



OWENS FARM
RESTORATION
and
MANAGEMENT
PLAN

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Prepared for the
Greenbelt Land Trust
by Salix Associates

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I. Owens Farm Vision

Rare Willamette Valley prairie, oak savanna and riparian habitats and species will be restored and managed at Greenbelt Land Trust's Owens Farm property, providing a key link within a system of restored, functional habitats in the area. Owens Farm will provide unique opportunities for environmental education, nature-oriented recreation and natural area research for generations to come. This significant natural area will be a focal point for partnerships between Greenbelt Land Trust and nearby landowners, public agencies, and private organizations to conserve and enhance the natural values within the Jackson-Frazier watershed.

II. Executive Summary

The Greenbelt Land Trust's vision for its 95 acre Owens Farm property is to protect, restore and manage rare native habitats and rare species and to provide low-impact education, recreation and ecological research. In addition the Greenbelt Land Trust desires to use Owens Farm as a focal point to partner with public agencies and private landowners and organizations to promote restoration and management of native habitats in the Jackson-Frazier watershed. This plan contains the vision, goals and objectives, current conditions, restoration targets, a restoration action plan, and other information to guide habitat restoration and provide for other uses.

Prairie and savanna habitats are the rarest and most imperiled native habitats in the Willamette Valley, and host most of the rare and listed Willamette Valley plant and animal species. This plan places the highest priority on restoration of these habitats. The result at Owens Farm will be a much more open landscape with prairies and oak savannas dominating the area along with wooded riparian corridors and bottomland ash woodlands adding habitat diversity. Ongoing, long-term management will be necessary to maintain prairie and savanna habitats free of encroaching woody vegetation and invasive exotic species. An integrated approach including prescribed fire, manual and mechanical clearing, herbicides and alternative methods will be necessary in this effort. Partnerships with the City of Corvallis, Benton County, neighboring landowners and private organizations will be necessary to preserve and restore ecological linkages throughout the Jackson-Frazier watershed.

Achieving the vision of native habitat restoration at Owens Farm will require external funding, phasing and experimentation to determine the best restoration methods, and cooperation from partners with similar interests. Adaptive management will be critical to the success of this undertaking.

III. Introduction and Background

In 2002, the Greenbelt Land Trust (GLT), the City of Corvallis and Samaritan Health Services partnered to acquire Owens Farm, an area of agricultural fields, hardwood forests, bottomland wetlands and wooded riparian corridors located just north of Corvallis in the central Willamette Valley in northwest Oregon. The original 312 acre farm was split into three ownerships with the



GLT acquiring the northern 95 acres, the City of Corvallis the southeast 132 acres, and Samaritan Health Services the southwest 85 acres (City of Corvallis 2003b). The bulk of the funding for purchase of the GLT portion of Owens Farm was provided by private donations from the greater Corvallis community. Additional funds were provided by the North American Wetlands Conservation Act administered by the U.S. Fish and Wildlife Service, and by a Watershed Improvement Grant from the Oregon Watershed Enhancement Board (OWEB). In 2002, the GLT granted to OWEB in perpetuity a conservation easement on its 95 acre parcel for the protection and enhancement of natural habitats and educational opportunities associated with the site.

The Greenbelt Land Trust desires to manage its Owens Farm lands to protect rare species and to protect and restore rare habitats, while providing recreational, educational and research opportunities to the community. The GLT formed an Owens Farm Advisory Committee in 2005 to help develop and oversee the preparation of this restoration and management plan for the property. Salix Associates was hired by the GLT to prepare the plan and has worked closely with the committee to develop goals and objectives and target conditions for the site. This plan was funded by the generous support of the Landowner Incentive Program, a U.S. Fish and Wildlife Service grant program administered by the Oregon Department of Fish and Wildlife, by the Oregon Watershed Enhancement Board, and by donations from Greenbelt Land Trust members.

For the purposes of this plan Owens Farm refers to the Greenbelt Land Trust's Owens Farm property. When the City of Corvallis' or Samaritan Health Services Owens Farm properties are discussed they will be clearly identified as such.

Setting.

Although much of the area has been used agriculturally since the mid-1800's a large portion of the GLT's Owens Farm ownership is comprised of oak and ash forest, wooded riparian corridors, and valley bottom wetlands. Rare plant and wildlife species have been documented in less disturbed parts of the site. Owens Farm functions as a critical link in the Jackson-Frazier watershed for wildlife and plant habitat, floodplain function and natural area values. It lies just upstream of Benton County's Jackson-Frazier Wetland Area and provides a potential connection to other habitats and open space areas in the watershed including the City of Corvallis' Chip Ross Park and Oregon State University's McDonald Forest.

Owens Farm straddles Highway 99W just north of the Corvallis city limits (Appendix B-1). Neighboring lands to the south are owned by City of Corvallis and Samaritan Health Services; to the east is Jackson-Frazier Wetland which is owned by Benton County; to the west and north are privately owned lands that are currently farmed, but which are zoned for residential development. A map showing surrounding ownership is contained in Appendix B-2. Partnering with adjacent and more distant landowners will be essential in maintaining both ecological and recreational links within the watershed. Management plans have recently been completed for the city-owned portion of Owens Farm (City of Corvallis 2003b) and for Jackson-Frazier Wetland (Frenkel and Reed 2004). It is our intent that these plans, along with this plan for the GLT's Owens Farm ownership, will provide the basis for cooperation and integration of restoration and management activities to enhance the values and maintain the connectivity of these sites while minimizing impacts to sensitive habitats and natural resource values. The



plans provide a framework within which recreational, educational and research facilities and activities can be planned and implemented.

Inventories and studies.

A variety of inventories and studies have been conducted in the North Corvallis Area where Owens Farm is located, as well as on the Owens Farm site itself. They include the following:

- North Corvallis Area Plan (City of Corvallis 2001)
- Corvallis Natural Features Inventory (City of Corvallis 2003a)
- Owens Farm Open Space Management Plan Assessment (City of Corvallis 2003b; for City ownership)
- Wetlands delineation and determination of the Owens Farm Site (Rorick Environmental Services and Salix Associates 2003; for GLT ownership)
- Rare plant survey, botanical inventory and management recommendations for the Owens Farm Site (Salix Associates 2004; for GLT ownership)
- Breeding season bird populations on Owens Farm, 2003 – 2005 (Altman 2005; for GLT ownership)

Larger scale studies which informed the vision of restoring rare, native habitats on the Owens Farm site include:

- The Oregon Conservation Strategy (ODFW 2006)
- Rare, Threatened and Endangered Species of Oregon (ORNHIC 2004)
- The Willamette Valley-Puget Trough-Georgia Strait Ecoregional Assessment (Floberg, et al. 2004)

IV. Goals and Objectives

The following goals, objectives and actions were developed by the Owens Farm Advisory Committee with assistance from GLT staff. The primary goals and objectives targeting restoration of rare native habitats are intended to be compatible with the Oregon Conservation Strategy (ODFW 2006). The Strategy identifies wet prairie, upland prairie, savanna, and riparian habitats of the Willamette Valley as the rarest habitats in the state. Many of the strategy species in that document are inhabitants of prairie and savanna habitats.

A restoration action plan is included in Appendix A. The action plan outlines specific actions to reach the stated goals and objectives.

Table 1. Owens Farm goals and objectives.

GOAL 1: PROTECT AND RESTORE	
Protect and restore native biodiversity.	
Objective A:	Protect and restore rare and declining native habitats and the processes which maintain them, and native species associated with those habitats.
Objective B:	Reduce existing impacts and prevent or minimize future impacts of invasive,



	exotic plants and animals, and encroaching, native woody plants.
Objective C:	Continue natural resource inventories and assessments to fill knowledge gaps.
Objective D:	Combine wildland-urban interface fire protection treatments with habitat restoration objectives.
Objective E:	Develop and utilize Best Management Practices to minimize negative impacts and promote more effective achievement of goals.
GOAL 2: INCORPORATE EDUCATION and RECREATION Incorporate environmental and cultural education and passive recreation opportunities which are compatible with ecological restoration.	
Objective A:	Protect indigenous and EuroAmerican cultural resources if present, and provide information on traditional ecological knowledge of the local native people, and post-settlement land management activities.
Objective B:	Provide interpretive signs and self-guided tour.
Objective C:	Provide group access opportunities for low-impact, outdoor environmental and cultural resources education.
Objective D:	Combine education functions with inventory, restoration and monitoring activities where possible.
Objective E:	Provide trails and pathways through a wide variety of habitats where impacts can be avoided to rare or fragile habitat elements and species.
Objective F:	Provide for research opportunities compatible with other goals, and including monitoring where possible.
GOAL 3: PARTNERSHIPS Form partnerships with landowners and agencies to promote restoration and management of the site and health of habitats within the watershed.	
Objective A:	Work with neighboring and nearby property owners to comment and participate in planning for restoration and management of Owens Farm.
Objective B:	Work with other neighboring and nearby property owners to coordinate preservation and restoration of habitats, water quality and quantity, and other natural resources elsewhere in the watershed
Objective C:	Work with the City of Corvallis, Benton County and regional planning agencies in planning for watershed health.
Objective D:	Coordinate restoration, education and recreation activities with other agencies and organizations which have compatible goals.
GOAL 4: MONITOR Conduct baseline and periodic monitoring to evaluate changing site conditions.	
Objective A:	Design and implement a monitoring system to evaluate effects of restoration treatments, habitat condition, and population trends of rare and invasive species.
Objective B:	Monitor annually for newly-establishing invasive species or other conditions that have potential to negatively impact the site.
Objective C:	Monitor water quality and quantity to provide information about health of aquatic habitats.
Objective D:	Coordinate monitoring with research where possible.

V. Site Description and Current Management

A. Site Description

The Greenbelt Land Trust portion of Owens Farm is located on gently sloping, rolling uplands, and on bottomlands along both sides of Highway 99W at the north edge of Corvallis (Appendices B-1, B-3). Of the 95 acres comprising the site, 75 acres are west of the highway and 20 acres lie along the east side. The site occupies gentle, northerly slopes and bottomlands along Jackson and Frazier creeks.

Jackson Creek flows across the northern part of the site from west to east, then southeast to its confluence with Frazier Creek. Frazier Creek enters the site west of the highway near the northeast corner of the site and flows southeast to its confluence with Jackson Creek just before passing under the highway. East of the highway the combined waters of the two creeks continue to flow southeast across the site and into the Jackson-Frazier Wetlands to the east. A slough on the east side of the highway and north of the main creek channel is the old channel of Frazier Creek which was cut off when the two creeks were joined to the west to provide a single passage under the highway. The old channel configuration is visible on a historic topographic map of the area (USGS 1915). Other sloughs, side channels and numerous beaver ponds result in a complex pattern of channels and backwater areas across the northeastern part of the site.

B. Regional context

Owens Farm provides an important link regionally, both for connectivity of habitats and natural processes and for providing opportunities for preservation of natural areas and nature oriented recreation.

Ecological connectivity

Owens Farm provides an important link between upstream and downstream habitats in the Jackson-Frazier Watershed, helping to maintain connections between Jackson-Frazier Wetland and upstream habitats in Crescent Valley, McDonald Forest, Chip Ross Park, and other areas (Appendix B-1). These connections facilitate movement of plants, wildlife and fish allowing for dispersal and gene flow among populations.

Trail connectivity

Owens Farm is an important component in the system of natural areas in north Corvallis. The City's 2000 Parks and Recreation Facilities Master Plan proposes trails on the portion of Owens Farm owned by the GLT, the City and Samaritan Health Services (City of Corvallis 2004). As proposed, the trails would provide access to the site and to other areas within the Jackson-Frazier Watershed including Jackson-Frazier Wetland to the east, Chip Ross Park and McDonald Forest to the west, and local areas within the watershed including Crescent Valley High School. The city's plan proposes a trail on the GLT ownership from Jackson-Frazier Wetland along Jackson Creek in the northern portion of the site. Another trail would branch off from this trail north along Frazier Creek. Highway 99W is a major obstacle to the development of a trail that would run from Jackson-Frazier Wetland to the western parts of Owens Farm.

The GLT intends to develop trails on its Owens Farm ownership that will provide recreational and educational opportunities, while protecting rare species and sensitive habitats. The trails



will be developed in coordination with surrounding landowners to be part of a regional network providing access to natural areas in the North Corvallis area.

C. Vegetation

Presettlement vegetation.

Prior to settlement in the early to mid-1800's, habitats at Owens Farm were much more open than at present as a result of frequent burning by the native Kalapuya people. The Kalapuyas and other western Oregon tribes used fire extensively for a variety of reasons: to manipulate habitats; enhance resource availability, quality and productivity (such as camas for food and basketry materials); and as a tool for resource processing (such as tarweed seed for food). These actions enhanced biodiversity and ecological health, and sustained many prairie species that now have become uncommon or rare.

Surveyor's notes from the General Land Office (GLO) survey of the area indicate that most of the site was occupied by oak savanna (Christy et al. 2005). Remaining wetland areas on bottomlands and along the creeks were noted as either seasonal wet prairie or "wetland, composition unknown" (Christy et al. 2005; see maps in Appendices B-4, B-5 & B-6). The latter category may have been wooded riparian corridors along the creeks intermingled with wet and upland prairie.

With Euro-American settlement, regular burning ceased and shrubs and trees were able to invade habitats from which they had been excluded by fire. Over time, oak woodlands and forests replaced prairies and savannas. This process, combined with widespread conversion of Willamette Valley lands to agriculture and urban areas has made prairies and oak savannas among the rarest and most endangered Willamette Valley habitats (Titus et al., 1996).

Post-settlement vegetation

Owens Farm has been used agriculturally since the 1850's. As a result, vegetation of much of the area was greatly altered by cultivation, grazing, the introduction of non-native plant species and other human disturbances. Fire likely would have been excluded or greatly reduced from pre-settlement frequencies. On the earliest aerial photographs for the Corvallis area, taken in 1936, a relatively young oak forest is visible in the southwest portion of the site (historical aerial photos are in Appendices B-7 through B-10). Much of the remainder of the site at that time is strikingly open. Grazing and haying may have helped to maintain open habitats in uncultivated areas. The series of aerial photos from 1936 to 1969 show increasing encroachment by woody vegetation except in cultivated areas, eliminating nearly all prairie and savanna except for the narrow strip of prairie along the northern boundary west of the highway.

Current Vegetation

Vegetation was described by the Corvallis Natural Features Inventory (City of Corvallis 2003a) and by a botanical inventory conducted in 2004 (Salix Associates 2004). Vegetation polygons are shown on a map in Appendix B-11 and described in Appendix C. A comprehensive list of vascular plants found on the GLT-owned site is included in Appendix D (Salix Associates 2004).

Much of Owens Farm that is not farmed now is covered with forest or shrub habitats. Oregon white oak forest occupies much of the western portion of the site west of Highway 99W. Bigleaf maple and non-native sweet cherry are common in the overstory and a few Douglas firs are



scattered in the stand. Large open grown oaks occur through portions of the stand, but most of the oaks are younger and grew up together in a more closed stand resulting in trees that have thinner, more vertical crowns. Oak stumps scattered through much of the stand provide evidence that trees were cut in the past, likely for firewood. The understory has been invaded by Armenian blackberry (formerly Himalayan blackberry) which forms dense thickets in many areas. Other native and introduced shrubs add to the dense shrub layer. Thick walls of blackberry at the edges of the forest adjacent to the grass seed fields and the old agricultural field were mowed in 2005. Two small wetland areas were delineated in 2003 within the oak forest (Rorick Environmental Services & Salix Associates 2003). These are dominated by soft rush and spreading rush and have dense shrubs and Armenian blackberry at the margins which were also mowed in 2005.

Near the center of the site west of the highway, and extending south onto City-owned land is an area of oak woodland where large oaks are present in lower densities than in the oak forest. Over the past 2 years the GLT has cleared the understory on both GLT land and on City land under a cooperative agreement with the city, in an effort to control invasives and restore a more open oak woodland habitat.

In the bottomland areas both west and east of the highway, forest and scrub-shrub habitats form corridors along Jackson and Frazier creeks and their side channels and sloughs. Oregon ash, willows, creek dogwood and Armenian blackberry occur in dense thickets in many areas. The blackberry and false brome are impacting native understory communities, excluding many native herbs. Nelson's checkermallow, a federally listed threatened species occurs in ash forest habitats near the middle of the site west of the highway. In some areas where blackberry has been cleared, native herbs such as tall larkspur and checkerlily are now sprouting.

A mosaic of upland and wet prairie occur in a mosaic in the northern portion of the site west of the highway. Portions of these areas are dominated by shrubs and non-native grasses, but they contain a significant component of native prairie species including the largest number of Nelson's checkermallow plants on the Owens Farm site. Nootka rose, Armenian blackberry and other woody species present an imminent threat to these areas. An area of degraded wet prairie is located in the northern portion of the site east of the highway. This area is much weedier and has a correspondingly lower diversity of native prairie species than the prairie areas west of the highway.

Other open areas on the site include upland agricultural fields that are cultivated for grass seed, an abandoned field, and bottomland areas formerly in ryegrass production on which efforts have been made in the last 2 years to restore wet prairie. The grass seed field near the center of the site west of the highway has several, widely-spaced large oaks, giving it a good start on a savanna structure. The abandoned field in the northwest portion of the site had been overrun by dense Armenian blackberry until 2005 when it was mowed leaving blackberry stubble and a few native oak and cascara trees. The former ryegrass fields were sprayed with herbicide and seeded with native grasses, and native wet prairie forbs were seeded into test plots. Native grasses and forbs have been established although non-native species still make up a significant portion of the vegetative cover in these fields.

Rare plant species

Two rare plant species were documented at Owens Farm during rare plant surveys in 2004 (Salix Associates). Rare plant locations are shown in Appendix B-12. Nelson's checkermallow (*Sidalcea nelsoniana*), federally listed as threatened, is scattered on bottomlands across the northern part of the site. Nelson's checkermallow grows in wet prairies, riparian areas, and at the edges of wetland forest. The 2004 surveys documented 145 Nelson's checkermallow plants. An additional 10 to 18 plants were found by GLT staff in 2005 in the wetland prairie restoration areas, apparently originating from seed that sprouted since the cessation of farming. Many of the Nelson's checkermallow plants are in areas that are undergoing rapid invasion by woody plants, or in the understory of ash forest. Nearly all of the plants in this population would benefit from restoration of more open habitats.

Meadow checkermallow (*Sidalcea campestris*), on List 4 of the Oregon Natural Heritage Information Center (ORNHC 2004), was also documented by the 2004 surveys. One plant was found west of the western grass seed field west of the highway. Meadow checkermallow grows in upland prairies and savannas, but is now mostly found on roadsides and in fencerows. Restoration of open habitats would create more potential habitat for this species at Owens Farm.

A population of 129 plants of federally threatened Kincaid's lupine (*Lupinus sulphureus* ssp. *kincaidii*), an upland prairie species, is located just east of the southeast corner of the site, on a small knoll within the Jackson-Frazier Wetland area (Al Kitzman, pers. comm.). Until recently, these plants were suffering from severe competition from woody plants. In 2005 the Benton County Parks Department cleared vegetation around the population. Additional clearing and prairie restoration would provide an opportunity for reintroduction of this species on contiguous Owens Farm lands.

D. Wildlife

Forests, shrublands, open fields and creeks currently provide a variety of habitats for wildlife at Owens Farm. As surrounding areas continue to develop, these habitats and their connections to habitats both upstream and downstream will become even more important to wildlife living in the Jackson-Frazier drainage. Active beaver dams along both creeks form numerous pools and side channels and increase channel complexity. A few large snags in the riparian corridor provide nesting opportunities for wood ducks, hooded mergansers, woodpeckers and other cavity nesting species.

Breeding bird surveys were conducted at Owens Farm from 2003 to 2005 (Altman 2005). A total of 76 species were detected during the surveys, of which 43 are likely to breed on the site and 27 probably breed nearby and use the site for foraging and other non-breeding activities. Six species are winter residents that had not left the site by the time the surveys began. Additional bird species have been detected by incidental observation during the course of other inventories on the site. A list of all birds detected on the site is included in Appendix E.

No other formal wildlife inventories have been done on the site, but incidental sightings have been made during other inventory work on the site (Salix Associates 2004). Wildlife observed on the site is listed in Appendix E.



Rare wildlife species.

Nine rare species of wildlife with federal or state status have been observed on the site. The following table lists these species and their status:

Table 2. Rare wildlife species documented at Owens Farm.

Species	Federal Status	State Status
Northern Red-legged Frog	Species of Concern	Sensitive Vulnerable
Acorn Woodpecker	Species of Concern	No status
Bald Eagle	Threatened	Threatened
Band-tailed Pigeon	Species of Concern	No status
Little Willow Flycatcher	No status	Sensitive Vulnerable
Olive-sided Flycatcher	Species of Concern	Sensitive Vulnerable
Oregon Vesper Sparrow	Species of Concern	Sensitive Critical
Yellow-breasted Chat	Species of Concern	Sensitive Critical
Western Gray Squirrel	No status	Sensitive Undetermined

In addition to the species documented on the site, potential habitat exists for other rare species. Ponds created by beaver dams and open upland areas adjacent to the riparian corridors could be suitable habitat for Northwestern Pond Turtle (Vesely, pers. comm.). Restoration of upland areas could increase suitability for turtle nesting in these areas. The breeding bird survey report indicates that potential habitat exists or could be restored for sensitive bird species associated with prairies and oak woodlands including Lewis' Woodpecker, Slender-billed Nuthatch, Streaked Horned Lark, Western Bluebird and Western Meadowlark (Altman 2005).

E. Fish

No fish surveys have been done in the stream reaches of Jackson and Frazier creeks at Owens Farm (Mamoyac, pers. comm.) However, Oregon Department of Fish and Wildlife staff has documented juvenile spring Chinook Salmon, and resident and fluvial Coastal Cutthroat Trout upstream of the site in Jackson Creek. Spring run Chinook is federally listed as threatened and Coastal Cutthroat is a federal Species of Concern. Juvenile spring Chinook enter tributaries of the Willamette River during migration. Fluvial cutthroat trout migrate from the Willamette River up tributary streams to spawn between January and March. The presence of these fish species upstream of the site indicates that they are almost certainly present in creeks on the site as well (Mamoyac, pers. comm.)

F. Soils

The Benton County Area Soil Survey (NRCS 1975; revised 2000) maps 5 soil types within the GLT portion of Owens Farm, generally oriented in bands parallel with the creeks (Appendix B-13). Upland areas are mapped as Amity silt loam, Willamette silt loam and Woodburn silt loam which formed on Willamette Valley terraces above floodplains. Bashaw clay and Waldo silty clay loam are mapped in low-lying areas adjacent to the creeks. Bashaw and Waldo soils are hydric soils which developed in bottomland areas that are saturated or flooded during the growing season (NRCS 1999).



G. Wetlands

A wetland delineation was done on the site in 2003 (Rorick Environmental Services and Salix Associates 2003). Jurisdictional wetlands are shown in Appendix B-14. Nearly 50 acres of wetlands were delineated by the study, almost entirely in bottomland areas except for two small wetlands in the oak forest in the southwest portion of the site and a small wetland in the grass seed field near the center of the south boundary west of the highway. Wetland types included forested wetlands (32 acres), emergent wetlands (17 acres) and open water (< 1 acre). A hydrogeomorphic assessment (HGM) was done to assess ecological, social and economic benefits provided by the wetlands. The Owens Farm wetlands scored very high, comparable to the Jackson-Frazier Wetlands, a Willamette Valley HGM reference site. The assessment also indicated that wildlife habitat function could be enhanced by restoring native vegetation in farmed areas (Rorick Environmental Services and Salix Associates 2003).

Wetlands west of the highway were inventoried as part of the Corvallis Natural Features Inventory (City of Corvallis 2003a). The bottomland wetlands located in the northern portion of the site were identified by the Corvallis Natural Features Inventory as locally significant wetlands (City of Corvallis 2003b). The North Corvallis Area Plan (City of Corvallis 2001) shows a "Probable Wetland Overlay Zone" that the city has applied to wetlands in the floodplains of Jackson and Frazier creeks including the wetlands of the Owens Farm bottomlands (Frenkel and Reed 2004).

H. Riparian Corridor

A broad riparian corridor follows Jackson and Frazier creeks across the northern part of the site. Most of this corridor is vegetated by Oregon ash-white alder forest or shrub habitats dominated by willows, creek dogwood, ninebark and other riparian species. Beavers are very active in the riparian corridor resulting in a complex arrangement of ponds and braided channels. The streams and riparian corridor provide habitat for fish, invertebrates, songbirds, small mammals, amphibians and reptiles and provide an important travel corridor for these species to move upstream and downstream of the site. Highway 99W bisects the corridor forming a barrier to movement of wildlife between the east and west sides of Owens Farm. The riparian corridor moderates downstream flooding by storage and slow release of floodwaters, and it serves to enhance water quality by shading and filtering.

The North Corvallis Area Plan designates Jackson and Frazier creeks west of the highway with a "Significant Stream Corridor Overlay" (City of Corvallis 2001).

I. Current restoration activities

Since acquiring the 95 acre portion of Owens Farm the GLT has initiated restoration of native habitats on the site. In 2003, the low-lying agricultural fields were taken out of grass seed production, sprayed with herbicide and sown with seed of native wet prairie grass species. Seed was sown with a no-till drill. Native prairie forbs were sown in test plots in 2005. Nelson's checkermallow plants were found in these areas in 2005, apparently having germinated from the residual seed or seed that floated in from plants in adjacent habitats. Residual annual ryegrass and other exotics still compete with the native grasses and forbs that have established. Ongoing management to control weeds and woody species will be necessary to maintain and improve restored wet prairie on the site.



Beginning in 2003 and continuing as an ongoing effort, understory areas in some of the oak woodland and forest areas were mechanically cleared of brush and non-native trees in an effort to control Armenian blackberry and create more open stand conditions. Follow-up spot herbicide treatments of resprouting blackberry and other unwanted shrubs has yielded good control, and native grass and forb seed was planted in areas of disturbed soil. Blackberry clearing also was done at the margins of upland forest areas, at the margins of the small wetlands in the oak forest, and in the old agricultural field in the northwest portion of the site. Mowing and herbicide treatment is being used to control blackberry, false brome and reed canarygrass at the edges of the riparian corridor.

In 2004, the prairie along the northern boundary of the site was mowed to reduced competition by woody plants for Nelson's checkermallow and other native prairie species.

Under an agreement between the GLT and the City of Corvallis, the GLT has carried out restoration activities on small areas of adjacent City-owned Owens Farm wetlands and oak woodland habitats that are contiguous with similar habitats on the GLT site. The GLT and the City have agreed that restoration activities in these areas will continue to be carried out by the GLT for an undetermined time.

J. Land use planning designations, zoning and easements

Current land use planning designations

Most of the 95 acres Owens Farm property owned by the GLT lies within the City of Corvallis Urban Growth Boundary (UGB). The 75 acres west of Highway 99W are within the UGB but have not been annexed into the City. The 20 acres east of Highway 99W are outside the UGB. Due to its location within the UGB the 75 acres west of Highway 99W is under the jurisdiction of both the City of Corvallis and Benton County. The 20 acres east of Highway 99W is under the jurisdiction of Benton County.

Benton County's comprehensive plan designates the 20 acres east of Highway 99W as Exclusive Farm Use (EFU). The property is also zoned for Exclusive Farm Use. According to the Benton County Comprehensive Plan the EFU Zone shall preserve and protect lands for continued agricultural production and related uses, and conserve and protect open space, wildlife habitats and other uses associated with agriculture. Comprehensive plan designations and zoning are shown on maps in Appendices B-15 and B-16.

The 75 acres west of Highway 99W, within the UGB, are controlled by both City of Corvallis and Benton County planning regulations. The City of Corvallis Comprehensive Plan designates this property as Open Space-Conservation. The Benton County Development Code designates the property as UR-5, Urban Residential 5 acre minimum parcel size, and UR-10, Urban Residential 10 acre minimum parcel size. The property would also be subject to Benton County's Ordinance 100 that would require any subdivision of the property to cluster homes.

This apparent conflict between the City's comprehensive plan designation as Open Space and Benton County's Rural Residential zoning designation is not significant as the property has a conservation easement held by the Oregon Watershed Enhancement Board that prohibits subdivision of the property. The City of Corvallis has also placed a Wetlands/Significant



Streams Overlay on this section of the property. This overlay recognizes that Jackson and Frazier creeks converge in a broad floodplain area on the site and that the site contains significant wetlands.

Surrounding land use designations

The Jackson-Frazier Wetland Area owned by Benton County borders the GLT property east of Highway 99W. The Jackson-Frazier Wetlands are designated as Open Space on the Benton County Comprehensive Plan.

City owned lands on the east side of the highway and just south of the GLT property are designated as Exclusive Farm Use.

A portion of the lands west of Highway 99W and south of the Greenbelt property are designated as Open Space-Conservation in the City of Corvallis Comprehensive Plan and zoned Urban Residential 5 acre minimum under Benton County's Development Code. However, since this portion of the property was purchased by the City of Corvallis for use as Open Space this comprehensive plan/zoning designation is outdated. The City's Owens Farm Open Space Management Plan recommends that at such time as this property is annexed to the City the comprehensive and zoning designations be changed to Open Space-Conservation.

An 85 acre area located south of the GLT property is zoned Residential Medium High Density, Mixed Use Residential and Mixed Use Commercial. This property is currently owned by Samaritan Health Services which plans to utilize portions of the site for an expansion of its hospital campus.

Property to the west is zoned Residential Low Density. Property to the north of the GLT property and west of Highway 99W is designated Residential Low Density with a wetland overlay. Frazier Creek flows through these properties and a large portion of the property has probable wetlands. Property north of the Greenbelt property on the eastside of Highway 99W is zoned General Industrial-Office and is currently occupied by Marys River Lumber.

Proposed comprehensive plan and zoning designations

The GLT is exploring options for reclassification of the site with appropriate comprehensive and zoning plan designations that more clearly reflect our intent to restore the property to native habitats. The GLT is investigating enrolling the property in the Oregon Department of Fish and Wildlife Habitat Conservation and Management Program. This is a cooperative effort involving state and local government and other partners to help private landowners voluntarily conserve native wildlife habitat. Under this program, land subject to an approved wildlife habitat conservation and management plan receives a wildlife habitat special assessment, where property taxes are assessed at the relatively low value that would apply if the land were being farmed or used for commercial forestry.

The GLT is also considering pursuing a change in comprehensive plan and zoning designation such as Open Space-Conservation that would more accurately reflect the emphasis on native habitat restoration at this site.



Easements and site access

The City of Corvallis and the Greenbelt Land Trust agreed to two limited access easements in February, 2002. The first agreement grants access to the City of Corvallis to its property across GLT property on the east side of Highway 99W. This easement allows the City limited access from Highway 99W for crop production and open space maintenance and protection. This easement does not allow uncontrolled public access.

The second easement grants access to the GLT across City owned land to GLT property on the west side of Highway 99W. It allows limited access across the existing gravel road and an extension thereof for farm production and open space maintenance and protection. This easement is limited to farming related equipment and vehicles of the GLT. The location and design of any road improvements or extension of the existing road will be determined at time of development of the property(s). This easement does not allow uncontrolled access to the general public, is temporary in nature, and will be extinguished when a permanent access is developed. The location and timing of a permanent access easement will depend on development of neighboring properties. The GLT will work in partnership with neighboring property owners, including the City and Samaritan Health Services to plan and locate future permanent access routes.

Consumers Power has an easement on the property for an electrical transmission line which crosses near the northern boundary of the property. The easement appears to be approximately 30 feet wide and runs on the south side of the fenceline that forms the northern boundary.

The North Corvallis Area Plan (City of Corvallis 2001) shows schematic locations of future sewer and water lines which are proposed to cross the GLT Owens Farm property. When the property was purchased by the GLT the City of Corvallis was granted future dedication of stormwater easements, a 20 foot wide easement for a sanitary sewer line and water line, a 15 foot wide easement for a sanitary sewer line improvement as delineated or dedicated on the recorded Partition Plat 2002-05, and a 10 foot wide strip for future dedication of right of way for road and utility purposes as delineated or dedicated on the recorded partition plat.

The GLT granted these easements taking into account that sewer and water lines will need to be extended to North Corvallis in order to accommodate orderly development of lands within the Urban Growth Boundary. The GLT will work to insure that installation of these improvements will not harm the natural resource values of the property. The GLT will also investigate with the City of Corvallis whether these infrastructure improvements could be moved off site to a property where impacts to natural resource values will be lower.

VI. Restoration Planning

The GLT's intent at Owens Farm is to restore rare Willamette Valley habitats and the species which rely on those habitats, over as much of the site as practicable, while maintaining ecological connectivity within the Jackson-Frazier watershed. Habitat restoration will occur in phases so that funding and human resources are not overwhelmed, and to provide opportunity



for assessment of success or failure that can feed back into later phases. Priority will be placed on preserving and restoring the rarest and most threatened habitats first, for example, the upland/wetland prairie mosaic north of Jackson Creek. Adaptive management will be used to modify restoration and management activities over time. The target conditions should be considered somewhat conceptual. Actual future conditions may vary depending on local site characteristics, adaptive management feedback and potential changes in management goals for the site. The following section describes target future conditions and outlines restoration priorities for the site.

A. Target future conditions and restoration priorities

Restoration efforts at Owens Farm will be aimed at restoring more open prairie and savanna habitats across much of the site. Prairie and savanna are prioritized both because they are rare and because they host most of the rare species that occur in the Willamette Valley (ODFW 2006, OWEB 2004, Floberg et al. 2004; ORNHIC 2004).

Restoration and management activities will be phased to match the availability of funding and personnel. This plan outlines restoration in two phases, the first to occur over the next 5 to 10 years and the second to occur between 10 years and 20 years from present. Additional phases could be added due to funding and personnel limitations. Appendices B-17, B-18 & B-19 contain maps showing current vegetation, interim target conditions that will be present in 5-10 years, and long-term target conditions that will be present in 20+ years. The following table summarizes restoration priorities for each vegetation polygon. Higher priority is assigned to areas that have rare habitats or rare species that are threatened by invasives or woody species.

Table 5. Owens Farm restoration priorities.

Polygon	Priority	Current Cover Type	Restored Cover Type
F	Very High	Upland/wetland prairie mosaic	Upland/wetland prairie (expand south into Polygon E)
G	Very High	Upland/wetland prairie mosaic	Upland/wetland prairie (expand south into Polygon H)
A	High	Oak forest	Oak savanna
D	High	Old agricultural field	Upland prairie
I	High	Wetland prairie (partially restored)	Wetland prairie (expand north into Polygon H)
J	High	Wetland prairie (partially restored)	Wetland prairie
M	High	Oak woodland	Oak woodland
N	High	Degraded wetland prairie	Wetland prairie
O	High	Degraded wetland prairie	Wetland prairie
S	High	Maple forest	Upland prairie
H	High for prairie areas Low for Rip. Scrub-shrub	Riparian scrub-shrub	Upland/wetland prairie/Riparian scrub-shrub (prairie north and south of Jackson Creek)
B	Medium	Forested wetlands	Wet prairie
C	Medium	Emergent wetlands	Wet prairie

Polygon	Priority	Current Cover Type	Restored Cover Type
E	Medium	Ash forest	Ash savanna/wetland prairie (prairie north of Jackson Creek)
K	Low	Agricultural field	Upland prairie
L	Low	Agricultural field	Upland prairie
P	Low	Riparian scrub-shrub	Riparian scrub-shrub
Q	Low	Wetland meadow	Wetland prairie
R	Low	Agricultural field	Upland prairie

West of Highway 99W. In the upland/wetland prairie mosaic (Polygons F and G) polygons the quality of the remaining habitat, the presence of Nelson's checkermallow, and the imminent threat from woody plants warrant immediate restoration and active management. These areas will be cleared of invading woody plants such as Nootka rose and Armenian blackberry, and expanded to the south, leaving a narrow buffer of native woody vegetation along the north side of the Jackson Creek.

Restoration efforts will continue in partially restored wetland prairie in old agricultural fields (Polygons I and J) in Phase 1. Control of exotic species and increasing the abundance and diversity of native wet prairie species will be goals in these areas.

Upland prairie and savanna will be restored in currently farmed fields (Polygons K and L) and the abandoned agricultural field (Polygon D). This action will occur in Phase 2.

The oak forest area (Polygons A, B and C) will be thinned to savanna density (canopy cover of 5-30%) and the understory converted to herbaceous prairie/savanna species. Tree density in this area may vary with both scattered individuals and denser clumps of oaks. The eastern half of this area will have higher priority for thinning because of the presence of large open grown oaks and the opportunity to create more savanna area when combined with restoration of the adjacent agricultural fields to upland prairie. The western half of the oak forest will be thinned to woodland density in Phase 1, with additional thinning later to achieve the long-term goal of restoring savanna habitat.

The thinned and cleared oak woodland (Polygon M) will have high priority for weed control and establishment of native species. Edges and areas with less canopy cover will be vegetated with native upland prairie grasses and forbs. In later phases the canopy will be thinned to savanna density.

The bottomland ash forest (Polygon E) will be reduced in extent as adjacent prairie areas are restored and expanded. The western portion will remain in ash forest while parts of the eastern portion will be thinned to woodland or savanna density or converted to wet prairie to benefit the Nelson's checkermallow which is growing in the understory, and to provide habitat for other native wet prairie species.

The wooded riparian corridor (Polygon H) in the northeast corner west of the highway will remain essentially intact with some understory clearing to control Armenian blackberry and other non-native species. However, the wooded riparian corridor along Jackson Creek will be

narrowed because of the expansion of open habitats both to the north and south. A wooded corridor of adequate width to protect stream water quality will be left intact.

East of Highway 99W. Degraded wet prairie areas (Polygons N and O) and the wetland meadow (Polygon Q) will be restored to native wet prairie. Reed canarygrass control in the wet meadow will take high priority to coordinate with aggressive control efforts planned for a reed canarygrass infestation downstream in Jackson-Frazier Wetland. In Phase 1, invading woody vegetation and invasive exotics such as Armenian blackberry will be controlled to protect open habitats, especially where Nelson's checkermallow occurs. The currently-farmed field (Polygon R) will be restored to upland prairie. Riparian shrub habitats will not change greatly in extent, but will be subject to periodic weed control. The maple forest area in the southeast corner (Polygon S) will be cleared of invasives and thinned to woodland density in the Phase 1. In the long-term this area will be thinned to savanna density and ideally will be managed as a unit with the contiguous Jackson-Frazier land to the east, for the benefit of the Kincaid's lupine population. Kincaid's lupine could be reintroduced in the restored upland prairie in both Polygon R and S.

B. Monitoring

A monitoring program will be an essential component of adaptive management and the restoration and management activities at Owens Farm. Monitoring will provide feedback that will be used to determine whether target habitat conditions are being met, presence and abundance of invasive species, condition of rare plant and animal populations, stream water quality and quantity, and whether restoration and management goals are being met. Information from monitoring will be used to adjust restoration and management activities over time to better achieve goals for the site.

Monitoring may occur in a variety of forms and intensities depending on the objectives. Some monitoring will require specialists such as trained wildlife biologists or botanists. Other monitoring could be conducted by volunteers in cooperation with school classes and local organizations such as the Native Plant Society of Oregon, the Audubon Society and the Corvallis Environmental Center.

The following table lists monitoring activities that should be considered for implementation at Owens Farm.

Table 6. Potential monitoring activities for Owens Farm.

Monitoring Activity/Type	Description
Permanent photo points	Install permanent photo points to document changes in vegetation structure over time. Install in all major vegetation types and restoration areas. Photograph 2 times per year (leaf on and leaf off). Photo points are a relatively easy and economical way to record large-scale changes.
Survey for invasive species and encroaching native woody species.	Survey the site at least once per year for invasive exotic species and encroaching native woody species. Roads, trails and riparian corridors are common introduction areas for invasives so surveys will cover these areas well. Map weed locations and utilize this

	information to target control efforts. Do followup surveys in areas that have had weed control activities to make sure that control targets have been achieved.
Monitor vegetation in restoration areas	Monitor vegetation before and after restoration to show the resulting change and to determine whether restoration targets are met. Install permanent vegetation plots, and revisit periodically (every 5 years or less). Use a statistically valid study design.
Monitor rare plants	Conduct rare plant surveys periodically to determine location, abundance and condition of rare plant populations. Populations of species that are reintroduced to the site will be tracked to determine survival success.
Monitor wildlife	Repeat breeding bird surveys periodically to determine effect of restoration on bird use of the site. Use the same sample points and methodology as the Altman breeding bird study (Altman 2005). Conduct surveys for other wildlife including invertebrates, particularly rare species associated with prairies and savanna.
Monitor stream water quality and quantity	Monitor stream water quality to determine whether restoration activities are affecting water temperature, nutrient content, etc. Water quality and quantity monitoring can also give an indication of effects of upstream management activities, impacts of development, etc.

C. Restoration and management issues

Protection of existing rare species and habitats

Protection of rare species and rare habitats will be the first priority of management activities on the site. Because most of the rare species are dependent on prairie and savanna habitats, and because the remaining prairie habitat is rapidly being colonized by woody vegetation, it is critical that control of invading trees and shrubs in these areas be implemented as soon as possible.

Restoration of habitats and reintroduction of rare species

Restoration efforts will be aimed at restoring prairie and savanna habitats both because of their rarity and because they host most of the rare Willamette Valley species. As part of the restoration effort rare species, particularly plants, will be reintroduced in appropriate areas to help stabilize and rebuild populations of these species. Assuming adequate connections exist, rare wildlife should be able to recolonize the site when appropriate habitats are restored. For species of low mobility or that do not have nearby populations, reintroduction should be considered. The following rare plant and animal species may benefit from restoration of open habitats.

Table 7. Rare species that may benefit from restoration of open habitats.

Plant species	Notes
meadow checkermallow	Documented on site
Nelson's checkermallow	Documented on site
Kincaid's lupine	Documented nearby at Jackson-Frazier Wetland
Bradshaw's lomatium	Documented nearby at Jackson-Frazier Wetland



Willamette Valley daisy	Potential
thin-leaved peavine	Potential
shaggy horkelia	Potential

Animal species	Notes
Acorn Woodpecker	Documented on site
Slender Billed nuthatch	Documented on site
Vesper Sparrow	Documented on site
Western Gray Squirrel	Documented on site
Northwestern Pond Turtle	Potential
Lewis' Woodpecker	Potential
Streaked Horned Lark	Potential
Western Bluebird	Potential
Western Meadowlark	Potential
Camas Pocket Gopher	Potential
Fender's Blue Butterfly	Potential

Control and management of invasive exotics and woody vegetation

Invasive exotics and woody vegetation pose the most serious threat to the health of prairie and savanna habitats, and the greatest challenge for restoration activities to overcome. Significant infestations of Armenian blackberry and false brome must be brought under control for successful restoration to occur. Woody species, native and introduced, will continue to invade open habitats and threaten rare plant populations. Trails and riparian corridors act as introduction zones for new infestations of invasives. New infestations of invasive exotics should be eradicated before they are too widespread to control.

A variety of methods of control will be kept as options for use in this effort including mowing, prescribed fire (broadcast burning and hand-held propane torches), herbicides, hand pulling and solarizing/smothering. Experimental or alternative methods may be effective and appropriate for use including hot foam treatments or infrared burners. Periodic monitoring will be necessary to detect new invaders and expanding populations of established invasives so that corrective action can be taken. Preventive measures will be taken during restoration, such as minimizing ground disturbance and cleaning equipment before and after use in infested areas. Best management practices to address these issues will be defined and implemented (Appendix F).

Cooperation with upstream and downstream land owners will be essential in bringing weed infestations under control. Every site acts as both a "source" and a "sink" for weed propagules. Seed of false brome, reed canarygrass and other invasives are deposited on the site from upstream and surrounding areas, and are conveyed from the site to Jackson-Frazier Wetland and other surrounding areas. The GLT will coordinate weed control efforts with Oregon State University Research Forests, Benton County Parks, City of Corvallis, Samaritan Health and other upstream and downstream owners to coordinate efforts to reduce weed impacts in the watershed.

Constraints to vegetation management

The location of the Owens Farm site on the urban fringe and along a major state highway presents a variety of challenges for vegetation management. Prescribed burning, a preferred method for maintaining prairie and savanna habitats, will be difficult due to the proximity of Good Samaritan Hospital and Highway 99W, and because of general air quality concerns. Smoke management and monitoring will be critical to eliminating the risk of smoke entering the hospital's fresh air intake system and the risk of smoke creating a visibility hazard along Highway 99W. Precautions will be necessary to make sure that prescribed burns remain under control and do not spread to neighboring lands. Good burning conditions may be difficult to obtain given the constraints posed by the surrounding uses.

Solutions to these problems will be sought by opening discussions with the hospital and Oregon Department of Transportation, Oregon Department of Environmental Quality and local fire officials to determine what acceptable levels of smoke are and how they might be attained. Appropriate fire control protocols will be implemented including construction of fire breaks around the perimeter of the site or portions of the site that are to receive burning treatments. Alternative burning techniques that generate less smoke will be investigated and used if they are practical. These might include burning small plots and using propane or infrared burning machines. Infrequent burning combined with mowing, hand control and herbicides may be utilized.

If burning is not feasible woody vegetation will be controlled mechanically, manually or by herbicides.

Seed sources and genetic neighborhood

In selecting native seed sources the GLT will use seed sources that maximize genetic diversity but do not compromise genetic integrity of known ecotypes, and will follow current accepted genetic standards for establishing seed transfer zones. When possible, seed will be collected from on-site. This seed can be increased through repeated growout and harvest to provide adequate seed for restoration planting. If on-site seed is not adequate local seed sources will be used whenever possible to assure that appropriate genetic material is used in seeding and planting of native species. Some grasses and other wind pollinated plants may have a much larger genetic neighborhood and for these species more distant seed sources may be acceptable. Rare species may have more restricted seed zones.

In general, seed from sources outside the Willamette Valley will not be used, with the possible exception of certain endangered species, such as golden paintbrush (*Castilleja levisecta*), which is considered to be extirpated from Oregon and now only grows at a few sites in Washington and British Columbia.

Opportunities and constraints for recreation, education and research

The proximity of Owens Farm to the urban center, local schools and Oregon State University provide potential opportunity for recreation, education and research activities. Only low impact, nature oriented recreational activities will be allowed, such as walking on trails, bird-watching and nature appreciation. Local schools may use the site for education about Willamette Valley ecosystems and natural processes. Researchers at Oregon State University could use the site to study habitat restoration and rare species reintroduction.



These uses will be monitored, and coordinated with restoration goals and activities so that site resources are protected. Sensitive species must be protected from damage by human activities on the site. Trails and other infrastructure will avoid rare plant populations.

Trail planning

A site access and trail plan will be prepared to guide design and construction of trails and paths to allow recreational access while protecting site resources. Construction of disabled-accessible trails will be considered. The GLT will coordinate trail routes with City of Corvallis, Samaritan Health Services and Benton County to optimize connections to the City's and Samaritan's Owens Farm parcels and to the Jackson-Frazier Wetland. The GLT will work with other neighboring land owners to optimize trail connections through the site and to destinations elsewhere in the watershed.

The Owens Farm property is located between two major roadways, Highway 99W and Highland Drive. Both of these roadways are utilized by bicyclists for commuting and recreational purposes. The GLT recognizes that some of the proposed roadways and trails within the overall Owens Farm property owned by the City, Samaritan Health Services and the GLT may be used by bicyclists. A trails plan to be developed at a later date in cooperation with the City of Corvallis and Good Samaritan Hospital will delineate appropriate routes for bicycles. These routes will be situated and constructed to minimize impacts to the natural resources at the site.

At present there is no direct access to the western portion of the site, and access is obtained from the City's Owens Farm property via the driveway to the Owens house. The GLT is working with the City to arrange an agreement acceptable to both parties to allow access to the site by both recreational users and restoration workers and equipment.

Trails will avoid known rare species populations and sensitive habitats such as the upland/wetland prairie mosaic north of Jackson Creek. Boardwalks will be utilized for trails through wetlands to minimize soil disturbance and erosion, and to provide year round access in areas that flood during the rainy season. Nonetheless, trails will be used where appropriate to expose and educate people about the rare species and habitats present and being restored on the site. The trail planning process will include input from resource specialists knowledgeable about wildlife nesting sites, rare plant populations and sensitive habitats so that these resources may be both protected and utilized to enhance public awareness.

Trails will be constructed to provide site access for recreation, education and research activities, and to provide pathways for equipment to enter the site both for restoration and management activities, and for emergency access. To protect site resources, equipment will be required to remain on designated pathways to the extent possible.

VII. References

- Altman, B. 2005. Breeding season bird populations on Owens Farm, 2003 – 2005. Unpublished report to Greenbelt Land Trust, Corvallis, Oregon.
- Christy, J.A., E.R. Alverson, M.P. Dougherty, S.C. Kolar, C.W. Alton, S.M. Hawes, L. Ashkenas and P. Minear. 2005. Historical vegetation of the Willamette Valley, Oregon, 1851-1910. ArcMap shapefile, Version 7.0. Oregon Natural Heritage Information Center, Oregon State University. Portland, OR.
- City of Corvallis. 2001. North Corvallis Area Plan. Corvallis Planning Department and Satre Associates, P.C. Unpublished report available from the City of Corvallis, Community Development Department
- City of Corvallis. 2003a. Natural Features Inventory Final Report. Unpublished report available from the City of Corvallis Parks and Recreation Department, Corvallis, Oregon.
- City of Corvallis. 2003b. Owens Farm Open Space Management Plan Assessment Report. Unpublished report available from City of Corvallis Parks and Recreation Department, Corvallis, Oregon.
- City of Corvallis, 2004. Owens Farm Open Space Management Plan. Unpublished report available from City of Corvallis Parks and Recreation Department, Corvallis, Oregon.
- Floberg, J., M. Goering, G. Wilhere, C. MacDonald, C. Chappell, C. Rumsey, Z. Ferdana, A. Holt, P. Skidmore, T. Horsman, E. Alverson, C. Tanner, M. Bryer, P. Iachetti, A. Harcombe, B. McDonald, T. Cook, M. Summers, D. Rolph. 2004. *Willamette Valley-Puget Trough-Georgia Basin Ecoregional Assessment, Volume One: Report*. Prepared by The Nature Conservancy with support from the Nature Conservancy of Canada, Washington Department of Fish and Wildlife, Washington Department of Natural Resources (Natural Heritage and Nearshore Habitat programs), Oregon State Natural Heritage Information Center and the British Columbia Conservation Data Centre.
- Frenkel, B. and D. Reed. 2004. Jackson-Frazier Wetland Management Plan – a refinement of the 1992 plan. Unpublished report prepared for the Benton County Natural Areas and Parks Department.
- NRCS. 1999. Benton County Hydric Soils List. U.S. Department of Agriculture, Natural Resources Conservation Service.
- ODFW. 2006. The Oregon Conservation Strategy. Oregon Department of Fish and Wildlife, Salem, Oregon.
- ORNHC. 2004. Rare, threatened and endangered species of Oregon. Oregon Natural Heritage Information Center, Oregon State University, Portland, Oregon. 105 pp.

OWEB. 2004. DRAFT Report and Recommendations: OWEB Land Acquisition Priorities. Oregon Watershed Enhancement Board. Salem, Oregon.

Rorick Environmental Services and Salix Associates. 2003. Wetlands delineation and determination of the Owens Farm Site. Unpublished report prepared for Greenbelt Land Trust.

Salix Associates. 2004. Rare plant survey, botanical inventory and management recommendations for the Owens Farm site, Benton County, Oregon. Unpublished report prepared for Greenbelt Land Trust.

SCS. 1975. Soil Survey of Benton County Area, Oregon. U.S. Department of Agriculture, Soil Conservation Service. 119 pp.

Titus, J.H., J.A. Christy, D. VanderSchaaff, J.S. Kagan. 1996. Native wetland, riparian, and upland plant communities and their biota in the Willamette Valley, Oregon. Phase I Project: Inventory and Assessment Report to Environmental Protection Agency, Region X, Seattle, Washington, Willamette Basin Geographic Initiative Program. Oregon Natural Heritage Program. The Nature Conservancy. Portland, Oregon.

USGS. 1915. Albany Quadrangle 15' topographic map. U.S. Geological Survey. Available at: https://www.nwp.usace.army.mil/ec/ts/flight_lines/OR-nw-fl.htm.

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VIII. Appendices

- A. Restoration Action Plan
- B. Maps and Aerial Photographs
- C. Vegetation Polygon Descriptions
- D. Plant list
- E. Wildlife list
- F. Best management practices