Ecological Framework for the Future of Canal Shores

Executive Summary excerpted and edited by Richard A. Miller from

The *Ecological Restoration Master Plan 2017,*[1]

completed December, 2017, by Planning Resources Inc.[2] under contract from the Evanston Wilmette Golf Course Association, and under the direction of Steve Neuman and Chris Carey, with assistance from the Canal Shores Eco Sub Committee.[3]

Presented as a master plan for restoration and improvement of the 82 acre greenway lying along the North Shore Channel from Sheridan Road to Greenbay Road in Evanston, Illinois, half of which comprises the Canal Shores Golf Course.

The Ecological Restoration Master Plan provides reference information for use by course management and golf planners to restore and enhance the natural resource values of the property while operating and continuing to develop the golfing venue. It references the golf course essentially in its 2017 form. Golf planning is intended to continue separately, but in dynamic interaction with the ecological plan.

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[1] The full text, graphics and tree inventory is available in pdf format at: https://drive.google.com/file/d/0BxoxTKDnDZDrZ0M3RmJsTWNRRm8/view?usp=sharing

[2] Team members: Darrell Garrison, PLA, ASLA: Project Director; Steve Halberg, PLA, CLARB, ASLA: Project Manager; Tony Castagnoli, ASLA: Project Landscape Planner; Nicky Strahl: Ecological Restoration Lead and Senior Ecologist; Katie Quesnell: Project Ecologist.

[3] Sub Committee Members: Steve Neumann, Chris Carey, Tony Frandria, Rudy Van Loon, Matt Rooney, Jason Way, Eleanor Revelle, Judy Pollock, Karen Glennemeier, Richard Miller.

The Report runs to 128 pages in the PDF file [see footnote 1]. However, that includes:

- 24 blank pages, not numbered.
- 12 pages devoted to Headings/Contents, not numbered.
- 13 pages devoted to background, process, definitions, and general explanations.
- 38 pages of tree inventory by ID number.

The heart of the Report is found in two sections (40 pages)**:**

Existing Conditions and Opportunities	Pdf pg. 21 - 27, Sheet #11 etc.
plus tree locations and illustrations	Pdf pg. 28 - 37, Sheet #18 etc.
and Wildlife	Pdf pg. 38 - 41, Sheet #26 etc.
Restoration & Improvement Strategies	Pdf pg. 51 - 81, Sheet #37 etc.

The other sections are:

Introduction	Pdf pg. 4, Sheet # 2
Site History	Pdf pg. 7, Sheet # 3
Vision and Programming	Pdf pg. 11, Sheet # 5
Planning Process	Pdf pg. 13, Sheet # 7
Public Engagement	Pdf pg. 32, Sheet # 32
Table of Graphic Figures	[*Found at the end of this document with PDF page #s.*]
Tree Inventory	Pdf pg. 89, Sheet # 59

Pagination is confusing because the printed document has sheet numbers which do not correspond to the PDF file pages. I therefore have added the PDF file page numbers to facilitate reference.

Most of the effort and expertise poured into this study is evidenced in the more important of the graphic figures which distill vast amounts of data and analysis into dense graphic displays. I have included a complete list of Figures at the end of this paper, with PDF file page numbers. The most important are in bold face and the Inventories of natural resources are in italic.

Six geographic "Zones" are identified on the Contextual Layout Graphic found at Pdf Pg. 21 [Fig. 5, Sheet 11] and their surrounding urban features are mapped. These are useful groupings determined by the natural boundaries imposed by streets and bridges.

- Lincoln Zone (south of Lincoln St.)
- Clubhouse Zone (between Lincoln and Central Streets)
- Evanston Hospital Zone (Central to Isabella)
- Flatwoods Zone (Isabella to Maple)
- "El" Zone (Maple to Linden)
- Temple Zone (Linden to Sheridan Road)

EXISTING CONDITIONS

Natural Resources, Overview

• Existing vegetation was examined for quality, quantity, and benefit to wildlife. Native vegetation is best suited for native wildlife because they evolved together. Variety is desirable because biodiversity strengthens ecosystems. Dead trees were noted as habitat for birds, mammals, and insects.

• Ease and Cost of Restoration: The potential cost of restoration or development was next considered. Areas on slopes or that require a large amount of clearing were avoided.

• Location: Practical and aesthetically pleasing development for neighboring residences is a priority that must be balanced with the constraints of the location and goals of the project. Educational opportunities incorporating local landmarks and native habitats were also considered.

Three strata were identified:

Non-woody herbaceous vegetation is lowest to the ground.

Woody shrubs are smaller than trees, and usually multistem.

Trees are the largest strata.

• *Trees:* About 900 trees were tagged, and their size, species and health were recorded. [See Pdf pp. 89 - 127.] Native trees that provide good habitat are of special interest. Native trees of high value included a variety of oaks. Cottonwood and mulberry also were present throughout most of the area.

• *Oak and hickory* woods are disappearing because young trees are not able to thrive. Those remaining need protection and nurture.

• The dominant *shrubbery* was invasive, consisting of Buckthorn (*Rhamnus cathartica*) and bush honeysuckles (*Lonicera* spp.). These prevent the development of an herbaceous understory by growing quickly, leafing out early, and shading out other plants. Their berries are generally not nutritious and may harm birds.

- *Herbaceous understory:* In some areas, native vegetation is present, and the pre-existing seed bank is able to grow. These are mostly on the fringe where invasives are less prevalent. Desirable species observed included spring ephemerals such as nodding onion (*Allium cernuum*), Virginia blue bells, trillium (*Trillium recurvatum*) and Bloodroot (*Sanguinaria canadensis*). With the clearing of invasives, more desirable forbs [herbaceus flowering plants], grasses, and sedges [flowering plants resembling grasses] may reestablish themselves alongside sapling oaks that previously were shaded out.

Wetlands

The identified wetlands, with modest restoration and protection, can increase in quality of native vegetation, habitat

value, and aesthetic appeal. Wetlands are one of the most diverse of habitats, providing food and shelter to birds and mammals. They shelter amphibians that are aggressively preyed upon by fish in streams. They provide stormwater storage, removal of contaminants, and groundwater recharge.

From Pdf pg. 22 /Sht #12

Five wetland locations are described on Pdf pages 23 - 27, Sheets #13 - 17.

The Natural Resources Inventory is presented by zone in five graphic Figures at Pdf pp 28, 30, 32, 34 & 36.

34 Tree Species of Canal Shores are listed and illustrated in five graphic Figures found at Pdf pp 29, 31, 33, 35 & 37. Half are natives.

Small Wildlife

Canal Shores provides a wide variety of wildlife habitat. The canal offers a layover for shorebirds and migratory birds traveling the Lake Michigan shore. Migratory animals like the monarch butterfly need way stations before crossing the lake. Converting unused open spaces to pocket prairies would directly benefit pollinators and other migratory insects. The identified wetlands could quickly be restored to provide habitat for other animals like the dragonfly which directly preys on mosquito larvae and adults.

Replacing buckthorn and honeysuckle with native shrubs would provide additional edge habitat, for example, for songbirds which are on the decline due to loss of open spaces like prairies and wetlands. The open spaces of the golf course combined with the wooded fringe and pocket prairies can provide urban substitutes for this lost habitat. Native plant species also may reduce erosion on the canal banks.

Existing areas of desirable native vegetation were identified that could benefit from immediate restoration to bring back desirable wildlife while controlling undesirable species. But expect it to take three years of management to produce readily apparent results.

Mammals

A healthy population of large and small mammals also transit or live in this area, especially along the water's edge or along the Channel banks. They include: deer (generally in transit), coyote, red fox, raccoon, opossum, skunk, gray and flying squirrel, rabbit, chipmunk, mice, and voles (which are kept in check by predators ranging from raptors to fox and coyote).

RESTORATION OPPORTUNITIES

The canal supports waterfowl and shorebirds. Wetlands support hydrology and the macroinvertebrates that are the foundation of the food chain for birds and other wildlife. Prairies support birds and provide cover for small mammals and reptiles. Woodlands shelter larger wildlife. In close proximity or with connecting wildlife corridors, they will function together.

The most promising areas for restoration were classified by existing site conditions.

Class III areas *have the highest priority because they have healthy native vegetation, are readily accessible, and are easier and less expensive to restore.*

Wildlife may already be using these areas. Monitoring and maintenance in and around these areas will be extremely important to prevent further degradation.

Class II areas *have limited presence of invasive or non-native species. They are easier/less costly to improve than class I and therefore are given second priority.*

However, they require speedy action to stop the spread of undesirable vegetation before the good material is overwhelmed and restoration costs escalate.

Cleared areas must be quickly replanted to prevent undesirable reestablishment.

Seeding is less expensive but can take up to 5 years to establish, and requires heavy maintenance.

Plugs and small pots also can be used, especially where a more formal look is desired, as around the clubhouse or as boarders between natural and golfing locations.

Class I areas *are dominated by non-desirable vegetation, especially of the woody variety which are labor-intensive to remove. Because they are the most challenging to restore they are given lowest priority.*

Examples include aggressively invasive species that inhibit growth of native vegetation that is important in the food chain. Some, like Alliaria petiolata (garlic mustard), release chemicals that are toxic to other plants and can poison the soil for years after. The fallen leaves of some, like Rhamnus cathartica (buckthorn), alter soil chemistry adversely. Buckthorn berries act as a laxative which cause wildlife malnutrition even while the seeds are prolifically “planted” by elimination.

Removal of woody vegetation on slopes should be done incrementally to avoid soil erosion, invasion by other undesirable species, and the displacement of wildlife using it for shelter.

Habitats

- ***Woodland edge parallel to the canal:*** The narrow woodland along the canal creates an “edge-like” environment that provides connectivity throughout the property for wildlife. It is a critical ecological component especially for songbirds,waterfowl, and other creatures seeking shelter in logs and detritus, like amphibians and reptiles. even though it may be the costliest portion of the project.
- ***Bat boxes in larger open areas*** between fairways and rough could aid bat population recovery efforts. Bats need space under the opening for them to drop out of the box, spread wings and take flight.
- ***Wetlands*** can be the easiest and least expensive areas to restore (unless chemically contaminated), and they are important to macroinvertebrates which provide a food source for wildlife. A wetland seedbank can lay dormant until appropriate conditions are present. On a golf course near Woodstock, IL, desirable Michigan Turks Cap Lilies started blooming after reed canary grass was removed along the rough.
- ***Prairies*** are usually rather easy to install with volunteer help, although the use of pesticides to kill turf grass should be by licensed personnel. After removing the turf grass, native prairie seed should be “rubbed” into the soil to ensure good soil-seed contact. For the first few years monitoring for undesirable species will be necessary to ensure healthy establishment. In close proximity to wetlands, ground nesting birds may utilize the pocket prairies.

Restoration Management

Figure 46, Pdf pg 79, provides a proposed schedule for environmental restoration [reproduced on last page of this Summary].

Stopping further degradation in Class III areas will be most important.

Technicians ideally would work under the direction of ecologists who understand natural areas management, and the relationships and systems of native ecology.

Landscape firms that do not understand the complex relationships and systems of native ecology, are less likely to succeed at long-term stewardship.

Major Management Practices

- ***Woody removal,*** also called brushing: Non-native and invasive trees and shrubs are cut and an herbicide is applied to their stumps to prevent re-sprouting.

  If all buckthorn cannot be removed, the initial focus should be on the female trees, which produce berries and seeds.
- ***Broadcast mowing*** is cutting all vegetation to a height of not less than 12 inches. This is predominately done after native seeding to allow more light to reach the seedlings, or in areas of heavy undesirable biennial

vegetative growth to prevent reseeding.

Broadcast implies large areas and heavy equipment. “Spot” mowing also can be done on small sections to control biennial vegetation.

- ***Chemical treatment*** implies selective use of herbicide to control specific species. This requires a licensed operator with an understanding of annual or biennial versus perennial vegetation.
- ***Hand pulling*** can be useful in a sparsely populated area or to avoid affecting adjacent vegetation.

28 Bird Species of Canal Shores are illustrated in Figure 21 at Pdf pg 41.

Strategies For Restoration

Specific recommendations are packed into 16 graphics, Figures 29 - 45 found at Pdf pp 51 - 79 (half are blank, the others are labeled as Sheets 37 - 53). A complete list of graphic Figures with page and sheet references appears at the end of this paper.

For presentation purposes the property is divided into four graphic or geographic areas, also referred to as “zones”.

However, <u>for planning purposes the six zones defined by the street system are far more useful</u>. They are listed above on page 2, and delineated at Pdf Pg. 21.

The southwest area, from Green Bay Road to Lincoln Avenue, includes holes 14 through 18.

The steep banks of the North Shore Channel are ecologically degraded on both sides of the Channel, and difficult to access.

Management has initiated ecological restoration along the southern-most boundary, exposing an *existing stone retaining wall* along the railroad corridor, and the railroad has responded positively regarding restoration of the stone wall and right-of-way along Canal Shores, pending solution of drainage problems.

Wetland I is a degraded wet meadow with spring inundation and some sparsely vegetated mud flats. Areas that will support vegetation year round are weedy. It is bordered by mature silver maple trees and sweet gum. It would benefit the most from seeding with spring ephemerals and perhaps woodland graminoids [vascular grass-like plants]. The 30-foot buffer currently provides minimal protection. In any seeding take care to differentiate between areas with heavy-shade areas and those with full-sun.

Wetland II combines degraded wet meadow with degraded marsh, with some desirable vegetation such a blue flag iris, orange jewelweed, cinnamon willow herb. It is bordered by mature American elm.

Both wetlands have high potential for vegetative and hydrologic enhancement; may be considered for expansion; and can be for useful in stormwater management.

A *trail connection* from the neighborhood north of the canal and south of Lincoln

Avenue to points east, is used as a bicycle and pedestrian short-cut, and a bridge for bicycle, pedestrian and golf-cart traffic crosses the canal just north of the Metra train lines. This should be maintained. Adjacent streets can be used to by-pass potential conflict with golfers.

A water-access point for kayaks and canoes could located on the northwest bank of the canal just south of Lincoln Avenue [but will be highly impacted by the proposed bridge replacement].

Passive Recreation Zones (PRZs) are identified as suitable for shelters, benches, shade areas, or landscape gardens.

"Gateway" identification is recommended at Canal Shores reentry points where the golf course and trail system crosses streets. It could include you-are-here wayfinding information, historical or environmental information. The designs could serve to brand the Canal Shores property, or be unique in character to serve as pieces of art.

The southeast area, between Lincoln Avenue and the El Tracks, combines the remainder of the "Lincoln" or "South" Zone with the "Clubhouse" Zone [which deserves separate consideration]. This includes holes 1 and 2, practice chipping/ putting greens, the Clubhouse/Pro Shop, and related facitities; the American Legion; Chandler-Newberger Recreation Center with playground; and Leahy Park with playground, tennis courts, and baseball/soccer fields.

The steep banks of the Channel continue to be ecologically degraded, and difficult to access.

EWGCA has initiated ecological restoration in the Clubhouse Zone by mechanically and chemically removing non-native and invasive woody and herbaceous plants. It is showing signs of recovery and is a high priority restoration target with its proximity to the clubhouse and its use as a photographic backdrop. On the west bank of the canal the slopes are of higher ecological condition and will require less extensive non-native and invasive species removal to transition to a better quality ecosystem.

One goal of EWGCA and the Canal Shores master planning is environmental education and exposing youth golfers to the natural environment in addition to recreational golfing. Activities include developing and interpreting rain gardens and best management practices in highly visible and accessible locations like that immediately west of the clubhouse.

From the south the pedestrian and bicycle trail re-enters the Canal Shores from Bryant, proceeds across Leahy Park to Lincoln Avenue, and follows the existing path to the clubhouse.

The plan identifies an area suitable for a Passive Recreation Zone at Lincoln.

Gateway identification is recommended at street crossing points.

The central area, between Central Street and Maple Avenue, contains holes 3, 4, 5, 9, 10, 11, and 12.

The east bank of the canal is generally degraded by non-native and invasive woody and herbaceous plants.

Two Class II locations have good potential for restoration, one on the east side south of Isabella, and the other south of Maple. Restoration has begun on the east side just south of Maple Avenue (where hole 9 crosses the canal) and the area shows signs of recovery. This is a high priority location due to the previous work and the opening up of views to the west and southwest.

Another Class II location on the east side near the CTA railroad bridge also has good potential.

The west bank of the canal near the CTA bridge are of higher ecological condition and will require less extensive non-native and invasive species removal to transition into a high quality eco-zone. The slopes remain steep, making access difficult. An area in the "elbow" of the CTA Line and the canal is area identified as Class II due to discovery of several remnant plants of high ecological value.

An area west of the canal but east of the CTA Line is a high point with significant quality tree canopy including Oaks and other desirable hardwoods.

Wetlands #3, #4, and #5 are located on the west side north of Isabella.

#3 is a rare, forested oak Flatwoods Wetland with a seasonal hydrologic regime [wetter during certain times of year]. This is the highest-quality wetland on site and likely to have a 100-foot buffer requirement. [Some of its trees may be over 150 years old.]

Wetland #4 is associated with the depression behind existing No. 9 green and is dominated by several significant Oak trees.

Northwestern football parking is accommodated west of the canal during fall football season, including hole 12.

Pedestrian and bicycle traffic should be maintained in this area. Several potential Passive Recreation Zones are identified. One has significant views northeast to the Baha'i Temple. Potential locations for observation decks are identified near the rail bridge and the high point west of the canal at Isabella Street.

"Gateway" identification is recommended at street crossings.

The north area, between Maple Avenue and Sheridan Road, contains holes 5, 6, 7, and 8.

The west bank of the canal is significantly degraded ecologically.

Class I locations are dominated by non-native invasive species.

An ecologically higher quality area is found on the west side north of Linden Avenue and west of No. 7 Green, identified as Class II, has potential to transition to Class III through active management. An area north of Maple west of No. 5 Tee currently is under an active restoration management plan.

Pedestrian and bicycle traffic should be maintained if possible. Much of the trail network will need to be located off-site in

streets running parallel to the golf course primarily because of the narrowness of the corridors available for golf.

The connecting path from Sheridan Road to Green Bay Road is accomplished by a combination of on-site and off-site trail corridors. A potential Passive Recreation Zone is identified south of Linden between No. 7 Green and No. 8 Tee.

A kayak/canoe access point is identified just south of Sheridan Road and could serve as a trailhead for a water trail utilizing the North Shore Channel.

“Gateway” opportunities are identified where the golf course and trail system cross Linden and Maple streets.

Passive Park and Wildlife Habitat Enhancement Opportunities

Pdf pp 77 - 79.

Wildlife Habitat Assessment

A wildlife habitat assessment was performed on April 27, 2017, to identify ideal locations for enhancement, restoration, and points of interest. These areas were noted:

At the Entrance, starlings, red wing black birds, mourning doves, and robins were observed so these areas already attract songbirds and predatory birds. Great horned owls also are reported.

Wetland 1: Restoration is recommended from the tree line to the shrubby pocket. The ravine across from the wetland has an interspersed native understory, which may provide an opportunity to restore and attract wildlife to the wetland from the canal. However, the fence may need to be removed and/or a wildlife underpass may need to be created in order to allow movement into the canal from the wetland.

AREA 2, South Bridge: The bridge is a scenic overpass over the canal, which has flowering trees as focal points. While there are some native plantings as well as native landscaping on either side of the bridge, there is opportunity for improvement. Each side of the bridge should be restored to further enhance the natural area. A herring gull was observed using the canal as a travel corridor.

AREA 3, South of Lincoln Street, west of Canal: The gentler slope is accessible to wildlife, and in addition with large cottonwoods could provide rest opportunities. The area is fairly open and could be a focal point to pedestrians if both sides were restored. A flagship park with signage is possible in nearby areas as well. However, there is very little wildlife opportunity on the canal unless an eddy is created to provide birds with a resting area and access point.

AREA 1, South of Lincoln Street, east of the canal: This is area is open and could provide an opportunity for a flagship park to welcome visitors. A brown-headed cow, bird, Canada geese, and a red-tailed hawk on the hunt were observed.

AREA 4, West Side Along Central Street:

The area adjacent to residential homes could be converted into a prairie park or a native vegetation education area with the addition of signs. Benches are already present in multiple areas nearby. It may be expensive to restore along the canal due to the steep slopes. However, it provides community members with viewing opportunities along Central Street, as well as creating a scenic overlook. Additionally, the north side of the Street has desirable vegetation already established. A cardinal was observed here.

AREA 14, CLUBHOUSE: In this area, shrub and tree clearing has been done. It is not dense with non-native vegetation, and the slopes are relatively gentle until near Lincoln Street. Since this is immediately across from the clubhouse, a formal native garden at the crest of the slope could create an aesthetically pleasing garden for pollinators and migratory birds.

AREA 13, Iron Bridge on East Side: The understory shrubs in this area consist of a few desirable species, such as dogwoods (Cornus spp.) mixed in with young, invasive honeysuckle. This is another opportunity for a historical viewing spot, a pollinator garden and migratory waystop. The creation of an eddy would add value to the banks.

AREA 5, East of the Railroad bridge: Wild onion and Solomon seal are present in a pocket underneath a large cottonwood tree near the bridge, indicating a native seed bank may be present. If “historic viewing” of the railroad bridge is desired this provides a good opportunity However, the undesirable vegetation is dense and would difficult to remove.

AREA 6, West side of Canal, East of EL Tracks: This area currently is overgrown with herbaceous vegetation, dominated by un-desirable goutweed. This is a great opportunity for shrubby vegetation restoration, though it would be costly. A fallen tree found in this area should be kept as a snag, and has already created a vernal pool on the canal shelf. Trash from a small, hidden party area would need to be cleared out. An eastern phoebe’s song was heard here.

AREA 12, South of Isabella: This is a small pocket that appears to contain primarily dead trees and could be restored before encroachment from non-natives occurs. However, steep slopes are an obstacle.

AREA 7, Oaks, Just South of Isabella Ave: A pollinator heavy mix around the mature oaks could enhance this area. Underneath the driplines of the oaks, woodland species such as oak sedge (Carex pensylvinia) and alum root (Heuchera sanguinea) should be planted.

AREA 11, North of Isabella St on East Side and South Side: A long area north of Isabella St. outside of the canal is a prime spot for another flagship prairie park with benches and educational signage. This area would be a good opportunity to provide a more formal garden space with native species,

surrounding a more “wild” and “naturally” seeded section. This may serve to introduce the community to native plants gardening, as well as ideas for gardening next to wild areas.

AREA 10, S. Maple Street on East Side: Native species in this area include Virginia Pokeweed, which is prevalent near the cottonwoods. A less dense population of buckthorn on a gentler slope is favorable for creating a pocket restoration and wayside stopover. This area easily could be widened towards the south, but to the north invasive shrubs are dense.

AREA 8, Behind Park Vegetative Waste Area: A small, shrubby grove in this area would not take much effort to restore. A trail system is already in existence with lots of herbaceous vegetation but invasive lesser celandine (Ficaria verna) should be removed. The shrubby edge in this area could be utilized by birds and pollinators.

Wetland 3: Immediately surrounding this area, there may be opportunity to attract bats. A bat bot box was found, but was likely unused recently due to presence of the spider webs across the entry slit. While there is an abundance of buckthorn and honeysuckle in the understory, restoring this area in conjunction with other efforts could provide the largest greenspace wayside for migratory birds with interspersion of shrubland, savannah, and floodplain habitats. Pollinators also would benefit from flowering vegetation in this area. The cleared area adjacent to the Wetland should be included in restoration efforts.

Wetland 4: This area is cleared and includes a springtime vernal pool with standing water. If restored, this area is suited to make a nice pollinator and migratory bird waystop if seeded with native emergent and woodland species.

Wetland 5: The adjacent buckthorn is relatively sparse, making this area easier to restore than others. Like Area 8, invasive lesser celandine should be removed. There are healthy basswood saplings present, and oaks exist on the peripheral. The flat areas could be restored to a savannah as a Phase I project. The buckthorn down towards the canal is dense, and could be restored as a Phase II. Additionally, spring ephemerals, such as trillium, were located in the wetland, indicating a preexisting seed bank.

AREA 9, Linden Ave. North: The area near the wooden fence line has been cleared and is primed for pollinator restoration. While it would be a lovely view to clear along the canal in front of the Bahai’ House of Worship, no desirable vegetation is prevalent enough to make the canal a priority restoration. Due to the slope and density of honeysuckle and buckthorn, this area of the canal would be expensive to restore. Intense erosion control would be needed on the slopes until desirable species were reestablished. A northern flicker, multiple barn swallows, and a brown creeper were observed here.

Visual Concepts, Before & After

As illustrations, some photographs were altered to show how they might look after improvements are made. At Pdf pg 78, Sheet 53.

Figure 44 illustrates a wetland enhancement with native grasses, sedges, and perennials. The aesthetics are improved as well as the sustainable habitat for various wildlife.

Figure 45 demonstrates how removing excess low-quality vegetation along the canal slopes offers recreational benefits, such as improved views of the Bahai Temple and space for low-impact, cantilevered lookout structures that would comply with MWRD standards.

Eco Study List of Figures,

PDF Page 85, Sheet 57

Bold = Most Important For Reference.

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SCHEDULE	2 018				2019				2020				2021				2022				Beyond 2023
	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall	Winter	Spring	Summer	Fall	
Prescription Burn Areas																					
all areas						X				X								X			ev.other yr.
General Maintenance																					
Broadcast High(12) mowing debris removal		2X	X				X				if needed										
Spot hand cutting removal of non-natives				X		2X		X		X	X	X		X	X			X		X	as needed
Chemical treatment of non-native (selective)		4X	3X	X		3X	3X	X		2X	2X	X		X+	2X	X		X+	2X	X	/yr.
Chemical treatment broadcast in select areas			X	X+			X	X			X				as needed				as needed		as needed
Hand pulling removal of seed heads				2X		X	X	X		X	X	if needed		X	X	if needed		X		if needed	as needed
Cut and remove non-native woody debris	X			X	X			X	X			X	X			X	X			as needed	as needed
Collect and store on-site seed			X	X		X	X	X		X					X	X		X			B burns
isperse from storage on-site seed						X				X								X			after burns
Overseeding (interspersal barren ground)		X				X				X				if needed							as needed
Re-planting		X	X			if needed				if needed											as needed
Monitor																					
General Wildlife Monitoring		X		X		X		X		X		X		X		X		X		X	X
Vegetative Monitoring		X		X		X		X		X		X		X		X		X		X	
Reconnaissance/ Foreman Monitoring	X	2X	X	X		2X	X	X		2X	X			2X	X			X	X		2X

***focus of this task should be on annuals and biennials; however if undesirable perennials are present, reducing seedbank is beneficial. SPOT mowing implies ONLY cutting TARGETED species (not broadcast).**

+Have at least an additional field inspection and treat at that time if necessary