

SITE CONSERVATION PLAN

Wapato View Natural Area



May 2015



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SECTION 1: INTRODUCTION

CONTEXT

Wapato View Natural Area is located six miles south of Forest Grove, Oregon within the upper reaches of the 712-square-mile Tualatin River Watershed (Map 1). Wapato View lies on the western slope of Chehalem Ridge above Wapato Lake near the east flank of the Oregon Coast Range.

Nearby conservation properties include the Metro-owned Penstemon Prairie and Fern Hill Forest to the north, Chehalem Ridge to the east/southeast, and approximately 150 acres around Wapato Lake to the west owned by the U.S. Fish and Wildlife Service, Wapato Improvement District and Yamhill County (Map 1).

The Wapato View properties represent an important connection between Chehalem Ridge forested uplands to the east, and the Wapato Valley wetland and riparian habitats to the west. In addition, the property helps link remnant Oregon white oak ecosystems in Yamhill County to the south with those of the Tualatin Valley to the north.

Historical and ongoing residential development, timber harvest and agricultural practices have fragmented and degraded native habitats, but Wapato View Natural Area and other properties in the area harbor remnant Oregon white oak woodlands, wetlands and headwater streams. Restoration of lands presently under active cultivation will reduce soil erosion and runoff, support improved and expanded habitat for native wildlife, and restore landscape-level habitat connectivity.

Both the Chehalem Ridge Natural Area Management Plan and the Fern Hill Forest Site Conservation Plan identify restoration activities that may also represent priorities for Wapato View. The Wapato View Natural Area site conservation plan is a tool for establishing a conservation vision and for documenting, protecting and enhancing the site's unique natural characteristics over the short- to medium-term. This plan includes an overview of the site's history, existing conditions, conservation targets, access and recreation objectives, and maps, as well as photographs from September and October 2014 site visits.

PLANNING AREA

Wapato View Natural Area is a 147-acre property on Southwest Dixon Mill Road, consisting of two parts (Map 2). The property includes 34 acres of forested uplands to the north of Dixon Mill Road close to the western boundary of Metro-owned Chehalem Ridge, as well as 113 acres to the south of the road that protect a headwater stream corridor and remnant Oregon white oak woodlands. Both parcels feature extensive farm fields presently under active cultivation. The site address is 41188 SW Dixon Mill Road, and includes the following tax lots: 1S3320000500, 1S3320000501, 1S3310000900 (north parcels), 1S33100001002 and 1S33100001000 (south parcels).

The Washington County Comprehensive Plan maps Wapato View as "Ag and Forest 20" agricultural land (see <http://www.co.washington.or.us/LUT/Divisions/LongRangePlanning/Publications/upload/344.pdf>). This designation covers farm use on lands deemed potentially marginal for agriculture.

KEY METRO STAFF AND PARTNERS

Staff

Peter Guillozet, Senior Natural Resource Scientist
Kate Holleran, Senior Natural Resource Scientist
Ryan Jones, Natural Resources Specialist
Adam Stellmacher, Lead Natural Resource Specialist
Dave Elkin, Principal Parks and Natural Areas Planner

Partners

Metro plans to work with Clean Water Services to restore riparian and wetland habitat at the site through a Grant of Rights Agreement. Metro maintains an annual lease with an area farmer who cultivates grains and other crops on approximately 120 acres. No dwellings or other easements encumber the properties, with the exception of a collapsed springhouse on the north parcel (tax lot 501).

Key stakeholders and partners are listed under Section 6, below, and include the farmer holding a lease to the property, permitting agencies and other partners such as Clean Water Services and Tualatin Soil and Water Conservation District who may assist with site restoration.

EXISTING PLANNING DOCUMENTS

Existing documents include the *Phase I Environmental Site Assessment* (Landau Associates 2012, Metro File No. 48.003) and the *Withycombe Stabilization Plan* (2013).

SECTION 2: EXISTING CONDITIONS

PHYSICAL ENVIRONMENT

Land use at Wapato View Natural Area consists of annual till agriculture (82 percent) and undeveloped natural areas/open space (18 percent). Rural residences on 3 to 5-acre properties fringe the south parcel to the immediate northwest, southeast and east. The north parcel is fringed to the west, south and southeast by rural residential and agricultural lands, with commercial forestlands to the north/northeast. There are no impervious surfaces on the site.

The local landscape was shaped by the Pleistocene-era Missoula floods, which created poorly-drained lake deposits in Wapato Valley. This led to the development of interconnected lakes, wetlands and wet prairies on the valley floor, connecting to seasonal and perennial streams draining adjacent uplands.

Chehalem Ridge represents the tallest mountain range in the Willamette Valley and was formed through tectonic uplift of tilted layers of volcanic basalt and sedimentary sandstone, which was subsequently mantled with windblown loess deposits.

Soils mapped by the USDA Soil Conservation Service for Wapato View Natural Area are summarized in Table 1 (Green 1982). Most soils consist of well-drained silty clay or silt loams, with the exception of poorly-drained silty clay loams along the main stream course. Much of the tilled acreage consists of steep slopes (12-20 percent, Map 3).

Table 1: Mapped soil units, acres, and descriptions for Wapato View Natural Area (derived from Green 1982 and the USDA SCS Web Soil Survey)

MAP UNIT SYMBOL	MAP UNIT NAME	ACRES	PERCENT	DESCRIPTION
6C	Carlton silt loam	2.0	1.4%	Well-drained soils formed in mixed alluvium and colluvium on low terraces and foot slopes. Slopes of 7-12 percent on elevations of 150-400 ft. Where not cultivated, vegetation is Oregon white oak, poison-oak, shrubs and grasses.
31B, C, D	Melbourne silty clay loam	85.2	60.1%	Well-drained soils formed in residuum and colluvium weathered from sedimentary rock on uplands. Slopes of 2-20 percent on elevations of 300-800 ft. Vegetation is Douglas-fir, Oregon white oak, poison-oak, wild rose, shrubs and forbs.
38B, C, D	Saum silt loam	41.1	29.0%	Well-drained soils formed in mixed loess, old alluvium and residuum from basalt on uplands. Slopes of 2-60 percent on elevations of 250-1200 ft. Where not cultivated, vegetation is Douglas-fir, Oregon white oak, hazelnut, poison-oak, grasses and forbs.
43	Wapato silty clay loam	13.5	9.5%	Poorly-drained soils formed in recent alluvium on floodplains. Slopes of 0-3 percent on elevations of 100-300 ft. Where not cultivated, vegetation is ash, willow, rushes and grass.

PRECIPITATION AND STREAMS

Average annual precipitation in the Wapato Valley is 45.2 inches, with more than 90 percent occurring as rainfall between the months of October and May (NOAA National Weather Service Dilley 1S cooperative weather station, <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?or2325>).

A primary stream system drains Wapato View Natural Area to the southwest, and a second headwater swale, which lacks surface flow and a developed channel, drains a small portion of the north parcel to the northwest. The primary stream has perennial flow originating from a springhead on the north parcel, flows southwest across neighboring private properties, and across the length of the south parcel.

In addition to the main stream, there are three swales, draining to the main creek (Map 2, locations A, B and C). These include two swales that lack developed channels (A and B) as well as one (C) with an incised channel that conveys runoff from a ditch along Dixon Mill Road to the main creek below. Swale A drains an isolated remnant forest patch on a neighboring property and swale B conveys drainage from forested uplands on private properties to the east.

Farther downstream, the creek flows west and then north, via a ditch for 1.3 miles through agricultural areas, and into a remnant forested wetland called Gaston Slough (Christy et al. 2007). At least three stream crossings along this course may obstruct upstream movements of aquatic fauna, including crossings at Southwest Hardeback Road, Southwest Gaston Road, and a farm access road off Southwest Springhill Road. There is a notable lack of riparian cover along the entire stream course between Wapato View Natural Area and Gaston Slough.

The stream has a watershed area of 0.5 square miles above the west boundary of the Metro property, with a mean basin slope of 8.3 degrees. The estimated potential 2-year peak flow is 24.9 cubic feet per second (cfs), and the estimated 100-year peak flow is 69.9 cfs (Stream Stats 2014). Based on the flow-duration and low-flow frequency equations of Risley et al. (2008), the highest

average flows are typically observed in January when 50 percent exceedence flows are estimated at 3.0 cfs. During July through November, 95 percent exceedence flows are estimated at less than 0.1 cfs which is consistent with our observations of very low stream flow at the site during September and October 2014.

The stream bankfull channel width is 5-7 ft. A farm access road crosses the main creek near the confluence with swale A (shown as a magenta marker on Map 2), through a culvert that represents at least a partial barrier to the upstream movement of aquatic fauna. The upstream half of culvert is a 2.5 ft-diameter corrugated steel pipe and the downstream half is a 2.2 ft-diameter pre-cast concrete pipe. During baseflow conditions in September and October 2014, flow was observed passing down the steel pipe, through an internal break between the pipes, and then under (not through) the downstream precast concrete pipe. At higher flows, there may be continuous flow through both culverts but the estimated slope of the two pipes together is approximately two percent, which likely creates a velocity barrier for aquatic fauna at higher flows.

During the October 2014 field visit, a tile probe was employed to search for evidence of subsurface agricultural drain tiles at low spots on the edges of the farm field where swale B leaves the oak woodland and at the presumed confluence with the main stream. Broken drain tile sections are visible in several locations along the main tributary and the leasing farmer indicates that there are functioning drain tiles on site (John Koehnke, personal communication). Further investigation into the extent and condition of drain tiles will be completed as part of site restoration.

MAJOR HABITAT TYPES

Current cover types found at Wapato View Natural Area include actively-tilled agricultural fields, riparian forest, coniferous and mixed and shrub-stage upland forest, shrub wetland and Oregon white oak woodland (Map 4).

Two remnant Oregon white oak woodland stands are found on the south parcel, measuring 0.4 and 5.2 acres in size. Other tree species present within these oak-dominated stands include Douglas-fir and bigleaf maple, with an understory of invasive blackberry, snowberry, sword fern and poison-oak. Upland forests are dominated by Douglas-fir, bigleaf maple and non-native cherry, with sword fern, snowberry and beaked hazelnut in the understory.

Oregon white oak trees and saplings are found at the perimeter of forest patches and at the edges of farm fields. Two abandoned farm fields on the north property are dominated by blackberry, orchard grasses and sparse Douglas-fir and hawthorn tree saplings. Tilled farm fields are utilized for annual grain crops.

The stream-riparian corridor downstream of the confluence with swale B is dominated by Oregon ash (including 2-3 ft.-diameter trees) and Pacific willow, with a mixed shrub community of Pacific ninebark, domestic apple, non-native cherry, native and non-native hawthorn and blackberry. At the channel head of the perennial stream, on the north property is a spring, with a collapsed springhouse.

The lower 1,000 feet of stream has a channel gradient of 1-1.5 percent and is incised approximately five feet below the top of bank. The channel was apparently ditched and straightened, with dredge spoils deposited in a series of hummocks on the south bank. The stream banks here have sparse tree and shrub cover and reed canarygrass dominates. Historically, this portion of the stream may have functioned more as a wetland.

VEGETATION AND WILDLIFE

Historic vegetation and land use

Based on historical vegetation maps compiled by Christy and Alverson (2011), nearly the whole of the Wapato View site was dominated by scattered Douglas-fir/Oregon white oak woodland, and may have also supported bigleaf maple with an understory of hazelnut, young oaks, young fir and bracken (Map 5). This fir-oak woodland map unit continued to the east, across the top of Chehalem Ridge and to the north towards Fern Hill Forest. At the south-southeast edge of the property and farther to the west there was upland prairie, and one small 12-acre patch of Oregon white oak savanna was found to the immediate west of the property bordering the stream course. However, it is possible that forest succession into prairies had already begun prior to the 1851 land surveys due to the interruption of burning.

Due to the relatively coarse nature of the historical General Land Office maps, the stream-riparian corridor was not separately resolved on the Wapato View site. Farther downstream to the west, the stream corridor was mapped as seasonally wet prairie, shifting to an ash-dominated riparian forest approximately one-half of the distance to Gaston Slough. Christy and Alverson (2011) indicate that this riparian forest may have also supported red alder, bigleaf maple, black cottonwood, white oak, dogwood and small numbers of conifers.

Invasive plants

A number of invasive plants are present at Wapato View. Himalayan blackberry is widespread in streamside, upland forest and oak woodland habitats. The stream-riparian corridor harbors reed canarygrass, non-native hawthorn, holly, sweet cherry and English ivy. English ivy, holly and sweet cherry are also present in upland forests. The latter is particularly abundant in the upland forest stands bordering the uppermost farm field, which was formerly a commercial cherry orchard. Large patches of *Vinca major* are found along Dixon Mill Road, and downslope along the course of swale C.

Wildlife

Wapato View Natural Area supports an array of wildlife species typical of the Tualatin basin. Numerous songbirds and red tailed hawks were observed during field visits. Deer and black bear signs were in evidence across the property. There was no evidence of beaver activity in the stream riparian corridor. No fish or amphibian sampling was conducted, but the stream likely supports Pacific chorus frogs and rough-skinned newts. The lowermost reaches of the stream are potential resident cutthroat trout habitat.

In their Wapato Lake-Chehalem Mountains biological assessment, Christy et al. (2007) highlight Gaston Slough, on Spring Hill Road (approximately 1.3 miles downstream) as having year-round use by waterfowl, beaver and western pond turtles (*Actinemys marmorata marmorata*). Known

occurrences of rare, threatened, and endangered species from within several miles of Wapato View Natural Area include steelhead trout (*Oncorhynchus mykiss*), Aleutian Canada goose (*Branta hutchinsii leucopareia*), and Townsend's big-eared bat (*Corynorhinus townsendii*, ORNHIC Biotics database as summarized in Christy et al. 2007).

In addition, Christy et al. (2007) identify potential habitat for the following priority species within the immediate vicinity of Wapato Lake and the Chehalem Mountains: red-legged frog (*Rana aurora*), tundra swans (*Cygnus columbianus*), Oregon vesper sparrow (*Pooecetes gramineus affinis*), streaked horned lark (*Eremophila alpestris strigata*), and several sensitive bat species (*Lasionycteris noctifagans*, *Myotis evotis*, *M. thysanodes*, *M. volans*, *M. yumanensis*).

RECENT MANAGEMENT HISTORY

Wapato View Natural Area was acquired by Metro in 2012. Site management to date has focused on the Oregon white oak stand on the south property, where approximately 20 mature Douglas-fir were topped or felled, and understory blackberry was cut and treated with herbicide. In addition, old vehicles and garbage were removed from the north property as a condition of the land sale to Metro. No other restoration activities have been completed to date.

NATURAL RESOURCES OF SPECIAL INTEREST

Natural resources of special interest at Wapato View Natural Area include remnant Oregon white oak stands and a perennial stream that drains west and north to Gaston Slough. Metro rare plant specialist Marsha Holt-Kingsley has visited the site and did not identify any rare plants. In anticipation of future stream restoration work, Metro retained a consultant to complete a basin historic resources assessment of the site in early 2015.

SECTION 3: CONSERVATION

CONSERVATION TARGETS

The habitat conservation targets represent major habitat types present at the site, with the additions of oak savanna and emergent wetland, which will occupy a portion of the actively farmed fields on the south property. Wapato View's position on the west slope of Chehalem Ridge, above Wapato Lake, and its perennial stream connection to Gaston Slough downstream provides an opportunity to reconnect habitat fragments distributed across the landscape from the ridge above to the wetland refuge below.

The conservation targets selected for the site include Riparian Forest, Emergent Wetland, Oak Woodland, Oak Savanna and Upland Forest. These target habitats are described briefly in Table 2 and are shown on Map 6. Acreages of existing cover types, conservation targets and stewardship types are presented in Table 3.

KEY ECOLOGICAL ATTRIBUTES

Key ecological attributes are the features that define aspects of a conservation target's biology or ecology that, if missing or altered, would lead to the loss of that target over time (The Nature Conservancy, 2007). Key ecological attributes define the conservation target's viability. They are the biological or ecological components that most clearly define or characterize the conservation

target, limit its distribution or determine its variation over space and time. They are the most critical components of biological composition, structure, interactions and processes, and landscape configuration that sustain a target’s viability or ecological integrity. Key ecological attributes are rated from poor to good. This rating helps establish the restoration goals and guide Metro in development of restoration actions for the conservation targets. Tables 4a-f below describe key ecological attributes and their ratings for Wapato View Natural Area.

Table 2: Status and desired future condition of Wapato View conservation targets

TARGET	CURRENT STATUS	DESIRED FUTURE CONDITION
Riparian forest	In poor condition, with high invasive tree and shrub cover, an incised stream channel, isolated floodplain, and with upstream passage blocked at a farm access road crossing.	A diverse native riparian forest on stream banks and across the re-connected floodplain, with restored upstream-downstream habitat connectivity.
Emergent wetland	In very poor condition, with an incised stream channel passing through a reed canarygrass-dominated plant community lacking native shrubs.	A mosaic of in-stream and off-channel wetland habitats spread across the restored floodplain, hosting diverse native shrubs.
Upland forest	Degraded by invading non-native shrubs and cherry trees, and lacking legacy features typical of old forests: senescent trees, snags and downed wood.	A re-established native shrub layer, with a more diverse stand composition and conditions, including older trees, canopy gaps, snags and downed wood.
Oak woodland	Fragmented and diminished in extent relative to historical conditions, with invasive shrubs and trees jeopardizing long-term habitat viability.	Re-established across upper elevation farm fields with a restored understory plant community.
Oak savanna	Currently absent from site, eliminated by land conversion to agriculture though present historically.	Re-established across lower elevation farm fields with a restored understory plant community supporting native grassland bird species such as Western meadowlark.

Table 3: Summary of current cover, conservation targets, stewardship type and management status for Wapato View Natural Area (total acreage reported below is calculated from GIS, which differs by 1.2 acres from the deed or survey recorded acreage reported above)

CURRENT COVER	ACRES	STEWARDSHIP TYPE	ACRES
Agriculture	120.2	Riparian forest	14.4
Oak woodland	5.6	Savanna	72.0
Riparian forest	5.6	Upland forest	9.5
Shrub wetland	1.5	Woodland	46.7
Upland forest - conifer	0.4	Wetland	3.2
Upland forest - mixed	6.9	Total	145.8
Upland forest – shrub stage	5.7		
Total	145.8		

CONSERVATION TARGET	ACRES	MANAGEMENT STATUS	ACRES
Oak savanna	72.0	0 - Pre-Initiation	127.7
Oak woodland	46.7	1 - Initiation	10.1
Riparian forest	14.4	2 - Establishment	0.0
Upland forest	9.5	3 - Consolidation	8.0
Shrub wetland	3.2	4 - Refinement & Maintenance	0.0
Total	145.8	9 - No targets (developed)	0.0
		Total	145.8

Table 4a: Key ecological attributes for riparian forest

CATEGORY	KEA	INDICATOR	----- INDICATOR RATING -----				CURRENT RATING	DFC* FOR THIS SCP	LONG TERM DFC	COMMENTS
			POOR	FAIR	GOOD	VERY GOOD				
Size	Riparian forest width	Average width of riparian forest	<15 m (50 ft) each side of stream	15-30 m (50-100 ft) each side of stream	30-61 m (100-200 ft) each side of stream	>61 m (200 ft) each side of stream	Poor	Good	Good	Native riparian forest area has been cleared and is actively farmed. Non-native trees are present, including domestic apple, cherry and non-native hawthorn. Stream channel has been ditched and straightened. Restoration of channel-adjacent flood-prone lands will provide additional riparian forest width.
Condition	Vegetative structure: shrub layer	% native shrub cover	<10% cover	10-25% cover	25-50% cover	>50% cover	Poor	Good	Very Good	Riparian understory is presently dominated by invasive Himalayan blackberry and reed canarygrass, with small patches of English ivy, holly and hawthorn. Clearing of invasive plants, native shrub plantings and periodic maintenance – in combination with native riparian tree re-establishment – could boost native shrub cover.
Condition	Floodwater access to floodplain; upstream habitat connectivity	Degree of connection between stream/ floodplain during high water events	Extensively disconnected by channel incision, dikes, tide gates, elevated culverts, etc.	Moderately disconnected by channel incision, dikes, tide gates, elevated culverts, etc.	Minimally disconnected by channel incision, dikes, tide gates, elevated culverts, etc.	Completely connected (backwater sloughs, channels)	Poor	Good	Very Good	Stream is incised 3-8 ft below adjacent flood prone lands. A farm access road crossing with a perched culvert isolates upstream habitat. Stream connects to headwater spring on north parcel. Agricultural drain tiles accelerate runoff.

Table 4b: Key ecological attributes for shrub wetlands

CATEGORY	KEA	INDICATOR	----- INDICATOR RATING -----				CURRENT RATING	DFC* FOR THIS SCP	LONG TERM DFC	COMMENTS
			POOR	FAIR	GOOD	VERY GOOD				
Size	Extent of scrub-shrub wetland area	Hectares or acres of scrub-shrub wetland		Reduced due to habitat conversion	Maintained at current size		Poor	Good	Very Good	Approximately half of the historical area is cleared, drained and being actively farmed at present. The stream channel is incised 5 ft. below elevation of shrub wetland. Over the long-term, reversing this channel incision will support re-establishment of more extensive channel-adjacent wetlands.
Condition	Vegetative structure: shrub layer	Percent native shrub canopy cover	<30% cover or >80% cover	30-50% cover	50-70% cover	70-80% cover	Poor	Fair	Good	Non-native reed canarygrass dominates plant community.

Table 4c: Key ecological attributes for upland forest

CATEGORY	KEA	INDICATOR	----- INDICATOR RATING -----				CURRENT RATING	DFC* FOR THIS SCP	LONG TERM DFC	COMMENTS
			POOR	FAIR	GOOD	VERY GOOD				
Condition	Mature trees	Number and size (dbh) of species such as Douglas fir, western red cedar, western hemlock and grand fir	Mature trees lacking	<3 per ac with dbh >24 in	3-5 per ac with dbh >24 in	>5 per ac with dbh >24 in	Poor	Good	Very Good	Mature trees presently lacking, with a high number of non-native cherry trees.
Condition	Standing and downed dead trees	Average # snags and large wood (> 50 cm, or 20 in, DBH) per acre	< 5 snags and <5% down wood	5-11 snags and 5-10% down wood	12-18 snags and 10-20% down wood with moderate variety of size and age classes	>18 snags and >20% cover down wood in a good variety of size and age classes	P	F	VG	Non-native cherry trees could be girdled to thin stand and serve as short-lived small snags.

Table 4e: Key ecological attributes for oak woodland

CATEGORY	KEA	INDICATOR	----- INDICATOR RATING -----				CURRENT RATING	DFC* FOR THIS SCP	LONG TERM DFC	COMMENTS
			POOR	FAIR	GOOD	VERY GOOD				
Size	Habitat area	Number of 8 ha (20 acre) units: based on a combination of white-breasted nuthatch, acorn woodpecker and gray squirrel territory size	<16 ha (40 ac) of oak woodland or oak forest in a functionally contiguous patch (multiple patches totaling 16 ha, or 40 acres, located in close proximity), i.e. insufficient oak woodland/forest for home range of 2 nuthatch pairs or acorn woodpecker colonies	16-49 ha (40-120 ac) oak woodland or forest in a functionally contiguous patch, i.e. enough suitable habitat for 2-5 nuthatch pairs or acorn woodpecker colonies	49-162 ha (120-400 ac) oak woodland or forest in a functionally contiguous patch, i.e. enough suitable habitat for 6-20 nuthatch pairs or acorn woodpecker colonies OR 3 patches of closely assoc. suitable habitat, each >16 ha (40 ac) in size	>162 ha (400 ac) of oak woodland or oak forest in a functionally contiguous patch, i.e. enough suitable habitat for >20 nuthatch pairs or acorn woodpecker colonies OR 3 patches of suitable contiguous or connected habitat, each >57 ha (140 ac)	Poor	Fair	Good	Oak currently limited to 5 ac stand along stream headwater on south parcel, but could be expanded to include farm fields.
Condition	Native grass and forb presence	Native species richness (for the patch)	<20 native herbaceous plant species with high and moderate fidelity to oak woodland occur within the patch	20 -39 native herbaceous plant species with high and moderate fidelity to oak woodland occur within the patch	40 -59 native herbaceous plant species with high and moderate fidelity to oak woodland occur within the patch	>60 native herbaceous plant species with high and moderate fidelity to the system types present within the patch	Poor	Fair	Good	Understory of remnant stand recently brushed and cleared of Himalayan blackberry, with recovering snowberry and sword fern vegetation.

Table 4f: Key ecological attributes for oak savanna

CATEGORY	KEA	INDICATOR	----- INDICATOR RATING -----				CURRENT RATING	DFC* FOR THIS SCP	LONG TERM DFC	COMMENTS
			POOR	FAIR	GOOD	VERY GOOD				
Size	Western Meadowlark and grassland bird habitat	Number of potential male meadowlark territories (8 ha, or 20 acre units)	<16 contiguous ha (40 acres) of a mix of suitable habitat such as prairie and degraded prairie, savanna or appropriate pasture habitat, i.e. insufficient habitat for 2 male meadowlark territories	16-49 ha (40-120 ac) of contiguous prairie or other suitable habitat, i.e. enough suitable habitat for 2 to 5 male meadowlark territories	49-162 ha (120-400 ac) of suitable contiguous/connected habitat, i.e. enough for 6 to 20 male territories; alternatively, 3 patches of closely associated suitable habitat, each >16 ha (40 acres) in size	>162 ha (400 ac) of suitable contiguous or connected habitat, i.e. enough suitable habitat for >20 male meadowlark territories; alternatively, 3 patches of suitable contiguous or connected habitat, each >57 ha (140 acres) in size	Poor	Fair	Good	No oak savanna at present on the site. Would require re-establishment on farm fields.
Condition	Native grass and forb presence	Native species richness	<20 native herbaceous plant species with high fidelity to the system types present within the patch	20-39 native herbaceous plant species with high fidelity to the system types present at the patch	40-59 native herbaceous plant species with high fidelity to the system types present at the patch	> 60 native herbaceous plant species with high fidelity to the system types present at the patch	Poor	Fair	Good	N/A at present while active farming of fields continues, but could be a useful long-term measure of restoration progress.
Condition	Native forb and grass abundance	Percent cover native forbs and grasses	<20%	20-30%	30-50%	>50%	Poor	Fair	Good	N/A at present while active farming of fields continues, but could be a useful long-term measure of restoration progress.

*Desired future condition

THREATS

Numerous stresses influence current conditions at Wapato View, and threaten long-term ecological health and the viability of restoration treatments (Tables 5a-e). These stresses include land conversion, active farming of the property and neighboring lands, invasive species and antecedent forest management, as well as the ditching and straightening of the stream. Human use, dogs, trails, and other recreational uses are not considered sources of stress at present. The threats and sources summary can be used to prioritize restoration actions and future management of the site.

CLIMATE CHANGE CONSIDERATIONS

Climate change is anticipated to affect summer high temperatures, growing season length, wet-season storm events and runoff patterns, as well as drought-season water availability. Indirect effects of climate change could include increased erosion, heightened risk or severity of wildfires, invasion of native and non-native species, extirpations of native species, shifts in vegetation phenology, and alterations to pollination, dispersal, competition and predator-prey dynamics.

As the direct and indirect effects of climate change begin to manifest at the site, it is important to provide restored native habitats and viable corridors for the movement of flora and fauna across the landscape. Towards this end, Wapato View Natural Area will serve as an important connection for the movement of organisms up and down elevational gradients lying between Chehalem Ridge to the east and Wapato Valley lowlands to the west. In addition, the restored site will help establish a north-south network linkage of conservation properties between remnant Oregon white oak ecosystems to the south in Yamhill County, with those of the Tualatin Valley to the north.

At the site level, probability of native species persistence will be enhanced by restoration actions that remove or remedy habitat fragmentation (e.g. culvert repair/removal), re-establish and reconnect at-risk native habitats (oak woodlands and savannah), restore legacy habitat features that serve as refugia (in-stream large wood debris, and upland forest snags), buffer extreme climate events by restoring natural hydrology, and control invasive plants.

Table 5a: Threats and sources of stress for riparian forest

Source of stress		Stresses (rank each as L-M-H-VH for contribution, irreversibility & source)											Threat rank	Comments		
		Habitat destruction/ conversion	Stress rank	Altered composition/ structure ¹	Stress rank	Competition for resources	Stress rank	Human disturbance	Stress rank	Altered hydrology	Stress rank	Impaired habitat connectivity			Stress rank	
Development, land conversion	Contribution	High	High									High	Low	High	Stream is ditched, straightened and incised ~5 ft below top of bank. Perched farm access road culvert blocks upstream passage for aquatic fauna. Soil erosion and runoff impacts water quality. Springhouse at headwater degrades habitat.	
	Irreversibility	Medium										Low				
	Source rank	Medium										Medium				
Invasive species	Contribution					Medium	Med							Med	Heavy infestation of Himalayan blackberry and reed canarygrass, with lesser amounts of English ivy, holly and hawthorn.	
	Irreversibility					Medium										
	Source rank					Medium										
Human use, dogs, trails, fishing, etc.	Contribution							Low	Med					Med	No trails are present, and no human or dog access is currently planned or authorized.	
	Irreversibility					Low										
	Source rank					Low										
Diking, filling, draining	Contribution									High	Med			Med	Subsurface drain tiles in farm fields, contributing to flashier stream hydrology. See channel manipulation notes above.	
	Irreversibility							Low								
	Source rank							Medium								
Previous forest management	Contribution			High	Med									Low	Riparian clearing and active farming of outer riparian fringe and flood prone areas.	
	Irreversibility							Medium								
	Source rank							Medium								
Climate change	Contribution									High	Low			Low	Potential long-term effects due to alterations in runoff patterns and microclimates.	
	Irreversibility									High						
	Source rank									High						

¹ Includes lack of down and standing dead wood, poor shrub structure in forest, too much shrub in prairie, etc.

Table 5b: Threats and sources of stress for shrub wetland

Source of stress		Stresses (rank each as L-M-H-VH for contribution, irreversibility & source)											Threat rank	Comments
		Habitat destruction/ conversion	Stress rank	Altered composition/ structure ¹	Stress rank	Competition for Resources	Stress rank	Human Disturbance	Stress rank	Altered Hydrology	Stress rank	Impaired habitat connectivity		
Development, land conversion	Contribution	Very High	High										High	Channel ditched and incised ~5 ft below wetland. Soil erosion and runoff impacts water quality. Active farming impacts wetland fringes.
	Irreversibility	Medium												
	Source Rank	High												
Invasive species	Contribution					Medium	Med						Med	Heavy infestation of reed canarygrass, lesser amounts of non-native hawthorn.
	Irreversibility					Medium								
	Source Rank					Medium								
Human use, dogs, trails, fishing, etc.	Contribution						Med	Low					Med	No trails are present, and no human or dog access is currently planned or authorized.
	Irreversibility							Low						
	Source Rank							Low						
Diking, filling, draining	Contribution								High	Med			Med	Subsurface drain tiles in farm fields, contributing to flashier wetland hydrology. See channel manipulation notes above.
	Irreversibility								Low					
	Source Rank								Medium					
Climate change	Contribution								High	Low			Low	Potential long-term effects due to alterations in runoff patterns and microclimates.
	Irreversibility								High					
	Source Rank								High					

¹ Includes lack of down and standing dead wood, poor shrub structure in forest, too much shrub in prairie, etc.

Table 5c: Threats and sources of stress for upland forest

Source of stress		Stresses (rank each as L-M-H-VH for contribution, irreversibility & source)											Threat rank	Comments	
		Habitat destruction/ conversion	Stress rank	Altered composition/ structure ¹	Stress rank	Competition for resources	Stress rank	Human disturbance	Stress rank	Altered hydrology	Stress rank	Impaired habitat connectivity			Stress rank
Development, land conversion	Contribution										Medium		Med	Med	Road construction and land clearing on this and adjacent properties to the east have fragmented and isolated forest patches from larger upland forest landscape on Chehalem Ridge.
	Irreversibility										Medium				
	Source Rank										Medium				
Fire suppression	Contribution			Medium										Low	Wildfire has altered stand composition and structure, leading to a more densely stocked stand with more Douglas-fir and fewer, less viable oaks.
	Irreversibility			Low	Med										
	Source Rank			Low											
Invasive species	Contribution					Medium								Low	Non-native cherry is present, originating from an adjacent former cherry orchard. Girdling of cherries could be used to create small snags and release native trees and shrubs from competition.
	Irreversibility					Low	High								
	Source Rank					Low									
Human use, dogs, trails, fishing, etc.	Contribution							Low						Med	No trails are currently present, and no human or dog access is currently planned or authorized.
	Irreversibility							Low	Med						
	Source Rank							Low							
Previous forest management	Contribution	High												Med	Historical logging has lead to loss of characteristic elements of old forest: large trees, snags, downed wood, canopy complexity/gaps and high accumulations of soil organic matter.
	Irreversibility	Medium	High												
	Source Rank	Medium													
Climate change	Contribution			High										Low	Potential long-term effects from altered forest microclimate, new diseases and pests, as well as altered fire and drought regimes.
	Irreversibility			High	Low										
	Source Rank			High											

¹ Includes lack of down and standing dead wood, poor shrub structure in forest, too much shrub in prairie, etc.

Table 5d: Threats and sources of stress for oak woodland

Source of stress		Stresses (rank each as L-M-H-VH for contribution, irreversibility & source)												Comments	
		Habitat destruction/ conversion	Stress rank	Altered composition/ structure ¹	Stress rank	Competition for resources	Stress rank	Human disturbance	Stress rank	Altered hydrology	Stress rank	Impaired habitat connectivity	Stress rank		Threat rank
Development, land conversion	Contribution	Very High	High									Very High		High	Land conversion to annual till agriculture has resulted in the loss and fragmentation of oak savanna.
	Irreversibility	High								High					
	Source Rank	Very High								Very High					
Fire suppression	Contribution			Medium	Med									Low	No oak savanna at present, but successful re-establishment will depend upon periodic vegetation treatments to replicate wildfires and suppress invasion of shrubs and trees.
	Irreversibility			Low											
	Source Rank			Low											
Invasive species	Contribution			Medium	Med	Medium								Low	Once annual till agriculture practices are terminated, initial and ongoing vegetation treatments will be necessary to control invasive species at least until native vegetation is established.
	Irreversibility			Low		Low									
	Source Rank			Low		Low									
Human use, dogs, trails, fishing, etc.	Contribution							Low	Med					Med	No trails are currently present, and no human or dog access is currently planned or authorized.
	Irreversibility							Low							
	Source Rank							Low							
Climate change	Contribution			High	Low									Low	Potential long-term effects from new diseases and pests, as well as altered fire and drought regimes. Increased drought and fire could favor oaks (vs. Douglas-fir), but impacts from disease and pests could be detrimental.
	Irreversibility			High											
	Source Rank			High											

¹ Includes lack of down and standing dead wood, poor shrub structure in forest, too much shrub in prairie, etc.

Table 5e: Threats and sources of stress for oak savanna

Source of stress		Stresses (rank each as L-M-H-VH for contribution, irreversibility & source)												Threat rank	Comments
		Habitat destruction/ conversion	Stress rank	Altered composition/ structure ¹	Stress rank	Competition for resources	Stress rank	Human disturbance	Stress rank	Altered hydrology	Stress rank	Impaired habitat connectivity	Stress rank		
Development, land conversion	Contribution	Very High	Very High									Very High		Very High	Land conversion to annual till agriculture has resulted in the loss and fragmentation of oak woodlands.
	Irreversibility	High										High			
	Source Rank	Very High										Very High			
Fire suppression	Contribution			High	High									Med	Fire suppression has contributed to invasion by Douglas-fir and shrub species into remaining oak stands. In the one accessible 5 ac stand, invading fir and blackberry removal has been initiated.
	Irreversibility			Medium											
	Source Rank			Medium											
Invasive species	Contribution			Medium	High	Medium	High							Med	Invasive Himalayan blackberry suppresses native shrub and forbs and will need additional treatments.
	Irreversibility			Low		Low									
	Source Rank			Low		Low									
Human use, dogs, trails, fishing, etc.	Contribution							Low	Med					Med	No trails are currently present, and no human or dog access is currently planned or authorized.
	Irreversibility							Low							
	Source Rank							Low							
Climate change	Contribution			Medium	Low									Low	Potential long-term effects from new diseases and pests, as well as altered fire and drought regimes. Increased drought and fire could favor prairie, but impacts from disease and pests could be detrimental.
	Irreversibility			Medium											
	Source Rank			Medium											

¹ Includes lack of down and standing dead wood, poor shrub structure in forest, too much shrub in prairie, etc.

PRIORITIZED STRATEGIES TO ADDRESS THREATS

This site conservation plan outlines strategic actions to be carried out at Wapato View over the next ten years, based upon short- and long-term goals for the various identified conservation targets. The strategic actions described below are intentionally general in nature and are not highly specific prescriptions. Specific prescriptions will be developed by Metro staff to address site-specific conditions encountered in areas targeted for restoration. Proposed strategic actions to address threats are summarized in Table 6.

Weed management is likely to pose an ongoing challenge for Metro managers, given that invasive vegetation is widespread across the property and the extensive boundary edges bordering adjacent residential and agricultural lands. Annual treatments will be required, at least initially, to keep weed populations suppressed. More intensive treatments will likely be needed in the shrub wetland habitat to facilitate re-establishment of native shrubs where reed canarygrass currently dominates.

Table 6: Threats and actions for key ecological attributes of important conservation targets

CONSERVATION TARGET	KEA	THREAT	ACTION(S)	NOTES
All	Species composition and competition	Invasive species	Integrated approach of monitoring, cutting, herbicide spraying and controlled burns.	Will be an ongoing challenge.
Riparian forest and shrub wetland	Floodplain connectivity; upstream habitat connectivity	Land conversion	Install natural grade control features to re-grade channel, reduce bank erosion, and re-direct high flows. Break/ remove agricultural drain tiles. Repair/remove culvert barrier at farm access road crossing.	Could be completed in stages beginning at the west edge of property and moving upstream.
Riparian forest and shrub wetland	Habitat area	Land conversion	Re-establish native trees and shrubs on portions of floodplain that are currently farmed.	Could be completed in stages, initially focused on near-stream area and expanding outwards over time.
Oak woodland and savannah	Habitat area	Land conversion and ongoing agricultural practices	To the extent that available resources allow, replant oak trees and understory native grasses and forbs.	Could be staged, focusing on one management block per year.

SECTION 4: MANAGEMENT ACTIONS

Restoration actions, anticipated challenges and estimated costs are described in this section and in Table 7, below. For several restoration actions, there are options for Metro to stage interventions in order to gauge initial success, manage costs and maintain working relationships with leaseholders and neighbors.

Access to the two parcels is limited. A primitive track provides access to the north property from Southwest Dixon Mill Road, but a large patch of blackberries presently blocks the junction with the main road. The south property is accessed at the top of the farm field off Southwest Dixon Mill Road, and there is a creek crossing at the bottom of the hill below this access point but no developed access road or track connecting them (Map 2, green markers).

INVASIVE SPECIES

Due to the close juxtaposition of fringing rural residential and agricultural lands at Wapato View, comprehensive management of invasive species is needed. Each conservation target habitat presents unique challenges, and proactive measures to prevent or minimize future challenges at the property scale or beyond will be beneficial. Among the available approaches is the phased restoration for oak woodlands and savanna in discrete management blocks to manage weeds and ensure the successful re-establishment of native vegetation. Cooperative vegetation management agreements with neighboring landowners could also help reduce management risk and expenses associated with reactive weed management at the site. Metro could explore a cost-share agreement with like-minded landowners for such work. Finally, the farm leaseholder should be engaged to ensure farm equipment is not transporting weed materials onto the site, and to consider how the lease agreement could help serve and implement the restoration plan.

STREAM AND WETLAND CORRIDOR

The stream and wetland corridor within Wapato View Natural Area represents an important restoration opportunity. A series of inter-related management actions will help reduce erosion and runoff, re-establish natural hydrological processes, and support the re-establishment of native vegetation. Clean Water Services, working in partnership with Metro, will implement the riparian revegetation as part of its stream shading program for permit compliance.

Potential actions

- Re-grade stream channel through installation of large wood as grade control to reverse channel incision and reconnect channel with floodplain. Begin at the west property boundary, working upstream to the confluence with swale C.
- Re-grade stream channel dredge spoils along the south stream bank in wetland.
- Locate, and remove or break agricultural drain tiles to restore natural site runoff patterns and processes.
- Remove invasive plants and re-establish a native shrub-dominated plant community within a 50- to 75-foot wide area fringing the active stream channel in a manner that buffers the stream but ensures habitat connectivity for grassland birds using the adjacent savanna areas.
- Re-establish native herbaceous species and shrubs in the wetland area and actively manage vegetation to foster expansion of native cover and suppression of reed canarygrass.
- Implement erosion control measures on swale C channel from Dixon Mill Road downstream to confluence with main stream. Treatments could include installation of grade control, native tree and shrub plantings and removal of invasive species.
- Remove culvert under farm access road crossing and replace with adequately sized culvert.
- Remove collapsed springhouse at creek headwaters on north parcel.

As the stream channel aggrades and reconnects with the floodplain, and more extensive riparian vegetation becomes established, extremes of drought and flooding will be moderated through the creation of more transient water storage along the corridor. Over the long-term, with re-

establishment of a natural hydrologic regime and native trees and shrubs, there will be improved potential for beaver re-colonization of the site.

UPLAND FOREST

Upland forest habitats are clustered on the north parcel. Though degraded by past management and invasive species, there is potential to improve forest structure and composition and to reconnect these forest patches with upland forest to the east on Chehalem Ridge. Over the long-term, the goal for upland forests is to foster development of more diverse, late-seral forest characteristics.

Potential actions

- Cut and fell, and/or girdle invasive cherry trees to create short-term small snag and downed wood habitat.
- Remove English ivy and holly to reduce competition of native shrub species.
- Replant the 2.2-acre shrub-dominated abandoned farm field at the northeast corner of the north property.
- Manage Douglas-fir/big leaf maple to foster re-establishment of late-seral habitat attributes, including canopy gaps, snags and downed wood.
- Investigate opportunities to partner with adjacent landowners in order to reconnect upland forest patches with larger forest blocks to east on Chehalem Ridge.

OAK WOODLAND AND SAVANNA

The majority of Wapato View Natural Area will be managed to foster the re-establishment of native Oregon white oak savanna and woodlands (Map 6). At present, the site supports approximately 6.5 acres of established oak woodlands. Based on factors such as habitat unit size, contiguity and anticipated management requirements, conservation targets in this site conservation plan include restoration of at least 62 acres of farm fields to oak savanna and up to 41 acres of oak woodland. The restoration of Oregon white oak ecosystems is a long-term process, which will extend beyond the duration of this plan. Oak woodland understory and savanna species richness and levels of weed tolerance will ultimately be determined by the financial resources available for establishment and long term management of these habitats. The following prioritized list of actions is structured to initiate this long-term restoration vision.

Potential actions

- Control invasive Himalayan blackberry and competing Douglas-fir in oak woodland remnant patches to support re-establishment of native shrub communities.
- Over the short-term, work with the agricultural leaseholder to better manage steep slopes and minimize soil erosion by creating a schedule for conversion from annual till agriculture to alternative pasture or perennial cropping systems.
- Over the medium-term, re-establish oak savanna and woodlands in lower- and higher-elevation areas, respectively. Cluster tree planting on steeper, concave slopes.

- Utilize mechanical mastication and herbicide to control competing vegetation over near-term, and investigate use of controlled burns over medium- to long-term.
- Actively manage exterior edges of large management units to limit the interior spread of weeds originating from adjacent residential and agricultural properties.
- Plan and lay out access and management corridors to function as barriers to the movement of invasive species into and across the site.

Table 7: Management actions, prioritization, costs and monitoring important to maintaining/improving KEAs at Wapato View Natural Area over the next ten years

CONSERVATION TARGET	KEAS	SOURCE OF STRESS	MANAGEMENT ACTIONS	PRIORITY	SEQUENCING	ESTIMATED COST	MONITORING
Riparian forest (and shrub wetland)	Floodplain connectivity and natural hydrology	Diking, filling, draining; land conversion	Install LWD in main stream to re-grade channel and reduce bank erosion. Install LWD in swale C to stabilize channel and reduce erosion. Reconfigure dredge spoils to create microtopography within wetland. Locate, and remove or break agricultural drain tiles to restore natural hydrology.	High: will not improve without active intervention and expanded, restored riparian forest and wetland dependent on re-establishment of natural hydrology.	Near term	\$150,000-200,000 (\$60-\$80/lineal foot)	Project dependent, but at a minimum should include photo points, channel cross sections, and longitudinal elevation profiles.
Riparian forest	Upstream habitat connectivity	Development	Remove/repair culvert blockage at farm access road crossing to support access to fields on south bank of stream for farm lease and for future oak woodland and savanna restoration work. Remove collapsed springhouse structure.	High: culvert work to be planned and integrated with channel restoration. Medium: springhouse removal at headwaters.	Medium term	\$30,000 for removal and replacement with a bottomless arch culvert; \$10,000 for springhouse removal and disposal	Photo points, project design and as-built drawings, and elevation survey.
Riparian forest	Forest width; native shrub cover	Land conversion	Remove invasive vegetation and replant with native trees and shrubs. This action to be led by Clean Water Services.	High: revegetation of eroding streambanks and core buffers. Medium: re-vegetation of remaining, outer riparian areas.	Near term Medium term	\$25,000 (\$2,000/acre) for near-term revegetation on banks and near stream; \$50,000 (\$4,000/acre) to establish riparian forest; \$5,000 (\$2,000/acre) for medium-term revegetation of remaining riparian forest area; \$10,000 (\$4,000/acre) to establish riparian forest	Photo points, vegetation transects. Conduct annual maintenance for first 4-5 years.
Shrub wetland	Wetland area; native shrub cover	Land conversion	Plant and maintain mix of native shrubs to compete with reed canarygrass. This action to be led by Clean Water Services.	High	Near term	\$7,000 (\$2,000/acre) for near-term riparian revegetation; \$12,000 (\$4,000/acre) to establish shrub-scrub wetland	Photo points, vegetation transects. Conduct annual maintenance for first 4-5 years.
Upland forest	Mature trees; standing and downed dead trees	Previous forest management; invasive species	Girdle cherry trees to create snags and downed wood; remove blackberry, ivy and restore native shrub community. Replant 2.2 ac abandoned farm field.	Medium	Medium or long term	\$15,000 (\$1,500-\$2,000/acre) for initial treatments and planting; \$25,000 to enhance existing upland forest (\$2,000-\$3,000/acre) and establish new upland forest (\$4,000/acre)	Permanent vegetation plots or transects, photo points.
Oak woodland	Habitat area; native grass and forb species	Land conversion	Continue understory restoration in the existing remnant stand. Prepare work plan and implement re-establishment of oak woodland.	High	Near term Medium term	\$20,000 (\$1,000-\$1,500/acre) to enhance and maintain existing stands; \$10,000 for work plan, \$40,000 (\$2,000-\$3,000/acre) for oak, understory and native grass/forb plantings; \$80,000 (\$4,000/acre) to establish oak woodland	Permanent vegetation plots or transects, photo points. Annual site walk to monitor plantings, and invasive plants.
Oak savanna	Habitat area; native grass and forb species	Land conversion	Transition away from annual till agriculture on steep slopes, and engage farmer in maintenance mowing/vegetation treatments. Prepare work plan. Oak and native grass/forb re-establishment in current farm fields.	High	Near term Medium term	Cost TBD; \$200,000 (\$3,000/acre) for prep, planting and maintenance through establishment	Annual site walk to monitor plantings, and invasive plants. Permanent vegetation plots or transects, photo points.

Maps 7 and 8 show the distribution of natural area stewardship classes and present-day management status at Wapato View, respectively. Stewardship class is a high-level, generalized land cover classification of all Metro properties, reflecting desired future conditions. Stewardship classes are not as specific as conservation target classes, and they include both natural and non-natural land covers.

Management status describes how far a given portion of a site is from desired future condition, with a score of “0” for those that are the farthest away, and “4” for areas currently at desired future condition. Areas lacking a conservation target are scored as “9” (unclassified). Table 8 defines Metro’s management status categories.

At present approximately 127.7 acres of Wapato View Natural Area is active or abandoned farm fields, with a management status of “pre-initiation.” Approximately 10.1 acres is classified “initiation”, including portions of the riparian corridor and oak woodland. Upland forest patches are classified “consolidation.”

Table 8: Conservation management status categories under the Metro site conservation planning framework

MANAGEMENT STATUS	SCORE	TIMEFRAME	DESCRIPTION
Pre-initiation	0	N/A	Highly disturbed sites where restoration work has not been initiated. Few native plants typically present (farm fields, clearcuts, oak woodlands/prairies with high levels of invasive/colonizing vegetation encroachment).
Initiation	1	0-3 years post-restoration	Sites under initial restoration establishment phase. Includes areas under treatment with tilling, mowing, grading, invasive species control and initial planting.
Establishment	2	3-8 years post-restoration	Sites undergoing treatments to reduce competition to vegetation planted or released during the initiation phase. Areas generally stay in this phase until priority native plants have established dominance over competing vegetation.
Consolidation	3	8-20 years post-restoration	Sites with developing native plant communities that require periodic management to reach the DFC (tree thinning, mowing and weed control).
Refinement and long-term maintenance	4	Indefinite	Sites that have reached their DFC or are on a clear path towards it, requiring only modest additional intervention.
Unclassified	9	N/A	Sites with unclassified conservation targets, representing developed areas.

SECTION 5: ACCESS AND RECREATION

Wapato View represents an important potential linkage between Chehalem Ridge Natural Area and the valley bottom. There is currently no formal master plan for public access and use. The site does not have any identified recreational uses, but the site is not gated or fenced to minimize public use. Access to the site is currently limited due to lack of on-site parking and trails. Access infrastructure is expected to remain primitive for the ten-year planning horizon. Farm field access roads are present off Southwest Dixon Mill Road (Map 2) for both the north and south property portions, but the north property access point is currently overgrown with blackberry and would require grading.

SECTION 6: COORDINATION

PUBLIC INVOLVEMENT

As projects are developed, Metro will provide local stakeholders and residents surrounding Wapato View Natural Area with pertinent information about conservation work before it is implemented. Project information may include background on the project, timing, cost, material types and other information as necessary for the public to be aware.

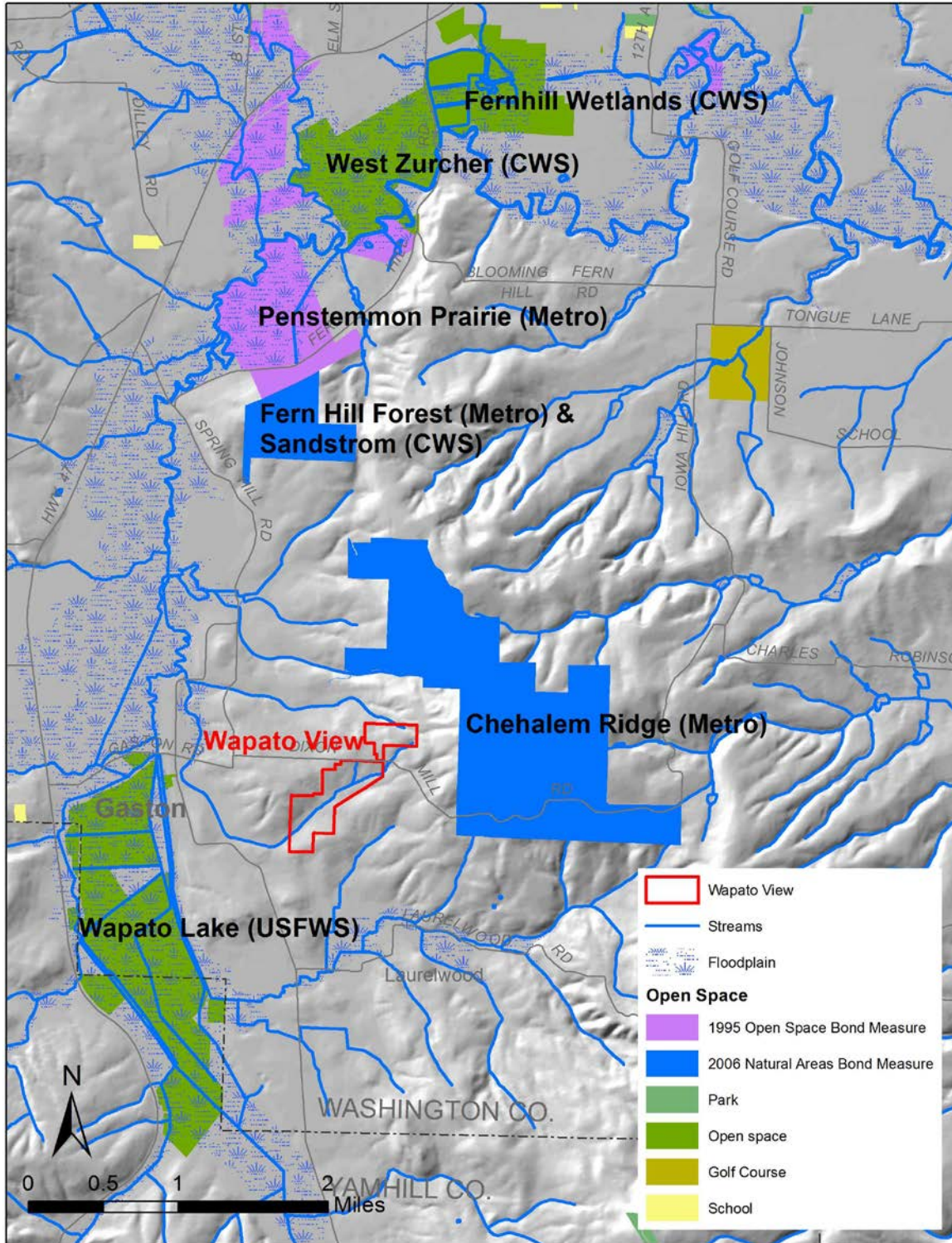
KEY STAKEHOLDERS AND PERMITTING AGENCIES

- Tualatin River Watershed Council, April Olbrich, trwc@easystreet.net
- Tualatin Soil and Water Conservation District, Lacey Townsend, lacey.townsend@or.nacdnet.net
- Clean Water Services, Rich Hunter, hunter@cleanwaterservices.org
- Leasing farmer, John Koehnke, 503-320-3885
- Washington County Planning and Development Services – a building or demolition permit may be required for removal of the springhouse, development of on-site parking or improved road access
- Gaston Fire District – for burn permits
- Oregon Department of Forestry – forest practices and slash burning
- Oregon Division of State Lands – removal-fill permit or general authorization to replace/ remove culvert
- Oregon Department of Fish and Wildlife – consultation on potential culvert replacement to ensure fish passage criteria are met
- U.S. Army Corps of Engineers – federal section 404 or regional general permits covering any new fill placed in wetlands or waters, including restoration of ditched channels

SECTION 7: MAPS

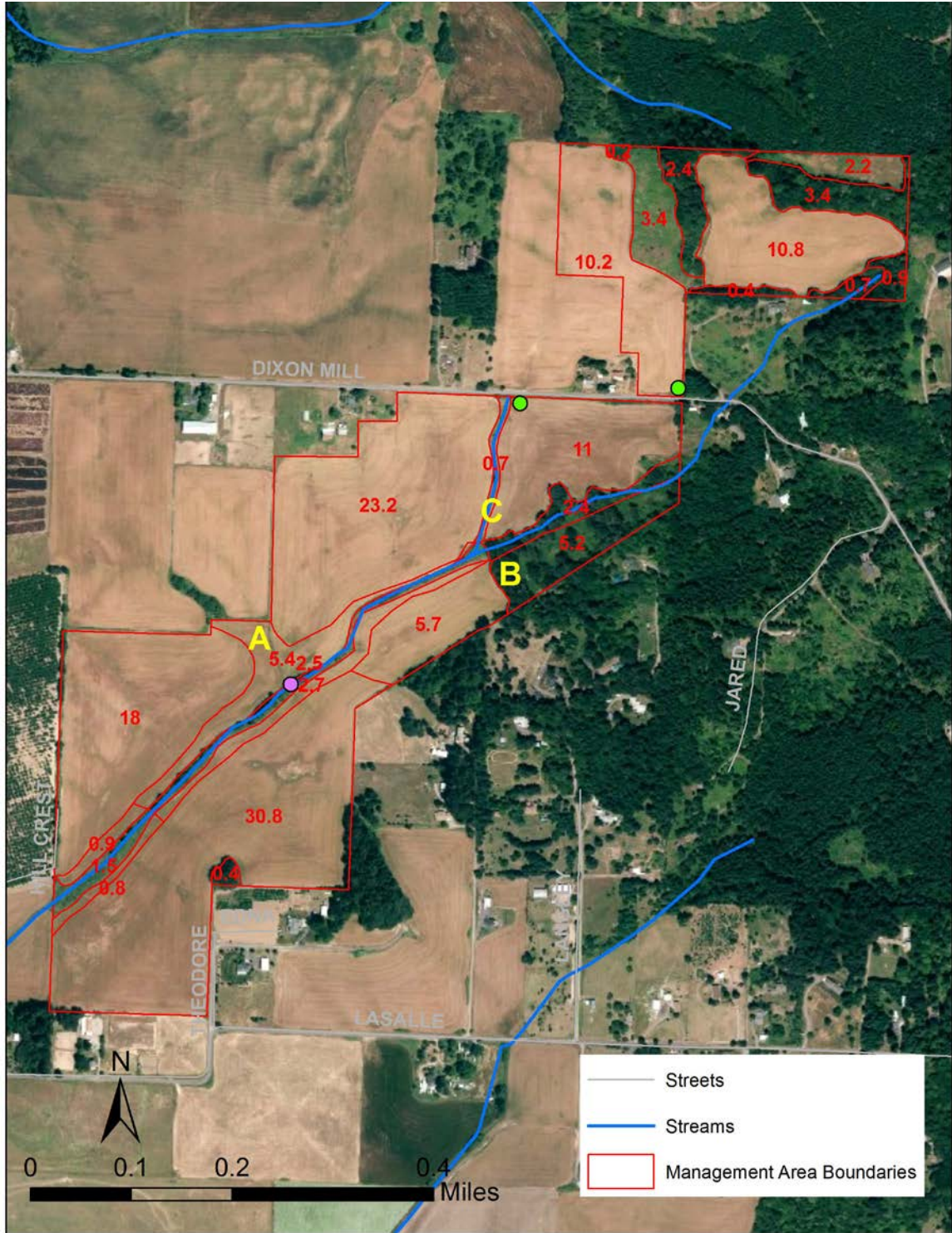
- Map 1 Vicinity map showing neighboring conservation properties and ownership
- Map 2 Management units showing acreages, local roads, streams and key property features
- Map 3 Soils and slopes, Green 1982 and USDA SCS Web Soil Survey
- Map 4 Current cover
- Map 5 Natural Area and environs historic vegetation (from Christy and Alverson 2011)
- Map 6 Conservation targets
- Map 7 Stewardship classes
- Map 8 Management status

MAP 1
Wapato View Natural Area vicinity map, showing neighboring conservation properties and ownership



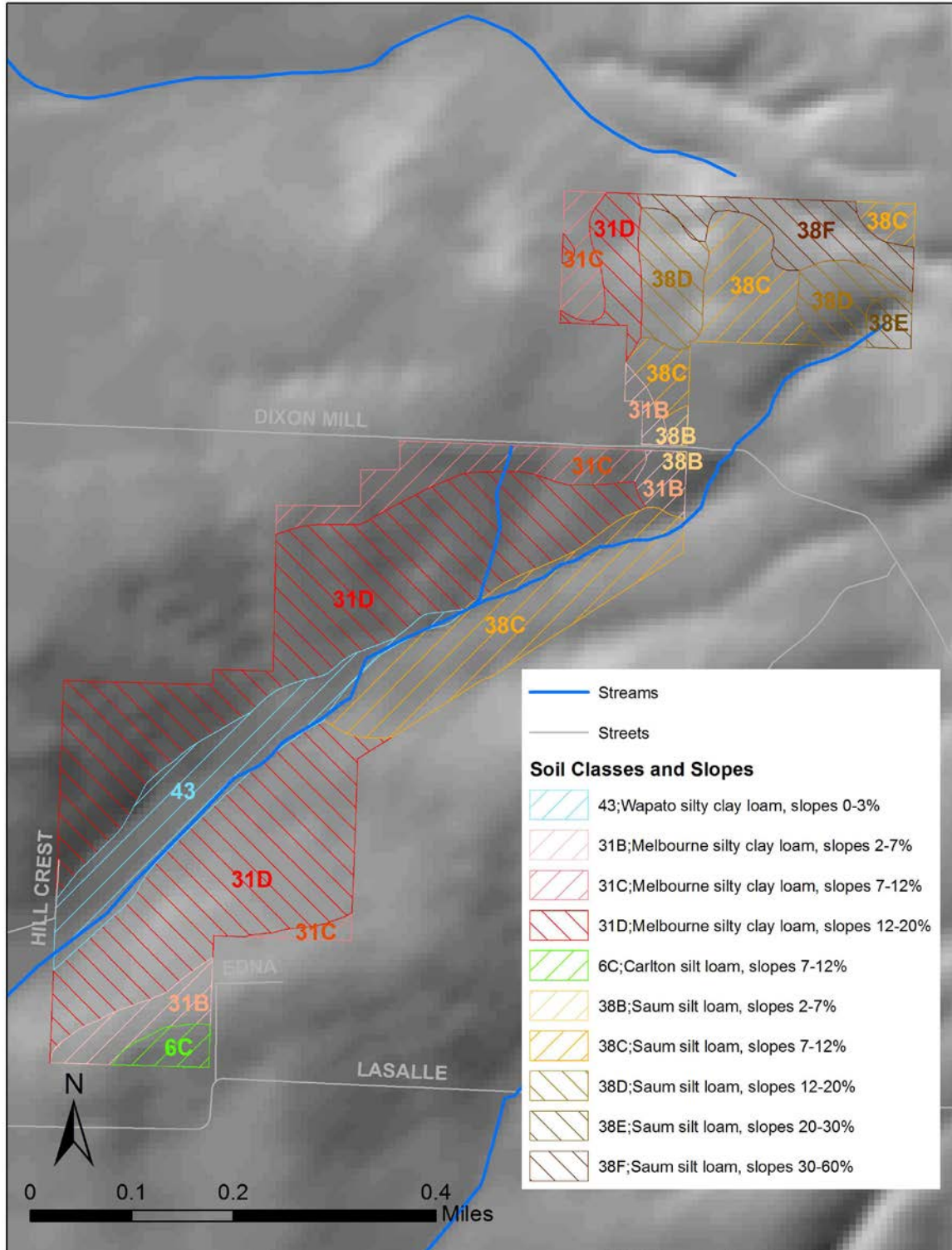
MAP 2

Wapato View Natural Area management units showing acreages, local roads, streams and key property features (magenta marker shows location of farm access road crossing the stream; green markers show location of road access locations to the north and south properties; yellow letters show location of swales A, B and C)

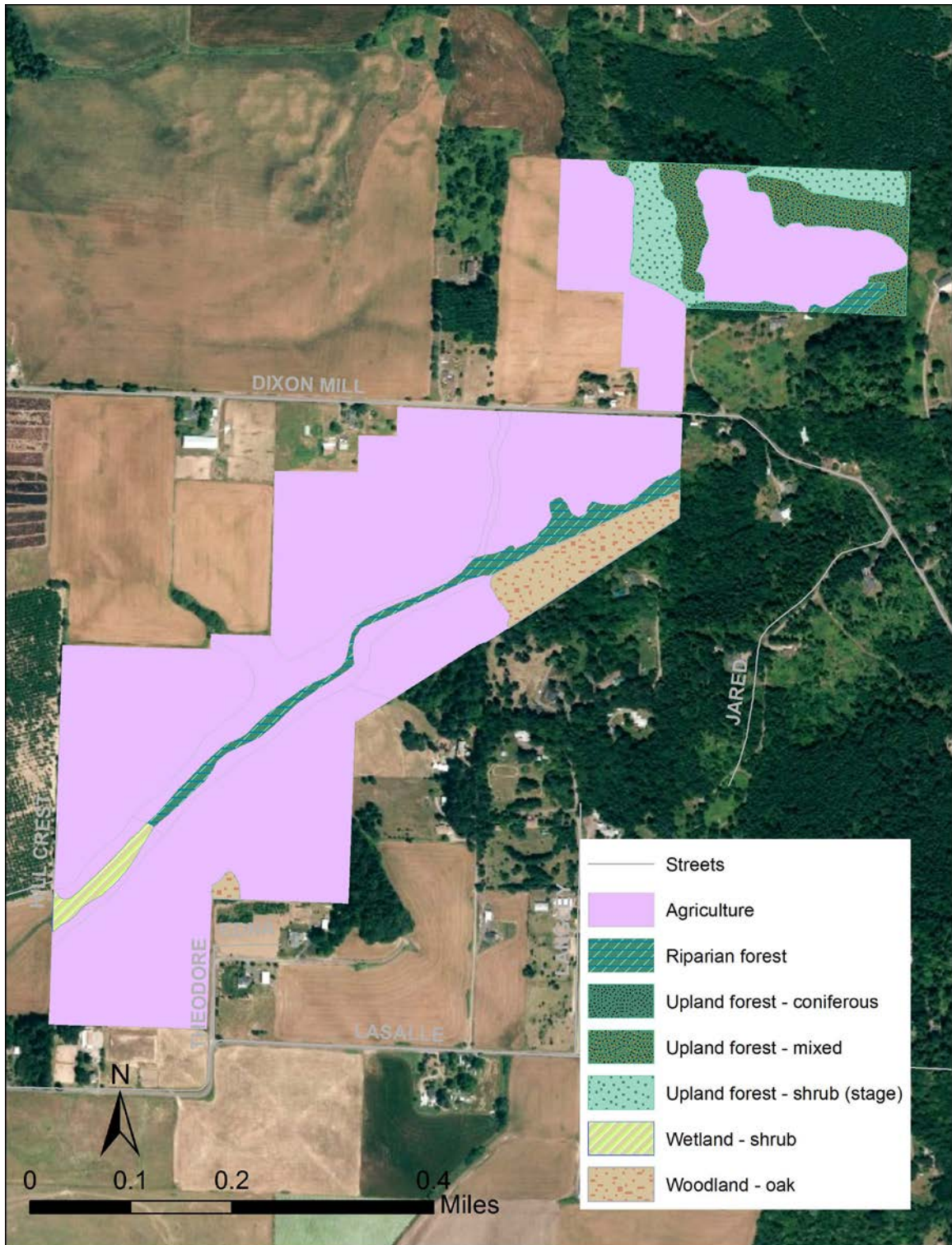


MAP 3

Wapato View Natural Area soils and slopes, Green 1982 and USDA SCS Web Soil Survey
(steeper slope classes are shown in darker colors; slope classes greater than 12% are shown with left-angled hatching)

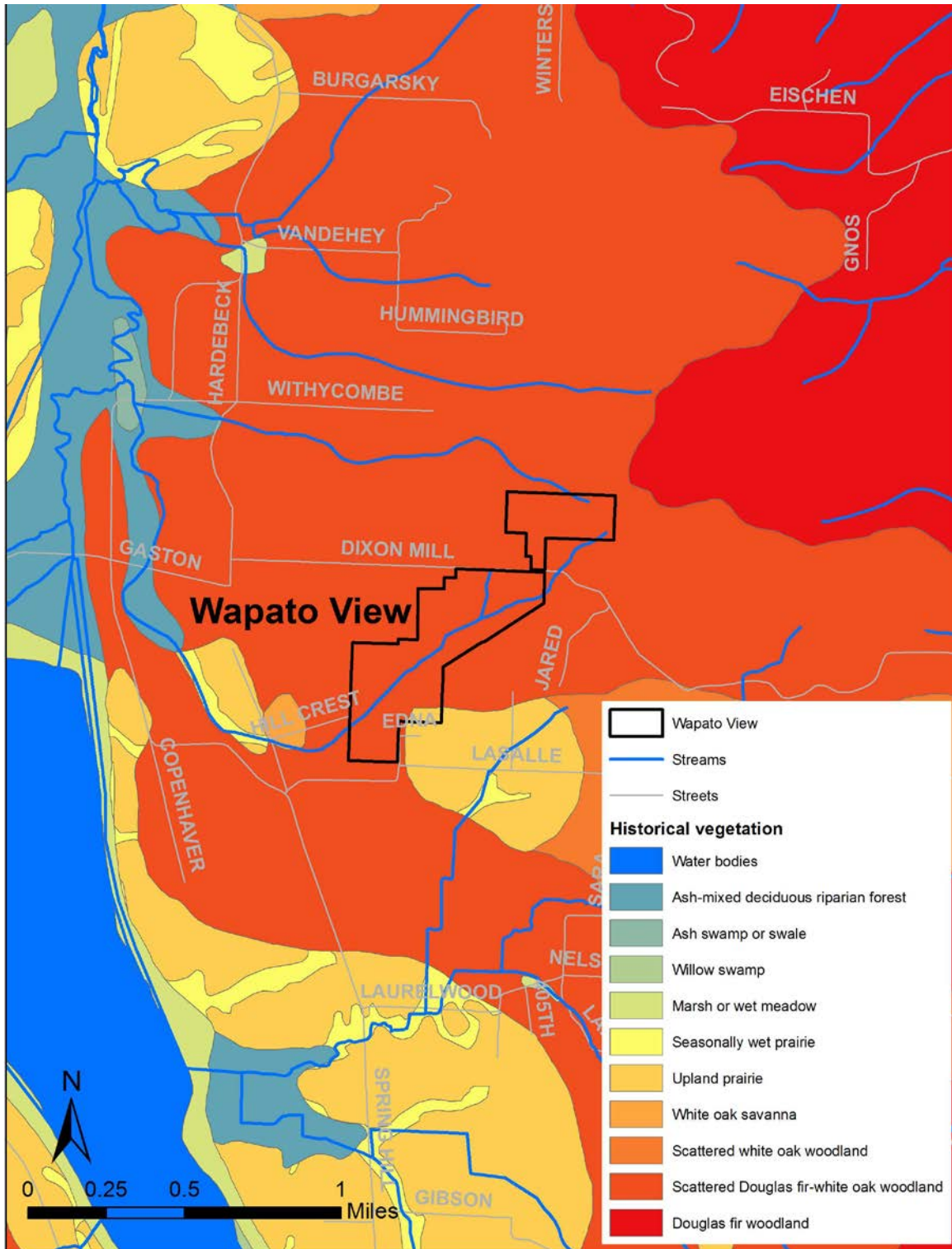


MAP 4
Wapato View Natural Area current cover

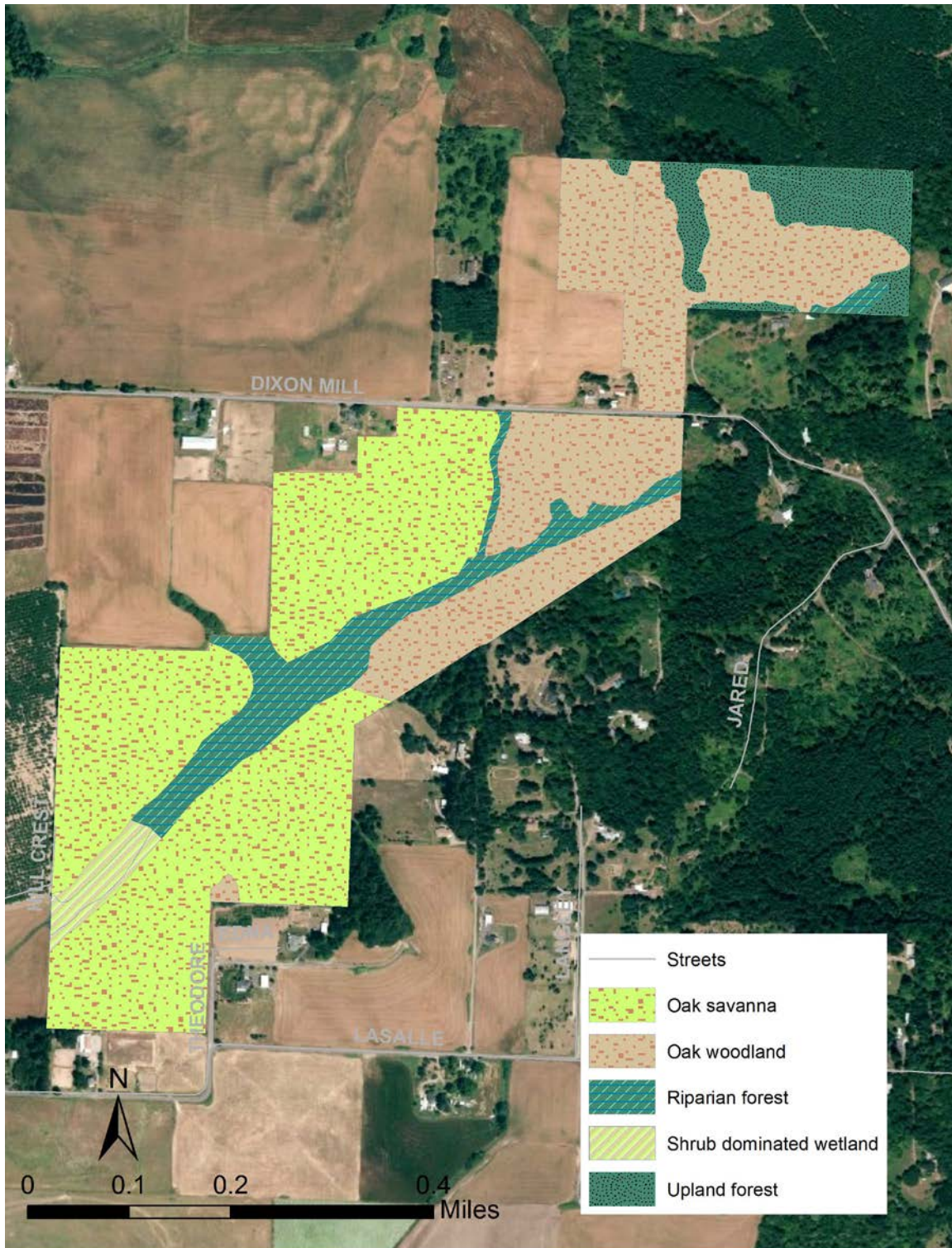


MAP 5

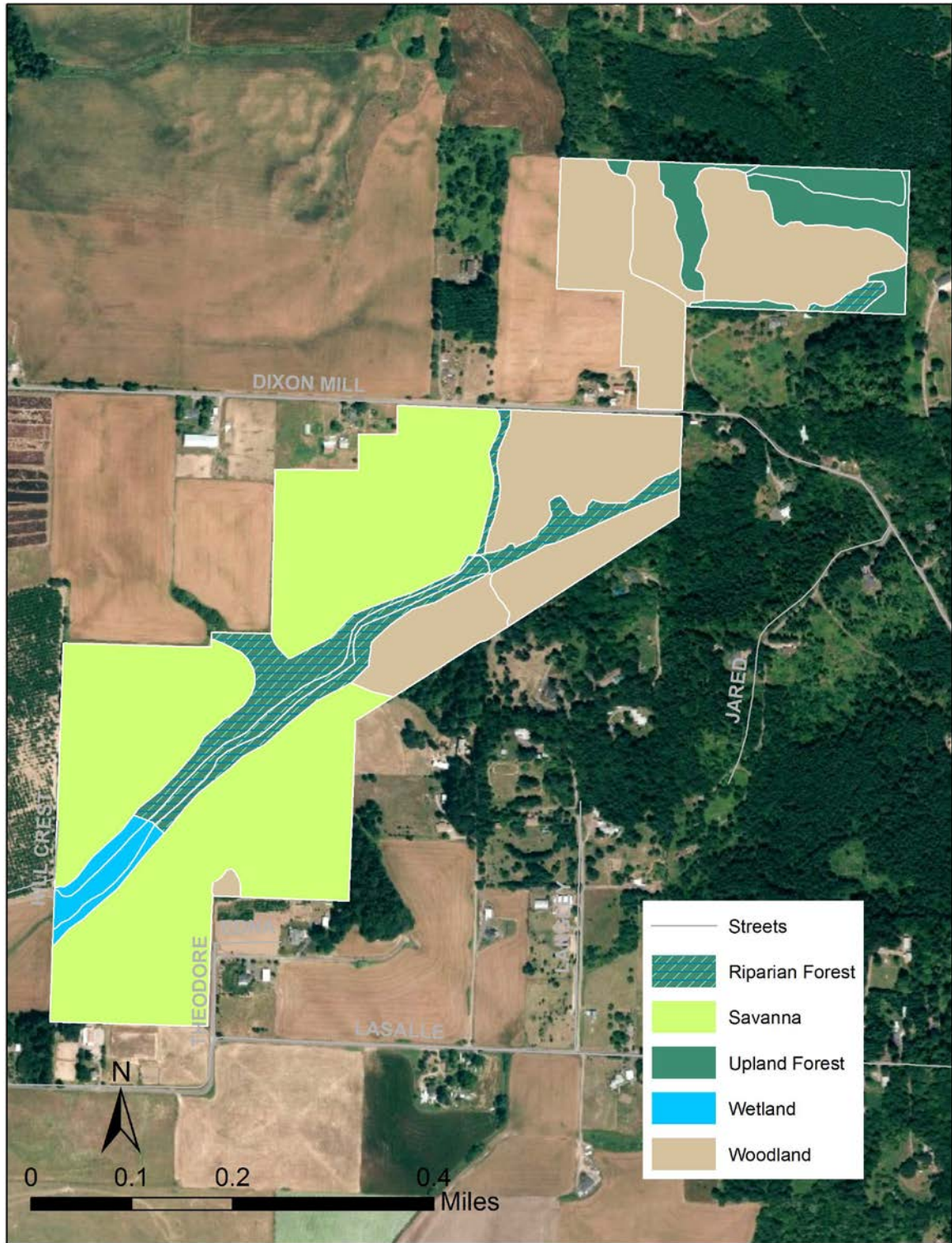
Wapato View Natural Area and environs historic vegetation (from Christy and Alverson 2011)



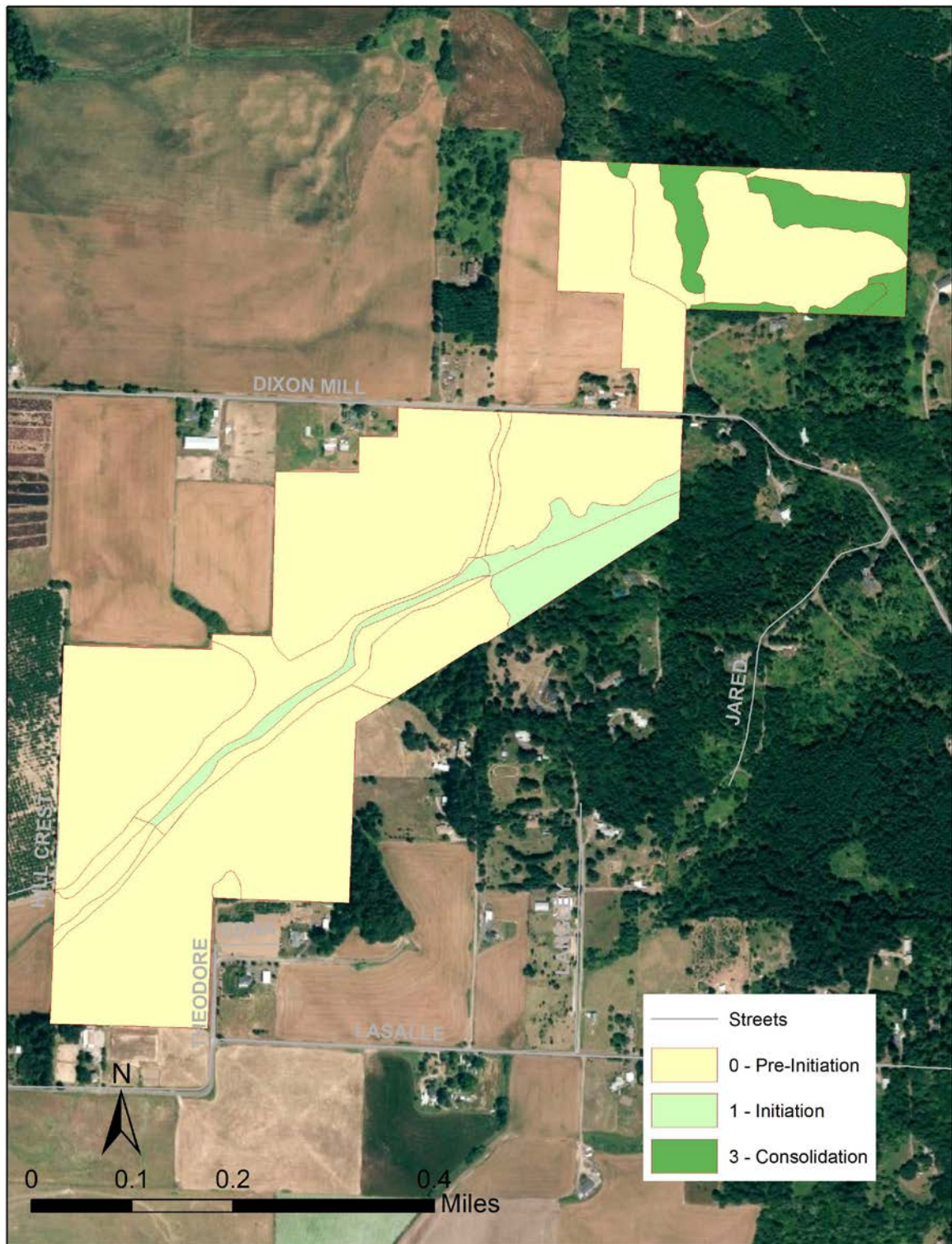
MAP 6
Wapato View Natural Area conservation targets



MAP 7
Wapato View Natural Area stewardship classes



MAP 8
Wapato View Natural Area management status



SECTION 8: REFERENCES

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APPENDIX: SITE PHOTOS



Looking into the 5.2-acre remnant oak stand



Brush piles from recent understory treatment in 5.2-acre remnant oak stand



Snowberry regenerating in the understory of the 5.2-acre remnant oak stand where understory treatments of invasive blackberry were recently completed



Looking up swale A from the main creek



Eroding stream banks along tilled field on main creek



Another view of swale C, looking towards the main stream at distance and showing *V. major* infestation at top of swale (close to Dixon Mill Rd.)



Looking down swale C from Dixon Mill Rd. with large *V. major* infestation in foreground



Looking down main creek course from Dixon Mill Rd. with 5.2-acre remnant oak stand on left



Looking down main creek course from Dixon Mill Rd. with 5.2-acre remnant oak stand on left



English ivy on bigleaf maple tree with invasive blackberry in foreground in upland forest on north property



Invasive blackberry and holly in the ash-dominated riparian zone of main creek



Collapsed springhouse at the top of main stream on north property