

**Wallace Bridge Rare Plant Survey  
and  
Habitat Assessment  
Final Report**

Submitted to:  
J.W. Millegan

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## **Introduction**

Carex Working Group (CWG) conducted rare plant surveys and habitat assessments on the Wallace Bridge property and two adjacent properties in the South Yamhill River watershed in northwestern Polk County, Oregon. The 325 acre Wallace Bridge property contains the Crowe-Tesch-Ferris Millegan WRP #66-0346-3-036, a 187 acre Wetlands Reserve Program (WRP) easement which is owned by the Natural Resource Conservation Service (NRCS) and managed in cooperation with the US Fish and Wildlife Service (USFWS). USFWS issued a Wildlife Habitat Conservation and Management Plan for the easement in 2005 and a Wetland Reserve Plan of Operations (WRPO) in 2011.

The current owner of the Wallace Bridge property, J.W. Millegan, plans to develop an equestrian facility on the property and has proposed to modify the existing easement by removing 115.5 acres from the easement on the Wallace Bridge property to provide adequate space for the facility, and add a similar acreage on portions of adjacent properties with the agreement of the current owners the Kirkhams and the Reeds. The proposed easement areas on the Kirkham property to the north and the Reed property to the south comprise approximately 110 acres and 11 acres respectively.

This study documents current conditions and potential for restoration within the areas proposed to be removed from the existing easement and areas proposed to added to the modified easement. Rare plant surveys were conducted and habitats were assessed on both the existing easement and the proposed easement areas. Information and analysis from this study can be used by NRCS as input to its decision-making process for making a determination about the benefits of modifying the easement.

## **Background**

The WRP was established in 2004 as the Crowe WRP. The intent of the existing WRP easement is to 1) maintain and restore native habitats including upland prairie and savanna, wet prairie, oak/pine woodland, and depressional wetland broadleaf forest; 2) protect populations of 2 federally listed plants that have been documented within the easement: Willamette daisy (Endangered) and Nelson's checkermallow (Threatened); 3) protect a number of special status wildlife species that have been documented within the easement including Upper Willamette winter steelhead (Threatened), Coastal cutthroat trout (Species of Concern), Pacific lamprey (Species of Concern), Northern red-legged frog (SOC) and Western pond turtle (SOC) (USFWS 2005; USFWS 2011). Lands within the easement were also identified by NRCS as suitable for possible re-introduction of Bradshaw's desert parsley (Endangered). Restoration efforts will potentially provide suitable habitat for several additional special status wildlife species.

Prior to Euro-American settlement in the 1850s, habitats in the South Yamhill River watershed in the area of the WRP probably were upland prairie and oak savanna, wetland prairie, and riparian and wetland hardwood forest (Christy et al. 2011). The open prairie and savanna habitats were maintained by regular burning by Native Americans. Riparian and wetland forests probably occurred in a mosaic with wetland prairie along streams and in poorly drained bottomland areas where the fires were less frequent and of lower intensity.

Before 2004 most of the site was in agricultural use since at least the 1930s (USFWS 2011) and

was farmed for grass seed, hay and pasture for livestock. The stream that runs north through the site was channelized, and drainage ditches and tile drains were installed to drain wetlands in an attempt to improve the site for farming.

Restoration activities undertaken by USFWS occurred on portions of the WRP from 2005 to 2009 included prairie/savanna restoration plantings of native grasses and forbs, drainage ditch plugging, and disabling tile drains in the western part of the easement; mowing of woody vegetation and removal of Douglas fir in remnant savanna and oak woodland in the north-central part of the easement; tree and shrub planting and disabling tile drains in the riparian forest restoration area in the eastern part of the easement; and tree planting in the upland mixed forest area.

### **Project Area Description**

The Wallace Bridge project area is located in northwestern Polk County approximately 1.5 miles southeast of Willamina, east of State Highway 18 and north of State Highway 22 (Attachment 1). Three properties comprise the project area: the existing WRP on the Millegan property; the Kirkham property which borders the Millegan property to the north; and the Reed property which is adjacent to the south.

The western portion of the existing WRP lies on a high, mostly level bench. To improve hydrology for farming this area was ditched and had tile drains installed in the past. Restoration efforts have been aimed at restoring upland prairie. The ditches have been blocked and the tile drains broken to allow the hydrology to return to a more natural state, and native prairie species have been planted. At its east end, the bench drains into a seasonally wet drainage swale that carries flows north off the property. East of the swale is a small ridge with remnant upland prairie, oak savanna and oak woodland. A small population of Willamette Valley daisy is located in the upland prairie. Under the proposed easement modification most of the western portion of the easement would be removed from the easement; however, the upland prairie, oak savanna and the Willamette Valley daisy population would be retained within the easement.

The eastern portion of the site is low-lying bottomland with an unnamed stream flowing through it from south to north. Most of this area has widely spaced trees that were planted for restoration of wetland depressional forest and upland mixed forest. The stream was channelized and ditches and drain tiles were installed in the past to improve soil hydrology for agriculture. The stream enters the south side of the Millegan property from the Reed property and exits the Millegan property at the north end to the Kirkham property, and crosses under Highway 18 and eventually drains to the South Yamhill River.

The portion of the Reed property proposed to be part of the modified easement lies directly south of the Millegan property on bottomland along the stream. The stream enters the Reed property from the south and runs along the east side of the property through a forested riparian corridor. Hayfields and a constructed pond occupy the remainder of the Reed property.

The portions of the Kirkham property proposed to be part of the easement lie directly north of the Millegan property on both sides of Steel Bridge Road. The stream flows north through riparian forest corridor to where it crosses under Highway 18. Wet bottomland areas used as

pasture and hayfields lie on both sides of the stream both south and north of Steel Bridge Road. The remainder of the Kirkham easement area lies north of the stream in a strip along the east side of Highway 18. This area is rolling terrain used for grazing livestock. In the northern third of this area two unnamed seasonal tributary streams drain through forested riparian corridors and join just before crossing under Highway 18 and draining to the South Yamhill River. A young-mature Oregon white oak forest is located at the north end of the Kirkham easement area.

## Methods

The Oregon Biodiversity Information Center was consulted to determine rare species that are documented from the project area and from within a 2 mile radius.

To provide information to assist in NRCS's comparison of the current and potential natural resource values of the existing vs. the proposed easement, field investigations included rare plant surveys and habitat mapping and descriptions.

Rare plant surveys. Target species for the rare plant surveys included all federally listed and candidate species, as well as federal Species of Concern, with potential to occur within the project area (Table 1; derived from ORBIC 2010).

Table 1. Target rare plant species (Key: ORBIC=Oregon Biodiversity Information Center; LE = Listed Endangered; LT = Listed Threatened; C = Candidate for listing; SOC = Species of Concern)

Latin Name	Common Name	Status	
		Federal	State
<i>Delphinium oregonum</i>	Willamette Valley larkspur	SOC	C
<i>Delphinium pavonaceum</i>	Peacock larkspur	SOC	LE
<i>Erigeron decumbens</i>	Willamette Valley daisy	LE	LE
<i>Horkelia congesta</i>	Shaggy horkelia	SOC	C
<i>Howellia aquatilis</i>	Howellia	LT	LT
<i>Lathyrus holochlorus</i>	Thin-leaved peavine	SOC	-
<i>Lomatium bradshawii</i>	Bradshaw's lomatium	LE	LE
<i>Lupinus oregonus</i>	Kincaid's lupine	LT	LT
<i>Sericocarpus rigidus</i>	Rigid white topped aster	SOC	LT
<i>Sidalcea nelsoniana</i>	Nelson's checkermallow	LT	LT

Because the target species flower at different times during the growing season several surveys were required between 1 May and 30 June. Surveys were timed to coincide with peak flowering of target species to maximize the probability of detection. Timing was determined by checking nearby known populations of target species, researching collection dates on the Oregon Plant Atlas (OFP 2012), and from past experience.

The existing easement and the proposed new easement areas were surveyed using an intuitive controlled survey method. When rare plant populations were found a GPS reading was taken and the populations were censused and mapped on an aerial photo. Rare plant population locations were converted to a GIS shapefile.

Habitat mapping. Habitat types in the existing and proposed easement areas were field mapped on an aerial photo and described based on vegetative cover. Dominant plant species and notes on condition were recorded such as degree of nativeness, invasive species, disturbance impacts, etc.

Potential for restoration was assessed based on field observations of vegetation, hydrology and a rough estimate of wetland boundaries. Jurisdictional wetlands were not delineated and wetland boundaries as represented by the habitat type boundaries shown in this report should be considered approximate.

Habitat type boundaries were converted to GIS shapefiles.

## Results

ORBIC rare species query. A query of the ORBIC database shows no records of rare plant or animal species within either the existing easement or the areas proposed to be included in the modified easement (ORBIC 2012). The populations of Willamette Valley daisy and Nelson's checkermallow documented within the current easement evidently have not been reported to ORBIC. Steelhead are considered by Oregon Department of Fish and Wildlife to be "undocumented but as having potential of being present" in South Yamhill River tributaries on the site (ORBIC 2012).

Four rare plants and 3 rare animals are documented by ORBIC within a 2 mile radius of the site (Table 2).

Table 2. Rare species documented within a 2 mile radius of the Wallace Bridge site (Key: ORBIC=Oregon Biodiversity Information Center; LE = Listed Endangered; LT = Listed Threatened; C = Candidate for listing; SOC = Species of Concern)

Latin Name	Common Name	Status	
		Federal	State
<i>Delphinium oregonum</i>	Willamette Valley larkspur	SOC	C
<i>Lathyrus holochlorus</i>	Thin-leaved peavine	SOC	-
<i>Lupinus oregonus</i>	Kincaid's lupine	LT	LT
<i>Sidalcea nelsoniana</i>	Nelson's checkermallow	LT	LT
<i>Actinemys marmorata</i>	Pacific pond turtle	SOC	SC
<i>Myotis yumanensis</i>	Yuma myotis (bat)	SOC	-
<i>Oncorhynchus mykiss</i>	Steelhead (upper Willamette River ESU, winter run)	LE	-

Rare plant survey. We documented three rare plant species within the project area: Willamette Valley daisy, Nelson's checkermallow, and thin-leaved peavine (Attachments 2 and 4). Two of these, the Willamette Valley daisy and the Nelson's checkermallow are federally listed as endangered and threatened respectively. Thin-leaved peavine is a federal Species of Concern.

*Millegan property.* The previously documented Willamette Valley daisy population was

found in the remnant upland prairie on the ridge east of the upland prairie restoration area. Ten plants were observed. Seventeen Nelson's checkermallow plants were found in 6 locations in bottomland areas in the southern part of the existing easement. Three plants were found near the previously documented location for this plant, along the creek in the southern part of the easement. The Nelson's checkermallow plants were located on both sides of the creek in remnant prairie fragments at the edge of the riparian forest, and in the bottomland fields where restoration tree plantings have been made. No rare plants were found in the area proposed to be removed from the existing easement.

*Kirkham property.* On the Kirkham property we found 2 Nelson's checkermallow plants in the field south of Steel Bridge Road and east of the creek. One plant was growing at the edge of the riparian forest and the other was growing in the field near its southwest corner. One additional plant was found in the county road right-of-way on the north side of Steel Bridge Road. Two patches of thin-leaved peavine were found growing in the fencerow along the east side of the Kirkham property north of Steel Bridge Road. Ten plants grew in each patch. The thin-leaved peavine is outside the proposed easement boundary.

*Reed property.* Four Nelson's checkermallow plants were found in 2 locations on the Reed property along the edge of the riparian forest near the pond.

Habitat assessment. Habitats within the existing and proposed easement areas were described and mapped based on vegetative cover (Attachments 2 and 3).

*Millegan property.* Habitat descriptions for the entire existing easement are included in Attachment 3. However, only the habitats proposed to be removed from the easement are discussed here. These include all or parts of polygon nos. 20, 21, 24, 25, 26, 27, 28, 29, 30, 31, and 32.

Polygons 20, 28, 29, and 30 constitute the prairie restoration area on the level bench in the western part of the easement. Except for polygon 30 all of these polygons are seriously infested with invasive non-native grasses. Some areas also are dominated by Himalayan blackberry and Canada thistle. Polygon 20 is the largest of these polygons and was apparently planted with native bunchgrasses and forbs. However, non-native velvetgrass, redtop, and parentucellia are dominants along with Himalayan blackberry and Canada thistle in drier areas. Tansy ragwort is common in the eastern portion. California oatgrass is a dominant in patches, and tufted hairgrass and a few native forbs are scattered, especially in wetter areas. Polygon 29 is similar except that there are very few native prairie species present. Most of the polygon is vegetated with dense velvetgrass and redtop. Native grasses and forbs are sparsely scattered.

Polygon 30 is a small, shallow depression that was probably excavated during the restoration phase to form a vernal pool. It is dominated by native grasses and forbs including water foxtail, tufted hairgrass, creeping spikerush, and elegant downingia. Non-native water purslane is also a dominant, but overall there is a good diversity of native prairie and vernal pool species present.

Polygon 28 is a restored upland prairie dominated by a good diversity of native forbs. Native bunchgrasses are present but do not constitute much cover. Invasive grasses are dominant and pose a threat to this community. Higher cover by native bunchgrasses and control of invasive grasses would improve the habitat quality of this area.

The remaining areas proposed to be removed from the existing easement are located east of the upland prairie restoration area on the east slope above the bottom land area. Polygon 21 is a very weedy shrubland-grassland matrix dominated entirely by invasive grasses, forbs and Himalayan blackberry. It includes a small plantation of Douglas fir and a clump of mature Oregon white oak. Polygon 27 is a degraded scrub-shrub habitat with scattered oaks and a dense shrub layer dominated by Himalayan blackberry. No restoration activities have been undertaken in polygons 21 or 27. Polygons 24, 26, 31 and 32 are restoration areas in which trees have been planted in an effort to restore depressional wetland forest. The planted trees are small and widely scattered. Himalayan blackberry is a serious problem in Polygon 24 and herbaceous vegetation is extremely weedy and dominated by invasive grasses and forbs.

*Kirkham property.* The Kirkham property lies north of the Millegan property on both sides of Steel Bridge Road. The main channel of the unnamed creek flows through the property, crossing under Steel Bridge Road through 2 large culverts and exiting the property approximately 650 feet north of the intersection of Steel Bridge Road and Highway 18. North of Steel Bridge Road habitats are mostly open and heavily grazed by cattle. Most of this area is rolling terrain dissected by drainage swales and seasonal streams. Polygon 1 is weedy upland pasture dominated by introduced pasture grasses and Himalayan blackberry. A few native prairie species persist along fencelines and elsewhere including broad petal strawberry, California oatgrass, Oregon sunshine, and field checkermallow. Two patches of thin-leaved peavine (federal Species of Concern) are located along the east fenceline. Interspersed at edges and along the two seasonal streams are small remnant patches of degraded upland prairie. Polygon 3 contains the largest upland prairie remnants which appear to have been protected in the past by fences that kept livestock away from the seasonal streams. California oatgrass, broad petal strawberry, and western buttercup are dominants along with introduced grasses and forbs.

Polygon 2 contains heavily grazed and degraded wetland pasture on bottomlands near the stream and in seasonal wetland swales. Dominants include introduced pasture grasses and forbs, and native rushes which are highly tolerant of grazing. Vegetation and soils in this polygon are severely impacted by grazing, particularly in the bottomland areas. Polygon 2 is adjacent to and drains to the unnamed creek and the other seasonal drainages that run through area north of Steel Bridge Road. The creek flows through a degraded riparian corridor (Polygon 7) with an overstory of Oregon ash. The understory is severely impacted by grazing livestock. The creek banks are collapsing and understory vegetation is trampled. Soils are churned by the concentration of livestock and resulting erosion and cattle waste are impacting the creek. At the downstream end of the polygon the creek exits the site and passes beneath Highway 18

through a large box culvert. At the upstream end of the polygon the creek passes under Steel Bridge Road through 2 large corrugated steel culverts. The downstream ends of these culverts are covered by wide-mesh wire grids to prevent cattle access. At the time field inventories took place there was no evidence that the culverts had hanging outlets that could be a barrier to fish passage. No other obstacles to fish passage were observed in this polygon.

Polygon 4 contains riparian hardwood forest along two seasonal drainages that join near the west boundary of the property, then drain through culvert beneath Highway 18. Vegetation is dominated by Oregon white oak and Oregon ash with an understory of mostly native species including Pacific serviceberry, Pacific ninebark, Suksdorf's Hawthorne, and a variety of native forbs and grasses. The understory is weedy and heavily trampled where cattle have access, especially at the east end and where cows cross. Some areas have severe bank degradation, post-holing, and sedimentation into the stream. Invasive shining geranium is common in the disturbed understory areas.

A young-mature Oregon white oak forest occupies the north end of the Kirkham property. The shrub layer is dominated by native species including Pacific serviceberry and poison oak. The herb layer is weedy and dominated by introduced shining geranium and tall fescue. A variety of native herbs are present including Pacific snakeroot, sweet cicely, little buttercup, and swordfern.

South of Steel Bridge Road habitats are mostly bottomland and riparian except along the property boundary with the Millegan property. The creek flows northward through riparian hardwood forest (Polygon 9) as does a tributary that flows along the south side of Steel Bridge Road, joining the creek just before it crosses the road. Although there is some channel downcutting the riparian corridor is in good condition and provides good stream shading. Weed problems include Himalayan blackberry along the edges and shining geranium at the north end. Livestock do not appear to be accessing this polygon.

Polygons 8 and 10 and are low, wet pasture/hayfields dominated by introduced pasture grasses. In Polygon 10 shallow drainage swales were installed in the past to improve the area for agricultural uses. North and east edges of this polygon are better drained and have a few native prairie species. One Nelson's checkermallow plant was found at the edge of the riparian forest on the west side of the field. Polygon 8 has scattered degraded vernal pools with popcorn flower, water foxtail, and straightbeak buttercup.

Polygon 11 is degraded wet prairie adjacent to the south side of Polygon 10. It has wetter hydrology and does not appear to have been farmed as intensively. It is dominated by introduced grasses, but with a variety of persistent native species including daggerleaf rush, soft rush, big-headed sedge, one-sided sedge, wooly sedge, Scouler's popcorn flower, and Pacific sloughgrass. One Nelson's checkermallow was found near the western edge of Polygon 11.

Bottomland areas south of Polygons 8 and 9 contain a mosaic of herbaceous, shrub, and forest habitats. Most of these are very weedy, but Polygon 15 has areas of



degraded mesic and wetland prairie which are being invaded by woody species. Broad petal strawberry, self-heal and blue-eyed grass are common, along with several species of rush and sedge.

*Reed property.* The Reed property abuts the south side of the Millegan property. The creek runs along the east side of the Reed property. Polygon 37 and 33 contain the riparian corridor. These polygons are high quality riparian hardwood forest dominated by Oregon white oak, Oregon ash, common snowberry, Nootka rose, poison oak, and Hooker's willow, with Himalayan blackberry along the edges. Dense overstory and shrub layers provide good stream shading. Beavers are active in this reach with a recent dam and pond located just south of the property boundary. Edges of the corridor between the forest and the adjacent farm field have several upland prairie remnants with narrow leaved mule's ears, broad petal strawberry, self-heal, field checkermallow, and graceful cinquefoil. Four Nelson's checkermallow plants in two locations were found at the edges of these polygons.

Polygon 35 is a wetland hayfield dominated by introduced pasture grasses. Polygon 36 is a constructed pond with scattered willows around its shoreline. The pond is more or less steep-banked and its depth is uncertain. Introduced Eastern bullfrogs are common. The pond probably provides some habitat for native amphibians and wintering waterfowl, and could provide habitat for Pacific pond turtles.

## **Analysis**

Area of restored habitat comparison. Potential habitat type after restoration for each polygon is given in Attachment 3. Acreages for the target restored habitats in the existing vs. the proposed modified easement are summarized in Table 3. Two options are given for the modified easement. In the first, virtually all of the bottomland areas have a target habitat of depressional wetland forest. In the second, most of these areas have a target habitat of wetland prairie which is rarer and more threatened in the Willamette Valley, and is host to several federally listed rare plant species. Note that we have made a distinction here between depressional wetland forest and riparian hardwood forest. This distinction was not made in the WRPO which combined them both into depressional wetland forest.

Table 3. Acreage of potential habitat following restoration for the existing easement and for the proposed modified easement. Option 1 would restore most bottomland areas to depressional wetland forest. Option 2 would restore most bottomland areas to wetland prairie. Existing easement acreages from the WRPO (USFWS 2011).

Habitat Type	Existing Easement (ac)	Modified Easement Option 1 (ac)	Modified Easement Option 2 (ac)
Depressional wetland forest	64.1	85.77	1.86
Riparian hardwood forest	0	26.66	26.66
Wetland prairie	0	1.43	85.34
Pond	0	1.12	1.12
<b>Subtotal: riparian &amp; wetland acres</b>	<b>64.1</b>	<b>114.98</b>	<b>114.98</b>
Mixed forest	16.9	0	0
Oak woodland	8.1	9.54	9.54
Upland prairie/oak savanna	98	66.24	66.24
<b>Subtotal: upland acres</b>	<b>123</b>	<b>75.78</b>	<b>75.78</b>
<b>Total Acres</b>	<b>187.1</b>	<b>190.76</b>	<b>190.76</b>

Under the existing easement there is a total of 64.1 wetland and riparian acres targeted to be restored (USFWS 2011). Under the proposed easement modification we estimate that the area of potential restored wetland and riparian habitat would be 114.98 acres, an increase of nearly 80%. The original NRCS eligibility determination found that there were 92 acres meeting eligibility criteria (NRCS 2003). This included 15.4 acres of farmed wetlands, 62.8 acres of prior converted croplands, 5.4 acres of riparian areas, and 8.4 acres of adjacent areas that contribute to wetland functions and values. The proposed easement modification would result in a 25% increase in wetland and riparian acres over the amount shown in the eligibility determination.

Stream/riparian corridor length comparison. The lengths of streams and associated riparian corridors in the existing vs. the proposed modified easement are summarized in Table 4. Included are lengths of the main unnamed stream that flows south to north through all three properties and lengths of 3 seasonal tributary streams on the Kirkham property that would be included in the easement.

Table 4. Stream lengths on the existing and the proposed modified easement. Length estimated from aerial photo mapping.

Reach	Existing (lineal ft)	Modified Easement (lineal ft)
Main stream	2930	6820
Seasonal tributaries	0	2345
Total lineal feet	2930	9165

The existing easement contains approximately 2930 lineal feet of stream and associated riparian corridor. The proposed easement modification would add approximately 3890 lineal feet of the main stream as well as another 2345 feet of seasonal tributary streams. Main stream length within the easement would be more than doubled and total length of stream and associated riparian habitat would be more than tripled.

Habitat condition comparison. The restored habitats on the existing easement are extremely weedy with the exception of Polygon 30 and parts of Polygon 28. Significant effort will be required to control weeds in the upland prairie restoration area. The rhizomatous introduced

grasses are particularly difficult to manage. Himalayan blackberry is rapidly increasing and without rapid intervention will take over the some areas within a few years. Short of re-doing the restoration from scratch it is difficult to see how native upland prairie in this area can be recovered.

Other polygons that would be removed from the existing easement include Polygons 21 and 27 which have had no restoration activity and are dominated by invasive species; and portions of Polygons 24, 25, 31, and 32 which had restoration efforts aimed at establishment of depressional wetland and upland forest, but are also overrun with invasives.

Areas that would be added under the easement modification include high quality riparian corridor on the Reed property south of the existing easement and on the Kirkham property between the existing easement and Steel Bridge Road, and in parts of the tributary drainages in north of Steel Bridge Road. Small remnants of upland and wetland prairie occur on the Kirkham property in Polygons 3, 11 and 15 and on the Reed property at the edge of Polygons 33 and 37. While somewhat degraded by invasives these areas have potential for enhancement and could serve as a local seed source for native prairie species.

The remaining habitats on the Reed and Kirkham properties are either converted to farmland or degraded by livestock grazing. However, these areas present restoration opportunities that would provide additional benefits including those noted above in the restored habitat acreage comparison.

Riparian habitat opportunities. The addition of stream and riparian habitats on the Reed and Kirkham properties provides a significant opportunity for enhancement of steam water quality. This would put approximately 2 miles of riparian corridor into conservation easement status with a continuous corridor along the main creek channel from Highway 22 to Highway 18. This constitutes the majority of the valley bottom portion of the creek.

High quality riparian corridors could be maintained and potentially improved as restoration and weed control work takes place. Degraded riparian areas north of Steel Bridge Road are currently impacting stream water quality downstream areas including the South Yamhill River. Under the proposed easement grazing by cattle would cease and these habitats could be restored. Habitat and water quality for listed fish species and aquatic life in general would be improved both in the South Yamhill River and in its tributaries on the easement.

## **Conclusions**

The proposed easement modification to the Crowe-Tesch-Ferris Millegan WRP would have the following benefits:

1. Increase the acreage of wetland habitats by 25% over the NRCS calculated acreage and 80% over the acreage given in the Wetland Reserve Plan of Operations.
2. Retain all rare plant populations currently within the easement and add 4 Nelson's checkermallow locations totaling 6 plants. An additional Nelson's checkermallow plant is located on the north side of Steel Bridge Road in the county road right-of-way. Two thin-leaved

peavine sites on the Kirkham property are outside the proposed easement, but could be protected and managed if the Kirkham property is acquired.

3. More than triple the length of stream and riparian corridor within the easement. This would protect already high quality riparian corridor on the Reed and Kirkham properties and allow exclusion of cattle from the degraded stream and riparian corridor on the Kirkham property north of Steel Bridge Road, thus providing an opportunity for restoration of riparian habitats and improvements in stream water quality and fish habitat both on the site and downstream.
4. Add upland and wetland prairie remnants on the Kirkham property.
5. Add approximately 9 acres of mature oak forest on the Kirkham property
6. Increase total acreage under easement from 187.1 acres to 190.76 acres.

## References

- Christy, J.A., E.R. Alverson, M.P. Dougherty, S.C. Kolar, C.W. Alton, S.M. Hawes, L. Ashkenas & P. Minear. 2011. GLO historical vegetation of the Willamette Valley, Oregon, 1851-1910. ArcMap shapefile, Version 2011\_04. Oregon Biodiversity Information Center, Portland State University
- NRCS. 2003. WRP eligibility worksheet for the Crowe WRP. Natural Resources Conservation Service. Dallas, OR.
- ORBIC. 2010. Rare, Threatened and Endangered species of Oregon. Oregon Biodiversity Information Center. Institute for Natural Resources, Portland State University, Portland, OR. 105 pp.
- ORBIC 2012. Rare species query for the Wallace Bridge Project. Oregon Biodiversity Information Center. Institute for Natural Resources, Portland State University, Portland, OR.
- OFP. 2012. Oregon Plant Atlas. Oregon Flora Project, Oregon State University.  
<http://www.oregonflora.org/atlas.php>
- USFWS. 2005. Crowe WRP Wildlife Habitat Conservation and Management Plan. US Fish and Wildlife Service – Willamette Valley Wildlife Refuge Complex.
- USFWS. 2011. Crowe-Tesch-Ferris-Millegan WRP, Operations and Maintenance, Wetlands Reserve Plant of Operations. US Fish and Wildlife Service – Willamette Valley Wildlife Refuge Complex Partners for Fish and Wildlife Program.

## Attachments

Easement Map  
Rare plant and habitat type map  
Habitat descriptions  
Rare plant notes

## **Attachment 1**

### **Existing and Proposed Easement Boundaries**



Map courtesy of Linda Royer Equine Design – Mapping by Keith Harvey, K and J Drafting

**Attachment 2**  
**Habitat Type Map**





**Attachment 3**  
**Habitat Type Descriptions**

## Wallace Bridge Habitat Type Descriptions

### 1. Heavily grazed upland pasture.

Restoration potential:

upland prairie/oak savanna

Rare plants present:

*Lathyrus holochlorus*. 20 plants in 2 patches on east fenceline.

Dominants: *Rubus bifrons*, introduced pasture grasses, *Daucus carota*.

Rolling terrain, cobbly soils. Very weedy, few natives. A few prairie species along east fenceline and scattered elsewhere: *Danthonia californica*, *Phlox gracilis*, *Eriophyllum lanatum*, *Sanicula bipinnatifida*, *Fragaria virginiana*, *Sidalcea campestris*.

Highly degraded by grazing and invasives. Potential habitat for *Lupinus oreganus*, *Erigeron decumbens* but very unlikely due to degraded state.

Gravel road up east side with 3 foot deep eroded gully. Gully has protected the fenceline from cattle and there are a few more native prairie species present.

### 2. Heavily grazed wetland pasture in bottomland flats, depressions and gently sloping drainages.

Restoration potential:

depressional wetland forest/wetland prairie

Rare plants present:

*Sidalcea nelsoniana*. 1 plant in Steel Bridge Road right-of-way on south fenceline.

Dominants: Introduced pasture grasses, *Trifolium repens*, *Alopecurus pratensis*, *Alopecurus geniculatus*, *Juncus effusus*, *Juncus occidentalis*, *Schedonorus arundinaceus*, *Hypochaeris radicata*.

Scattered *Rubus bifrons*, *Crataegus suksdorfii*, *Rosa nutkana*.

Highly degraded by grazing and invasives. Some areas transitional between wetland and upland. Areas on bottomland severely degraded by trampling with plant cover nearly non-existent.

### 3. Degraded upland prairie remnants with scattered young open grown oaks to 35 feet tall. Adjacent to wooded drainages that flow west and north.

Restoration potential:

upland prairie/oak savanna

Dominants: *Danthonia californica*, *Schedonorus arundinaceus*, *Fragaria virginiana*, *Ranunculus occidentalis*, *Hypochaeris radicata*, *Daucus carota*.

Grazed and +/- weedy, but in fair condition. Continues west onto adjacent highway right-of-way

Potential habitat for *Lupinus oreganus*, *Erigeron decumbens*.

Appears to have been protected in the past by a fenceline between upland areas and adjacent drainages.

### 4. Wooded riparian corridor with degraded understory. Small, probably seasonal tributary streams to the South Fork Yamhill River.

Restoration potential:

riparian hardwood forest

Dominants: *Quercus garryana*, *Fraxinus latifolia*, *Crataegus suksdorfii*, *Amelanchier alnifolia*, *Rosa nutkana*, *Symphoricarpos albus*, *Physocarpus capitatus*, *Juncus patens*, *Glyceria* sp., *Geum*

*macrophyllum*, *Sanicula crassicaulis*, *Polystichum munitum*, *Juncus effusus*, *Geranium lucidum*

Weedy and heavily trampled where cattle have access, especially at the east end and where cows cross. Some areas with severe bank degradation, post-holing, sedimentation into the stream.

Valley bottoms within polygon are +/- flat, wet.

#### **5. no polygon**

#### **6. Young oak forest with weedy understory. A few larger, older oaks at western edge.**

Restoration potential:

oak forest

Dominants: *Quercus garryana*, *Amelanchier alnifolia*, *Toxicodendron diversilobum*, *Geranium lucidum*, *Schedonorus arundinaceus*.

Native herb species also present: *Sanicula crassicaulis*, *Ranunculus uncinatus*, *Osmorhiza berteroi*, *Galium aparine*, *Polystichum munitum*.

Some areas are seasonally wet and a small intermittent stream drains the south side of the polygon. The eastern edge has dense *Rubus bifrons*.

Contains a small opening with a few upland prairie forbs.

#### **7. Riparian forest corridor.**

Restoration potential:

riparian hardwood forest

Dominants: *Fraxinus latifolia*, *Physocarpus capitatus*, *Rubus bifrons*.

Badly degraded, overgrazed riparian corridor. Creek banks are collapsing, understory is completely trampled, postholed. Much sedimentation and cattle waste impacting creek and water quality.

#### **8. Wet Pasture/Hayfield.**

Restoration potential:

depressional wetland forest/wetland prairie

Dominants: *Alopecurus pratensis*, *Schedonorus arundinaceus*.

Some vernal pool areas with *Plagiobothrys scouleri*, *Alopecurus geniculatus*, *Triphysaria hyacinthina*, *Ranunculus orthorhynchus*.

Generally very weedy and quite wet, especially the eastern portion. Drier to the west as slope rises.

#### **9. Riparian hardwood forest.**

Restoration potential:

riparian hardwood forest

Dominants: *Fraxinus latifolia*, *Symphoricarpos albus*, *Oemleria cerasiformis*, *Rosa nutkana*, *Rubus bifrons*.

Good stream cover provided by forest overstory and shrub layer. Channel is downcut several feet. North end has infestation of *Geranium lucidum*. At south end the overstory of *Fraxinus latifolia* is more broken with a dense shrub layer of *Physocarpus capitatus*, *Salix hookeriana*, and *Rosa nutkana*.

#### **10. Wet pasture/hayfield.**

Restoration potential:

depressional wetland forest/wetland prairie

Rare plants present:

*Sidalcea nelsoniana*. 1 plant along northwest side at edge of riparian forest

Dominants: *Holcus lanatus*, *Alopecurus pratensis*, *Parentucellia viscosa*, *Leontodon saxatilis* ssp. *saxatilis*.

Parallel drainage swales were installed long ago to enhance drainage to the creek. The swales are wetter than the low ridges between and are dominated by *Plagiobothrys figuratus*, *Alopecurus pratensis*, and *Agrostis gigantea*. East side of this polygon slopes up to Steel Bridge Road and a dense hedgerow of *Rubus bifrons*, *Rosa nutkana*, *Amelanchier alnifolia*.

**11. Wet pasture/degraded prairie.**

Restoration potential:

depressional wetland forest/wetland prairie

Rare plants present:

*Sidalcea nelsoniana*. 1 plant at west end

Dominants: *Holcus lanatus*, *Madia glomerata*, *Bromus secalinus*.

Weedy herbaceous wetland with a few remnant prairie species, but very degraded. Native herbs present include *Juncus ensifolius*, *Juncus effusus*, *Carex pachystachya*, *Carex unilateralis*, *Plagiobothrys scouleri*, *Beckmannia syzigachne*, *Carex pellita*.

**12. Ash forest.**

Restoration potential:

depressional wetland forest

Dominants: *Fraxinus latifolia*, *Rubus bifrons*, *Rosa nutkana*.

Ash forest patches with dense shrubs at margins. Understory herbs sparse.

**13. Prairie remnants in shrubby matrix.**

Restoration potential:

upland prairie/oak savanna

Dominants: *Rubus bifrons*, *Rosa nutkana*, *Crataegus suksdorfii*, *Amelanchier alnifolia*, *Spiraea douglasii*, exotic grasses.

Remnant mesic prairie patches embedded in shrub matrix. Pretty weedy but this is the best remnant on bottomlands near the creek. Native prairie species present include *Potentilla gracilis*, *Prunella vulgaris* var. *lanceolata*, *Lomatium nudicaule*, *Sidalcea campestris*, *Symphyotrichum hallii*, *Danthonia californica*, *Carex tumulicola*.

Potential habitat for *Erigeron decumbens*, *Lupinus oreganus*, *Sidalcea nelsoniana*.

Threatened by woody vegetation.

**14. Weedy shrub/grassland matrix.**

Restoration potential:

riparian hardwood forest

Dominants: patches of *Rosa nutkana*, young *Fraxinus latifolia*, with *Phalaris arundinacea*, *Bromus secalinus*, *Holcus lanatus*.

**15. Weedy prairie remnant.**

Restoration potential:

wetland prairie

Dominants: *Bromus secalinus*, *Holcus lanatus*, *Agrostis gigantea*, *Rubus bifrons*, *Fraxinus latifolia*, *Crataegus suksdorfii*, *Symphotrichum hallii*.

Dominated by exotic grasses but some native prairie species present: *Symphotrichum hallii*, *Fragaria virginiana*, *Prunella vulgaris* var. *lanceolata*, *Sisyrinchium bellum*. Woody vegetation invading.

**16. Weedy upland clearing on north slope.**

Restoration potential:

oak woodland

Dominants: *Bromus secalinus*, *Holcus lanatus*, *Rubus bifrons*, *Symphoricarpos albus*.

Former oak forest that was logged in the past. Very weedy understory.

**17. Ash swale.**

Restoration potential:

riparian hardwood forest

Dominants: *Fraxinus latifolia*, *Crataegus suksdorfii*, *Symphoricarpos albus*, *Poa trivialis*, *Carex leptopoda*, *Geranium lucidum*.

Moist, north-facing, forested swale along drainage from Polygon 21. At north end it joins with another swale descending from the west.

**18. Pasture/hayfield.**

Restoration potential:

upland prairie/oak savanna

Dominants: *Leontodon saxatilis* ssp. *saxatilis*, *Holcus lanatus*, *Hypochaeris radicata*, *Agrostis gigantea*, *Parentucellia viscosa*.

Very weedy mesic pasture. *Prunella vulgaris* var. *lanceolata* is the only native species observed.

**19. Mature oak forest.**

Restoration potential:

oak forest

Dominants: *Quercus garryana*, *Amelanchier alnifolia*, *Geranium lucidum*.

Mature oak forest with overstory oaks 10 to 20 inches in diameter. Shrub layer is very dense. Herb layer is very weedy and dominated by *Geranium lucidum*.

**20. Weedy grassland/prairie restoration area.**

Restoration potential:

upland prairie/oak savanna

Dominants: *Holcus lanatus*, *Rubus bifrons*, *Agrostis gigantea*, *Parentucellia viscosa*, *Cirsium arvense*, *Danthonia californica*.

Weedy prairie restoration area. Exotic grasses very dense and nearly ubiquitous. *Rubus bifrons* and *Cirsium arvense* also serious problems especially in drier areas. *Senecio jacobaea* forms scattered dense patches and *Phalaris arundinacea* form a few small patches. *Rubus bifrons*, *Cirsium arvense*, and *Senecio jacobaea* more dense at the east end of polygon.

*Danthonia californica* is a dominant in some areas and *Deschampsia cespitosa* is scattered. In wetter areas these species are more abundant, especially the *Deschampsia cespitosa*. Native forbs very few and widely scattered: *Prunella vulgaris* var. *lanceolata*, *Lotus purshianus*, *Potentilla gracilis*, *Lupinus rivularis*, *Eriophyllum lanatum*.

Hydrology is transitional with depressional areas wetter and showing signs of spring inundation.

Weed control urgent and difficult at this point.

### **21. Very weedy meadow/shrubland matrix.**

Restoration potential:

upland prairie/oak savanna

Dominants: *Rubus bifrons*, *Holcus lanatus*, *Bromus secalinus*, *Agrostis gigantea*, *Daucus carota*, *Leucanthemum vulgare*.

Weedy north-facing slopes and drainage. Includes a remnant young Douglas-fir plantation, and a small patch of mature *Quercus garryana*, near the upper end of the drainage. The ditch from polygon 28 feeds into the drainage.

### **22. Oak/scrub-shrub – widely spaced large oaks over dense shrubs.**

Restoration potential:

upland prairie/oak savanna

Dominants: *Quercus garryana*, *Amelanchier alnifolia*, *Oemleria cerasiformis*, *Symphoricarpos albus*, *Toxicodendron diversilobum*.

A few native prairie species in small openings. Could convert to savanna with removal of shrubs and establishment of native herbs.

### **23. Upland prairie/oak savanna.**

Restoration potential:

upland prairie/oak savanna

Rare plants present:

*Erigeron decumbens* - 10 plants.

Dominants: *Quercus garryana*, *Danthonia californica*, *Bromus carinatus*, *Fragaria virginiana*, *Prunella vulgaris* var. *lanceolata*.

Small, but relatively intact upland prairie and oak savanna. Other natives present include *Calochortus tolmiei*, *Eriophyllum lanatum*, *Potentilla gracilis*, *Achillea millefolium*, *Sidalcea campestris*, *Delphinium menziesii*. Exotic species: *Vicia villosa*, *Daucus carota*, *Dactylis glomerata*. Weedier at north end with *Cynosurus echinatus*, *Holcus lanatus*, *Plantago lanceolata*, *Vicia hirsuta*, *Bromus secalinus*.

Native shrubs invading parts and could be a threat to the *Erigeron decumbens* population.

### **24. Weedy grassland transitioning from +/- wet to upland.**

Restoration potential:

upland prairie/oak savanna

Dominants: *Holcus lanatus*, *Rubus bifrons*, *Schedonorus arundinaceus*, *Cirsium arvense*.

Very weedy grassland that is wet on bottomland along eastern edge transitioning to upland on east-facing slope rising to the west. Some native trees and shrubs planted. Wetland species such as *Spiraea douglasii* and *Fraxinus latifolia* planted inappropriately on upland slope.

**25. Riparian corridor along channelized creek.**

Restoration potential:  
riparian hardwood forest

Dominants: *Phalaris arundinacea*, *Rubus bifrons*.

Excavated creek and side channel through Polygon Q. Channelization was done to enhance drainage of bottomland fields. Very weedy throughout corridor. Creek downcut severely in places, up to 5 feet below bank top.

Scattered shrubs and small trees: *Spiraea douglasii*, *Salix hookeriana*, *Crataegus suksdorfii*. Very little channel shading. Beavers active throughout corridor. Woody plantings need protection from beavers to survive and grow.

**26. Weedy grassland +/- transitional between wetland and upland.**

Restoration potential:  
depressional wetland forest/wetland prairie

Rare plants present:  
*Sidalcea nelsoniana* – 7 plants near south end of polygon.

Dominants: *Holcus lanatus*, *Parentucellia viscosa*, *Cirsium arvense*, *Daucus carota*, *Senecio jacobaea*, *Agrostis gigantea*.

Very weedy grassland planted with native grasses, shrubs, and trees, but dominated by exotic species. North end is wetter and *Deschampsia cespitosa* is more abundant. Still very weedy.

**27. Weedy scrub-shrub.**

Restoration potential:  
upland prairie/oak savanna

Dominants: *Rubus bifrons*, *Crataegus suksdorfii*, *Symphoricarpos albus*, *Quercus garryana*.

Weedy scrub-shrub community on east-facing slope. Much of the area is dense *Rubus bifrons*. An abandoned roadbed runs +/- north-south through the polygon.

**28. Restored upland prairie.**

Restoration potential:  
upland prairie/oak savanna

Dominants: *Potentilla gracilis*, *Eriophyllum lanatum*, *Holcus lanatus*, *Lotus purshianus*, *Agrostis gigantea*.

Restored upland prairie with a high abundance of native forbs and a few native bunchgrasses. Exotic grasses also are dominant and pose a threat to this community. Other natives present include *Danthonia californica*, *Deschampsia cespitosa*, *Prunella vulgaris* var. *lanceolata*, *Sidalcea campestris*, *Sidalcea malviflora* ssp. *virgata*, *Lotus micranthus*, *Festuca roemeri*, *Achillea millefolium*.

This area needs higher cover of native bunchgrasses and control of exotic grasses.

**29. Weedy grassland/prairie restoration area.**



Restoration potential:

upland prairie/oak savanna

Dominants: *Agrostis gigantea*, *Holcus lanatus*.

Similar to Polygon 20, but with no native bunchgrass dominants. Grades into Polygon 20 at west end. Few scattered *Deschampsia cespitosa*, no *Danthonia californica*. Common exotics include *Leontodon saxatilis* ssp. *saxatilis*, *Rubus bifrons*, *Senecio jacobaea*.

Native forbs few: *Lupinus rivularis*, *Potentilla gracilis*, *Eriophyllum lanatum*, *Sidalcea campestris*, *Sidalcea malviflora* ssp. *virgata*.

Weed problem severe and probably not salvageable without starting over from scratch.

**30. Vernal pool.**

Restoration potential:

wetland prairie

Dominants: *Lythrum portula*, *Eleocharis palustris*, *Deschampsia cespitosa*, *Alopecurus geniculatus*, *Downingia elegans*.

Excavated vernal pool with good cover of native herbs. Other natives present include *Plagiobothrys scouleri*, *Plagiobothrys figuratus*, *Beckmannia syzigachne*, *Carex unilateralis*, *Eleocharis ovata*, *Agrostis exarata*.

**31. Weedy grassland**

Restoration potential:

upland prairie/oak savanna

Dominants: *Holcus lanatus*, *Vulpia myuros*, *Senecio jacobaea*, *Cirsium arvense*.

Very weedy east-facing slope. No native species observed.

**32. Weedy wet grassland/forest restoration area.**

Restoration potential:

depressional wetland forest/wetland prairie

Rare plants present:

*Sidalcea nelsoniana*. 7 plants in 3 locations.

Dominants: *Holcus lanatus*, *Vicia tetrasperma*, *Deschampsia cespitosa*, *Bromus secalinus*.

Wetland resoration area planted with *Deschampsia cespitosa* and *Fraxinus latifolia*. Very weedy but *Deschampsia cespitosa* cover good in some areas. *Fraxinus latifolia* is widely scattered.

**33. Riparian forest corridor**

Restoration potential:

riparian hardwood forest

Rare plants present:

*Sidalcea nelsoniana*. 2 plants along edge near pond

Dominants: *Fraxinus latifolia*, *Salix hookeriana*, *Rosa nutkana*, *Rubus bifrons* (at edges).

Similar to Polygon 37. Canopy becomes more broken northward and there is more *Rubus bifrons*. Active beaver population with a recent dam just south of the Millegan/Wallace Bridge property.

**34. Scrubby fallow area with a few native species.**

Restoration potential:

upland prairie/oak savanna

Rare plants present:

*Sidalcea* cf. *nelsoniana*. 4 plants in eastern 1/4. (ID uncertain because all flowering stems have been browsed off.)

Dominants: *Rubus bifrons*, *Holcus lanatus*, *Daucus carota*, *Heracleum lanatum*, *Epilobium brachycarpum*.

A few native herbs including *Lupinus polyphyllus*, *Juncus occidentalis*, *Fragaria virginiana*, *Prunella vulgaris* var. *lanceolata*. Scattered *Quercus garryana*, *Fraxinus latifolia*, *Crataegus suksdorfii*.

**35. Bottomland hayfield dominated by introduced pasture grasses.**

Restoration potential:

depressional wetland forest/wetland prairie

Dominants: *Holcus lanatus*, *Dactylis glomerata*.

No natives present. Transitional between wetland and upland, becoming wetter at the north end.

**36. Constructed pond with scattered shoreline willows.**

Restoration potential:

pond

Dominants (shoreline): *Phalaris arundinacea*, *Eleocharis palustris*; *Salix* spp.

Rather steep-banked, depth uncertain. Overburden from excavation was placed along east side of pond. Eastern bullfrogs abundant. Probably provides some habitat value for native amphibians, wintering waterfowl. More shoreline trees and shrubs would enhance value for songbird habitat. Potential habitat for western pond turtles but needs basking logs.

**37. Riparian forest corridor.**

Restoration potential:

riparian hardwood forest

Rare plants present:

*Sidalcea nelsoniana*. 2 plants along edge near pond

Dominants: *Quercus garryana*, *Fraxinus latifolia*, *Symphoricarpos albus*, *Rosa nutkana*, *Toxicodendron diversilobum*, *Rubus bifrons*.

High quality riparian corridor with mostly native understory and small native prairie remnants at the edge and in small openings. Native prairie forbs include *Fragaria virginiana*, *Wyethia angustifolia*, *Prunella vulgaris* var. *lanceolata*, *Potentilla gracilis*.

Forest understory with dense shrub layer. Good stream shading. Active beaver population.

**38. Weedy grassland**

Restoration potential:

upland prairie/oak savanna

Dominants: exotic pasture grasses, *Cirsium arvense*, *Parentucellia viscosa*.

Planted with *Pseudotsuga menziesii*, *Quercus garryana*, *Acer macrophyllum* for upland mixed forest restoration. Blue wildrye also planted. Very weedy, but with a few native prairie species especially along the eastern edge near the hedgerow. Hedgerow mostly dense shrubs and a few trees including *Quercus garryana*, *Amelanchier alnifolia*, *Rosa nutkana*, *Rubus bifrons*, *Crataegus suksdorfii*, *Toxicodendron diversilobum*, *Symphoricarpos albus*. A few native upland prairie species are present along the hedgerow: *Sidalcea campestris*, *Potentilla gracilis*, *Fragaria virginiana*, *Prunella vulgaris* var. *lanceolata*, *Eriophyllum lanatum*.

Suitable for restoration of oak savanna habitat. Douglas fir trees should probably be removed to reduce spread into prairie and oak habitats

**Attachment 4**  
**Rare Plant Information**

Wallace Bridge Rare Plant Information

*Erigeron decumbens*

Willamette Valley Daisy

Location (UTM, Datum = WGS84): 10 462718 4989356 +/- 10 feet.

Elevation: ~320 feet.

10 plants

Habitat notes: Remnant upland prairie/oak savanna with diversity of native prairie species.

Threats include woody vegetation and invasives. Wallace Bridge property

*Lathyrus holochlorus* #1

Thin-leaved peavine

Location (UTM): 10 463014 4989914 +/- 10 feet

Elevation: ~290 feet.

10 plants

Habitat notes: growing along 50 feet of fenceline on east boundary of site. 150-200 feet north of Steel Bridge Road. With *Symphoricarpos albus*, *Rubus bifrons*, *Geranium lucidum*, *Marah oregano*. Protected from grazing cows by deeply eroded trench along fenceline. Kirkham property.

*Lathyrus holochlorus* #2

Location (UTM, Datum = WGS84): 10 463434 4990360 +/- 12 feet.

Elevation: ~320 feet.

10 plants

Habitat notes: along fenceline on east boundary of site. With *Rosa nutkana*, *Crataegus suksdorfii*. Kirkham property.

*Sidalcea nelsoniana* #1

Nelson's checkermallow

Location (UTM): 10 462712 4988369 +/- 14 feet

Elevation: ~265 feet.

1 plant

Habitat notes: Edge of riparian corridor. Associates: *Quercus garryana*, *Salix hookeriana*, *Rubus bifrons*, *Schedonorus arundinaceus*, *Holcus lanatus*. Reed property

*Sidalcea nelsoniana* #2

Nelson's checkermallow

Location (UTM): 10 462725 4988441 +/- 12 feet

Elevation: ~265 feet.

2 plants

Habitat notes: edge of field/riparian forest. Associates: *Fraxinus latifolia*, *Quercus garryana*, *Holcus lanatus*, *Schedonorus arundinaceus*, *Symphoricarpos albus*, *Rubus bifrons*. Reed property.

*Sidalcea nelsoniana* #3

Nelson's checkermallow

Location (UTM): 10 462772 4988665 +/- 16 feet

Elevation: ~265 feet.

2 plants

Habitat notes: Edge of riparian forest. Associates: *Fraxinus latifolia*, *Salix hookeriana*, *Stachys mexicana*, *Holcus lanatus*, *Phalaris arundinacea*, *Lupinus polyphyllus*. Wallace Bridge property.

*Sidalcea nelsoniana* #4

Nelson's checkermallow

Location (UTM): 10 462798 4988819 +/- 15 feet

Elevation: ~260 feet.

3 plants

Habitat notes: Edge of riparian forest. Associates: *Fraxinus latifolia*, *Rubus bifrons*, *Symphoricarpos albus*, *Rubus ursinus*. Wallace Bridge property.

*Sidalcea nelsoniana* #5

Nelson's checkermallow

Location (UTM): 10 462701 4988746 +/- 10 feet

Elevation: ~275 feet.

1 plant

Habitat notes: Restoration area – weedy field. Associates: *Holcus lanatus*, *Vulpia myuros*, *Cirsium arvense*. Several flowering stems nipped off, possibly by elk? Wallace Bridge property.

*Sidalcea nelsoniana* #6

Nelson's checkermallow

Location (UTM): 10 462923 4988658 +/- 11 feet

10 462905 4988641 +/- 11 feet

10 462916 4988637 +/- 10 feet

10 462919 4988631 +/- 10 feet

Elevation: ~265 feet.

4 plants (widely spaced)

Habitat notes: Weedy fallow area. All flowering stems browsed off. Definite ID not possible but likely is *S. nelsoniana*. Associates: *Daucus carota*, *Holcus lanatus*, *Rubus bifrons*, *Parentucellia viscosa*, *Crataegus suksdorfii*. Wallace Bridge property.

*Sidalcea nelsoniana* #7

Nelson's checkermallow

Location (UTM): 10 462868 4988702 +/- 10 feet

Elevation: ~260 feet.

1 plant

Habitat notes: Restoration area – weedy field. Associates: *Holcus lanatus*, *Deschampsia cespitosa*, *Cirsium vulgare*, *Senecio jacobaea*, *Vicia tetrasperma*. Small plant, low vigor in dense *Holcus lanatus*. Wallace Bridge property.

*Sidalcea nelsoniana* #8

Nelson's checkermallow

Location (UTM): 10 462935 4988797 +/- 10 feet

Elevation: ~260 feet.

6 plants

Habitat notes: Restoration area – weedy field. Associates: *Holcus lanatus*, *Vulpia myuros*, *Cirsium arvense*. Plants in good vigor but habitat is trashed by invasives. Wallace Bridge property.

*Sidalcea nelsoniana* #9

Nelson's checkermallow

Location (UTM): 10 462843 4989912 +/- 20 feet

Elevation: ~250 feet.

1 plant

Habitat notes: Steel Bridge Road, roadside ditch in grader blade zone. Associates: *Trifolium hybridum*, *Carex pachystachya*, *Schedonorus arundinaceus*, *Lupinus polyphyllus*. A 2<sup>nd</sup> non-flowering plant 20 feet west may be *Sidalcea nelsoniana* or *Sidalcea campestris*. County road right-of-way adjacent to Kirkham property.

*Sidalcea nelsoniana* #10

Nelson's checkermallow

Location (UTM): 10 462809 4989829 +/- 14 feet

Elevation: ~345 feet.

1 plant

Habitat notes: Edge of riparian forest. Associates: *Holcus lanatus*, *Schedonorus arundinaceus*, *Rubus ursinus*, *Vicia villosa*. Kirkham property.

*Sidalcea nelsoniana* #11

Nelson's checkermallow

Location (UTM): 10 462909 4989593 +/- 10 feet

Elevation: ~250 feet.

1 plant

Habitat notes: weedy hayfield. Associates: *Holcus lanatus*, *Agrostis gigantea*, *Leontodon saxatilis* ssp. *saxatilis*, *Parentucellia viscosa*, *Prunella vulgaris* var. *lanceolata*. Small, low-vigor plant. Kirkham property.