

2021



**ORCHARD HEIGHTS
RESERVOIR SITE OAK
SAVANNA MANAGEMENT
PLAN**

I. Introduction and Background

A. Purpose of the Plan

The management plan for the Orchard Heights Reservoir Site Oak Savanna provides a framework for protecting the site for potential use as a reservoir site while enhancing the ecological functions of the site and facilitating compatible educational access. The plan documents existing conditions and sets forth considerations, ecological prescriptions, and criteria for restoring and managing the site. A management plan is required under the Memorandum of Understanding between the City of Salem and the Glenn Gibson Watershed Council.

B. Location and Context

The Orchard Heights Reservoir Site Oak Savanna is a 14-acre site reserved by the City of Salem as a water supply reservoir site. A portion of the site abutting Orchard Heights Road was developed as Fire Station 11 in 2009. The site is surrounded by residential development on three sides and by the Fire Station and a private residence on the fourth side (Figure 1).



Figure 1: Orchard heights Oak Savanna/Reservoir Site Location

C. Memorandum of Understanding

The Glenn Gibson Creek Watershed Council (Council) has a Memorandum of Understanding (MOU) with the City of Salem (City) concerning the use of the site as an oak savanna and defines the conditions necessary to maintain the site in a safe manner. With changes in City staff and changes in the

operations between the City and the Council, a new agreement was developed and signed in 2020 (Attachment C).

Due to the site being a savanna, guidance to prevent fire is important. The 2020 MOU documents that the City is responsible for maintaining a 30-foot area on the perimeter of the site for fire safety by mowing by late June or early July. The two exceptions to this are the lupine stand and the wetland. The Council is responsible to mow the interior of the site annually by August 31 of each year.

D. Goals and Guiding Principles

The goal of the Council is to maintain a diverse assemblage of native savanna species and foster oaks (*Quercus garryana*) and madrones (*Arbutus menziesii*) in scattered locations with no more than 30% canopy coverage.

The Council has the following guiding principles for management and use of the site:

- Maintain the site within the requirements of the MOU with the City.
- Provide an opportunity for environmental education for the community and especially the adjacent schools (West Salem High School, Straub Middle School, Kalapuya Elementary School, Chapman Hill Elementary School, Harritt Elementary School).
- To the extent possible control invasive species.
- Maintain a positive relationship with adjoining private property neighbors.
- Work with the City to create ecological opportunities for the site that help to meet City goals and diversify the urban environment.
- Establish native forbs species typical of Willamette Valley oak savanna/upland prairie.

II. Orchard Heights Oak Savanna Existing Conditions

A. General Conditions and Existing Use

The Oak Savanna is a reservoir site for the City of Salem. The site was purchased and is reserved as a potential reservoir site for water supply to West Salem residents. With the development of the Grice Hill Reservoir, the Orchard Heights site is not needed at this time.

B. Natural Resources Inventory

o Soils

The Orchard Heights Oak Savanna site is a modest north facing slope with deeper clay loam soils (Jory series) at the base and top of the site and shallower clay loam soils (Nekia series) across the center of the site (Figure 2).

The Jory series consists of deep, well drained, strongly sloping soils on low, rolling foothills that have abrupt, steep north exposures. These soils formed in fine textured colluvium weathered mainly from basic igneous material and secondarily from tuffaceous and sedimentary material. Jory soil is subject to compaction and is not a good substrate for paths.

The Nekia series consists of moderately deep, well drained soils on foothills and higher, rolling uplands. These soils formed in colluvium and residuum weathered from basic rock. The area of Nekia soil is shallower and often has rocky outcrops or shallow rock substrate.



Figure 2: Orchard Heights Oak Savanna Soils

Map Unit Legend

Map Unit Symbol	Map Unit Name
36C	Jory silty clay loam, 2 to 12 percent slopes
52C	Nekia silty clay loam, 2 to 12 percent slopes

○ Topography

The site is a north facing slope that rises to the south. The lower end of the property carries drainage from the adjacent residential development across the property to an open channel along the lower (west) half of the property. Drainage connects to a ditch that drains north eventually into Goldcrest Brook.

○ Aquatic Resources

A small wetland area dominated by cattail is located at the confluence of the fire station stormwater facility and the savanna. The wetland area is relatively small but retains saturated soil nearly all year.



Figure 3: Wetland area looking north

○ Vegetation

The site was originally dominated by bentgrass (*Agrostis* sp.) and mowed annually by the City to maintain the site and protect from fire danger. After significant exploration and discussion with relevant experts and similar site restoration efforts, the Council applied for a City of Salem Watershed Protection and Preservation Grant in October of 2001. A grant was awarded in 2002 and site preparation was initiated that year. Physical

removal of woody plants (apple trees) and blackberry was completed, and the entire field was sprayed with Roundup. The site was disked twice, and Roundup was applied two times both broadcast and spot sprayed. Appropriate seed mixtures and soil conditions were examined in consultation with Oregon State University (soils) and Heritage Seedlings (plant mixture). The Council used Wilbur Bluhm as the project advisor and manager.

In 2002 the Council applied to the Oregon Watershed Enhancement Board (OWEB) for funds to complete the weed control and plant native grasses. Elkton Blue Wildrye (*Elymus glaucus*) was planted across the uplands while tufted hairgrass (*Deschampsia caespitosa*) and meadow barley (*Hordeum brachyantherum*) was planted along the lower edge of the cattail wetland. In 2003 Roemer's fescue (*Festuca roemeri*), Bearded wheatgrass (*Elymus trachycaulus*), and California oatgrass (*Danthonia californica*) were planted in strips across the contours. Planting strips are visible to this day.

In 2004 a mix of annuals and perennials was broadcast seeded. The plant list is in Attachment A. Acorns were gathered from Oregon White Oak (*Quercus garryana*) trees in the West Salem area and planted by volunteers.

The site is dominated by the seeded native grass and many forbs can be seen flowering from early spring through summer. There are patches of Checkermallow (*Sidalcea* sp.), camas (*Camassia quamash*), Oregon iris (*Iris tenax*), and lupine (*Lupinus* sp.) that are annually showy.

○ Wildlife

One of the early efforts was to install raptor poles. Salem Electric donated the poles and installed three on the savanna site in 2005. The raptor poles were provided to help in controlling the rodent population in the open field. Meadow voles and other rodents are common, and their burrows are found throughout the site. Adjacent neighbors have kept bird lists and a partial list of birds is provided by Jim Scott, council member and Audubon Society member. (Attachment B).

○ Local Area Open Space

There are several natural areas that help to make a complex of open space habitats in the immediate vicinity of the Oak Savanna site (Figure 5). The Straub Nature Park, Chandler Park and Orchard Heights Park all have significant open space for local wildlife. There may be some movement between the Oak Savanna site and the other open space sites.



Figure 4: Planting acorns

o Orchard Heights Park



Figure 5: Local Open Space around the Oak Savanna site

o Informal Use

Over time the property has received significant informal use by the neighbors. Trails across the site are obvious and appear to be commonly used. Some property owners mow the area adjacent to their homes on a regular basis. A few neighbors have used the property for garden plots (see Figure 6). The savanna has also been used for construction access for backyard construction by neighbors.

III.

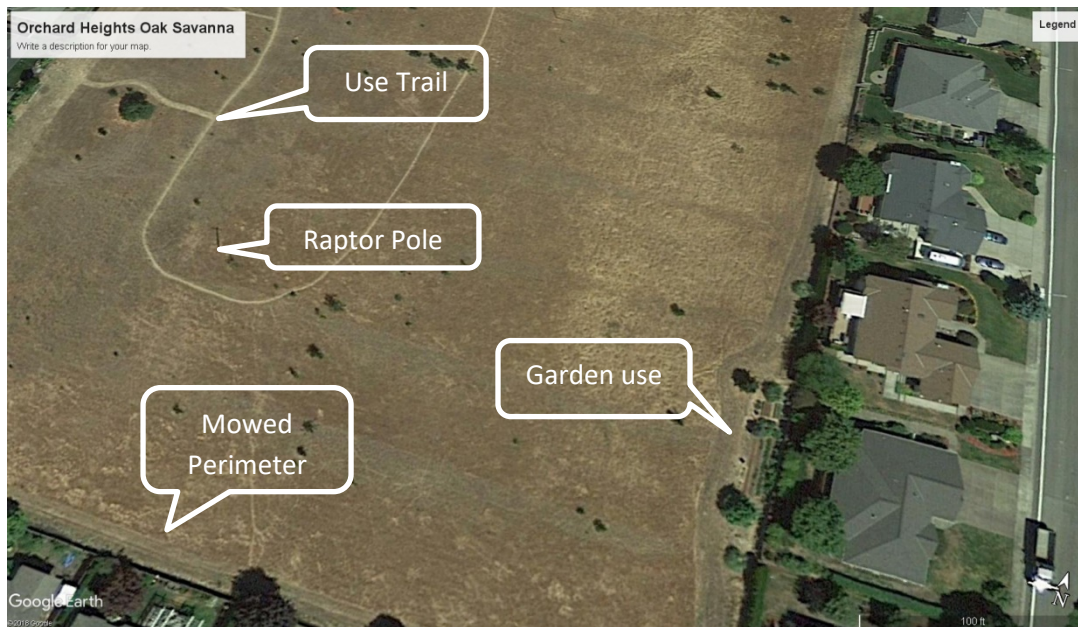


Figure 6: Informal Use of the Oak Savanna

Orchard Heights Reservoir Site Oak Savanna Habitat Management

A. Coordination with the City of Salem and Neighbors

The Council has communicated with the neighbors on a regular basis since the inception of the project. A signed petition of acceptance by each of the neighbors was presented to the City during the 2001 development of a Watershed Grant application. The Council provided information for the Homeowners Association newsletter during the site preparation and planting. Neighbors were invited to acorn planting events and the Council has provided occasional updates to neighbors as ownership has changed through time. The Council tries to inform neighbors when events are occurring in the savanna area. The most recent effort was to inform neighbors about milkweed planting in 2020.

B. Desired Future Condition

The Council is interested in developing a functioning oak savanna. To do so there has been significant effort to maintain and enhance Oregon White Oak survival and growth. At the same time there has been an effort to remove Armenian Blackberry (*Rubus armeniacus*), Scotch broom (*Cytisus scoparius*), and other larger non-native species.

C. Management Schedule

Orchard Heights Oak Savanna - Management Plan			
Season	Task	Description	Crew
Spring	Remove invasive plants	* Use shovel and Pulaski to uproot blackberry	Council
Summer	Create fire break by end of 1 st week of July	* Mow 30- foot perimeter	City
	Mow savanna interior by August 31	* Mow Savanna by August 31	Council
Fall/Winter	Vegetation management & enhancement	* Use shovel and Pulaski to uproot blackberry * Plant supporting natives as approved by City of Salem	Council

A. Monitoring

The council is interested in monitoring vegetation changes and wildlife use of the savanna. The council will work with local schools to explore the potential of having regular monitoring as a part of their outdoor programs.

V. Access and Nature-Based Recreation

It is important to ensure the public is aware that the property is a reservoir site, not a public park. Informational signage would help to reinforce the message. While the current use is an interim use and there is currently no intention to build a reservoir, it will be important to provide for the protection of the ecological resources of the property. The potential for use by the public requires a conversation with the City of Salem Public Works Department to work through the limits and opportunities, such as compatible and incompatible uses of the site. Access and nature-based recreation may be considered compatible uses and enhancements such as signage and access may be considered in consultation with the City. Currently access is limited to the parking area of Fire Station 11.

West Salem Oak Savanna Project Planting Report

By Wilbur L. Bluhm

Following is a list of plants seeded during the past three seasons, beginning in fall of 2002. All of the plants are native to mid-Willamette Valley.

Fall 2002	Grass:	Blue Wildrye, <i>Elymus glaucus</i>
Fall 2003	Grasses:	California Oatgrass, <i>Danthonia californica</i> Bearded Wheatgrass, <i>Elymus trachycaulis</i> Roemer's Fescue, <i>Festuca roemeri</i>
Fall 2004	Forbs:	

Annuals –

Farewell-to-spring, <i>Clarkia amoena</i>	rose-colored
Purple Godetia, <i>Clarkia purpurea</i>	rose to purplish
Large Flowered Blue-eyed Mary, <i>Collinsia grandiflora</i>	blue & white
Large Flowered Collomia, <i>Collomia grandiflora</i>	salmon or yellowish
California Poppy, <i>Eschscholzia californica</i>	orange
Bluefield Gilia, <i>Gilia capitata</i>	blue
Spanish Clover, <i>Lotus purshianus</i>	white
Showy Tarweed, <i>Madia elegans</i>	yellow
Slender Tarweed, <i>Madia gracilis</i>	light yellow, small
Western Burnet, <i>Sanguisorba annua</i>	small, pinkish

Perennials –

Yarrow, <i>Achillea millefolium</i>	white, rarely pink
Large Flowered Agoseris, <i>Agoseris grandiflora</i>	yellow
Red Columbine, <i>Aquilegia formosa</i>	red
Leichtlin's Camas, <i>Camassia leichtlinii</i>	blue
Common Camas, <i>Camassia quamash</i>	blue
Oregon Sunshine, <i>Eriophyllum lanatum</i>	yellow
Oregon Iris, <i>Iris tenax</i>	blue
Barestem Lomatium, <i>Lomatium nudicaule</i>	white, light yellow
Spring Gold, <i>Lomatium utriculatum</i>	yellow
Small Flowered Deervetch, <i>Lotus micranthus</i>	blue
Pine Lupine, <i>Lupinus albicaulis</i>	blue
Large Leaved Lupine, <i>Lupinus polyphyllus</i>	ochroleucous to blue or violet
Riverbank Lupine, <i>Lupinus rivularis</i>	blue
Oregon Yampah, <i>Perideridia oregana</i>	white
Sticky Cinquefoil, <i>Potentilla glandulosa</i>	light yellow
Slender Cinquefoil, <i>Potentilla gracilis</i>	yellow
Heal All, or Self Heal, <i>Prunella vulgaris</i>	blue to purplish
Western Buttercup, <i>Ranunculus occidentalis</i>	yellow
Meadow Checkermallow, <i>Sidalcea campestris</i>	white to light pink
Rose Checkermallow, <i>Sidalcea virgata</i>	rose
Western Blue-eyed Grass, <i>Sisyrinchium idahoense</i>	blue
Meadow Goldenrod, <i>Solidago canadensis</i>	yellow

Annual forbs will provide color in first year after planting, and are dependent upon annual seed production for future flowering. Perennial forbs are less likely to begin flowering until their second year.

SPECIES NAME	COUNT	DATE
<u>Eurasian Collared-Dove</u>	1	<u>20 Apr 2019</u>
<u>Mourning Dove</u>	3	<u>7 Jul 2019</u>
<u>Turkey Vulture</u>	3	<u>20 Apr 2019</u>
<u>Osprey</u>	1	<u>7 Jul 2019</u>
<u>Downy Woodpecker</u>	1	<u>7 Jul 2019</u>
<u>Northern Flicker</u>	1	<u>7 Jul 2019</u>
<u>Western Wood-Pewee</u>	1	<u>7 Jul 2019</u>
<u>California Scrub-Jay</u>	4	<u>28 Apr 2019</u>
<u>American Crow</u>	1	<u>7 Jul 2019</u>
<u>Black-capped Chickadee</u>	2	<u>7 Jul 2019</u>
<u>Tree Swallow</u>	1	<u>18 Jun 2016</u>
<u>Violet-green Swallow</u>	1	<u>7 Jul 2019</u>
<u>Bushtit</u>	8	<u>18 Jun 2016</u>
<u>White-breasted Nuthatch</u>	2	<u>7 Jul 2019</u>
<u>Bewick's Wren</u>	4	<u>7 Jul 2019</u>
<u>European Starling</u>	2	<u>28 Apr 2019</u>
<u>Western Bluebird</u>	2	<u>28 Apr 2019</u>
<u>Swainson's Thrush</u>	4	<u>7 Jul 2019</u>
<u>American Robin</u>	6	<u>7 Jul 2019</u>
<u>House Sparrow</u>	2	<u>20 Apr 2019</u>
<u>House Finch</u>	2	<u>7 Jul 2019</u>
<u>American Goldfinch</u>	2	<u>7 Jul 2019</u>

SPECIES NAME	COUNT	DATE
<u>Chipping Sparrow</u>	1	<u>7 Jul 2019</u>
<u>Dark-eyed Junco</u>	1	<u>28 Apr 2019</u>
<u>White-crowned Sparrow</u>	4	<u>7 Jul 2019</u>
<u>Song Sparrow</u>	1	<u>7 Jul 2019</u>
<u>Spotted Towhee</u>	2	<u>7 Jul 2019</u>
<u>Bullock's Oriole</u>	1	<u>7 Jul 2019</u>
<u>Red-winged Blackbird</u>	1	<u>20 Apr 2019</u>
<u>Brown-headed Cowbird</u>	1	<u>7 Jul 2019</u>
<u>Orange-crowned Warbler</u>	1	<u>7 Jul 2019</u>
<u>Yellow Warbler</u>	1	<u>7 Jul 2019</u>
<u>Yellow-rumped Warbler</u>	2	<u>28 Apr 2019</u>
<u>Black-headed Grosbeak</u>	1	<u>7 Jul 2019</u>