

## WORKPLAN FOR RE-OAKING DEL PASO REGIONAL PARK

*drafted by TJV 09/10/16; revised and expanded on 12/08/16*

- ◆ Sacramento Tree Foundation
- ◆ Sacramento Horseman's Association
- ◆ Arcade Creek Golf Course (Fairway #16) Morton Golf LLC
- ◆ City of Sacramento

### **Overview and Context:**

Arcade Creek flows 16.2 linear miles and encompasses the largest drainage basin (watershed) of all the local creeks in the City and County of Sacramento, covering 19,000 acres (29.7 sq. mi.). [1]

From a global perspective, "riparian systems" such as Arcade Creek that meander across the floor of the Central Valley are rare ecological and geographical features of the California Floristic Province [2], and, just like "Mediterranean" ecosystems worldwide, Arcade Creek is one of many Central Valley watersheds gravely threatened with habitat fragmentation and degradation. [3] Many plants and animals (flora and fauna) characteristic of California riparian systems and Arcade Creek are unique to the Central Valley (endemic) and are either declining in population or have already been disappeared altogether from local or regional habitats (extirpation).

Since the mid-1970s, due to multiple stressors on fish and wildlife within Del Paso Regional Park (Park), relatively robust populations of amphibians, birds, mammals, and reptiles have declined or disappeared altogether. Stressors include habitat destruction and fragmentation, several severe droughts, the City's historical use of rodenticides at Haggin Oaks Golf Course, the spread of non-native predators (e.g., feral cats, wild turkeys), and the scourge of West Nile Virus. Black-tail hare (*Lepus californicus*), burrowing owl (*Athene cunicularia*), California quail (*Callipepla californica*), common garter snake (*Thamnophis sirtalis*), Pacific gopher snake (*Pituophis catenifer catenifer*), western meadowlark (*Sturnella neglecta*), western toad (*Bufo boreas*), western scrub jay (*Aphelocoma coerulescens*), white-tailed kite (*Elanus caeruleus*), and yellow-billed magpie (*Pica nuttalli*) have all declined or disappeared from the Park.

At the same time, there has been a remarkable recovery the native oak forest due to "natural recruitment" (the forest recovered without active tree planting). The natural recovery of the native oak forest in the Park is an unusual phenomenon in California, and deserves both scientific research by colleges and universities in the region, and rigorous protection by the City of Sacramento under the 2030 General Plan. [4] Further, in response to the conservation and restoration of the riparian corridor, oak woodlands, and prairie (annual grassland) within the Park made possible by two City Council Resolutions passed unanimously in 1985 and 2002 [5], there have been notable rebounds in some populations of native amphibians, birds, and mammals.

Plentiful acorns and the City's change in stewardship to retain rather than remove large dead trees [6] (replete with rotted cavities that provide nesting sites for myriad flora and fauna) have undoubtedly contributed to the maintenance of, if not an increase in, the local

population of acorn woodpecker (*Melanerpes formicivorus*). Further, in response to the protection of the large vernal pool north of the Softball Complex under the 1985 Park Master Plan, the construction of the stormwater treatment wetland east of Norris Swale, and the creation/restoration of vernal pools within the Longview Oaks Preserve [7], there has been a dramatic increase in population of Pacific chorus frog (*Pseudacris regilla*). Prior to 1985, this amphibian was disappearing from the Park, numbering in the low hundreds of individuals at best. Today, many thousands of chorus frogs thrive within the Park, and the significance of this recovery cannot be overestimated given the collapse in amphibian populations worldwide. [8] And while occasional surveys for resident, native fish have been disappointing through the years; scientists, conservationists, and residents were all ecstatic to learn about the first documented sighting of Chinook salmon in Arcade Creek since 1986, and the astonishing arrival of river otters (possibly the first sighting in decades). [9]

Oak forests, vernal pool grasslands, seasonal freshwater lagoons, and broad floodplains were among the habitats that once dominated the Sacramento Region. [10] Several events in history brought great and irreversible changes to these landscapes; especially European Settlement, the demise of indigenous cultures, the Gold Rush, and post-World War II suburbanization. Moreover, the clearing of oaks and their subsequent replacement (intentionally or unintentionally) with myriad, non-native, invasive, and sometimes noxious trees, shrubs, grasses, and forbs have impaired the functioning of the original ecosystem. Today, there is a real risk that oak woodlands and grasslands, truly the iconic features of the Western landscape, will be almost entirely erased from the Central Valley landscape amid large-scale agriculture, suburban sprawl, and a hodgepodge of ornamental plants cultivated by the nursery industry from worldwide sources and introduced into California. [11]

A "re-oaking" movement by scientists and conservationists is gaining momentum across several counties and regions in California with the goal of returning oaks to historical and suitable landscapes. This project in Del Paso Regional Park will be implemented in the spirit of the statewide re-oaking campaign and may represent the largest single oak reforestation project ever attempted within the Arcade Creek watershed. [12]

To the greatest extent possible and allowable, the non-native, invasive, and/or noxious trees and shrubs occurring within the plots targeted for re-oaking will be replaced with locally-sourced native oaks, shrubs, grasses, and forbs. Along with the Sacramento Tree Foundation (STF) that has done extraordinary work toward the conservation and restoration of oaks within the urban, suburban, and rural parts of the County; with this project, the Sacramento Horseman's Association (SHA), Morton Golf LLC, and the City of Sacramento will all distinguish their organizations as leaders of the re-oaking movement within California's Central Valley.

## **Project Purpose:**

(1) The purpose of this project is to re-oak plots within Del Paso Regional Park (Park) at the equestrian facility operated by the Sacramento Horseman's Association (SHA), and along Fairway #16 of the Arcade Creek Golf Course operated by Morton Golf LLC. The SHA is situated on the north bank of Arcade Creek (south of Longview Drive), and Fairway #16 is situated on the south bank of Arcade Creek immediately across from the SHA facility.

Prospective planting areas on both sides of the creek segment are notable for large expanses of bare soil and barren, annual grassland, and a significant lack of tree canopy (this is the narrowest strip of riparian forest within the Park). It is likely that significant oak woodland habitat, or at least oak-studded savanna, was cleared when the equestrian facility and the golf course were established; and historically, when heritage oaks have fallen or been removed, they were replaced with non-native trees, or not replaced at all. There have been extensive plantings of pine, Modesto ash, fruitless mulberry, etc. at the SHA, and many of these trees are in declining health. And along Fairway #16, the mature black locusts planted by the City amid towering oaks in the 1960s are dying or already dead.

The planting of oak seedlings is proposed in these two areas because the natural recruitment of oak trees occurring elsewhere in the Park is not happening in these degraded areas - probably due to frequent mowing, plowing, trampling, compaction, desiccation and overall degradation of the top soil; and possibly due to sporadic acorn reproduction in the immediate vicinity and/or the steep decline in the population of western scrub jays (a bird species devastated by West Nile Virus). [13]

Under this project, a total of ~200 oak seedlings plus complementary shrubs and native bunchgrasses will be planted along Arcade Creek downstream (west) of the large, designated Natural Area north of the Sacramento Softball Complex (this Natural Area is depicted in Park maps contained in footnote #5 below and in a portion of Figure 1). The oak seedlings will be divided equally across the northern and southern streambanks, i.e., ~100 oak seedlings will be planted within and on the periphery of the SHA facility, and ~100 oak seedlings will be planted in a linear fashion on the margin of fairway #16 between the Arcade Creek riparian corridor and the Arcade Creek Golf Course.

On the northern streambank, plantings will extend westward parallel to Longview Drive, and along the base of the berm that marks the northern boundary of SHA's *special events meadow* (Meadow). This will complete the work initiated 15+ years ago by SHA under the *Sacramento Shade* program administered by the Sacramento Tree Foundation (STF) and the Sacramento Municipal Utility District (SMUD). [14] The goal is to create a continuous corridor of trees from between SHA's main event arena and the historic WPA bridge (1940). When combined with the row of trees already growing across the street within the Longview Oaks Preserve, the re-oaking project at SHA will help change the character of Longview Drive from a blighted, light-industrial corridor (envisioned and actuated by the City) and into a dramatic, tree-lined corridor studded with native oaks.

Within the Meadow, three (3) new planting areas will be demarcated by wooden posts in oval-shaped patterns. Two (2) of the ovals will be fashioned around existing oak saplings raised by the SHA on each side of the existing heritage oak that stands alone in the Meadow. A third oval will be sited further to the west in a barren part of the Meadow. Oak seedlings will be added to each oval to create three distinct oak groves.

In years to come, the three groves that emerge from these ovals will greatly increase the available shade for people, horses, and vehicles during the hot, dry months during the spring, summer, and fall. Great care will be taken when placing posts in the ground so that the resulting ovals will both protect the seedlings and allow safe and unimpeded traffic circulation within the Meadow for the trucks and trailers. Creating the ovals in this way will have the added benefit of extending the riparian forest northward from the creek toward Longview Oaks Preserve across the street, and increasing the amount of habitat “edge” that is so valuable to wildlife (i.e., expanding the interface between different plant communities – forest, grassland, shrubland). [15]

Eventually, the Meadow that is now dominated by non-native annual grasses and weeds *can actually be* converted into a native California meadow by introducing a diverse selection of native bunchgrasses and forbs (e.g., wildflowers) that would surround the existing heritage oaks and the aforementioned planting ovals.

Collectively, the plantings of oaks, shrubs, and bunchgrasses at the SHA facility and Fairway #16, *and* the future, potential planting of bunchgrasses and forbs in the Meadow will/can provide a variety of benefits to the ecosystem and community: [16]

- (i) increased shade and reduce ambient temperatures during warm/hot weather;
- (ii) reduced soil erosion and airborne dust (especially at the SHA facility);
- (iii) improved soil health that contributes to water quality and climate protection by increasing soil moisture retention, sequestering greenhouse gases, and strengthening the cycling of nutrients between the soil and atmosphere;
- (iv) expanded forage and shelter for raptors, terrestrial birds, and pollinators;
- (v) production of high quality forage that can be grazed by horses at the SHA; thereby reducing/eliminating the need to mow weeds in the Meadow; and the
- (vi) enhanced the visual appearance of both the equestrian facility and the golf course as characteristic landscapes of California and the West.

On the southern streambank, plantings will extend westward from the tee for Fairway #16 all the way to the huge heritage oak growing between the #16 green and the #17 tee. The oak seedlings will be planted in the dry annual grassland and the barren soils between the irrigated fairway, and the aforementioned dying grove of black locusts. Within this black locust grove, young locust saplings that sprouted from seeds borne by the trees planted in the 1960s will be removed by hand to allow for the growth of young oaks underneath the locusts that sprouted from acorns borne by the surrounding oak forest. In blank spaces amid the dying forest where no trees or shrubs are growing, new oak seedlings, beneficial shrubs, and native bunchgrasses will be planted. [17]

The dead and dying black locusts trees will be retained onsite as they are now occupied by a colony of acorn woodpeckers. The trees would only be targeted for removal if they pose a risk to public safety, and then only after consultation with the arborist from the City of Sacramento *and* the warden from the State Department of Fish and Wildlife.

**(2) Goals and Tasks for the SHA facility:**

(a) Increase the amount of available shade (at least double the amount of available shade within the facility within 10 years), reduce ambient temperatures, and decrease dust (first with mulch, and ultimately with leaf litter) in what are now the most inhospitable areas of the equestrian facility.

(b) Plant oak seedlings around the paddocks and arenas between the dead and dying ornamental trees, and begin the transition from non-native forest to a drought-tolerant oak forest that contributes to the ecological health of the Park and to the theme of the Park as one of the Central Valley’s last strongholds for native oak woodlands.

(c) Reinforce the thematic presence of oaks as the keystone tree species within the Park, and re-unify the SHA facility with the surrounding oak forest. For decades, the plantings of ornamental trees and shrubs at SHA “distanced” the facility ecologically, historically, and visually from the surrounding natural areas and SHA’s legacy as the last living link to the rich equestrian heritage and iconic western landscape of Rancho Del Paso. [18]

(d) With consent from the SHA, remove several selected weed trees and shrubs (e.g., *Ailanthus*, *Ligustrum*, *Photinia*) and replace them as appropriate with native oaks, shrubs, and/or grasses.

(e) Perform tree surgery on selected mature oaks that have lost limbs and/or been improperly pruned; seek pro bono assistance from Western Chapter of the International Society of Arboriculture (WCISA; <https://www.wcisa.net/Default.aspx>).

**(3) Goals and Tasks for the Arcade Creek Golf Course at Fairway #16:**

(a) Increase the width of the riparian forest corridor that has been diminished over time by the active clearing of oaks, and the consequent loss of oaks from the erosion and collapse of the streambanks, and down-cutting of the streambed caused by suburban development that surged in the 1940s. This development replaced the oak woodlands and native prairie with vast expanses of impervious surfaces (e.g., roads and freeways, concrete, residential/commercial/retail structures and parking lots). Following development, rather than seeping slowing into creeks and rivers through wetlands and groundwater aquifers, stormwater was now piped directly into suburban creeks via outfalls at dramatically increased rates, velocities, and volumes (in some ways similar to hydraulic mining that destroyed so many creeks and rivers during California’s Gold Rush). Establishing riparian forest “buffers” along Arcade Creek is a first step toward stabilizing the stream and recovering lost ecological functions. [19]

- (b) Transition the non-native black locust forest into a native oak forest by:
- (i) planting oak seedlings, shrubs, and bunchgrasses in the mowed, unirrigated strip of land between the bridle trail and Fairway #16 (FIGURE 1)
  - (ii) remove-by-hand the black locust saplings from the patch of emerging oak forest between the bridle trail and the creek.

(c) Affix three (3) barn owl boxes to trees along Fairway #16 per guidance provided by the *Hungry Owl Project*. This is the first step in a long-term campaign to increase populations of indigenous owls within the Park; and, in the case of burrowing owls, to reintroduce a bird species to the Park that was extirpated in the late 1970s (possibly resulting from rodenticide application at the golf course). [20] Barn owls (*Tyto alba*) are known to occur in the Park Road vicinity (John Mayfield, 2016, pers. comm.), and it may be possible to boost the local barn owl population within Del Paso Regional Park by providing additional nesting sites. A family of barn owls can consume 1,300 rats/year, and 3,000 rodents (e.g., rats, voles, and gophers) in a single breeding season. If the boxes are ultimately occupied by barn owls along Fairway #16, then Morton Golf LLC and the SHA will be the beneficiaries of pest control that is economical, non-toxic, and awe inspiring. [21]

## **(5) Site-Specific Workplan**

### **Implementation Date:**

January 2017

### **Underground Survey Alert (USA):**

Yes; will be coordinated by STF

### **Number of trees to be planted:**

SHA = up to ~100

Haggin Oaks = up to ~100

### **Tree species:**

Blue Oak (*Quercus douglasii*)

Interior Live Oak (*Q. wizlizeni*)

Valley Oak (*Q. lobata*)

### **Shrub species:**

Toyon (*Heteromeles arbutifolia*) and others TBD

**Bunchgrasses:** Species TBD will be planted if plugs are available on the days when the oak seedlings are being planted.

**Acorn Sources:** The Dry Creek Parkway, two stream basins north of Arcade Creek watershed (i.e., immediately north of Magpie Creek).

**Tree age and container size:**

1-year old; Dee pots 2" x 12"

<http://www.greenhousemegastore.com/category/tree-seedling-containers>

**Irrigation:** Yes; for at least 3-years; details addressed in separate agreements between STF and SHA (including cost-sharing for water needed to fill and refill the tank in the Meadow – see below), and STF and Morton Golf LLC.

**Irrigation Strategy:** Tie into existing irrigation lines at SHA (around the arenas, barn, and paddock) and along fairway #16 so that drip irrigation can be delivered to each new oak seedling. For the Meadow, STF will loan a water tank to SHA and install it on the western end of the meadow. The tank will be connected to a drip irrigation line running from the tank and all along the inside margin of the berm that runs parallels with Longview Drive. The oak seedlings targeted to receive this water will be planted in a staggered, linear fashion along the berm to account for expected mortality while helping to ensure the growth of an unbroken column/corridor of trees intended to grace the Longview Drive. All the planted oak seedlings will require irrigation from April through September.

**Mulching Strategy:** Per the conventions of STF, add mulch to the newly planted areas and around selected, existing trees to increase moisture retention, discourage weeds, suppress dust, and alleviate soil compaction from trampling.

**Projected growth rate:**

3' - 8' growth in first year

3' - 6' growth in the second year

**East Arena (FIGURE 2)**

- ◆ Perform tree surgery to repair broken limb on heritage oak; request assistance from WCISA.
- ◆ Add mulch around the base of this oak to alleviate soil compaction from trampling.
- ◆ Plant ~7 oaks on east side between liquid amber (15' feet apart).
- ◆ Plant ~2 oaks on south side.
- ◆ Consider removing dead/dying liquid amber trees now surrounding the East Arena and grind-out stumps for safety and appearance. Request assistance from WCISA.

**Paddock Area (FIGURE 3)**

- ◆ Plant ~10 oaks grouped together as "the paddock grove".
- ◆ Plant ~2 oaks along unpaved access road to creek (used during creek cleanups).
- ◆ Prune stump sprouts on live oak into 2-3 stems from which a "single leader" can be chosen later to make a new tree (a task for T. Vendlinski).

### **Barn Area (FIGURE 4)**

- ◆ Plant ~2 oaks south of the barn near the young, mature oaks.
- ◆ Plant 1 new oak north of barn along the drainage swale
- ◆ Remove *Ligustrum* (non-native privets) southwest of the barn that are encroaching upon the existing heritage oaks.
- ◆ Add mulch around the base of the young, mature oaks south of barn to alleviate soil compaction from trampling; these trees were planted ~20 years ago to offset the loss of the mature oak that was removed near the entrance of the barn.

### **Main Arena (FIGURE 5)**

- ◆ Plant ~12 oaks on the north side of the arena.
- ◆ Remove the small *Ailanthus* trees on the east side of the arena near the wooden shed and replace them with new oaks; consider the large mature *Ailanthus* for future removal.
- ◆ Add a significant layer of mulch around the trunks of the two existing oaks (planted as part of the Sacramento Shade Program) on either side of the grandstand at the west end of the arena, and consider running drip irrigation to these trees.

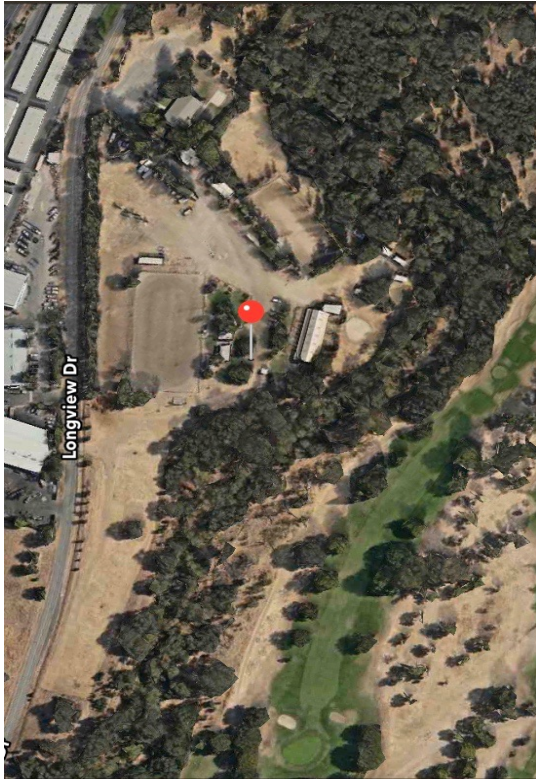
### **Special Events Meadow (FIGURE 6)**

- ◆ Establish three (3) oval-shaped planting areas (~20' x ~40') in the Meadow; with each oval oriented north-to-south. The perimeter of each oval will consist of ~20 wooden posts (6' x 6" x 6") and each post costs ~\$35.00). Sixty (60) posts would cost \$2,100.00. Funding for the posts is being sought from public, private, and non-profit sources, however, finding the labor and equipment needed to install the posts might prove to be an even more daunting challenge. Great care will be taken on the lay-out and installation of the ovals to ensure the safe and convenient passage and turning of trucks & trailers.
- ◆ Plant ~3 oaks in the oval #1 immediately west of the Main Arena, and fashion this oval around an existing blue oak sapling that was raised by SHA volunteers; remove the tire from the base of the blue oak sapling.
- ◆ Plant ~3 oaks in oval #2 immediately west of the lone heritage oak in the Meadow, and fashion this oval around the valley oak sapling that was raised by SHA volunteers; remove the metal stakes that encircle this tree.
- ◆ Plant ~4 oaks in oval #3 in the western portion of the Meadow; exact location TBD.
- ◆ Plant ~25 trees along the inside boundary the Meadow berm (running parallel with Longview Drive) beginning where the row of oaks planted under the *Sacramento Shade* program abruptly stops. Continue the oak planting westward all the way to the boundary of the Meadow formed by the deteriorating, north-to-south, post & cable barrier (this barrier was installed in 1985 and oriented perpendicular to Longview Drive to prevent truck & trailer traffic from adversely impacting the huge heritage oak - where SHA now maintains beehives - and to prevent vehicular access to the creek zone). The trees will be planted at the base of the berm in two alternating, staggered rows.
- ◆ Plant an additional ~10 trees along Longview Drive to fill-in gaps in the native oak forest beginning just west of the Meadow boundary, and continuing westward all the way to the WPA bridge (where an active red-tailed hawk nest sways high overhead).



**FIGURE 1**

A satellite image of the segment of Arcade Creek west of the densely forested Natural Area (west of Watt Ave.); the SHA facility is marked with the red pin, and to the right (south) Fairway #16 is situated on the other side of the creek and riparian corridor.



**FIGURE 2**

Oak seedlings will be planted around the **East Arena**, and a suffering heritage oak (not pictured) will benefit from tree surgery and the placement of mulch at its base.



**FIGURE 3**

A new oak grove will be planted in a barren, dusty, and hot plot in the **Paddock Area** (foreground), and a “single leader” will be chosen among sprouts on the stump of an old live oak to form a new tree on the periphery of the new grove (background).



**FIGURE 4**

Mulch will be applied at the bases of the young, mature oaks in the Barn Area and some supplementary oaks will be added to this area to provide the horses with beneficial shade.



**FIGURE 5**

A great deal of additional shade will be added to the **Main Arena** when dead and dying ornamental trees are supplemented and ultimately replaced with native oaks.



**FIGURE 6**

Three oval-shaped planting areas will be established in the *special events meadow* (**Meadow**); two of them around saplings already being grown by SHA on each side of the lone heritage oak that graces the Meadow, and one further west amid a patch of annual grasses and weeds. Also, oak seedlings will be planted along the base of the berm that runs parallel with Longview Drive to complete the column/corridor of oaks envisioned and partially established under the *Sacramento Shade*.



## Footnotes and References:

[1]

A running history of Arcade Creek from the Sacramento Area Creeks Council

<http://saccreeks.org/know-your-creeks/arcade-creek-history/>

River Partners - Riparian Ecology

<http://www.riverpartners.org/resources/riparian-ecology/>

<http://www.riverpartners.org/resources/riparian-ecology/physical-river-processes/>

*California Riparian Habitat Restoration Handbook* (River Partners, Griggs; 2009)

[http://www.water.ca.gov/urbanstreams/docs/ca\\_riparian\\_handbook.pdf](http://www.water.ca.gov/urbanstreams/docs/ca_riparian_handbook.pdf)

[2]

Geographic Subdivisions of California (Jepson Herbarium)

<http://ucjeps.berkeley.edu/eflora/geography.html>

[3]

Critical Ecosystem Partnership Fund – The California Floristic Province

<http://www.cepf.net/resources/hotspots/North-and-Central-America/Pages/California-Floristic-Province.aspx>

Top 20 Most Threatened Bird Habitats in the United States (California's Great Central Valley)

<https://abcbirds.org/wp-content/uploads/2015/05/habitatreport.pdf>

[4]

The riparian corridor and the adjacent oak woodlands and prairie within Del Paso Regional Park deserve the highest level of protection afforded by the 2030 General Plan for the City of Sacramento. Alarming, in recent years, the City Council has made decisions inconsistent with the General Plan for the City, and the Master Plan for the Park. Specifically, the Council has voted to transfer public parklands to private developers rather than burnishing the Park into the sparkling, regional asset it could be. There is a worldwide goal to reconnect people with nature in urban and suburban communities, and yet the City has moved to destroy the very natural assets required to achieve this goal. <http://www.thenatureofcities.com> Examples include: (i) the sale of the Sacramento Trapshooting Range to car dealerships that built large parking lots that encroached upon the Arcade Creek Golf Course and ruined the immediate viewshed of the green space within the Park; (ii) the handover of ~10 acres of land east of the car dealerships to the wealthy owners of the Sacramento Kings for unspecified commercial development (the parcel contains young healthy oaks and wetlands); and (iii) the proposed sale of Renfree Field and ~25 acres of adjacent parklands to the Sacramento International Baseball Association (SIBA) [see City Council Report ID 2014-00929].

### Relevant Excerpts from the 2030 General Plan for the City of Sacramento

<http://www.cityofsacramento.org/Community-Development/Resources/Online-Library/General%20Plan>

**ER 1.1.1. Conservation of Open Space Areas.** The City shall conserve and where feasible create or restore areas that provide important water quality benefits such as riparian corridors, buffer zones, wetlands, undeveloped open space areas, levees, and drainage canals for the purpose of protecting water resources in the City's watershed, creeks, and the Sacramento and American rivers. (RDR/MPSP)

**ER 2.1.3. Natural Lands Management.** The City shall promote the preservation and restoration of contiguous areas of natural habitat throughout the city and support their integration with existing and future regional preserves. (RDR/IGC)

**ER 2.1.8 Oak Woodlands.** The City shall preserve and protect oak woodlands, and/or significant stands of oak trees in the city that provide habitat for common native, and special- status wildlife species. If not feasible, the mitigation of all adverse impacts on oak woodlands shall comply with the standards of the *Oak Woodlands Conservation Act*. (RDR) <https://wcb.ca.gov/Programs/Oaks>

**LU 2.2.2 Waterway Conservation.** The City shall encourage the conservation and restoration of rivers and creeks within the urbanized area as multi-functional open space corridors that complement adjoining development and connect the city's parks and recreation system to the Sacramento and American rivers. (RDR/MPSP)

[5]

The *Del Paso Regional Park Revised Master Plan* was approved unanimously by the Sacramento City Council on 01/22/85, and permanently protected over 90 acres of the Park as Natural Areas as mitigation for the development of the Sacramento Softball Complex and related infrastructure. The rest of the ~680 Park was already occupied with the Haggin Oaks Golf Course, Henry Renfree Field, Junior Museum and Science Center, Sacramento Horseman's Association, and the Sacramento Trapshooting Club (since sold to a private developer for an automotive showroom). Seventeen years later, in 2002, the City relented on the proposed sale and development of the 7-acre "Longview Oaks" (first for a hotel; later for the expansion of the Senior Gleaners facility), and unanimously voted to permanently protect the Longview Oaks Preserve. This brought the total protected acreage within the park to ~100 acres.

Please refer to the Park's "governing documents" for City Council Resolutions from 1985 and 2002.

<http://www.cityofsacramento.org/ParksandRec/Parks/Park-Directory/Arden-Arcade/Del-Paso-Regional-Park>

*Public Participation and Natural Habitat Preservation along Arcade Creek, Del Paso Regional Park* (Vendlinski and Talley; USFS/UCD; 1989)

[http://www.fs.fed.us/psw/publications/documents/psw\\_gtr110/psw\\_gtr110\\_j\\_vendlinski.pdf](http://www.fs.fed.us/psw/publications/documents/psw_gtr110/psw_gtr110_j_vendlinski.pdf)

*Historical Resource Inventory and Evaluation Report: Sacramento Trapshooting Club* (JRP; 2006)

[http://sacramento.granicus.com/MetaViewer.php?view\\_id=7&clip\\_id=1194&meta\\_id=102142](http://sacramento.granicus.com/MetaViewer.php?view_id=7&clip_id=1194&meta_id=102142)

[6]

Prior to 1985, Park staff numbered large dead oaks with white spray paint and then issued permits to residents for the removal of the marked trees. Any resident with a chainsaw, pickup truck, and necessary manpower could drive into the Park on the bridle trails and cut down numbered trees without any further coordination or follow-up with the City of Sacramento.

[7]

Longview Oaks Detention Wetland and Restoration (Foothill Associates; circa 2004)

<http://www.foothill.com/longview-oaks-detention-wetland-and-restoration/>

[8]

Worldwide Amphibian Declines: the problem, the causes, and what can be done.

<http://www.amphibiaweb.org/declines/declines.html>

[9]

Arcade Creek Adopt a Creek Project

<https://www.facebook.com/ArcadeCreekAACP/>

Salmon Spotted on Arcade Creek – Sacramento Area Creeks Council

<http://saccreeks.org/2016/02/salmon-spotted-in-arcade-creek/>

[10]

The Central Valley Historic Mapping Project (CSUS-Chico, April 2003)

[http://www.waterboards.ca.gov/waterrights/water\\_issues/programs/bay\\_delta/docs/cmnt081712/sldmwa/csuchicodptofgeographyandplanningcentralvalley.pdf](http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/cmnt081712/sldmwa/csuchicodptofgeographyandplanningcentralvalley.pdf)

[11]

A "Bird's Eye View" of Oak Woodland Conservation (Standiford, Vreeland, and Tietje; UCANR)

[http://ucanr.edu/sites/oak\\_range/Oak\\_Articles\\_On\\_Line/Oak\\_Woodland\\_Wildlife/A\\_Birds-Eye-View\\_of\\_Oak\\_Woodland\\_Conservation\\_A\\_Collaborative\\_Venture\\_by\\_California\\_Partners\\_in\\_Flight/](http://ucanr.edu/sites/oak_range/Oak_Articles_On_Line/Oak_Woodland_Wildlife/A_Birds-Eye-View_of_Oak_Woodland_Conservation_A_Collaborative_Venture_by_California_Partners_in_Flight/)

University of California: Oak Woodland Management Program (UCANR)

[http://ucanr.edu/sites/oak\\_range/](http://ucanr.edu/sites/oak_range/)

CalPIF Oak Woodland Bird Conservation Plan  
<https://www.prbo.org/calpif/htmldocs/oaks.html>

Help Preserve Oak Woodlands – Audubon California  
<http://ca.audubon.org/conservation/help-preserve-oak-woodlands>

**Some of the most prevalent/persistent invasive weeds in Del Paso Regional Park include:**

*(Acacia dealbata)*

[http://www.cal-ipc.org/ip/management/plant\\_profiles/Acacia\\_dealbata.php](http://www.cal-ipc.org/ip/management/plant_profiles/Acacia_dealbata.php)

*(Ailanthus)*

[http://www.cal-ipc.org/ip/management/plant\\_profiles/Ailanthus\\_altissima.php](http://www.cal-ipc.org/ip/management/plant_profiles/Ailanthus_altissima.php)

*(Arundo donax)*

[http://www.cal-ipc.org/ip/management/plant\\_profiles/Arundo\\_donax.php](http://www.cal-ipc.org/ip/management/plant_profiles/Arundo_donax.php)

**(black locust)**

[http://www.cal-ipc.org/ip/management/plant\\_profiles/Robinia\\_pseudoacacia.php](http://www.cal-ipc.org/ip/management/plant_profiles/Robinia_pseudoacacia.php)

**(castorbean)**

<https://www.weedimages.org/browse/subimages.cfm?sub=6320&search=++Search++>

**(Chinese pistache)**

<http://plants.usda.gov/core/profile?symbol=PICH4&format=print>

**(Chinese tallow tree)**

[http://www.cal-ipc.org/ip/management/plant\\_profiles/Sapium\\_sebiferum.php](http://www.cal-ipc.org/ip/management/plant_profiles/Sapium_sebiferum.php)

**(Ligustrum spp. “privet”)**

<http://www.invasiveplantatlas.org/subject.html?sub=11561>

[http://www.cal-ipc.org/species\\_id\\_cards/Ligustrum\\_ovalifolium\\_Cal-IPC.pdf](http://www.cal-ipc.org/species_id_cards/Ligustrum_ovalifolium_Cal-IPC.pdf)

**(mimosa)**

<http://dendro.cnre.vt.edu/dendrology/syllabus/factsheet.cfm?ID=166>

**(Photinia)**

<http://plants.usda.gov/core/profile?symbol=PHSE17>

**(Sesbania)**

[http://www.cal-ipc.org/ip/management/plant\\_profiles/Sesbania\\_punicea.php](http://www.cal-ipc.org/ip/management/plant_profiles/Sesbania_punicea.php)

**(yellow starthistle; YST)**

[http://www.cal-ipc.org/ip/management/plant\\_profiles/Centaurea\\_solstitialis.php](http://www.cal-ipc.org/ip/management/plant_profiles/Centaurea_solstitialis.php)

[12]

*Urban Sacramento Oak Reforestation: 17 Years and 20,000 Trees* (Wyly and Teach; 2014)

[http://www.fs.fed.us/psw/publications/documents/psw\\_gtr251/psw\\_gtr251\\_447.pdf](http://www.fs.fed.us/psw/publications/documents/psw_gtr251/psw_gtr251_447.pdf)

The North Area Flood Control Project – Status of Habitat Mitigation and Monitoring (SAFCA; 2005)

[http://www.safca.org/protection/NR\\_Documents/NALP\\_Report\\_2004.pdf](http://www.safca.org/protection/NR_Documents/NALP_Report_2004.pdf)

Arcade Creek Park Preserve Master Plan – Sunrise Recreation and Park District (Foothill Associates)

[http://sunriseparks.com/wp-content/uploads/ArcadeCreekParkPreserveMasterPlan\\_2008-08-Final-reduced-for-email.pdf](http://sunriseparks.com/wp-content/uploads/ArcadeCreekParkPreserveMasterPlan_2008-08-Final-reduced-for-email.pdf)

Re-Oaking California; Napa Valley; Oakland

<http://www.sfei.org/projects/re-oaking#sthash.I3ZvmkSC.dpbs>

<http://napared.org/projects/re-oaking/>

[http://www.nytimes.com/2015/05/24/us/tree-project-aims-to-put-the-oak-back-in-oakland.html?\\_r=0](http://www.nytimes.com/2015/05/24/us/tree-project-aims-to-put-the-oak-back-in-oakland.html?_r=0)

[13]

*The Impact of West Nile Virus on Birds in California’s Hardwood Rangelands* (Scott, et al. 2006)

[http://www.fs.fed.us/psw/publications/documents/psw\\_gtr217/psw\\_gtr217\\_151.pdf](http://www.fs.fed.us/psw/publications/documents/psw_gtr217/psw_gtr217_151.pdf)

[14]

*Sacramento Shade Program Marks 25<sup>th</sup> Anniversary* (2015)

<http://www.sactree.com/news/122>

[15]

*Living Among the Oaks: A Management Guide for Woodland Owners and Managers* (UCANR Publication)  
<http://anrcatalog.ucanr.edu/pdf/21538.pdf>

[16]

*Creating a California Native Meadow* (Amme, 2003 in *Grasslands*)  
<http://cnga.org/Resources/Pictures/Amme%20Articles/creatinganativeCAmeadow.pdf>

Subnational Global Climate Leadership Memorandum of Understanding (the *Under 2 Coalition*)  
<http://under2mou.org/background/>

Heat Island Community Actions Database (USEPA; 2016)  
<https://www.epa.gov/heat-islands/heat-island-community-actions-database>

North American Oak Woodland (World Rangeland Learning Experience – WRANGLE)  
<http://wrangle.org/ecotype/north-american-oak-woodlands>

Oaks 240 – Carbon Resources in California Oak Woodlands  
[http://www.forestdata.com/oaks2040\\_carbon.pdf](http://www.forestdata.com/oaks2040_carbon.pdf)

[17]

*Restoring Oak Woodlands in California – Theory and Practice* (Phytosphere Research; 2001)  
<http://phytosphere.com/restoringoakwoodlands/oakrestoration.htm>

California Central Oak Woodland (Las Pilitas Nursery)  
<http://www.laspilitas.com/nature-of-california/communities/central-oak-woodland>

[18]

*History of the Property and Haggin Oaks – Formerly Known as Rancho Del Paso* (Ken Morton; 2014)  
<http://www.hagginoaks.com/blog/history-property-haggin-oaks/#>

Diseño del Rancho del Paso: Sacramento Co., Calif. (OAC – Online Archive of California)  
<http://oac.cdlib.org/ark:/13030/hb929008hj/?brand=oac4>

[19]

*Strategies for Managing the Effects of Urban Development on Streams* (USGS; 2012)  
<http://pubs.usgs.gov/circ/1378/>

*Horse Keeping: A Guide to Land Management for Clean Water*. 2001. Council of Bay Area Resource Conservation Districts, Petaluma, California  
<http://cesantaclara.ucanr.edu/files/51827.pdf>

Riparian Forest Buffer – Conservation Practice Standard (NRCS; 2013)  
<https://efotg.sc.egov.usda.gov/references/public/CA/391-std-ca-11-13.pdf>

[20]

Conserving Burrowing Owls in North America  
<http://urbanbird.org/our-work/programs/burrowing-owl-conservation/>

[21]

Next Boxes for Barn Owls  
<http://hungryowl.org/nesting-boxes.html>

The Natural History of Barn Owls  
<http://hungryowl.org/information/naturalhistory.html>