastal scrub, valley and foothill grassland (often serpentinite). 3-410 m.	Low (Low). Historic occurrence in Preserve region, but only marginally suitable habitat present.
golden larkspur	*Delphinium luteum*	FE/SR/List 1B.1	Perennial herb. Blooms March-May. Chaparral, coastal prairie, rocky coastal scrub. 0-100 m.	Low (Low). Historic occurrence 2 miles to northwest. No suitable habitat present.

Appendix 5.
Special-Status Plant Species Reported in the Preserve Vicinity

Common Name	Scientific Name	Listing Status (Federal/State/ CNPS)*	Life Form, Blooming Period, and General Habitat	Potential for Occurrence (or Reintroduction) within the Preserve
oval-leaved viburnum	*Viburnum ellipticum*	--/--/2B.3	Perennial deciduous shrub. Blooms May-June. Chaparral, woodland, lower montane coniferous forest. 215-1400 m.	Low (Low). Historic occurrence reported from Sebastopol area. Only marginally suitable habitat present on site. Species not known from this elevation.
Peruvian dodder	*Cuscuta obtusiflora var. glandulosa*		Annual parasitic plant. Freshwater marsh. On herbs including *Xanthium* and *Polygonum* . July-October. 15-280 m.	Low (Low). Known from 1946 collection along Laguna and possibly identified in 2006 collection, but believed to be extirpated from California (Jepson Flora Project 2015). Other dodder species present, tentatively identified as common species C. campestris.
round-headed beaked-rush	*Rhynchospora globularis var. globularis*	--/--/2B.1	Perennial rhizomatous herb. Blooms July-August. Freshwater marshes and swamps. 45-60 m.	Low (Low). Documented occurrence within five miles (Pitkin Marsh, and extirpated from Perry Marsh), but only marginally suitable habitat present.
Sebastopol meadowfoam	*Limnanthes vinculans*	FE/SE/1B.1	Annual herb. Blooms April-May. Swales, vernal pools, wet meadows, and marshy areas in valley oak savanna; on poorly drained soils of clays and sandy loam. 15-115 m.	Low (Moderate). Documented occurrence from 1988 just east of Laguna and south of railroad tracks, and known from Balletto easement just north of Meadowlark. Preserve swales and pools currently degraded but restoration potential.
Sonoma alopecurus	*Alopecurus aequalis var. sonomensis*	FE/--/1B.1	Perennial herb. Blooms May-July. Freshwater marshes and swamps, riparian scrub. 5-365 m.	Low (Low). Historic documented occurrences within 5 miles (Llano Road area, Pitkin Marsh, Forestville Marsh). Only marginally suitable habitat present.
Sonoma spineflower	*Chorizanthe valida*	FE/SE/1B.1	Annual herb. Blooms June-August. Sandy coastal prairie. 10-305 m.	Low (Low). Historic occurrence in the Sebastopol area, but only known extant population is in Point Reyes. No suitable habitat present.
Sonoma sunshine	*Blennosperma bakeri*	FE/SE/1B.1	Annual herb. Blooms March-May. Valley and foothill grassland (mesic), vernal pools. 10-110 m.	Low (Moderate). Documented occurrences within 0.5 miles. Vernal pools and swales on site are highly disturbed, but have restoration potential.

Appendix 5.
Special-Status Plant Species Reported in the Preserve Vicinity

Common Name	Scientific Name	Listing Status (Federal/State/ CNPS)*	Life Form, Blooming Period, and General Habitat	Potential for Occurrence (or Reintroduction) within the Preserve
swamp harebell	*Campanula californica*	--/--/1B.2	Perennial rhizomatous herb. Blooms June-October. Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, freshwater marshes and swamps, mesic North Coast coniferous forest. 1-405 m.	Low (Low). Documented historic occurrence within 0.5 miles (Laguna/Highway 12 area; also extirpated from Perry Marsh) . Only marginally suitable habitat present.
thin-lobed horkelia	*Horkelia tenuiloba*	--/--/1B.2	Perennial herb. Blooms May-July. Broadleafed upland forest, chaparral, valley and foothill grassland (mesic openings, sandy).	Low (Low). Historic occurrence reported from Sebastopol area. Only marginally suitable habitat present on site.
Thurber's reed grass	*Calamagrostis crassiglumis*	--/--/2.1	Perennial rhizomatous herb. Blooms May-July. Coastal scrub (mesic), freshwater marshes and swamps. 10-45 m.	Low (Low). Documented historic occurrence within five miles (Pitkin Marsh). Only marginally suitable habitat present.
Vine Hill ceanothus	*Ceanothus foliosus var. vineatus*	--/SE/ List 1B.1	Perennial evergreen shrub. Blooms March-May. Chaparral. 45 - 305 meters.	Low (Low). Documented occurrence 1 mile to north, along bike trail, but no suitable habitat present.
White beaked-rush	*Rhynchospora alba*	--/--/2B.2	Perennial rhizomatous herb. Blooms July-August. Bogs and fens, meadows and seeps, marshes and swamps. Typically freshwater marshes and sphagnum bogs. 60-2040 m.	Low (Low). Documented occurrence within five miles (Pitkin Marsh), but only marginally suitable habitat present.

STATUS CODES:

FEDERAL:

FE = Listed as endangered (in danger of extinction) by the federal government

FT = Listed as threatened (likely to become endangered within the foreseeable future) by the federal government

STATE OF CALIFORNIA:

SE = Listed as endangered by the State of California

ST = Listed as threatened by the State of California

SR = Listed as rare by the State of California

CNPS (California Native Plant Society):

1A – Presumed extirpated in California (CA) and either rare or extinct elsewhere.

1B – Rare, threatened, or endangered in CA and elsewhere.

2A – Presumed extirpated in CA, but more common elsewhere.

2B – Rare, threatened, or endangered in CA, but more common elsewhere.

Appendix 5.
Special-Status Plant Species Reported in the Preserve Vicinity

Common Name	Scientific Name	Listing Status (Federal/State/ CNPS)*	Life Form, Blooming Period, and General Habitat	Potential for Occurrence (or Reintroduction) within the Preserve
3 – Plants for which more information is needed to determine rarity rankings.				
4 - Plants of limited distribution; a watch list				
Threat extensions: .1 = Seriously endangered in CA; .2 = Fairly endangered in CA; .3 = Not very endangered in CA				

Appendix 6.
Invasive Species and Management Guidelines

Map Key # (see Fig. 7)	Common Name	Latin Name	Life Form	Distribution on Preserve	Management Guidelines
For all species: *Prior to work, identify any native vegetation to protect.* *Dispose of all invasive plant parts with potential to resprout in a landfill. Other plant parts may be chipped and/or left in place for wildlife habitat if desired.* *Accompany extensive invasive removal efforts with seeding or planting of natives, monitoring for resprouts, and prompt re-treatment as needed.* *See text for guidance on protecting wildlife and other resources, and meeting permitting requirements, during removal.* *Herbicide-based treatments are not included here, in accord with City policy.*					
High Priority					
1	acacia	*Acacia dealbata*	tree	Railroad Forest, Tomodachi	ERADICATE. Remove mature trees; see text for wildlife protection guidelines.
2	cotoneaster	*Cotoneaster pannosus*	Shrub	Railroad Forest southern edge	ERADICATE. Cut at ground level. Dig out smaller rootstocks by hand or with machinery.
3	English ivy	*Hedera helix*	Vine	Tomodachi	ERADICATE. Prioritize removal from trees; ivy can kill mature trees and/or cause branch breakage. If vines are firmly attached to trees and cannot be pulled down, cut the vines on the trunk with pruners or loppers and let upper portions of plant die in place. Rakes or McLeods can be useful for raking up aboveground plant parts and exposing stems for removal. Plants can sprout from stem or root fragments.
4	fennel	*Foeniculum vulgare*	Perennial, taprooted	Youth Park above amphitheater, entries to Americorps, immediately north of RR Forest	CONTROL. Dig out plants manually or mechanically, including root crown, when soil is moist. Removing mature plants will entail ground disturbance and should be done in conjunction with native revegetation (see text). Repeated treatments will be needed given large seedbank likely present. Until stands are removed, cut flowering stalks to minimize seed production.
5	French broom	*Genista monspessulana*	Shrub	Immediately north of RR Forest (along trail by hotel)	ERADICATE. Pull by hand or with weed wrench. Minimize disturbance of soil and adjacent native vegetation.

Appendix 6.
Invasive Species and Management Guidelines

Map Key # (see Fig. 7)	Common Name	Latin Name	Life Form	Distribution on Preserve	Management Guidelines
6	Himalayan blackberry, thornless blackberry	*Rubus armeniacus* and *Rubus* hybrid	Shrub/Vine	Youth Park pond berms and "Overlook" area, Railroad Forest	CONTROL. Rootstocks must be removed for lasting results. First, remove aboveground material with hand tools (e.g., weed eater with metal blade, hedge clippers, etc.) or by mowing (e.g., skid steer with brush cutting attachment). This work is best suited to trained staff for safety reasons. Temporarily set aside dead wood and other obstacles as work progresses. Managed goat grazing could also be effective at removing aboveground material. If removed by hand, remove debris from site or chip into smaller pieces; if removed by machine, debris will be finer and can be left in place as is. Next, remove rootstocks, preferably when soil is moist. Dig out by hand (e.g., using a claw mattock, McLeod). This work is well-suited to volunteer labor. Careful use of machinery (e.g., using tractor with claw attachment) may also be possible but will result in greater disturbance and risk of leaving rootstock behind. Hand work will be needed near native vegetation to prevent damage. Note that Mosquito Control District has offered assistance in removal, including heavy equipment use.
7	Japanese honeysuckle	*Lonicera japonica*	Perennial vine, rhizomatous	Youth Park near seasonal bridge, immediately south of RR Forest on Regional Parks land	CONTROL. Pull seedlings and dig out or repeatedly cut mature vines growing in native trees.
8	pampas grass	*Cortaderia selloana*	perennial grass	Railroad Forest (near trail junction with Rodota Trail, and on neighboring residential property)	ERADICATE. Dig out. Educate neighbors and recommend removal.

Appendix 6.
Invasive Species and Management Guidelines

Map Key # (see Fig. 7)	Common Name	Latin Name	Life Form	Distribution on Preserve	Management Guidelines
9	perennial pepperweed	*Lepidium latifolium*	perennial herb, rhizomatous	Meadowlark Field	CONTROL. Plant highly competitive native species in areas of potential pepperweed spread. Mow existing pepperweed patches 2-3 times per year to prevent seed production and minimize spread. Digging out has potential to result in further spread from root fragments so is not advised. Focus on small patches, edges of existing patches, and outlying patches. Coordinate with adjacent landowners for regional control.
10	periwinkle	*Vinca major*	Perennial stoloniferous vine	RR Forest and immediately south (on Regional Parks property)	CONTROL. Careful hand removal of all plant parts is effective for small patches. Work inward from the perimeter of patches, pulling periwinkle back in on itself to prevent further spread of the weed between removal sessions. Dispose of all plant parts off-site.
11	plum	*Prunus sp.*	Tree	All; riparian areas	ERADICATE. Occurrences are limited but spreading, so eradication is recommended before additional spread occurs. Cut at base and cover with black plastic, or cut repeatedly until roots are exhausted.
12	poison hemlock	*Conium maculatum*	Biennial herb	Youth Park along trails, Meadowlark Field around downed oaks	CONTROL. Highly toxic to humans, wildlife, and livestock. On the Preserve, occurs primarily around dead and downed oaks on Meadowlark and along trails in Youth Park. Laguna Fdn. docents have annually removed hemlock by hand pulling near trails due to concerns regarding kids' safety. Pulling or hoeing out all plants in a patch annually, prior to flowering, should be effective once seedbank is exhausted (approximately 3 years). Mowing twice annually (spring and late summer) may also be effective. Use gloves for safety when removing, and avoid inhalation of particles (as during mowing) (Cal-IPC 2015).
13	silver poplar	*Populus alba*	Tree, clonal	Meadowlark Field, south edge	ERADICATE. Currently limited in extent on Preserve but potential to develop extensive stands by root-suckering. Cut to ground and repeat for sprouts.
14	yellow flag iris	*Iris pseudacorus*	Rhizomatous perennial	Youth Park ponds, Americorps along channel	ERADICATE. Pull or dig out rhizomes. Digging will entail disturbance to pond edges and may require approval by regulatory agencies; see text. Use caution when handling; may cause skin irritation.

Appendix 6.
Invasive Species and Management Guidelines

Map Key # (see Fig. 7)	Common Name	Latin Name	Life Form	Distribution on Preserve	Management Guidelines
Moderate Priority					
15	field calendula	*Calendula arvensis*	Annual herb	Entry to Youth Park north parking lot, berm at lift station	ERADICATE. Remove by hand before blooming, repeat annually.
16	Harding grass	*Phalaris aquatica*	Perennial grass, rhizomatous	Throughout, esp. Meadowlark Field, edges of Youth Park	CONTROL. Remove in selected locations, in conjunction with revegetation with competitive natives. Individual plants can be dug by hand, ensuring that all roots over 2" in length are removed. Larger stands can be removed mechanically but plants may resprout from rhizome fragments left behind, so repeated treatment, tarping, or sheet mulching will increase success. Repeated close mowing will help limit spread but unlikely to kill existing plants. Seed remains viable up to 3 years.
17	parrot feather	*Myriophyllum aquaticum*	Aquatic perennial herb, rhizomatous	Laguna channel edge	MONITOR. Control of this species is difficult. Manual/mechanical methods tend to spread the plant. Educate Preserve visitors and City residents about the importance of not dumping aquarium plants into waterways, and stay informed of any future local efforts to manage.
18	pennyroyal	*Mentha pulegium*	Perennial herb	Wetland areas throughout	CONTROL. Remove by digging out shallow rhizomes in selected locations, as part of wetland restoraton effort.
19	privet	*Ligustrum sp.*	Shrub	Americorps Trail (north of cement plant property), along north edge of Youth Park ponds	CONTROL. Remove mature plants entirely, replace as needed with native shrubs. Pull seedlings. Spreading from landscape plantings, bird-dispersed.

Appendix 6.
Invasive Species and Management Guidelines

Map Key # (see Fig. 7)	Common Name	Latin Name	Life Form	Distribution on Preserve	Management Guidelines
20	reed canarygrass	*Phalaris arundinacea*	Perennial grass	Meadowlark Field, esp. northwest corner, and open area in Tomodachi south of picnic tables	CONTROL. This robust grass species is considered by some sources to be native in California and many parts of the world, but also hybridizes with cultivars selected for forage, and resulting plants often become invasive in moist settings, as appears to be the case on the Preserve. Remove manually or mechanically in selected locations, in conjunction with revegetation with competitive natives. Monitor to determine if stands are precluding regeneration of desired native species. Extensive control will be difficult for this rhizomatous grass. Where grading, ditches, etc. have altered historic hydrology, restoration of native flooding regimes may help control the species.
21	velvet grass	*Holcus lanatus*	Perennial grass	Meadowlark Field, edges of Youth Park	CONTROL. Isolated plants can be dug out by hand but this will be labor intensive and most stands are too extensive for manual control. Mechanical removal will be effective if repeated annually until seedbank exhausted. Remove in selected locations, in conjunction with revegetation with competitive natives.
Watch List					
22	ludwigia	*Ludwigia sp.*	Perennial herb	(not currently present; aquatic)	This aquatic species has not been observed on the Preserve but is widespread and highly invasive in many parts of the Laguna. Monitor for its presence and promptly eradicate by hand removal if observed, using caution to ensure that no plant fragments are left behind.

Appendix 7a.
Summary of Community Input on the Plan

From Public Meeting, April 25, 2015, and other written input.
Repeated comments noted with numbers in parentheses.

Access/connectivity
Connect Tomodachi to Joe Rodota Trail (2)
Need all-year access from Sebastopol to Meadowlark field trails (2)
Permanent foot bridge
SMART train – footbridge
We need a trail under the Highway 12 bridge so north and south sides are connected (2)
More trails and connectors. When will the Preserve in conjunction with the County start their "Phase 2" trail plan? Is their a plan to connect trail under hwy 12 from Joe Rodota trail to Laguna trail? Can I serve on a volunteer trail committee?
We need a trail connection between the SCCC and the Grange, north of Hwy 12
Longer walks = link trails to make loops and creek trail maps and signage
Most important is connectivity for 5 areas. (2) People will value and appreciate what they can see and experience, so access is CRUCIAL.
Partner with Sonoma County Regional Parks on trails, kayak access, and connections (2)
There should be bike access to connect roadways, different parcels, and bike trail
I would like there to be a boat launch at Tomodachi Park. I use the launch at Occidental Road, but a launch at Tomodachi would be good.
Add boat (canoe, kayak) access point (3)
Accommodate kayaks in Tomodachi Park. 1) Provide a way for vehicles to get near the water and a gentle sloping sand bank to launch a kayak. 2) Clean up the short rubble filled and over grown water connection in the area under the Hwy 12 bridge so kayaks can go from the Park to the larger body of water of the Laguna Channel on the north side of the Hwy 12 bridge. 3) The waterway, south of the bridge has an excessive number of large willow branches overhanging and laying in the water. Some would need to be cleared to let kayaks go back into the interesting recesses in this direction. This would create nearly a mile long kayakable waterway.
Need pedestrian bridge on Americorps Trail
Better access for bikes to visit the Laguna
Open up more viewpoints along trails on both sides of the Laguna to make the waterway and opposite shore visible
Create a foot path following Calder Creek - an intimate path that goes through the woods and touches the edge of the creek here and there. Start from the end of Barnes Road, meandering along the north side of the creek crossing to the south at the RR Forest Trail bridge, then follow the creek more or less going under the canopy of the large Oregon Ash and oaks. Cross under the Joe Rodota Trail next to the creek at the Calder Creek bridge and continue on to the Laguna Channel (now into county area). Bridge the channel (in the future.) It is not too wide here. And continue on to the meadow's edge where it can intersect the Brown Farm Trail the County plans to develop. From here one can walk to several other trails.

Appendix 7a.
Summary of Community Input on the Plan

From Public Meeting, April 25, 2015, and other written input.
Repeated comments noted with numbers in parentheses.

Additions to Preserve/ Neighboring Uses
If there HAS to be a parking lot on the old cement plant property, then the developers should be required to use the permeable paving – or perhaps build the parking over a filtration system? Something to keep the water coming from the cars clean for the waterway.
Don't turn cement plant property into a parking lot – restore it!! With native plants and trees. Why do we need to put another parking lot into the preserve? Without the cement plant, that big Americorps trail could be great!
Purchase cement plant
Convert the concrete plant into a habitat resource center with native plant demonstration gardens
City should buy the lot west of Village Park and north of RR Forest. It will be developed otherwise. It is the last open piece of property between the City and the Laguna. Existing development has literally walled of the Laguna from our town from hotel to hotel visually and physically. Sebastopol has many community needs that this property could accommodate, things that will invite the community into this property, and the City can develop the property in a way that features the Laguna instead of shutting it off.
Public purchase of existing development in the flood plain
Return developed areas to natural habitat
Stop developing more
Re Climate change: Protect and grow our recharge areas by un-building the flood plain
Develop a TranSonoma Trolley, a light rail system to connect Oakmont to Sebastopol via the SMART station.
Acquire cement plant property and use for parking
Dogs and Cats
Continue removing feral cats, signage re what they do to wildlife. Fines for those who dump/feed
Eliminate feral cat colony
Enforce leash laws (3)
Dogs and people and wildlife can't share all areas of Laguna
Humans and pet dogs (walking off leash or in protected areas) will always be an issue.
I worked on camera project – still too many dogs and dogs off leash
Also, we have done a bird survey for many years. Noticeable lack of Wilson's snipe in field where dogs have run
Restrict dogs on trails – limits (2)
ENFORCE LEASH LAWS
More regulation of dogs and their owners; dog feces is a huge problem for people and for wildlife
Dogs negatively impact the beauty of the area.
Piles of poop
More signs to alert owners that dogs must be leashed
Please enforce leash laws and provide more signage to educate dog owners about sensitive areas along channel
No dogs off leash (2)
Use of fines for those who do not comply
Enforce leash laws
Deny access to bikes and dogs on some trails
Build an off-lead park area (like Ragle) to lessen the urge.
Add more garbage cans on Meadowlark to reduce abandoned dog waste bags.
Engaging the community
I am a student leader w/Global Student Embassy and I work in the garden at Village Park every week. We are in close contact with the Village Park homes and we have a large organic garden. How can we be of help to you in this project? Talking with Village Park families? Do you need Analy High School involvement? Can we work together on helping these wetlands near the garden?

Appendix 7a.
Summary of Community Input on the Plan

From Public Meeting, April 25, 2015, and other written input.
Repeated comments noted with numbers in parentheses.

Use of staff or volunteers on trail and table – i.e. Laguna Docents
Walks for public giving info
Jeff Elliot has done a lot of research on tribal use of the Laguna. Looked at migration to Lake County. He & tribes have idea for museum.
Banners along Morris Street (maybe even along the "Green Line" from Plaza).
Make Morris Street more aesthetic so people are inclined to walk to the Laguna
Continue to improve entrances
Promote self-guided walks w/ maps and text for download or digital viewing
Showcase some ethnobotanical plants with signs describing their traditional uses
Need restrooms outdoors in Laguna Youth Park area both for baseball activity, picnic sites and visitors to Laguna Trails
Observation tower for nature observation, education, tourism and trail destination
Build a Laguna Observation Tower
Add more parking places [only 5 in count today] for public using Tomodachi Park.
Include a map of the trails and access points to the Laguna on the City's website.
A school project: Stencil "flows to Laguna" on all the storm drains in the city – to educate the public
Compostible toilets along Joe Rodota Trail
Restore diversity, wildlife habitat along Morris Street to support the Laguna and familiarize people with the wonderful native plants they could be planting
Consider benches with backs in some places
More benches on Meadowlark (2)
Guided trails through Preserve a few times a year
Allow bicycles on trails
Create a few places that invite one to stop and sit to enjoy the surroundings. Place a table, a bench or a sitting logs in an attractive clearing--in Railroad Forest and elsewhere.
General Comments
Sebastopol Preserve = good, make that excellent
Thanks for having this – easier to use a computer
My favorite place to visit is the trail through the south end of Americorps – bridge to the western edge
Only my ideas. I know money is tight and there's not enough staff
Please leave the Laguna de Santa Rosa untouched! Keep it natural.
Homeless Issues
Encampment spot circled near "high quality riparian habitat"
Problems with encampments
Contact the Sonoma County Health and Human Services departments to provide case management services for the impaired people camping there.
Collaborate with Sebastopol Police Department, SRPD and Sonoma County Sheriff
More presence of officials keeping homeless out of area (Rodota Trail)
Work with app. agencies to help homeless – housing/mental health
Don't feel safe on Americorps Trail – homeless encampments

Appendix 7a.
Summary of Community Input on the Plan

From Public Meeting, April 25, 2015, and other written input.
Repeated comments noted with numbers in parentheses.

Interpretation
Educational/interpretive signs to inspire people
Interpretive signs along Morris with URL, QR code for smartphone
Add interpretive signage on Morris St. describing the animals of the Laguna.
Create and install interpretive signage that educates visitors about Laguna's natural resources
Interpretive signage about birds
Birding trail to involve public; signs and ID stuff (2)
Signs - Restoration work already done
Include interpretive signage at Tomodachi Park to explain the name and history of the name.
Well-defined interpretive exhibits and information
Signs - Reasons why dogs need to be kept on leash
More signage is needed on Rodota Trail and in the Youth Park and on Laguna Trail telling public why it is important to leash dogs.
Ask for Native input from Pomo tribes and the California Indian Museum & Cultural Center. For interpretive and historical info.
Expose historic railroad track (200 yds) from beneath blackberries in the RR Forest so that one can walk the length. Replace the 40' section that was removed when the trail was built so that trail users will touch and see this piece of of our town's history.
Expose the historic rubble wall in the RR Forest, for historic interest.
Place three historic railroad cars once used locally together on the railroad track near the RR Forest Trail - a dramatic piece of art and and way to showcase our history in a real context.
Maintenance
Trim overgrown plants on arched entry ways – can't tell what they are!
Much more consistent cleanup (Rodota trail)
Fix broken benches & tables in preserve!!
Ball field sprinklers are spraying the adjacent Youth Park trails—makes them muddy and not as nice to walk on; adjust sprinkler heads. Also, re-rock those trails.
More frequent litter pickup
Need more frequent clearing of trails, especially the Americorps Trail, which is often barely noticeable and unmarked
Trash in Calder Creek – notified City, but wasn't cleaned up.
Need to clean up and maintain Railroad Forest – too much garbage and illegal camping.
Neighbors
Maintain relationships with human occupants
Encourage private landowners along creeks to protect natural resources
Partnerships
Increase partnerships and cooperation with other government and non-profit agencies to pool resources and focus on high-value high-priority rehabilitation projects
Work with county and other agencies to protect Laguna
Explore water recharge opportunities, work with state
Signage
Signage when pontoon bridge is up
TU (thumbs up?) for better signage – can always use more!

Appendix 7a.
Summary of Community Input on the Plan

From Public Meeting, April 25, 2015, and other written input.
Repeated comments noted with numbers in parentheses.

Continue improving signage
Signs – Trail map, online, at the Barlow. Where are the trails?
Vegetation/invasive species
Have a city public relations campaign to NOT plant invasive species such as ivy, vinca, broom, pampas grass, iris – all flow to Laguna!
Also requires removing non-natives along feeder creeks up slope
Maintenance of parks is of high concern, especially controlling invasive poison hemlock. The City may need to revisit its policy to not use herbicides. With hundreds of children visiting the sites (Youth Park), this plant needs to be eradicated.
Himalayan blackberry removal: The removal of large patches on entrance to Joe Rodota trail obviously did not work. In future have natives ready to replace removed berries and keep up monitoring.
Remove blackberry. Huge effort requires cutting and removing roots on a 2-week basis; and planting natives
Remove all Himalayan blackberry. It blocks views into the areas, facilitates camping, and wipes out other understory species.
Railroad Forest: Leave blackberries for now
Excited to see blackberry clearing at Railroad Forest last year, could be a lovely community spot; disappointed that it has been allowed to grow back.
Railroad Forest: Get Iris out!! (first priority)
Remove iris all the way up Calder Creek, especially on the private property on Leland where it originates
Cut the acacia!!
Remove invasive non-natives like cotoneaster and other useless plants along Morris and entry to city on Highway 12
Can we use native plant plantings to absorb nutrients before they enter the Laguna? If we remove stands of invasive plants (blackberry), does that increase the flow of nutrients into the Laguna?
Native gardens, insectaries
Water and wildlife restoration depend on preserving sites and vegetation.
Install emergent marsh vegetation (may require wetland creation) to serve as filter
The three "ponds" in Sebastopol Preserve seem to be perfect areas for restoration (native grasses, sedges, etc.) These areas have natural barriers to prevent human entry so plants would be protected.
Naturalize Calder Creek; de-channelize, de-compact banks from the outfall to a hundred feet past the bridge. Return this readily visible and accessible portion of the creek to its more natural form. Cut the banks back to a gentle slope that will become covered with the sand that migrates from up stream. Make it a place where you can walk to the edge of the water, and a kid can build a dam. Do the same to the Laguna channel in Tomodachi Park in areas most visible and accessible to park users. Here the bank is generally about four feet above water level with a 45 degree angle into the water.
The Calder Creek bridge is a frequent stopping spot along the RR Forest trail. Make the vistas down the creek beautiful. Line the banks with different ferns, flowers, and layer back with flowering dogwoods and a variety of pretty plants.
In spring and summer the view from the RR Forest Trail makes you feel you are in a woods, however when the trees loose their leaves this changes. From above the fence around a storage yard a collection of equipment and motor homes shine in the sun. The second story of the hotel looks down on the trail from nearby. Screen these views off with live oaks or other trees that will block the nearby man made clutter in the winter months.
Walls of brush and berries makes the Joe Rodota trail feel closed in and not as safe. Clear and thin these areas back from the trail, opening up occasional vistas into the depths of the woods to allow passersby to see into the richness of this riparian area.

Appendix 7a.
Summary of Community Input on the Plan

From Public Meeting, April 25, 2015, and other written input.
Repeated comments noted with numbers in parentheses.

Some of the Laguna areas are thick with Arroyo Willow. It appears that these willows, particularly in the RR Forest, are overly prone to growing quickly and collapsing, the collapsed branches sprout new fast growing branches which develop into trees and collapse again. The process builds up dead thickets and creates fire hazards, maintenance problems, and dams in the creek when the branches collect upstream trash. Not all willow varieties behave like this. Work in these varieties as replacements.
In Tomodachi Park, a scenic meadow is located pleasantly away from the constant sound of Hwy 12 traffic, but is unusable for people. The coarse plants (perhaps invasive) and rough ground make it hard to traverse. Make this area a walkable, playable field, and put a quieter picnic area at the far end.
Water
Open creeks and create overlay in Sebastopol G.P. for future protection of all feeder streams
Should be a master plan to protect feeder streams flowing through town, like SR Creek Master Plan
Can the city monitor or educate private property riparian areas for watershed protection? Especially on Calder and Zimpher Creeks
Education on storm sewer system
Vegetation restoration and pollution reduction (from nearby industrial sites) have to come first.
Preserve and enhance recharge & filtration areas (plants, rocks, soils) "Spread, slow, sink."
Create seasonal ponds near where Calder Creek goes under the bridge on the RR Forest Trail. The area around the bridge has three locations where 100+ foot pond can be easily built. Winter overflow will fill them. If the Sebastopol Inn or future development close by had a grey water system supplying these ponds, they could flourish year round. Silverton Oregon has done something similar to this with an added attraction. A local volunteer group created and maintains beautiful flower gardens in and around similar ponds. They have become town attraction. These ponds would be close to our town and easily viewed from both trails.
Wildlife
Bird Surveys done here (Joe Rodota Trail) for years.
Survey fish, reptile and amphibian populations and work to remove non-native species that prey on native fish, reptiles and amphibians
Preserve/enhance migration w/ water and plant life
Work with surrounding jurisdictions
Further restrict hunting.
Create an entire lot for wildlife by turning the former cement plant into a restoration project. Native plants will create habitat for the wildlife – a parking lot won't.
Provide supplemental water to maintain water in the former sewer ponds year round (3)
No kayak access!! And no removing debris to improve kayak access
Wildlife top priority
Don't increase human access
Provide some places to access water's edge in a way that protects all the other areas from public use (and habitat destruction) (2)
Define path under new bridge to protect habitat
Upland/restoration along Calder Creek
Define wildlife corridors & map along Calder
Enforce the posted leash law—lots of unleashed dogs in sensitive wildlife habitat
Deny dog access to trails near waterways
Provide a structure for swallow nesting near Community Center – turn Sebastopol into a "Capistrano North"
Safety concerns related to hunting further north on the Laguna
Encourage Cal Quail

Appendix 7b. Summary of Community Input on the Plan
From Planning Commission, October 13, 2015

Planning Commission Input		
Input	**PCI Response**	**Proposed Changes to Plan**
Interest in greater public access	Plan increases public access by adding two new trails, increasing utilization of the two most underutilized parts of the Preserve which are already developed for public access: Tomodachi Park and Americorps Trail. L Deedler has suggested a trail alongside Calder Creek, as well as clearing the railroad tracks as a trail, also along the creek. These would both add substantially to fragmentation of already limited, sensitive riparian habitat and decrease wildlife use. Informal public access is not discouraged in the Plan, and will in fact be increased by restoration/blackberry removal. An informal trail already exists along Calder east of the bridge. Also, team has received substantial public input that more access is not desired.	Team proposes adding bench at Railroad Forest near creek, SW of bridge. An additional bench could be considered further downstream under boxelders in conjunction with restoration of that area. These would provide public a chance to walk into the habitat from the existing paved trails, without creating extensive lengthwise fragmentation. Team does not recommend an additional formal trail along Calder Creek. Preserve improvements will require review by SCAPOSD.
Interest in improved kayak access from Preserve.	Complex channel and dense vegetation make it very difficult to kayak from the Preserve up- or downstream. Informal kayak access is possible and occasionally used. CDFW owns the channel through the Preserve, except at Tomodachi, so clearing vegetation could only be done with their cooperation or leadership. PCI's opinion is that this is unlikely as vegetation provides valuable shade and habitat for wildlife and water quality, and for Ludwigia suppression. Simply providing a kayak launch at the Preserve but not addressing channel passability would be possible but may not be an effective use of City funds. As noted in Plan, kayak access available at Occidental Road.	Team recommends no change, but will await further guidance from City. Preserve improvements would require additional consultation with SCAPOSD and regulatory agencies. Team will note that the Occidental Rd launch is on the Occidental Road Wetlands Transfer property owned in fee by SCAPOSD and maintained by Regional Parks.
Consider grates on Calder Creek culverts to reduce flow of trash into creek	Grates are already present just above Preserve at Ives Park. These are likely open in wet season to prevent back-ups/flooding, and closed only in dry season if at all. Since most trash movement will occur in wet season, other approaches to trash management are likely to be more effective: ensure that trash and recycling containers are available throughout Preserve, and reduce camping (see Plan), which is by far the largest source of trash in Preserve.	Team recommends adding sturdy trash and recycling containers (to match those at other Preserve locations) at RR Forest.
Show potential cost savings from working with volunteers on restoration projects.		Team has already developed and will provide.
Show costs for restoration of all quadrants of RR Forest		Team will provide.

Appendix 7b. Summary of Community Input on the Plan
From Planning Commission, October 13, 2015

Input	PCI Response	Proposed Changes to Plan
Further develop recommendations for highlighting archaeological information about the site.		Team will add/emphasize the following opportunities: include archaeological information in entry arbor displays (including, as already noted, displays created by local students); in the open-air structure/interpretive kiosk described as an option for Youth Park; and in guided walks of the Preserve.
Emphasize the value to community of trail access under Highway 12 at the Laguna, indicate intention to develop if possible.		Team will strengthen existing language.
Concern about ticks in Preserve		Team will strengthen existing language to emphasize importance of City cutting vegetation back from trail edges. Signage could encourage visitors to dress appropriately in tick season.
Consider restoring all of Railroad Forest at once rather than in phases.	The purpose of recommended phasing is to: avoid denuding large areas at once, lessen impacts to wildlife, lessen erosion control concerns, spread out costs, and keep City maintenance tasks at a managable level. Preference is given to restoring a smaller area thoroughly and well, rather than spreading resources thin and addressing a large area less effectively.	Team recommends no change, but will await further guidance from City. Preserve improvements would require input from SCAPOSD.
Interest in getting rid of all Himalayan blackberry.	Already identified as a high priority species for removal, and key component of multiple restoration recommendations. Time frame is only limited by funding/labor availability.	Team recommends no change.
Consider prioritizing recommended actions.	Actions already shown as short-term (should be completed within 2 years), long-term (implementation recommended within 10 years), or ongoing. If some actions are described as lower priority, they may be harder to acquire grant funding for.	Team recommends no change, but will await further guidance from City.
Clarify that removal of embedded garbage is possible with permits in place.		Team will clarify.
Define active and passive recreation		Team will address/clarify.
Remove poison oak throughout Preserve? Remove mention of poison oak as barrier planting for unwanted informal trails	Poison oak serves ecological functions of value (e.g., wildlife habitat and forage, erosion control, preventing human access where undesired), so complete removal of poison oak from the Preserve is not recommended in general, but along trails, can be kept trimmed back.	Team will remove receommendation for using poison oak as a barrier planting, and will emphasize that poison oak should be cut back from trails during regular trail maintenance, along with other overhanging vegetation.

Appendix 7b. Summary of Community Input on the Plan
From Planning Commission, October 13, 2015

Input	PCI Response	Proposed Changes to Plan
Public Input		
Not enough detail in Plan. In particular, regarding blackberry removal and Tomodachi connector trail development.	In addition to the Invasive Species table referenced, an additional four pages of the plan address invasive species as a whole, and much of this is directly applicable to Himalayan blackberry. Invasive recommendations are designed to be of sufficient detail for City landscape staff or contractor with vegetation management experience to be able to carry out tasks, and PCI feels this level of detail is provided.	Team will add information on potential equipment to use, timing, and guidance for working around downed wood and living trees.
In response to above, another speaker noted: Tomodachi connector trail proposed route is likely the best and will be relatively straightforward, based on personal trail design experience. Sonoma County Trail Council could work on the project. Could route the trail slightly differently to ease the transition up to the Rodota Trail embankment, or to go closer to Laguna.	Tomodachi connector trail route shown on Figure 6 was mapped in the field by walking the apparent best route, which would avoid crossing any channels and minimize habitat impacts by selecting the shortest route. Surface is relatively level, and no surface treatments are recommended. Slight adjustments may be possible. Key components of this trail development would be permitting, flagging of final layout, trimming of overhead willows, and mowing or grubbing in meadow area. The only slightly technical component is the connection with the Rodota Trail, where new trail would need to climb the berm of the Rodota Trail.	Team will add this information to text.
Increase visibility of Americorps Trail		No change - already addressed in Plan.
Add signage to "overlook"		No change - already addressed in Plan.
Use goats to manage blackberry		No change - already addressed as one option in Plan.
Use herbicides to manage blackberry.		Not recommended in Plan based on City policy and viable alternatives.
Engage public in the history and prehistory of the site. Response from another attendee: Opportunities to do so via docent-led walks are already present with Sebastopol Walks, Cittaslow, and the Historical Society; don't necessarily need signage or added infrastructure at Preserve.	Signage re history already recommended, as is further engagement of kids and teens. 1000 children already visit Preserve annually with LF and learn about history and ecology.	See Item 11 above. Team also proposes adding signage on Railroad Forest bridge that very briefly welcomes visitors to the Preserve, explains ecological context, and mentions historic and prehistoric human uses of area. Team will emphasize opportunities to engage with schools and encouraging community pride as a way to foster stewardship. Team proposes developing and providing pamphlets/info about Preserve at Museum, other public places.

Appendix 7b. Summary of Community Input on the Plan
From Planning Commission, October 13, 2015

Input	PCI Response	Proposed Changes to Plan
Expose railroad track through Preserve for people to walk along.	Track will likely be exposed during proposed blackberry removal from that area, and available informally for exploration. Eventually, native plantings may again overtake it. Regular removal of native vegetation from tracks and encouraging use as a trail will further fragment the riparian habitat, reducing value for wildlife.	Allow for uncovering of trail as part of site restoration. Allow for casual public use without encouraging heavy public use. Improvements to the Preserve will require SCAPOSD review.
Regrade Calder Creek channel to make it more gentle and accessible.	No clear ecological benefits to this; creek is not deeply incised here, sediment deposition occurs naturally, and creek floods regularly. Historic condition could have been a more braided channel, but given constraints of buildings, parking, Railroad Forest Trail, bridge, and Rodota Trail nearby, opportunities are limited without risking infrastructure damage or heavy maintenance needs, and resulting in decreased public accessibility. Design, permitting, and construction could be costly. Minor handwork could be accomplished more easily. For public accessibility, the south side of the creek just upstream of the bridge is already readily accessible and visited.	Team proposes adding: Highlight gentle area of creek by the bridge with a bench and signage at the bridge welcoming visitors to the Preserve. Team does not recommend grading of creek channel, but will await further guidance from City. Reshaping of channel would require review from SCAPOSD, CDFW, RWQCB. Opportunities could exist for gentle grading of tops of steep slopes during blackberry removal. Erosion protection would need to be applied immediately. Benefits aesthetic and not ecological.
Other proposed edits to Plan		
		Team proposes calling for enhancement of Youth Park entry arbor areas with native shrubs, perennials, and grasses appropriate to the habitat. At the southern Youth Park arbor, this will involve coordinating with Adopt-a-Landscape participant.
		Team proposes extending restoration opportunity F to include eastern end of swale near Laguna, where Himalayan blackberry is common and camping is common.

Appendix 8
Sebastopol Laguna Wetlands Preserve
Restoration and Management Plan
Implementation Cost Estimate
DRAFT
10/23/2015

Plan Section	**One-Time Costs** (short-term and long-term)	**Ongoing Costs** (per year)	**Total Cost per Plan Section** (implementation plus first year of ongoing costs)
Restoration - By Project/Location			
A. Meadowlark Herbaceous Restoration	*$37,000 - $46,000*[1]		
B. Youth Park NW Corner & Entry Arbor Shrub and Herbaceous Restoration	*$39,000 - $48,000*		
C. Americorps South End	*$16,000 - $19,000*		
D. Tomodachi Old Camping Area	*$23,000 - $28,000*		
E. Youth Park SW Corner	*$23,000 - $25,000*		
F. Americorps Swale	*$23,000 - $29,000*		
G. Railroad Forest - Phase 1, SW Quadrant[2]	*$50,000 - $58,000*		
H. Youth Park Ponds - Feasibility Study	*$45,000 - $75,000*		
I. Tomodachi Vernal Pools	*$24,000 - $30,000*		
Restoration - All Tasks	$280,000 - $358,000		$280,000 - $358,000
Resource Management	$91,000	$44,000	$135,000
Preserve Signage and Furniture	$78,000	$2,000	$80,000
Connector Trail Design and Installation	$69,000		$69,000
Public Education	$99,000	$11,000	$110,000
Volunteer Coordination	$74,000	$28,000	$102,000
Landscaping	$11,000		$11,000
Preserve Cleanup	$34,000	$27,000	$61,000
Management of Public Uses	$6,000	$7,000	$13,000
Biological Surveys and Trainings		$5,000	$5,000
Trail Maintenance and Decommissioning	$5,000	$24,000	$29,000
Integration with Regional Efforts		$7,000	$7,000
TOTAL	**$747,000 - $825,000**	**$155,000**	**$902,000 - $980,000**

[1]Restoration costs include a range; low end of range assumes substantial volunteer labor component (or, for Item H, a smaller scope).
[2]Restoration of all four quadrants of RR Forest: $579,000-$673,000.