

Maple Valley Park Ecological Assessment

January 2021



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Front Cover: Native Plains Cottonwood, American Tree Sparrow, White Breasted Nuthatch, Mallard Pair
at Maple Valley Park © Colorado Natural Heritage Program

Introduction and Methodology

Maple Valley Park is an open space property owned by the City of Arvada, located in unincorporated Jefferson County, Colorado between Indiana Street and N. Eldridge Street, south of the Maple Valley neighborhood off of W. 72nd Ave (Figure 1). The 12-acre park is one of several green spaces along Ralston Creek and adjacent Ralston Creek Trail. According to the cover letter to the City of Arvada for the application for annexation, dated 12/11/2020, this property and 24.9 acres of adjacent land to the south are being proposed for annexation into the City of Arvada. The park would be zoned “Open Space” and the adjacent private land zoned “Light Industrial”. Development of the 24-acre private property has been proposed to include a 100,894 square foot warehouse, a 116,275 square foot detention area, 402 associated parking spaces, 60 van staging parking space, 60 van loading spaces, 983 van parking spaces, and 12 trailer parking spaces. The facility is proposed to operate around the clock.

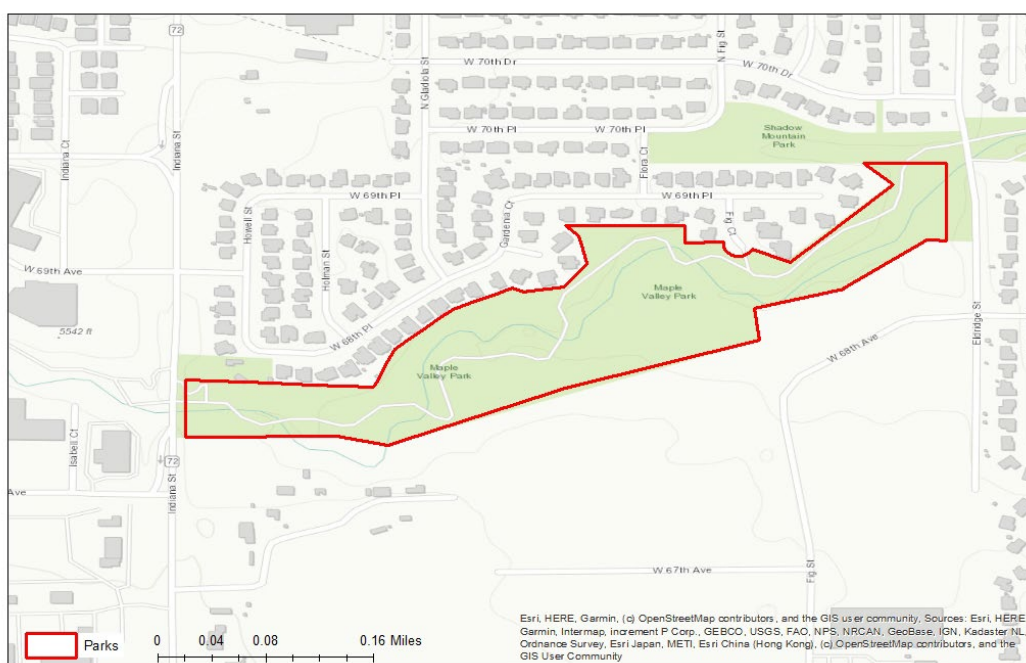


Figure 1. Map of Maple Valley Park.

On January 29, 2021, two ecologists from the Colorado Natural Heritage Program, Sarah Marshall and Jessica Smith, visited the park to conduct an ecological assessment and document the biodiversity observed. Components of the [Ecological Integrity Assessment for Colorado Wetlands](#) (Lemly et al. 2016) were used to evaluate the park and establish baseline conditions. This method has been developed by the Colorado Natural Heritage Program and combines quantitative vegetation metrics with qualitative metrics such as landscape context and hydrology to assess overall wetland condition, with an emphasis on biological integrity. On this site visit, a complete survey of the park was made. A plant species list of all plants encountered and an opportunistic list of wildlife observations was recorded, as well as metrics on landscape context and stressors. These factors were included in the Ecological Assessment for this site. Maple Valley Park results are compared to results from similar riparian wetlands in the CNHP Wetland Plots Database in the text below. CNHP has been conducting wetland and riparian surveys across the state since the early 1990s.

Prior to field work, a desktop review was conducted of nearby conservation elements in the CNHP-maintained statewide database of rare elements, the Biodiversity Tracking and Conservation System (BIOTICS) (CNHP 2020). Additionally, CNHP biologist Andrea Schuhmann reviewed data layers available from Colorado Parks & Wildlife and citizen science observations of birds, downloaded from [eBird](#), a site maintained by the Cornell Lab of Ornithology. Results from eBird are included in the text below.

Field Observations and Results

Weather was partly cloudy on the day of our visit, beginning around 35 °F and warming throughout the day. Recent snow from several days prior had mostly melted by the time of our visit. Staff began the site walk-through around 8:30am. People were walking and biking along the Ralston Creek Trail through the riparian area during our entire field visit. Despite abundant human use, we observed a variety of songbirds and raptors throughout the day (see Appendix A).

Ralston Creek was flowing during our visit, with at least one deeper pool and many riffles. The creek channel is relatively sinuous, with near-vertical, eroded banks and bank armoring (large riprap and boulders) along some outer bends of the channel in the downstream half of park. We observed evidence of sediment dredging around bridges across the creek, with neighbors noting that some sediment/debris removal happened after the entire park flooded in 2013. The channel is concrete-lined at the uppermost end of park, where Ralston Creek flows under Indiana St. Upstream, Ralston Creek passes through several reservoirs (including Ralston and Blunn), and is influenced by roads, residential and commercial development, a golf course, and several canals. The creek channel is likely more incised (downcut) compared to its historical state, due to changes in its annual flow regime from upstream irrigation, flow releases from reservoirs, and more rapid runoff from paved surfaces. The altered flow regime of the creek is likely contributing to a lack of new cottonwood recruitment and establishment, channel bank and bed erosion, and reduced wetland area along the creek channel.

Ecological Systems and Plant Community

Maple Valley Park and Ralston Creek support a remnant Rocky Mountain Lower Montane-Foothill Riparian Woodland and Shrubland system, including patches of seasonally flooded Palustrine Forested wetlands along the creek channel and in several side channels. Prior to development of surrounding and upstream areas in the Ralston Creek drainage, the site would have likely been part of a contiguous riparian corridor from the Ralston Creek headwaters to the Ralston Creek-Clear Creek confluence further into the plains.

Observed riparian vegetation was dominated by a mature stand of large, tall plains cottonwood trees. The subcanopy consisted of box elder, with both non-native crack willow and native peach-leaved willow noted. Vines were common, especially native grape, some hops and clematis (presumably the native), and wild cucumber. Little to no regeneration of cottonwoods was noted. The shrub layer consisted of hawthorn thickets, sometimes dense and impenetrable, and patches of snowberry with some wild rose. Coyote willow was common on the west side of the park.

The graminoid understory consisted of non-native smooth brome, which was common in the riparian area, along with areas of reed canary grass, orchard grass and some intermediate wheatgrass. Invasive species in the riparian area included smooth brome and some patches of everlasting sweet pea. [Noxious weeds](#) included an occasional Russian olive (Noxious List B), scattered Canada thistle (Noxious List B)

with one large patch of Canada thistle on edge of riparian area (13S 486345E 4408008N), an occurrence of bouncing bet (List B) (13S 486061E 4407855 N), and knapweed (13S 485956 E 4407851N) and cut-leaf teasel (List B). See Appendix B for the full plant species list.

High quality native forbs and shrubs were observed, including false Solomon's seal (C = 7), false indigo (C = 7), red osier dogwood (C = 7), Rocky Mountain maple (C = 7), golden currant (C = 6), and Canada goldenrod (C = 5). The C-value is a value between 0 -10 assigned to most plant species in Colorado by a panel of botanical experts, with 10 being assigned to a plant which is an obligate to areas with no human impact and 1 being assigned to a native plant which can tolerate highly disturbed areas. Non-native plants are assigned a C-value of zero ([Rocchio 2007](#)). The C value can be used to calculate a Floristic Quality Index (FQI), by taking the Mean C and multiplying by the square root of the number of plant species. The FQI value can be calculated using all species observed or including native species alone (FQI of Natives). These statistics allow comparisons between wetlands of a similar ecological type and facilitate conclusions on site quality.

Overall, the total number of species (richness), percentage of native species, and mean C-value observed at Maple Valley Park were comparable to, but slightly higher than average and median values for plots in ten nearby riparian/wetland sites, including other city and county open spaces, in a similar landscape context (foothills-plains transition in the Upper South Platte and St. Vrain watersheds) (Table 1, Table 2; CNHP 2021). In 2015, CNHP completed a wetlands assessment of 40 wetlands in the City and County of Denver (Smith and Kuhn 2015). Of these wetlands, 15 were located in a floodplain or riparian area associated with a stream channel (i.e., Hydrogeomorphic Class (HGM): Riverine) and were forested, classified as a Western Great Plains Riparian Ecological System. Comparisons between these wetlands and Maple Valley Park should be made cautiously, as the ecological system differ; however, they are riparian wetlands in a similar urbanized context. Average and median plant species richness and percent of native species of these 15 wetlands were similar to Maple Valley Park, but Maple Valley Park had values higher than the average and median values for the Mean C and FQI metrics of these wetlands (Table 3).

Given the timing of the site visit, it is likely that we missed a number of native, and non-native plant species, particularly more delicate, and early blooming wildflower species lacking identifiable parts in winter.

Table 1. Plant statistics derived from observations on January 29, 2021 at Maple Valley Park. See Appendix B for full plant species list and the text for an explanation of the terms of "C" and "FQI".

Total # of Plant Species (Species Richness)	76
Number of Natives:	43
Number of Non-native	27
Number of Unknown Nativity or Cryptogenic	6
Number of Noxious List A Species	0
Number of Noxious List B Species	4
Number of Noxious List C Species	2
Number of Noxious Watch List Species	1
% Native Species	56.6

MEAN C:	2.41
MEAN C of Natives:	4.21
FQI	21.0
FQI of Natives	27.6

Table 2. Plant statistics of 10 nearby, comparable CNHP riparian plots in the CNHP Plots Database in comparison to Maple Valley Park. See text for a definition of “Mean C”.

	Average	Median	Maple Valley
Species Richness	62.3	60.5	76
Mean C	2.08	2.15	2.41
% Native Species	49.9	49.5	56.6

Table 3. Plant statistics of 15 Riverine wetlands in the City and County of Denver in comparison to Maple Valley Park. See text for a definition of “Mean C” and FQI.

	Size (Acres)	Species Richness	% Native Species	Mean C	FQI
Average	8.7	81.5	56.0	1.73	14.7
Median	6.2	85	52	1.68	14.8
Maple Valley	12	76	56.6	2.41	21.0

Wildlife Habitat

Resources to support wildlife were noted throughout our visit to Maple Valley Park. Several patches of common milkweed, a species supporting monarch butterfly larvae, were noted. Wild hops, which support one of Colorado’s most threatened butterflies, the hops feeding azure ([Celastrina humulus](#), a globally imperiled species), were also observed (13S 485903E 4407873N and 13S 485937E 4407887N). Barnyard grass (*Echinochloa crus-galli*), a non-native species used by ducks as a food source, was observed, as well as deer rubbings on young trees. Impenetrable hawthorn thickets provide wildlife cover, and very large, old cottonwoods provide high quality wildlife habitat in form of cavities, blown-out branches, snags and downed wood. We observed numerous songbirds using the woody riparian habitats during our field visit. A seep on south side of creek with duckweed (13S 486391E 4407990N) provides potential for amphibian use. The neighbors reported sightings of raccoons (scat observed by staff) and bobcats (scat of larger mammal observed by staff in area reported), a Great Horned Owl nest on east side (numerous large cavities observed), honeybees in cottonwoods, and muskrat.

Ecological Integrity

Overall ecological integrity of the Maple Valley Park riparian area was evaluated using CNHP’s Ecological Integrity Assessment (EIA) metrics. Since the EIA is applied across a gradient from Colorado’s most pristine to most impacted ecosystems, it is important to compare sites to similar ecological systems with comparable land use/management, and geography. The overall EIA score for the assessed area within the park was 2.19 (a C+ letter grade) out of a possible score of 10 (Appendix C). Compared to riparian

areas and riverine wetlands assessed as part of the City and County of Denver wetland study (Smith and Kuhn 2015), Maple Valley Park ranked higher than both the mean and median scores (1.9 and 1.8, respectively), though the Denver study included sites in more heavily urbanized areas further into the plains.

The park's riparian area ranked highest in terms of vegetation composition and structure (B-), including the presence of snags and fallen logs that provide habitat within the riparian area, and physiochemistry (B-; including soil condition, and visible indicators of water quality such as turbidity and algal growth). For an urban site, the park ranked reasonably well in terms of overall size relative to other riparian areas (C+), and overall condition (C+). The park's lowest rank was for landscape context (D), given a lack of contiguous natural land cover in a 500m buffer surrounding the riparian area and a low Land Use Index (2.17) due to fragmented habitat from abundant urban development, roads, lawns, disturbed fallow land, and moderate recreation in the surrounding area.

The EIA is a semi-quantitative assessment, and it is hard to fully predict how surrounding land use changes propagate through adjacent ecosystems. Still, addition of additional impervious surfaces within the 500m buffer of the park, including associated stormwater runoff and ground disturbance, would reduce the quality of the site's buffer (by removing a portion of the site's remaining natural cover buffer) and introduce additional stormwater runoff from paved surfaces. These land use changes would likely result in a lower EIA score.

Summary of Ecological Conditions and Management Recommendations

Although the riparian area at Maple Valley Park is impacted by urbanization, including modified hydrology and an influx of non-native species, this open space performs critical functions in the urban environment for wildlife habitat, water quality, and recreation. The ecosystem services and conservation values provided by riparian areas are disproportionate to their size across western U.S. landscapes. Riparian habitat supports up to 80% of known vertebrate wildlife species in the arid and semi-arid western U.S. (Chaney et al. 1990).

Threshold distances or buffers around urban green spaces to minimize adverse impacts of urban development on wildlife are, to our knowledge, not defined for this region. Nonetheless, studies have shown that certain birds (e.g., neotropical migrants, riparian bird species) decline in diversity and abundance as levels of adjacent urban development increase (Friesen et al. 1995; Miller et al. 2003). Miller et al. (2003) recommend that in the absence of site-specific buffer recommendations for riparian habitat on the Colorado Front Range, buffering areas based on the historical floodplain is a good starting point. As recommended in the report on urban wetlands of the City and County of Denver (Smith and Kuhn 2015), protecting surrounding lands by limiting development and impervious surfaces will improve the functionality of wetland and riparian resources. A buffer for the riparian area is important for the protection of this park in light of proposed adjacent development, including consideration of the hydrologic and chemical impacts of potential increased paved surfaces and nonpoint source pollutant runoff associated with vehicles and urban/commercial development (e.g., metals and hydrocarbons from vehicles, trash, sediment, and nutrients from fertilizers).

Ralston Creek within Maple Valley park has been channelized and has a modified stream flow regime, reducing the connection of the floodplain to the creek and precluding the establishment of juvenile cottonwoods. Existing, mature cottonwoods are effectively aging in place, and not being replaced when

they die. In the absence of new cottonwood recruitment over time, the riparian tree canopy will likely transition to lower-stature native trees such as boxelder. One option may be to plant (and irrigate during establishment) young cottonwoods to aid in the long-term succession of the forest at this site.

In addition to the tree canopy, there are opportunities to increase the diversity of native understory species and remove non-native plant species, including noxious weeds such as Russian olive. A native understory community would benefit from reducing dirt bike trails, social trails, and other concentrated soil and vegetation disturbance—particularly in the eastern portion of the park. Any spot treatment of non-native species should take care to avoid impacting intact native vegetation, with a preference for mechanical and cultural treatment methods over herbicides when possible. Only species native to this area of the Front Range, and locally sourced, should be included in a restoration plan. CNHP has guidance on their website for obtaining native plant materials, planting, and monitoring (<https://cnhp.colostate.edu/cwic/work/restoration/#ObtainingColorado>).

General Wildlife Habitat Stewardship and Ecological Recommendations:

1. Following a human safety and risk assessment, retain dead, dying, and declining trees. Prioritize trees with observed cavities and/or cavity-nesting activity for protection/retention. Large diameter trees, dead trees, and those with broken crowns typify the type of tree most likely to be used by cavity-nesting birds and other wildlife. Dead, dying, and declining tree availability is critical for cavity nesting birds common to Maple Valley Park: Great Horned Owl, Eastern Screech Owl, White-breasted Nuthatch, and Black-capped Chickadee, among others; and for cavity excavating birds: Northern Flicker, Hairy Woodpecker, and Downy Woodpecker.
2. Promote cottonwood regeneration and recruitment in the riparian area. A multi-aged forested community provides greater structural diversity and thereby habitat diversity for foraging and sheltering wildlife.
3. Nest boxes can be used to improve nesting opportunities for cavity-nesting birds if there is a significant decline in available tree cavities due to a large weather event or other reasons. Predator guards (e.g., baffles, entrance hold extenders, etc.) should always be used in conjunction with any installed nest boxes.
4. Maintain and enhance native vegetation at all structural levels: herbaceous understory, shrub midstory, and tree canopy/overstory.
5. Mitigate and minimize sources of anthropogenic noise. There is a growing body of research linking anthropogenic noise to interference in how animals behave and communicate, particularly animals like birds that rely on vocal communication.
6. Mitigate and minimize sources of anthropogenic light, especially artificial light at night (ALAN). Anthropogenic light has been linked to catastrophic insect declines (Owens et al. 2020), and impacts to a wide variety of other wildlife species. See International Dark-Sky Association [website](#) for more information on outdoor lighting recommendations.
7. Minimize future additions of impervious surface and other development within the buffer surrounding the riparian area, and increase native species cover where possible (including adjacent areas dominated by non-native grasses).
8. Consider closing, and revegetating dirt bike tracks and other social trails within the riparian area, in order to reduce bare ground and pathways for non-native plant species introduction.

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Appendix A: Wildlife Species Observations

Table 4. Bird species observed at Maple Valley Park on January 29, 2021 by CNHP staff.

American Crow
American Tree Sparrow
Black-billed Magpie
Black-capped Chickadee
Blue Jay
Canada Goose
Dark-eyed Junco
Downy Woodpecker
Eurasian Collared-Dove
House Finch
Mallard
Merlin
Northern Flicker
Red-breasted Nuthatch
Sharp-shinned Hawk
Spotted Towhee
White-breasted Nuthatch
Wilson's Snipe

Table 5. List of bird species [observed by citizen scientists at Maple Valley Park and recorded on eBird](#), accessed January 2021.

Common Name	Scientific Name
Hairy Woodpecker	<i>Dryobates villosus</i>
Northern Flicker	<i>Colaptes auratus</i>
American Kestrel	<i>Falco sparverius</i>
Black-billed Magpie	<i>Pica hudsonia</i>
American Crow	<i>Corvus brachyrhynchos</i>
Black-capped Chickadee	<i>Poecile atricapillus</i>
Mountain Chickadee	<i>Poecile gambeli</i>
White-breasted Nuthatch	<i>Sitta carolinensis</i>
Brown Creeper	<i>Certhia americana</i>
House Finch	<i>Haemorhous mexicanus</i>
Dark-eyed Junco	<i>Junco hyemalis</i>
Song Sparrow	<i>Melospiza melodia</i>
Mallard	<i>Anas platyrhynchos</i>
Downy Woodpecker	<i>Dryobates pubescens</i>
Blue Jay	<i>Cyanocitta cristata</i>
Common Raven	<i>Corvus corax</i>
Red-breasted Nuthatch	<i>Sitta canadensis</i>
Winter Wren	<i>Troglodytes hiemalis</i>

Townsend's Solitaire	<i>Myadestes townsendi</i>
Cackling Goose	<i>Branta hutchinsii</i>
Canada Goose	<i>Branta canadensis</i>
Hooded Merganser	<i>Lophodytes cucullatus</i>
Eurasian Collared-Dove	<i>Streptopelia decaocto</i>
Mourning Dove	<i>Zenaida macroura</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
Belted Kingfisher	<i>Megaceryle alcyon</i>
Bushtit	<i>Psaltiriparus minimus</i>
European Starling	<i>Sturnus vulgaris</i>
American Robin	<i>Turdus migratorius</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Ferruginous Hawk	<i>Buteo regalis</i>
House Sparrow	<i>Passer domesticus</i>
American Goldfinch	<i>Spinus tristis</i>
Cackling/Canada Goose	<i>Branta hutchinsii/canadensis</i>
Gadwall	<i>Mareca strepera</i>
Ring-necked Duck	<i>Aythya collaris</i>
Common Merganser	<i>Mergus merganser</i>
Ring-billed Gull	<i>Larus delawarensis</i>
Ruby-crowned Kinglet	<i>Regulus calendula</i>
Great Horned Owl	<i>Bubo virginianus</i>
Spotted Towhee	<i>Pipilo maculatus</i>
Eastern Screech-Owl	<i>Megascops asio</i>
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>
Yellow-rumped Warbler	<i>Setophaga coronata</i>
warbler sp. (Parulidae sp.)	<i>Parulidae sp.</i>
Turkey Vulture	<i>Cathartes aura</i>
Cooper's Hawk	<i>Accipiter cooperii</i>
Western Wood-Pewee	<i>Contopus sordidulus</i>
House Wren	<i>Troglodytes aedon</i>
Broad-tailed Hummingbird	<i>Selasphorus platycercus</i>
Bullock's Oriole	<i>Icterus bullockii</i>
Common Grackle	<i>Quiscalus quiscula</i>
Black-and-white Warbler	<i>Mniotilta varia</i>
Yellow Warbler	<i>Setophaga petechia</i>
Western Tanager	<i>Piranga ludoviciana</i>
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>
Western Bluebird	<i>Sialia mexicana</i>
Great Blue Heron	<i>Ardea herodias</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>

Sharp-shinned Hawk	<i>Accipiter striatus</i>
Mountain Bluebird	<i>Sialia currucoides</i>
Rock Pigeon	<i>Columba livia</i>
Wilson's Snipe	<i>Gallinago delicata</i>
Pine Siskin	<i>Spinus pinus</i>
Lesser Goldfinch	<i>Spinus psaltria</i>
Golden-crowned Kinglet	<i>Regulus satrapa</i>
Hermit Thrush	<i>Catharus guttatus</i>
Chipping Sparrow	<i>Spizella passerina</i>
Wilson's Warbler	<i>Cardellina pusilla</i>
Double-crested Cormorant	<i>Phalacrocorax auritus</i>
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>
Say's Phoebe	<i>Sayornis saya</i>
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>
Tree Swallow	<i>Tachycineta bicolor</i>
Barn Swallow	<i>Hirundo rustica</i>
Western Meadowlark	<i>Sturnella neglecta</i>
Brown-headed Cowbird	<i>Molothrus ater</i>
Snowy Egret	<i>Egretta thula</i>
Cedar Waxwing	<i>Bombycilla cedrorum</i>
Orange-crowned Warbler	<i>Leiothlypis celata</i>
Eastern Bluebird	<i>Sialia sialis</i>
Lesser Scaup	<i>Aythya affinis</i>
Swamp Sparrow	<i>Melospiza georgiana</i>
American Dipper	<i>Cinclus mexicanus</i>
Snow Goose	<i>Anser caerulescens</i>
sparrow sp.	<i>Passerellidae sp. (sparrow sp.)</i>
bluebird sp.	<i>Sialia sp.</i>
passerine sp.	<i>Passeriformes sp.</i>
Green-tailed Towhee	<i>Pipilo chlorurus</i>
Cordilleran Flycatcher	<i>Empidonax occidentalis</i>
Harris's Sparrow	<i>Zonotrichia querula</i>
Killdeer	<i>Charadrius vociferus</i>
Wood Duck	<i>Aix sponsa</i>
Blue-winged Teal	<i>Spatula discors</i>
Cinnamon Teal	<i>Spatula cyanoptera</i>
Northern Shoveler	<i>Spatula clypeata</i>
Green-winged Teal	<i>Anas crecca</i>
Sharp-shinned/Cooper's Hawk	<i>Accipiter striatus/cooperii</i>
Western Kingbird	<i>Tyrannus verticalis</i>
Violet-green Swallow	<i>Tachycineta thalassina</i>

Cliff Swallow	<i>Petrochelidon pyrrhonota</i>
Swainson's Thrush	<i>Catharus ustulatus</i>
Swainson's Hawk	<i>Buteo swainsoni</i>

Appendix B: Plant Species Observations

Table 6. Plant species observed at Maple Valley Park on January 29, 2021.

Family	Scientific Name	Common Name	C-value	Nativity Status	Noxious Status
Apiaceae	<i>Berula erecta</i>	cutleaf waterparsnip	5	Native	
Apiaceae	<i>Conium maculatum</i>	poison hemlock	0	Non-native	List C
Apocynaceae	<i>Apocynum cannabinum</i>	Indian hemp	2	Native	
Apocynaceae	<i>Asclepias speciosa</i>	showy milkweed	3	Native	
Araceae	<i>Lemna minor</i>	common duckweed	2	Native	
Asparagaceae	<i>Asparagus officinalis</i>	garden asparagus	0	Non-native	
Asteraceae	<i>Bidens cernua</i>	nodding beggartick	5	Native	
Asteraceae	<i>Centaurea</i> sp.	knapweed	0	Non-native	
Asteraceae	<i>Cirsium arvense</i>	Canada thistle	0	Non-native	List B
Asteraceae	<i>Conyza canadensis</i>	Canadian horseweed	1	Native	
Asteraceae	<i>Dieteria canescens</i>	hoary tansyaster	4	Native	
Asteraceae	<i>Helianthus nuttallii</i>	Nuttall's sunflower	3	Native	
Asteraceae	<i>Lactuca serriola</i>	prickly lettuce	0	Non-native	
Asteraceae	<i>Solidago canadensis</i>	Canada goldenrod	5	Native	
Asteraceae	<i>Symphyotrichum ericoides</i>	aster	4	Native	
Asteraceae	<i>Xanthium strumarium</i>	rough cocklebur	1	Native	
Brassicaceae	<i>Camelina microcarpa</i>	littlepod false flax	0	Non-native	
Brassicaceae	<i>Nasturtium officinale</i>	watercress	0	Non-native	
Brassicaceae	<i>Thlaspi arvense</i>	field pennycress	0	Non-native	
Cannabaceae	<i>Humulus neomexicanus</i>	common hop	5	Native	
Caprifoliaceae	<i>Symphoricarpos occidentalis</i>	western snowberry	3	Native	
Caryophyllaceae	<i>Saponaria officinalis</i>	bouncingbet	0	Non-native	List B
Caryophyllaceae	<i>Silene</i> sp.	catchfly	0	Unknown	
Cornaceae	<i>Cornus sericea</i> ssp. <i>sericea</i>	redosier dogwood	7	Native	
Cucurbitaceae	<i>Echinocystis lobata</i>	wild cucumber	3	Native	
Cupressaceae	<i>Juniperus scopulorum</i>	Rocky Mountain juniper	5	Native	
Cyperaceae	<i>Carex emoryi</i>	Emory's sedge	5	Native	

Cyperaceae	<i>Eleocharis palustris</i>	common spikerush	3	Native	
Cyperaceae	<i>Schoenoplectus tabernaemontani</i>	softstem bulrush	3	Native	
Dipsacaceae	<i>Dipsacus laciniatus</i>	cutleaf teasel	0	Non-native	List B
Elaeagnaceae	<i>Elaeagnus angustifolia</i>	Russian olive	0	Non-native	List B
Fabaceae	<i>Amorpha fruticosa</i>	false indigo bush	7	Native	
Fabaceae	<i>Glycyrrhiza lepidota</i>	American licorice	3	Native	
Fabaceae	<i>Lathyrus latifolius</i>	perennial pea	0	Non-native	
Fabaceae	<i>Melilotus</i> sp.	sweetclover	0	Non-native	
Grossulariaceae	<i>Ribes aureum</i>	golden currant	6	Native	
Juncaceae	<i>Juncus arcticus</i>	arctic rush	4	Native	
Lamiaceae	<i>Mentha arvensis</i>	wild mint	4	Native	
Lamiaceae	<i>Nepeta cataria</i>	catnip	0	Non-native	
Oleaceae	<i>Fraxinus pennsylvanica</i>	green ash	0	Non-native	
Oleaceae	<i>Ligustrum vulgare</i>	European privet	0	Non-native	
Onagraceae	<i>Oenothera curtiflora</i>	velvetweed	1	Native	
Onagraceae	<i>Oenothera villosa</i>	hairy evening primrose	4	Native	
Pinaceae	<i>Pinus ponderosa</i>	ponderosa pine	5	Native	
Plantaginaceae	<i>Plantago lanceolata</i>	narrowleaf plantain	0	Non-native	
Plantaginaceae	<i>Veronica americana</i>	American speedwell	6	Native	
Poaceae	<i>Bromus inermis</i>	smooth brome	0	Non-native	
Poaceae	<i>Dactylis glomerata</i>	orchardgrass	0	Non-native	
Poaceae	<i>Echinochloa crus-galli</i>	barnyardgrass	0	Non-native	
Poaceae	<i>Elymus</i> sp.	wildrye	0	Unknown	
Poaceae	<i>Glyceria striata</i>	fowl mannagrass	5	Native	
Poaceae	<i>Phalaris arundinacea</i>	reed canarygrass	1	Cryptogenic	
Poaceae	<i>Poa pratensis</i>	Kentucky bluegrass	0	Non-native	
Poaceae	<i>Sporobolus airoides</i>	alkali sacaton	5	Native	
Poaceae	<i>Thinopyrum</i> sp.	wheatgrass	0	Non-native	
Polygonaceae	<i>Fallopia convolvulus</i>	black bindweed	0	Non-native	
Polygonaceae	<i>Persicaria</i> sp.	knotweed	0	Unknown	
Polygonaceae	<i>Rumex crispus</i>	curly dock	0	Non-native	
Ranunculaceae	<i>Clematis ligusticifolia</i>	western white clematis	4	Native	
Ranunculaceae	<i>Ranunculus</i> sp.	buttercup	0	Unknown	

Rosaceae	<i>Crataegus succulenta</i>	fleshy hawthorn	5	Native	
Rosaceae	<i>Prunus americana</i>	American plum	6	Native	
Rosaceae	<i>Prunus virginiana</i> var. <i>melanocarpa</i>	black chokecherry	4	Native	
Rosaceae	<i>Rosa acicularis</i> ssp. <i>sayi</i>	prickly rose	5	Native	
Ruscaceae	<i>Maianthemum stellatum</i>	starry false lily of the valley	7	Native	
Salicaceae	<i>Populus deltoides</i> ssp. <i>monilifera</i>	plains cottonwood	3	Native	
Salicaceae	<i>Salix ×fragilis</i>	crack willow	0	Non-native	
Salicaceae	<i>Salix amygdaloides</i>	peachleaf willow	5	Native	
Salicaceae	<i>Salix exigua</i>	narrowleaf willow	3	Native	
Sapindaceae	<i>Acer glabrum</i> var. <i>glabrum</i>	Rocky Mountain maple	7	Native	
Sapindaceae	<i>Acer negundo</i>	boxelder	4	Native	
Scrophulariaceae	<i>Verbascum thapsus</i>	common mullein	0	Non-native	List C
Typhaceae	<i>Typha</i> sp.	cattail	1	Cryptogenic	
Ulmaceae	<i>Ulmus pumila</i>	Siberian elm	0	Non-native	Watch List
Verbenaceae	<i>Verbena hastata</i>	swamp verbena	4	Native	
Vitaceae	<i>Vitis riparia</i>	riverbank grape	5	Native	

Appendix C: EIA Scorecard

COLORADO ECOLOGICAL INTEGRITY ASSESSMENT (EIA) SCORECARD

Made by: Colorado Natural Heritage Program, Version: August 31, 2015



Site ID: NA
 Site Name: Maple Valley Park
 Project: Maple Valley Park Ecological Assessment

Date 2/10/2021

Ecol System: Rocky Mountain Lower Montane-Foothill Riparian Woodland and Shrubland System
 HGM: Riverine
 Cowardin: Palustrine Forested/Riparian Forested

	Wt	Field Rating	Field Points	Calc Points	Calc Rating
Overall Ecological Integrity Score and Rank				2.19	C+
Overall Ecological Integrity + Size Score and Rank				1.94	C-
Rank Factor: LANDSCAPE CONTEXT	0.30			1.49	D
LANDSCAPE METRICS	0.33			1.00	D
L1. Contiguous Natural Land Cover	1	D	1		
L2. Land Use Index	1	D	1		
BUFFER METRICS	0.67			1.73	C-
B1. Perimeter with Natural Buffer	n/a	C	2		
B2. Width of Natural Buffer	n/a	C	2		
B3.1. Condition of Natural Buffer - Veg	n/a	D	1		
B3.2. Condition of Natural Buffer - Soils	n/a	C	2		
Rank Factor: CONDITION	0.70			2.49	C+
VEGETATION METRICS	0.55			2.75	B-
V1. Native Plant Species Cover	1	C-	1.5		
V2. Invasive Nonnative Plant Species Cover	1	B	3		
V3. Native Plant Species Composition	1	B	3		
V4. Vegetation Structure	1	B	3		
V5. Regen. of Native Woody Species (opt.)	1	C	2		
V6. Coarse and Fine Woody Debris (opt.)	1	A	4		
HYDROLOGY METRICS	0.35			2.00	C+
H1. Water Source	1	C	2		
H2. Hydroperiod	1	C	2		
H3. Hydrologic Connectivity	1	C	2		
PHYSIOCHEMISTRY METRICS	0.10			2.75	B-
S1. Soil Condition	1	C	2		
S2. Surface Water Turbidity / Pollutants (opt.)	0.5	A	4		
S3. Algal Growth (opt.)	0.5	B	3		
Rank Factor: SIZE	n/a			2.00	C+
SIZE METRICS	1			2.00	C+
Z1. Comparative Size (opt.)	1	C	2		
Z2. Change in Size (opt.)	1	C	2		

Input field metric ratings into empty boxes to calculate Rank Factor and Final EIA Scores. Fill in all metrics that are not marked as optional. Optional metrics depend on method used and wetland type.