

# Cottonwood Flats

## Monitoring Project

2021 Activity Report & Assessment Data



Report prepared by: Jason Ramsay-Brown, CFMP Primary Administrator

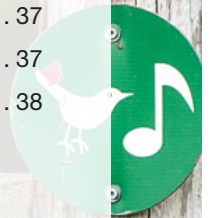
2021 Project Participants: Sabrina Adamski, Dave Barr, Charles Bruce-Thompson, Jane Cluver, Nancy Dengler, Leila Forsyth, Nina Hunt, Andrew Interisano, Lillian Natalizio, Katherine Parks, Latchin Poon, Anne Powell, Jason Ramsay-Brown, Steve Smith, Anna Waldvogel, Rosemary Warren

Reference as: TFN 2021 CFMP Activity Report

Report Designed By: Off to Market, Inc. <http://offtomarket.ca>

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# INTRODUCTION

## PROJECT OVERVIEW

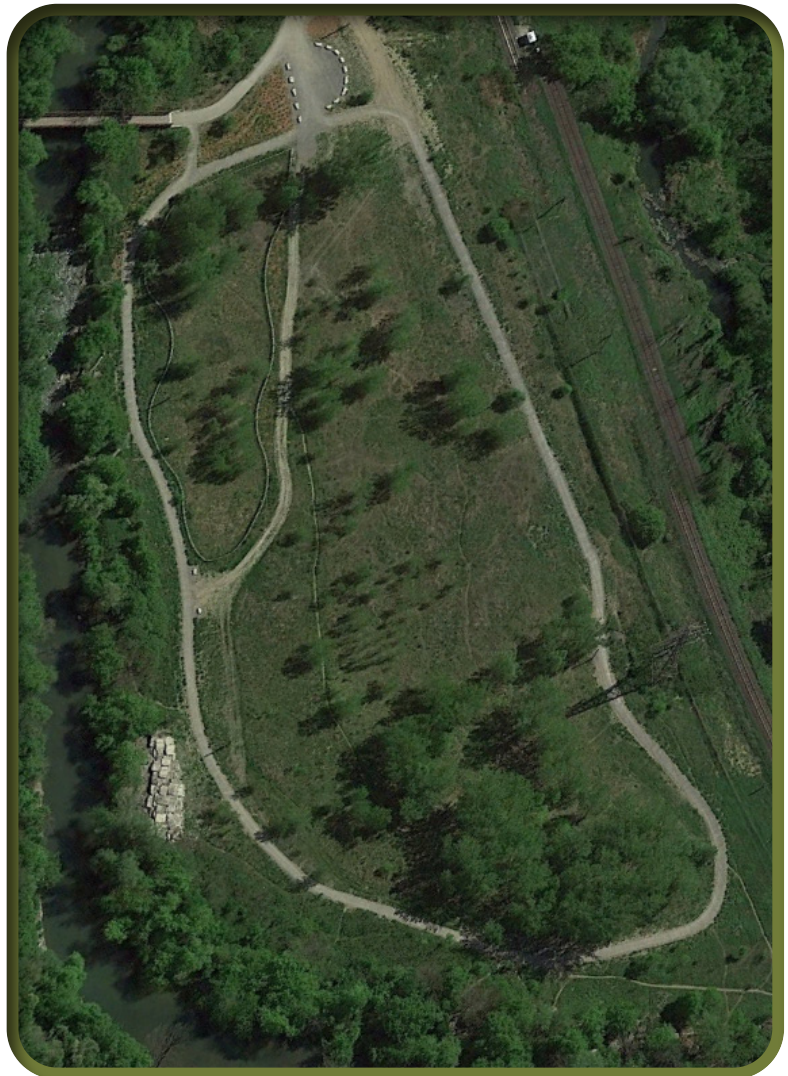
The Cottonwood Flats Monitoring Project (CFMP) is a partnership between the City of Toronto's Natural Environment and Community Programs (NECP) section of Urban Forestry and the Toronto Field Naturalists (TFN). Founded in 2017, its primary goal is to create and curate an inventory of animal and vegetation biodiversity at Cottonwood Flats (see "Study Area") which, over time, will be used to assess overall trends in species richness and abundance. A secondary objective for the project is to facilitate community engagement and outreach.

## STUDY AREA

Cottonwood Flats is an approximately 4-hectare parcel of floodplain, elevated by an anthropogenic fill base, that is located on a post-industrial site along the eastern banks of the Lower Don River near Crothers Woods. The site was once home to a rockwool factory, was used as a disposal site for concrete debris, and once served as a primary site for dumping snow plowed from city streets.

Between 2009 and 2014, the City of Toronto, TRCA, Task Force to Bring Back the Don, and Schollen and Company created and executed a restoration plan intended primarily to provide habitat for ground-nesting birds. A key feature of this plan was an approximately one acre songbird meadow, fully enclosed by permanent fencing, meant to help secure the area from trampling, off-leash dogs, and other potential threats.

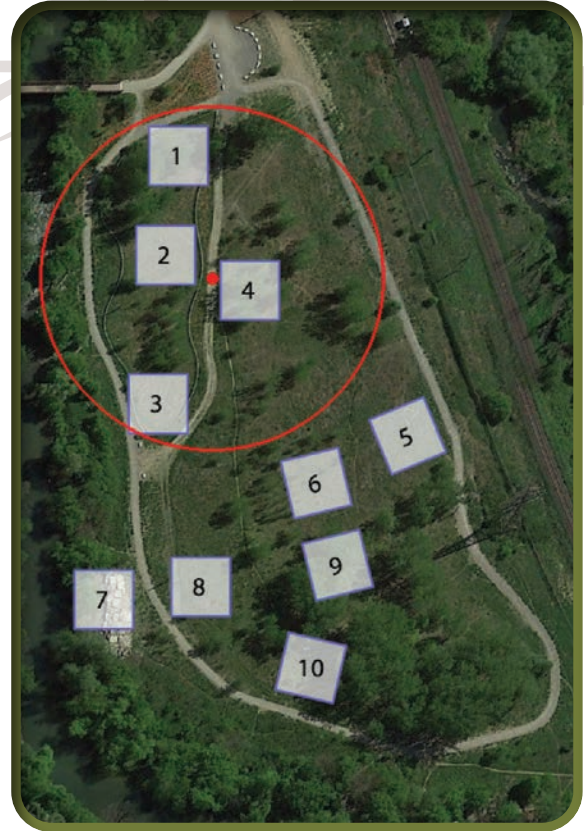
In 2020 the City of Toronto completed construction on Phase 2 of improvements at Cottonwood Flats, including the creation of an extensive ephemeral wetland complex designed to improve habitat diversity and ecological services on the site. The project also included a wetland lookout area, and a new entrance feature which aims to improve access, wayfinding and visitor experience.



## METHODOLOGY & PROTOCOLS

Cottonwood Flats is too large an area to monitor and assess in its entirety. Instead, ten 20m x 20m permanent plots have been defined that are the focus of monitoring and assessment efforts. The corners of each plot have been demarcated by an approximately 1.2m t-bar in the north-eastern-most corner (installed on Sat Apr 3, 2021) and a pin flag in each of the remaining corners to aid on-site discovery. The exception is Plot 4 where remnant underground debris prevented placement of a t-bar, so a pin flag was used instead. Plot locations were selected based on existing natural features, human traffic patterns, and the post-industrial legacy of the site. Site activities abide by specific protocols developed by TFN in consultation with NECP, and modelled on similar protocols used by organizations like TRCA and EMAN so as to maximize compatibility with other standard data collection methods.

Annually, volunteers conduct five site Monitoring Sessions, the purpose of which is to identify animal species (primarily birds), and flora in bloom or seed. Each session begins with a ten minute “Bird Circle” observation, during which one to three stationary observers log all animal activity within a 50m circle encompassing plots 1,2,3, & 4, and the entirety of the fenced-in Songbird Meadow. Following this, one to four volunteers devote a minimum of five minutes of continuous observation time to logging all animal activity in each plot. An additional observer visits all plots independently to document flora in bloom or seed.



Further, one Vegetation Assessment is conducted each year, during which the emphasis is on flora identification. During these assessments there is no Bird Circle observation period, but at least one volunteer continues to devote five minutes of continuous observation time to each plot for the purpose of logging animal activity. Meanwhile, two to five volunteers devote several hours each to flora identification, working alone or in co-operation with one another, as proves most effective.

During all six sessions and assessments, a volunteer photographer is responsible for documenting interesting discoveries, general activities, and attending to routine photo monitoring as prescribed by the City of Toronto.

Concurrently, a CFMP Site Ambassador, situated by the trail that connects the Lower Don Recreational Trail to nearby Sun Valley/Crothers Woods, engages with any members of the public curious about project activities. The Site Ambassador answers questions, distributes TFN and City of Toronto brochures, and keeps records on human visitation and use of Cottonwood Flats.

# SUMMARY OF RESULTS

## IMPACT OF COVID-19

Restrictions imposed in response to the COVID-19 pandemic greatly limited CFMP activities in 2021. Of the six events scheduled, only four were able to be held, all with smaller volunteer attendance than in previous years.

## FLORA SPECIES AT COTTONWOOD FLATS

The study area is dominated by Exotic Cool-season Grass Graminoid Meadow (CUM1-b) and Exotic Forb Meadow (CUM1-c). A portion of the site is successional semi-woody habitat, which includes the riparian zone along the Don River. The developing vegetation structure continues to indicate it is headed towards a vegetation community typical of the Lower Don Valley - Fresh-Moist Cottonwood Tall Treed Woodland (CUW1-A4).

Plot observations identified a total of 92 species of vascular plants during the 2021 season (see Appendix A). These include 30 native species (both naturally-occurring and planted) and 62 exotic species (67.39%). 3 additional plants remain identified only to the level of Genus, and 11 species catalogued (1 native, 10 exotic) are not present in *Beechwood Wetland and Cottonwood Flats Terrestrial Biological Inventory and Assessment* (TRCA, 2010). These totals differ from those described in the 2020 report thanks to the following:

SCIENTIFIC NAME	COMMON NAME	NATIVITY	CHANGE
<i>Ageratina altissima</i>	White snakeroot	Native	No longer present
<i>Barbarea vulgaris</i>	Yellow rocketcross	Non-Native	Now present
<i>Campanula rapunculoides</i>	Creeping bellflower	Non-Native	No longer present
<i>Elymus riparius</i>	Riverbank wild rye	Native	No longer present
<i>Elymus virginicus</i>	Virginia wild rye	Native	No longer present
<i>Erigeron canadensis</i>	Horseweed	Native	No longer present
<i>Eryngium planum</i>	Sea holly	Non-Native	Returned to inventory (mistakenly removed in 2020 report)
<i>Erysimum hieraciifolium</i>	European wallflower	Non-Native	No longer present
<i>Euphorbia vermiculata</i>	Hairy sandmat	Native	No longer present
<i>Hesperis matronalis</i>	Dame's rocket	Non-Native	No longer present
<i>Juncus tenuis</i>	Slender rush	Native	No longer present
<i>Lactuca scariola</i>	Prickly lettuce	Non-Native	No longer present
<i>Lepidium campestre</i>	Field pepperwort	Non-Native	No longer present
<i>Lycopus europaeus</i>	European bugleweed	Non-Native	No longer present
<i>Lythrum salicaria</i>	Purple loosestrife	Non-Native	Added back (new occurrence)
<i>Pinus austriaca</i>	Austrian pine	Non-Native	No longer present
<i>Poa nemoralis</i>	Wood bluegrass	Non-Native	No longer present
<i>Polygonum persicaria</i>	Lady's-thumb	Non-Native	No longer present
<i>Potentilla arguta</i>	Tall cinquefoil	Native	Now present
<i>Rubus odoratus</i>	Purple-flowering raspberry	Native	Now present
<i>Schizachyrium scoparium</i>	Little bluestem	Native	Now present
<i>Solidago nemoralis</i>	Gray goldenrod	Native	Now present
<i>Symphotrichum lanceolatum</i>	Panicled aster	Native	Now present
<i>Thlaspi arvense</i>	Field penny-cress	Non-Native	No longer present

This net decline in species represents the largest annual net loss in flora diversity since the inception of CFMP in 2017. While this loss returns the overall number of species identified in CFMP plots to 2017 levels, it is interesting to note that the number of native species present in the 2021 inventory is 6.91% higher than it was in 2017.

It is equally interesting to note that 11 of the 16 species lost in 2021 were exclusive only to Plot 7, which itself saw the loss of 19 species overall this year. While many of these species were known to be growing in areas of the plot now dominated by Japanese Knotweed (*Fallopia japonica*), it is suspected that the continued increase in human activity within Plot 7 that was identified in 2020 is likely also a notable influence.

Eastern cottonwoods (*Populus deltoides*) and green ash (*Fraxinus pennsylvanica*) remain the dominant native tree cover in our plots. Damage from poplar vagabond aphids (*Mordwilkoja vagabunda*) was again evident on Eastern cottonwoods this year (Veg2, Jason Ramsay-Brown). Green ash in plots 3 & 8 show signs of ongoing assault by emerald ash borer (*Agrilus planipennis*), but no live adult specimen of this invasive insect have been spotted since 2019 (Veg2, Jason Ramsay-Brown). Symptoms of leaf spot fungus (*Mycosphaerella* spp.) were also noted on green ash in these plots (Veg2, Stephen Smith).



Exotic tree health & propagation continued to advance. Vigorous growth of existing European buckthorn (*Rhamnus cathartica*) specimens was evident in all but one previously-invaded plots (Plot 4) and (with the discovery of a single seedling) Plot 8 is now host to this invasive (Veg2, Stephen Smith). Black locust (*Robinia pseudoacacia*) in Plot 4 exhibited a notable increase in both number of stems & overall plot coverage this year (Veg2, Nancy Dengler).

At the herbaceous layer, tall goldenrod (*Solidago altissima*) remains the dominant native and enjoyed a “good year”, especially in Plots 2, 5 & 6 (Veg2, Nancy Dengler). Conversely, it appeared to be a bad year for resident asters (Veg2, Stephen Smith), with the disappearance of panicked aster (*Symphotrichum lanceolatum*) from Plot 7, and a notable decline of both heath aster (*Symphotrichum ericoides*) and New England aster (*Symphotrichum novae-angliae*) site-wide.

Tansy (*Tanacetum vulgare*) remains the most populous herbaceous invasive across the Flats in its entirety, but dog-strangling vine (*Vincetoxicum rossicum*) is now at least equal (in aggregate) across CFMP plots specifically. DSV population continues to expand rapidly in most plots, and lost territory in none. Spread of DSV in plots 2 & 3 were noted as particularly “dramatic” both in terms of mature specimens and overall number of visible sprouts and seedlings (Veg 2, Nancy Dengler).



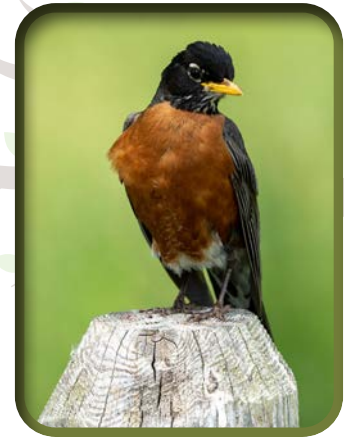
As alluded to above, extant patches of Japanese knotweed (*Fallopia japonica*) have expanded, and new patches have emerged, in Plot 7. More distressing, however, is that the colony has now escaped Plot 7 and is spreading rapidly along the riverbank north of the plot.

Also of interest, the almost perfectly-circular colony of crownvetch (*Securigera varia*) in Plot 2 showed notable fragmentation this year, resulting in some modest decline in overall coverage.

**SPECIAL NOTE:** Starting mid-August 2021 and extending to end of November, 2021, contractors with Forest and Natural Area Management (City of Toronto, Urban Forestry) tackled herbicidal treatment of several invasive species at Cottonwood Flats. This included dog-strangling vine (*Vincetoxicum rossicum*), European buckthorn (*Rhamnus cathartica*), tree of heaven (*Ailanthus altissima*), and Manitoba maple (*Acer negundo*). The full impact of these treatments could not be effectively gauged by CFMP volunteers in our final session of 2021, but will be evaluated during our 2022 monitoring & assessment activities.

## FAUNA SPECIES AT COTTONWOOD FLATS

14 species of birds were cataloged during the 2021 season, including 4 species not recorded in previous years: Eastern bluebird (*Sialia sialis*), Ring-billed gull (*Larus delawarensis*), grey catbird (*Dumetella carolinensis*), and kinglets (*Regulus* spp., which could not be identified to the species level due to location). American robins (*Turdus migratorius*) were the most often sighted birds, followed very closely by American goldfinch (*Spinus tristis*) who enjoyed an outstanding year it would seem. Shockingly, only a single red-winged blackbird (*Agelaius phoeniceus*) was observed visiting the CFMP bird circle area and plots this year.



Only one nest was discovered in our plots, believed to belong to song sparrows (*Melospiza melodia*) and found in Plot 3 (MS5, Sabrina Adamski, Lillian Natalizio, Charles Bruce-Thompson). However, volunteers heard at least one very young robin chirping in Plot 10, but the nest could not be located (MS3, Anne Powell). Further, the presence of a “very persistent” male yellow warbler (*Setophaga petechia*) in Plot 10 suggested a nest might be nearby (MS3, Charles Bruce-Thompson). A mature robin with a young robin were spotted in Plot 8 (MS3, Anne Powell).

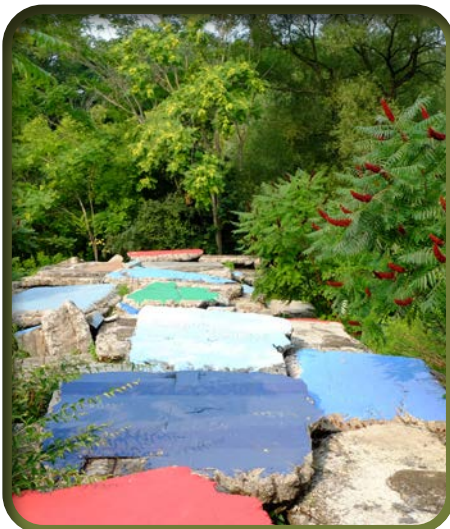
Only 4 species of butterflies were documented this year, with cabbage white (*Pieris rapae*) continuing as the most often sighted butterfly. Dun Skipper butterflies (*Euphyes vestris*) were observed for the first time (Veg2, Nancy Dengler).



No mammals were sighted during events this year, and indirect evidence of mammal visitation (eg: deer beds, rabbit browsing, etc) was notably diminished compared to previous years. No obvious signs of wildlife having over-wintered in the Study Area were discovered during our pre-season plot inspection and maintenance visit (April 18, Jason Ramsay-Brown, Charles Bruce-Thompson).

No amphibian or reptiles were sighted in our plots this year and routine observations of the Don River (Plot 7) captured no data. However, the recently installed wetland cells at the southern end of the Flats did produce many interesting sightings over the year, including frequent visitation by midland painted turtles (*Chrysemys picta marginata*)

## HUMAN USE AT COTTONWOOD FLATS



Cottonwood Flats continued to experience heavy human visitation this year, peaking with 142 visitors on foot and an additional 29 on bikes over a two-hour period at our Vegetation Assessment on July 25th. Visitation by dogs was also elevated this year, with on-leash dogs consistently outnumbering those off-leash by a trivial amount.

For the second year in a row, the focal point of human impact at the Flats was Plot 7. The unauthorized painting of the slabs which began in fall of 2020 has evidently continued as additional slabs are now painted. Graffiti has since been added on top of the paint job.

# 2022 RECOMMENDATIONS

## PROTOCOL ADJUSTMENTS

The following adjustments/enhancements to CFMP protocols are expected to be implemented effective 2022, in order to help improve the quality of collected data and make better use of volunteer time:

- Flora observations will be supported by a new data collection sheet to more explicitly identify when attempts were made to relocate previously-identified species, and to expedite the capture of lifecycle observations.
- TFN & City to discuss potentially discontinuing Plot 10 as its boundaries are difficult for most observers to visualize, frequently leading to observations that need to be validated/verified in subsequent sessions.
- Installation of salamander boards will be deferred until 2023 season.

## MONITORING ACTIVITIES

TFN intends to include the following activities during 2022 Monitoring Sessions and/or Vegetation Assessments.

- Identify exact species for flora identified only to the level of Genus in this report
- Increase fidelity of flora observations marked as ND, SD or <10 plants in this report

## COMMUNITY ENGAGEMENT

No new recommendations.





## RESTORATION & STEWARDSHIP

Under the current ecological trajectory, we anticipate ongoing invasion of the meadow both by exotic/invasive species and woody natives which, without strategic management of these influences, will see the Flats continue to transition to the more typical urban vegetation community found throughout the Don Valley.

The recent herbicidal treatments of herbaceous & woody invasive flora completed by contractors with Forest and Natural Area Management (City of Toronto, Urban Forestry) was a commendable intervention in protecting Cottonwood Flats from these damaging influences. By way of the following recommendations, TFN strongly encourages continued interventions meant to reduce invasive species, further the expansion and diversity of native species, and return the Study Area to at least the same ratio of meadow to woodland as was present in 2017:

- Herbicidal treatments targeting the same species as in 2021 should be repeated in 2022
- Additional interventions should be applied, specifically meant to target crownvetch (*Securigera varia*), Japanese knotweed (*Fallopia japonica*), Asian bittersweet (*Celastrus orbiculatus*), and tansy (*Tanacetum vulgare*)
- Reduce or at least limit the spread of native trees and/or rhizomatous, grove-producing species in or near meadowland to help preserve that habitat. Of most immediate concern here is staghorn sumac (*Rhus typhina*), sandbar willow (*Salix exigua*), and black walnut (*Juglans nigra*).
- Follow-up invasive removal activities with casting of seeds native to Toronto and obtained from verified local seed sources where possible.
- Decommission existing firepits
- Encourage increased visitation from by-law officers to help reduce routine damage by off-leash dogs and inappropriate human use.



Finally, to accelerate the pace of these interventions, and ensure their benefits are sustained long-term, TFN strongly urges that volunteer stewards be permitted to routinely work in the Study Area, either under the aegis of the City of Toronto's Community Stewardship Program, or by way of the Toronto Nature Stewards Pilot Program. TFN would, of course, be extremely interested in participating in any such volunteer stewardship at the Flats.

**SPECIAL NOTE:** TFN would like to thank NECP for hosting our tansy clipping stewardship event on August 6th, 2021! As all clipping occurred outside of CFMP plots, we do not imagine tangible impact of this intervention will be evident in our 2022 CFMP report. Nonetheless, we strongly believe it to represent another positive show of commitment to nudging the ecological trajectory of the Flats in the right direction!



# APPENDICES



## APPENDIX A: COMPILED FLORA DATA

Data presented in this section has been compiled from all flora logs submitted during the 2021 season. Where cover-abundance estimates differed, those recorded during the Vegetation Assessment in July were considered authoritative.

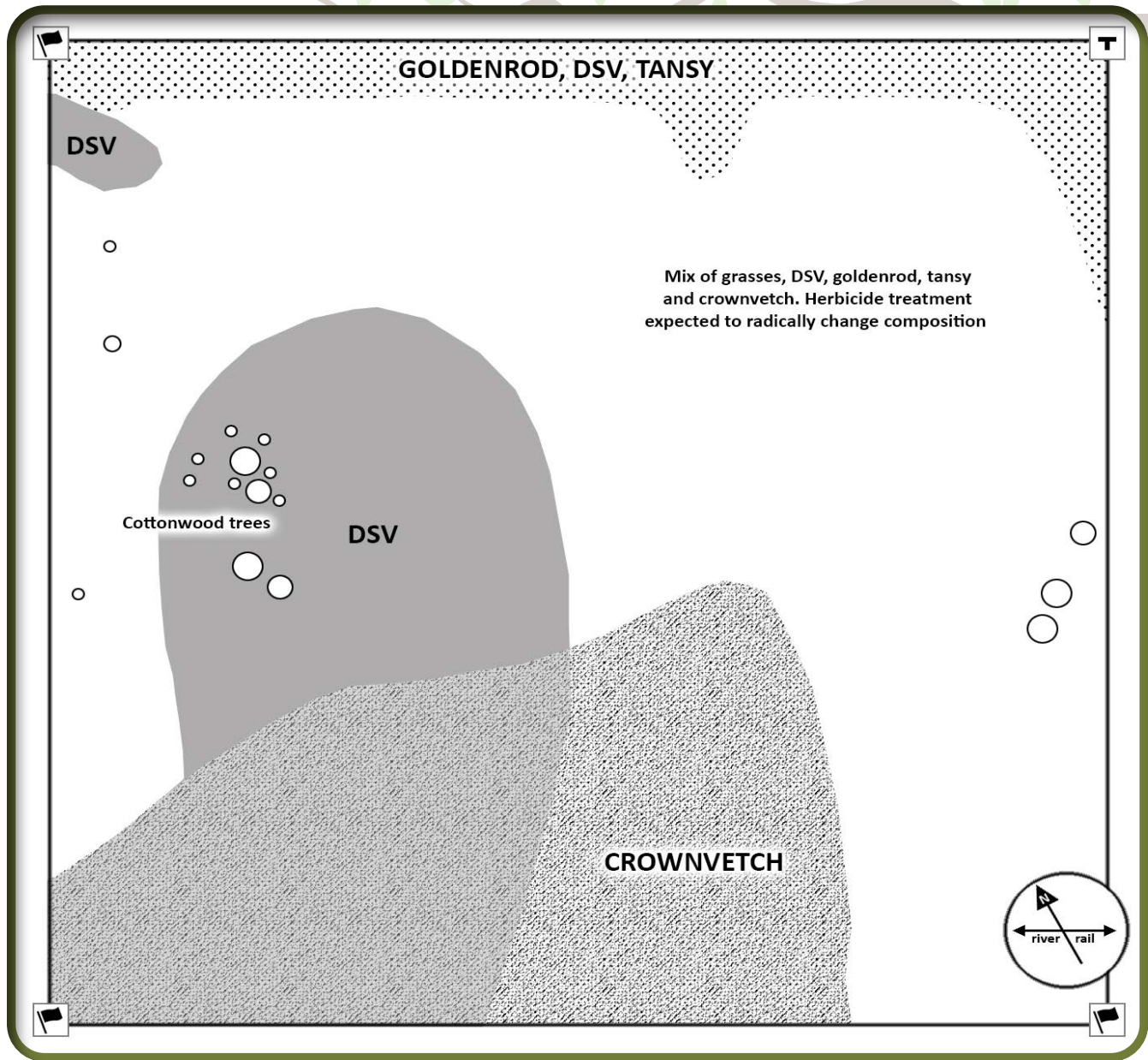
### LEGEND

DG	Dominant groundcover with no precise estimate of population or distribution
ND	Species noted, but no population or distribution data recorded
SD	Sparsely distributed throughout plot, making exact estimate impractical but certainly less than 3%
Blue Text	Exotic species
Red Text	Species identified to level of Genus only.
Green Text	Species does not appear in <i>Beechwood Wetland and Cottonwood Flats Terrestrial Biological Inventory and Assessment</i> (TRCA, 2010).
**	Not recorded in previous year
↑	Population increase from previous year
↓	Population decrease from previous year

## MAP LEGEND

Maps provided in this report were created in 2017 and should not be considered an accurate reflection of current plant communities. Maps will be revised during 2021 season and new versions included in next year's report.

# PLOT 1

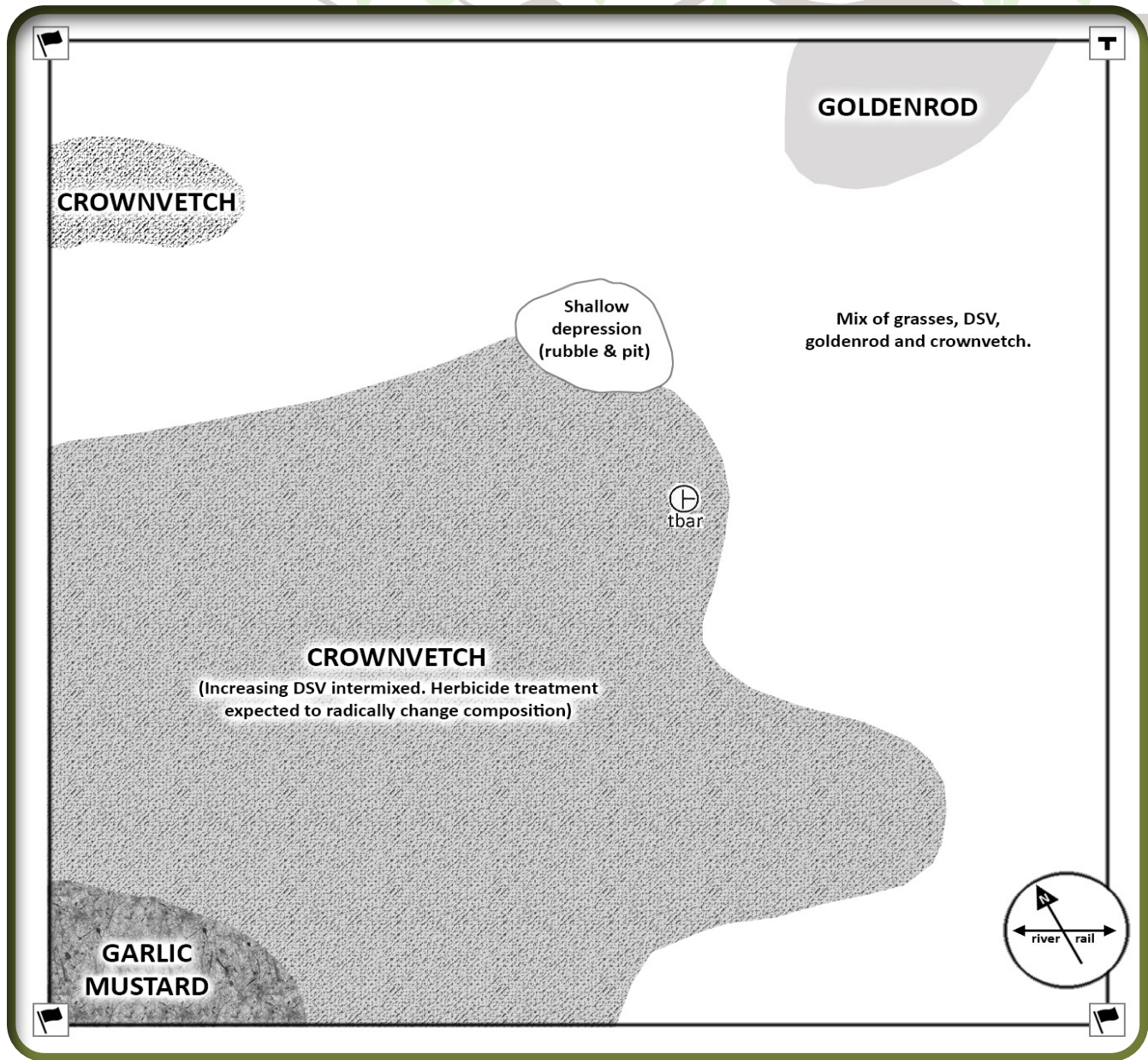


# PLOT 1



SCIENTIFIC NAME	COMMON NAME	COVER	NOTES
<a href="#">Acer negundo</a>	Manitoba Maple	2 saplings	
<a href="#">Achillea millefolium</a>	Common yarrow	SD	Flowering: Veg2, MS5
<a href="#">Agrostis gigantea</a>	Redtop grass	SD	
<a href="#">Ambrosia artemisiifolia</a>	Ragweed	NONE↓	
<a href="#">Cichorium intybus</a>	Chicory	NONE↓	Flowering: Veg2, MS5
<a href="#">Dactylis glomerata</a>	Orchard grass	SD	Flowering: Veg2
<a href="#">Daucus carota</a>	Queen Anne's Lace	SD	Flowering: Veg2, MS5
<a href="#">Echium vulgare</a>	Viper's bugloss	1 plant↓	Flowering: MS3, Veg2, MS5
<a href="#">Elymus repens</a>	Quack grass	SD	
<a href="#">Erigeron strigosus</a>	Rough fleabane	1.00%	Flowering: Veg2, MS5;
<a href="#">Erysimum hieraciifolium</a>	European wallflower	NONE↓	
<a href="#">Festuca rubra</a>	Red fescue	SD	Fruiting: Veg2
<a href="#">Fraxinus pennsylvanica</a>	Green ash	2 trees	Fruiting: Veg2
<a href="#">Hypericum perforatum</a>	St. John's wort	NONE↓	Flowering: Veg2
<a href="#">Juglans nigra</a>	Black walnut	NONE↓	
<a href="#">Juniperus virginiana</a>	Eastern red cedar	1 sapling**	
<a href="#">Linaria vulgaris</a>	Common toadflax (butter-and-eggs)	SD	Flowering: Veg2
<a href="#">Lolium perenne</a>	Perennial rye	SD	Flowering: Veg2
<a href="#">Medicago lupulina</a>	Black medick	SD	Flowering: Veg2
<a href="#">Melilotus albus</a>	White sweet clover	SD	Flowering: Veg2, MS5
<a href="#">Morus alba</a>	White mulberry	2 trees	
<a href="#">Oenothera biennis</a>	Common evening primrose	NONE↓	Flowering: Veg2
<a href="#">Poa compressa</a>	Flat-stemmed blue grass	SD	Fruiting: Veg2
<a href="#">Poa pratensis</a>	Kentucky bluegrass	SD	Seeding: Veg2, MS5
<a href="#">Populus deltoides</a>	Eastern cottonwood	40.00%	Seeding: MS3
<a href="#">Potentilla recta</a>	Sulphur cinquefoil	1 plant↓	Flowering: Veg2; Seeding: MS5
<a href="#">Rhamnus cathartica</a>	European buckthorn	3 saplings↑	
<a href="#">Rhus typhina</a>	Staghorn sumac	2 plants	Fruiting: Veg2, MS5
<a href="#">Securigera varia</a>	Crownvetch	20.00%	Flowering: Veg 2, MS5
<a href="#">Solidago altissima</a>	Tall goldenrod	10.00%	Flowering: MS5
<a href="#">Symphyotrichum novae-angliae</a>	New England aster	NONE↓	
<a href="#">Tanacetum vulgare</a>	Tansy	15%↓	Flowering: Veg2, MS5; Seeding: MS5
<a href="#">Taraxacum officinale</a>	Common dandelion	NONE↓	
<a href="#">Ulmus pumila</a>	Siberian elm	2 saplings↓	
<a href="#">Verbascum thapsus</a>	Common mullein	NONE↓	Flowering: Veg2
<a href="#">Vicia cracca</a>	Cow vetch	4 plants↑	Flowering: Veg2
<a href="#">Vincetoxicum rossicum</a>	Dog-strangling vine	25.00%	Flowering: Veg2, MS5; Seeding: Veg2, MS5
<a href="#">Vitis riparia</a>	Riverbank grape	SD	

# PLOT 2

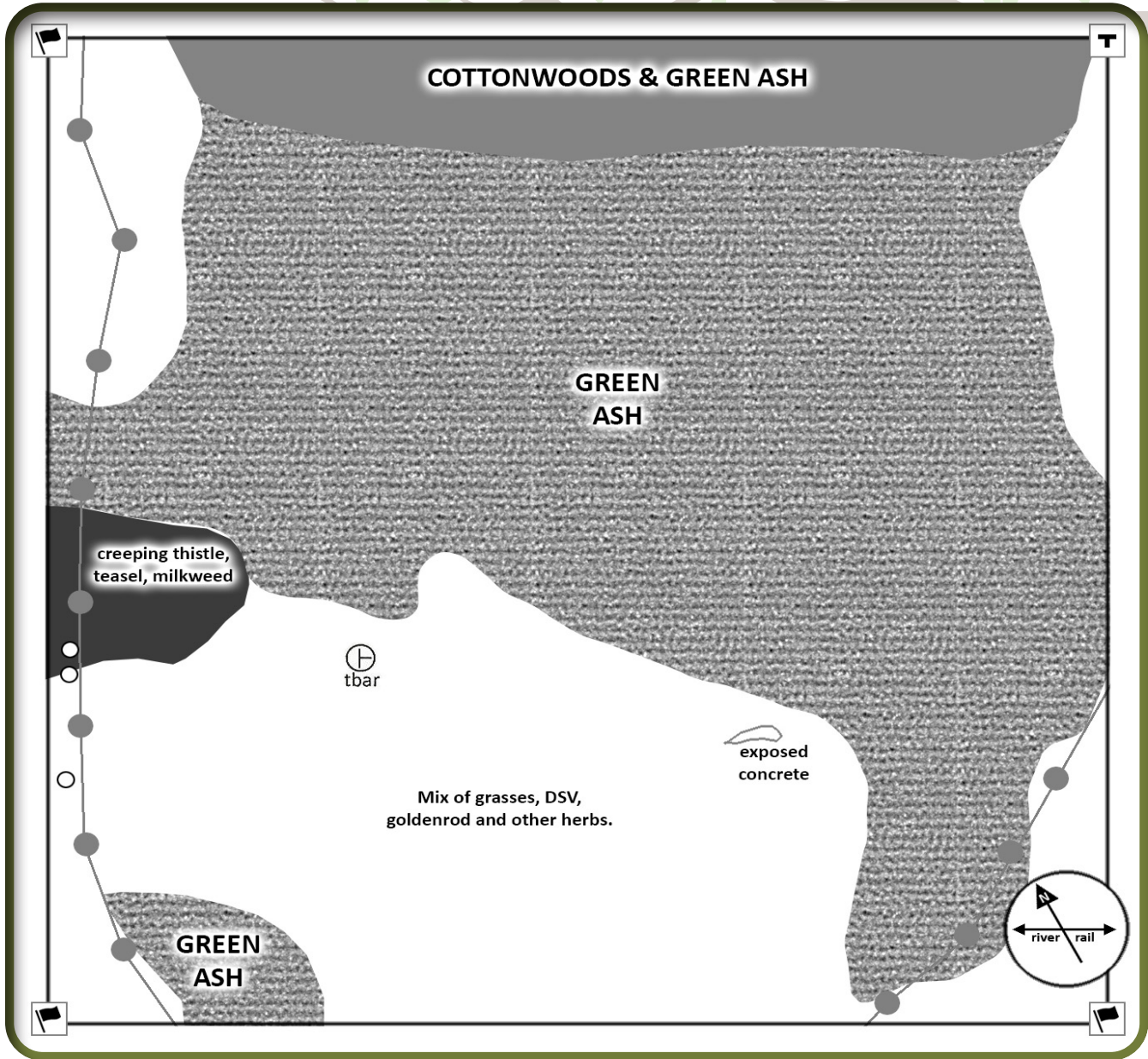


## PLOT 2



SCIENTIFIC NAME	COMMON NAME	COVER	NOTES
<i>Achillea millefolium</i>	Common yarrow	SD	Flowering: Veg2, MS5
<i>Agrostis gigantea</i>	Redtop grass	SD	
<i>Alliaria petiolata</i>	Garlic mustard	10 plants	Flowering: Veg2
<i>Asclepias syriaca</i>	Common milkweed	15 plants <sup>↑</sup>	Fruiting: Veg2, MS5
<i>Cirsium arvense</i>	Creeping thistle	5% <sup>↓</sup>	Flowering: Veg2, MS5
<i>Elymus repens</i>	Quack grass	SD	
<i>Festuca rubra</i>	Red fescue	30%	Fruiting: Veg2
<i>Hypericum perforatum</i>	St. John's wort	4 plants	Flowering: Veg2
<i>Linaria vulgaris</i>	Common toadflax (butter-and-eggs)	1 plant <sup>**</sup>	Flowering: Veg2
<i>Lolium perenne</i>	Perennial rye	SD	Flowering: Veg2
<i>Lotus corniculatus</i>	Birdsfoot trefoil	<1%	Flowering: Veg2, MS5
<i>Lythrum salicaria</i>	Purple loosestrife	1 plant <sup>**</sup>	
<i>Medicago lupulina</i>	Black medick	1 plant <sup>**</sup>	Flowering: Veg2
<i>Oenothera biennis</i>	Common evening primrose	1 plant	Flowering: Veg2
<i>Phalaris arundinacea</i>	Reed canary grass	<1% <sup>↑</sup>	
<i>Poa pratensis</i>	Kentucky bluegrass	SD <sup>↓</sup>	Seeding: Veg2, MS5
<i>Populus deltoides</i>	Eastern cottonwood	6.50%	Seeding: MS3
<i>Rhamnus cathartica</i>	European buckthorn	1 sapling	
<i>Securigera varia</i>	Crownvetch	50% <sup>↓</sup>	Flowering: Veg 2, MS5
<i>Solidago altissima</i>	Tall goldenrod	20% <sup>↑</sup>	Flowering: MS5
<i>Symphotrichum ericoides</i>	Heath aster	6 stems	
<i>Symphotrichum novae-angliae</i>	New England aster	5 stems <sup>↓</sup>	
<i>Tanacetum vulgare</i>	Tansy	<1% <sup>**</sup>	Flowering: Veg2, MS5; Seeding: MS5
<i>Vincetoxicum rossicum</i>	Dog-strangling vine	15% <sup>↑</sup>	Flowering: Veg2, MS5; Seeding: Veg2, MS5

# PLOT 3



## PLOT 3



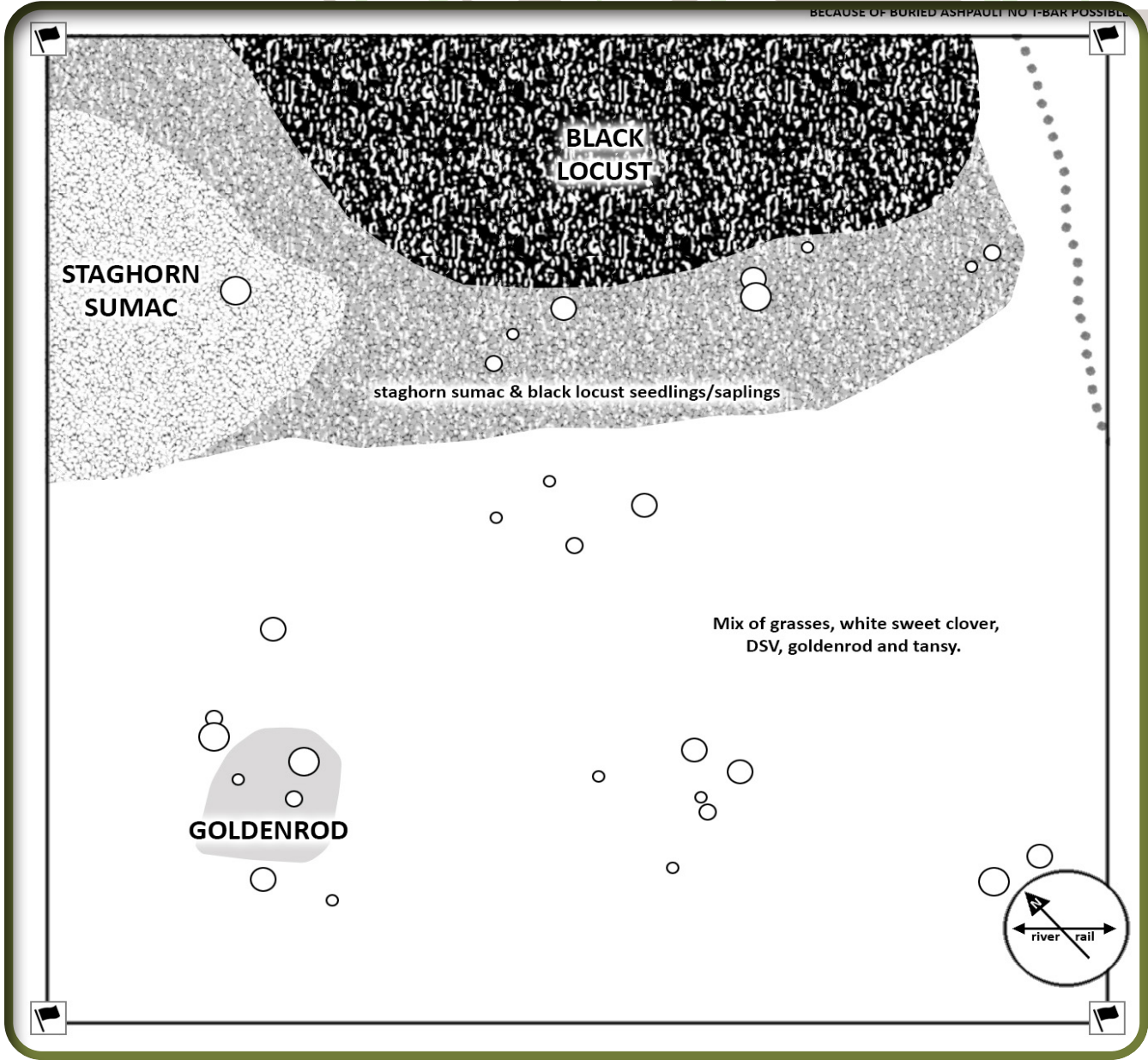
SCIENTIFIC NAME	COMMON NAME	COVER	NOTES
<i>Ambrosia artemisiifolia</i>	Ragweed	5 plants↑	
<i>Artemisia vulgaris</i>	Mugwort	10 plants	
<i>Asclepias syriaca</i>	Common milkweed	>30 plants↑	Fruiting: Veg2, MS5
<i>Barbarea vulgaris</i>	Yellow rocketcross	1 plant**	
<i>Bromus inermis</i>	Smooth brome grass	SD	
<i>Cardamine impatiens</i>	Balsam bittercross	15 plants↓	Seeding: Veg2
<i>Centaurea maculosa</i>	Spotted knapweed	<1%	Flowering: Veg 2, MS5
<i>Cirsium arvense</i>	Creeping thistle	5.00%	Flowering: Veg2, MS5
<i>Cirsium vulgare</i>	Bull thistle	2 plants↓	
<i>Daucus carota</i>	Queen Anne's Lace	SD↓	Flowering: Veg2, MS5
<i>Dipsacus sylvestris</i>	Fuller's teasel	10 plants↓	Flowering: Veg2
<i>Echium vulgare</i>	Viper's bugloss	NONE↓	Flowering: MS3, Veg2, MS5
<i>Elymus repens</i>	Quack grass	<1%	
<i>Festuca rubra</i>	Red fescue	DG	Fruiting: Veg2
<i>Fraxinus pennsylvanica</i>	Green ash	70.00%	Fruiting: Veg2
<i>Hypericum perforatum</i>	St. John's wort	2 plants	Flowering: Veg2
<i>Linaria vulgaris</i>	Common toadflax (butter-and-eggs)	3 plants**	Flowering: Veg2
<i>Lotus corniculatus</i>	Birdsfoot trefoil	4 plants	Flowering: Veg2, MS5
<i>Melilotus albus</i>	White sweet clover	NONE↓	Flowering: Veg2, MS5
<i>Oenothera biennis</i>	Common evening primrose	5 plants↑	Flowering: Veg2
<i>Poa pratensis</i>	Kentucky bluegrass	DG	Seeding: Veg2, MS5
<i>Populus deltoides</i>	Eastern cottonwood	15%↑	Seeding: MS3
<i>Rumex xcrispus</i>	Curly dock	NONE↓	
<i>Solidago altissima</i>	Tall goldenrod	10.00%	Flowering: MS5
<i>Solidago nemoralis</i>	Gray goldenrod	2 plants**	
<i>Tanacetum vulgare</i>	Tansy	<1%↓	Flowering: Veg2, MS5; Seeding: MS5
<i>Taraxacum officinale</i>	Common dandelion	ND	
<i>Verbascum thapsus</i>	Common mullein	3 plants**	Flowering: Veg2
<i>Vicia cracca</i>	Cow vetch	3 plants	Flowering: Veg2
<i>Vincetoxicum rossicum</i>	Dog-strangling vine	30%↑	Flowering: Veg2, MS5; Seeding: Veg2, MS5



# PLOT 4



BECAUSE OF BURIED ASPHALT NO T-BAR POSSIBLE

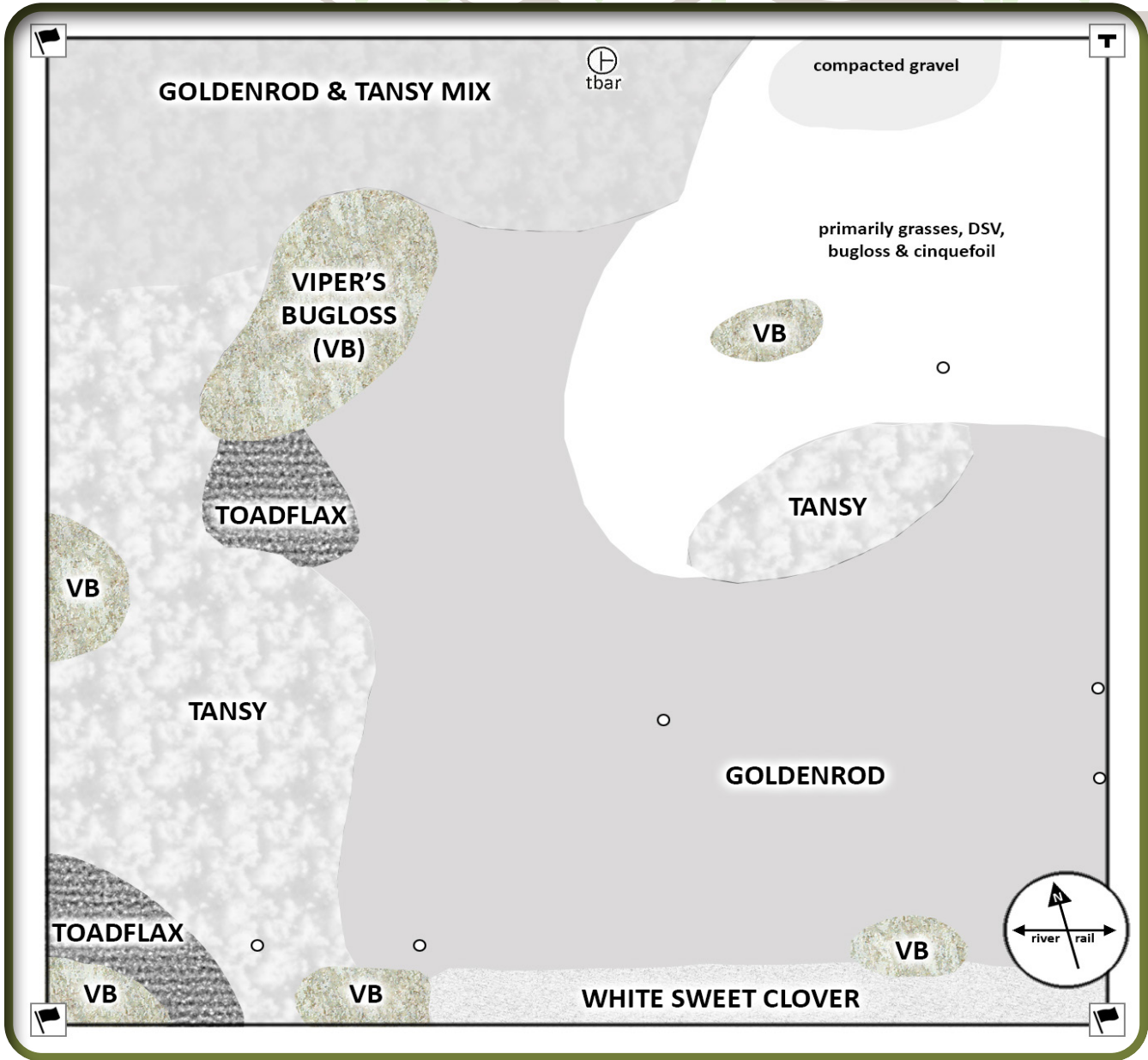


## PLOT 4



SCIENTIFIC NAME	COMMON NAME	COVER	NOTES
<i>Asclepias syriaca</i>	Common milkweed	5 plants↑	Fruiting: Veg2, MS5
<i>Cichorium intybus</i>	Chicory	<1%↓	Flowering: Veg2, MS5
<i>Cornus sericea</i>	Red osier dogwood	2 plants↓	
<i>Dactylis glomerata</i>	Orchard grass	SD	Flowering: Veg2
<i>Daucus carota</i>	Queen Anne's Lace	1%↓	Flowering: Veg2, MS5
<i>Dianthus armeria</i>	Deptford Pink	2 plants**	Flowering: Veg2
<i>Echium vulgare</i>	Viper's bugloss	SD↓	Flowering: MS3, Veg2, MS5
<i>Erigeron annuus</i>	Daisy fleabane	NONE↓	Flowering: MS3, Veg2
<i>Erigeron strigosus</i>	Rough fleabane	5 plants	Flowering: Veg2, MS5;
<i>Eryngium planum</i>	Sea holly	8 plants**	Flowering: Veg2, MS5;
<i>Festuca rubra</i>	Red fescue	DG	Fruiting: Veg2
<i>Hypericum perforatum</i>	St. John's wort	6 plants	Flowering: Veg2
<i>Juglans nigra</i>	Black walnut	7 seedlings↓	
<i>Linaria vulgaris</i>	Common toadflax (butter-and-eggs)	10 plants**	Flowering: Veg2
<i>Lotus corniculatus</i>	Birdsfoot trefoil	5 stems	Flowering: Veg2, MS5
<i>Medicago lupulina</i>	Black medick	5.00%	Flowering: Veg2
<i>Melilotus albus</i>	White sweet clover	25.00%	Flowering: Veg2, MS5
<i>Phleum pratense</i>	Timothy-grass	ND	
<i>Plantago lanceolata</i>	English plantain	SD	
<i>Poa compressa</i>	Flat-stemmed blue grass	16 plants	Fruiting: Veg2
<i>Poa pratensis</i>	Kentucky bluegrass	DG	Seeding: Veg2, MS5
<i>Populus deltoides</i>	Eastern cottonwood	50.00%	Seeding: MS3
<i>Rhamnus cathartica</i>	European buckthorn	10 seedlings/saplings↓	
<i>Rhus typhina</i>	Staghorn sumac	10.00%	Fruiting: Veg2, MS5
<i>Robinia pseudoacacia</i>	Black locust	30%↑	
<i>Solidago altissima</i>	Tall goldenrod	30.00%	Flowering: MS5
<i>Symphotrichum ericoides</i>	Heath aster	1 plant	
<i>Tanacetum vulgare</i>	Tansy	15.00%	Flowering: Veg2, MS5; Seeding: MS5
<i>Taraxacum officinale</i>	Common dandelion	10 plants	
<i>Vincetoxicum rossicum</i>	Dog-strangling vine	15.00%	Flowering: Veg2, MS5; Seeding: Veg2, MS5
<i>Vitis riparia</i>	Riverbank grape	1 plant	

# PLOT 5

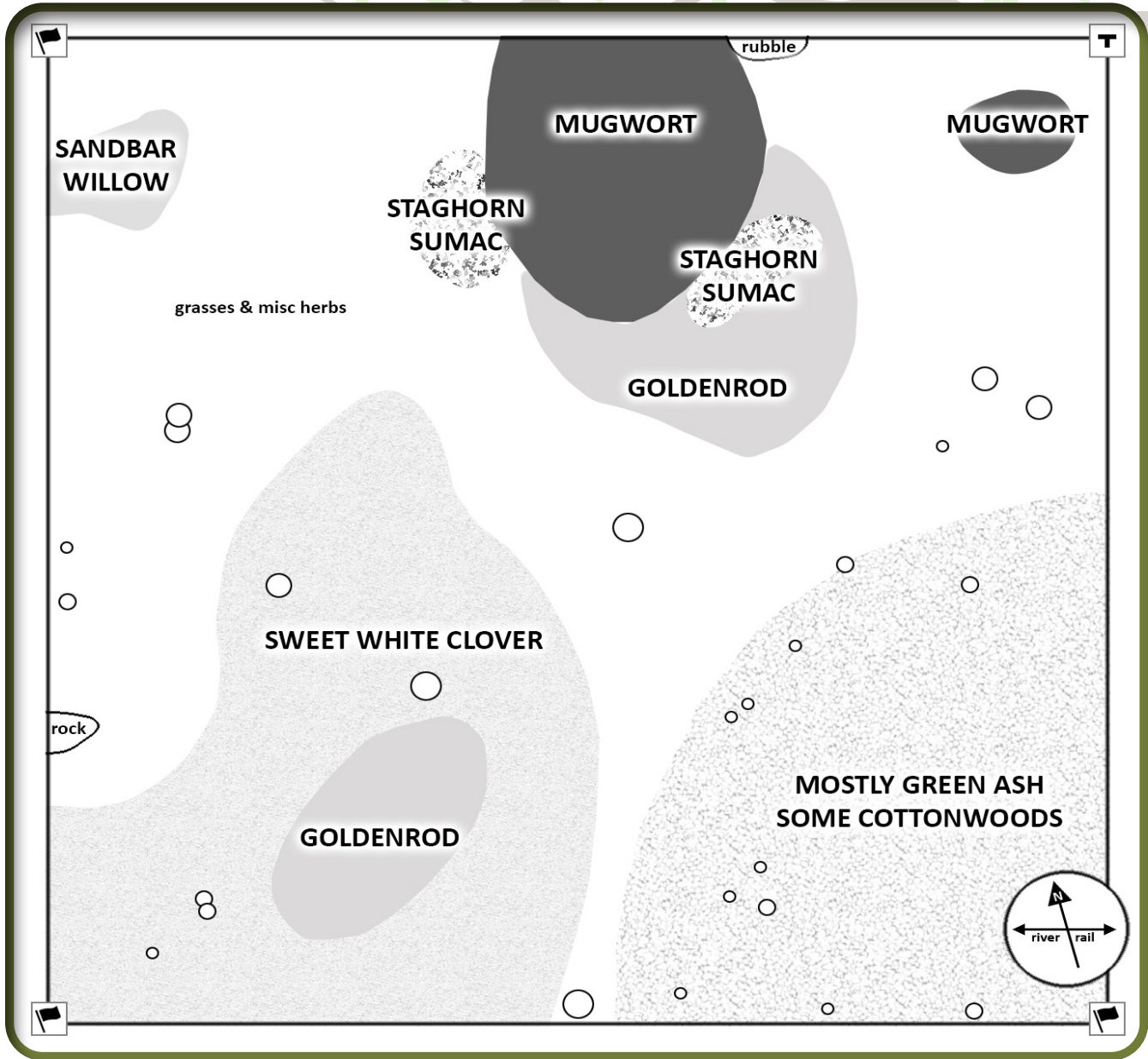


# PLOT 5



SCIENTIFIC NAME	COMMON NAME	COVER	NOTES
<i>Acer negundo</i>	Manitoba Maple	NONE↓	
<i>Achillea millefolium</i>	Common yarrow	SD	Flowering: Veg2, MS5
<i>Agrostis gigantea</i>	Redtop grass	SD	
<i>Arenaria serpyllifolia</i>	Thyme-leaved sandwort	SD	
<i>Asclepias syriaca</i>	Common milkweed	2 plants↓	Flowering: Veg2, MS5
<i>Daucus carota</i>	Queen Anne's Lace	2 stems	Flowering: Veg2, MS5
<i>Echium vulgare</i>	Viper's bugloss	6%↑	Flowering: MS3, Veg2, MS5
<i>Elymus repens</i>	Quack grass	SD	
<i>Erigeron annuus</i>	Daisy fleabane	<1%	Flowering: MS3, Veg2
<i>Eryngium planum</i>	Sea holly	NONE↓	Flowering: Veg2, MS5;
<i>Euphorbia vermiculata</i>	Hairy sandmat	NONE↓	
<i>Festuca rubra</i>	Red fescue	SD	Flowering: Veg2
<i>Fraxinus pennsylvanica</i>	Green ash	2 saplings↓	Flowering: Veg2
<i>Hieracium spp.</i>	Hawkweed	<1%↓	
<i>Hypericum perforatum</i>	St. John's wort	NONE↓	Flowering: Veg2
<i>Juglans nigra</i>	Black walnut	1 sapling↓	
<i>Lepidium campestre</i>	Field pepperwort	NONE↓	
<i>Linaria vulgaris</i>	Common toadflax (butter-and-eggs)	SD	Flowering: Veg2
<i>Lotus corniculatus</i>	Birdsfoot trefoil	NONE↓	Flowering: Veg2, MS5
<i>Malus pumila</i>	Apple tree	3 stems	
<i>Medicago lupulina</i>	Black medick	SD	Flowering: Veg2
<i>Melilotus albus</i>	White sweet clover	15%↓	Flowering: Veg2, MS5
<i>Morus alba</i>	White mulberry	1 seedling	
<i>Plantago lanceolata</i>	English plantain	SD	
<i>Poa compressa</i>	Flat-stemmed blue grass	SD	Flowering: Veg2
<i>Poa pratensis</i>	Kentucky bluegrass	DG	Seeding: Veg2, MS5
<i>Poa spp.</i>	Grass	SD	
<i>Potentilla arguta</i>	Tall cinquefoil	20 plants**	Flowering: Veg2
<i>Potentilla recta</i>	Sulphur cinquefoil	1.00%	Flowering: Veg2; Seeding: MS5
<i>Rhamnus cathartica</i>	European buckthorn	<1%↑	
<i>Rhus typhina</i>	Staghorn sumac	5 plants↑	Flowering: Veg2, MS5
<i>Rumex xcrispus</i>	Curly dock	NONE↓	
<i>Salix exigua</i>	Sandbar willow	15 stems	
<i>Silene latifolia</i>	White campion	SD↑	Flowering: Veg 2
<i>Solidago altissima</i>	Tall goldenrod	40%↑	Flowering: MS5
<i>Symphotrichum ericoides</i>	Heath aster	NONE↓	
<i>Symphotrichum novae-angliae</i>	New England aster	NONE↓	
<i>Tanacetum vulgare</i>	Tansy	25%↓	Flowering: Veg2, MS5; Seeding: MS5
<i>Taraxacum officinale</i>	Common dandelion	5 plants**	
<i>Tragopogon spp.</i>	Salsify	SD	
<i>Trifolium repens</i>	White Clover	1.00%	
<i>Verbascum thapsus</i>	Common mullein	1 plant↑	Flowering: Veg2
<i>Vincetoxicum rossicum</i>	Dog-strangling vine	8%	Flowering: Veg2, MS5; Seeding: Veg2, MS5
<i>Vitis riparia</i>	Riverbank grape	3 plants↑	

# PLOT 6

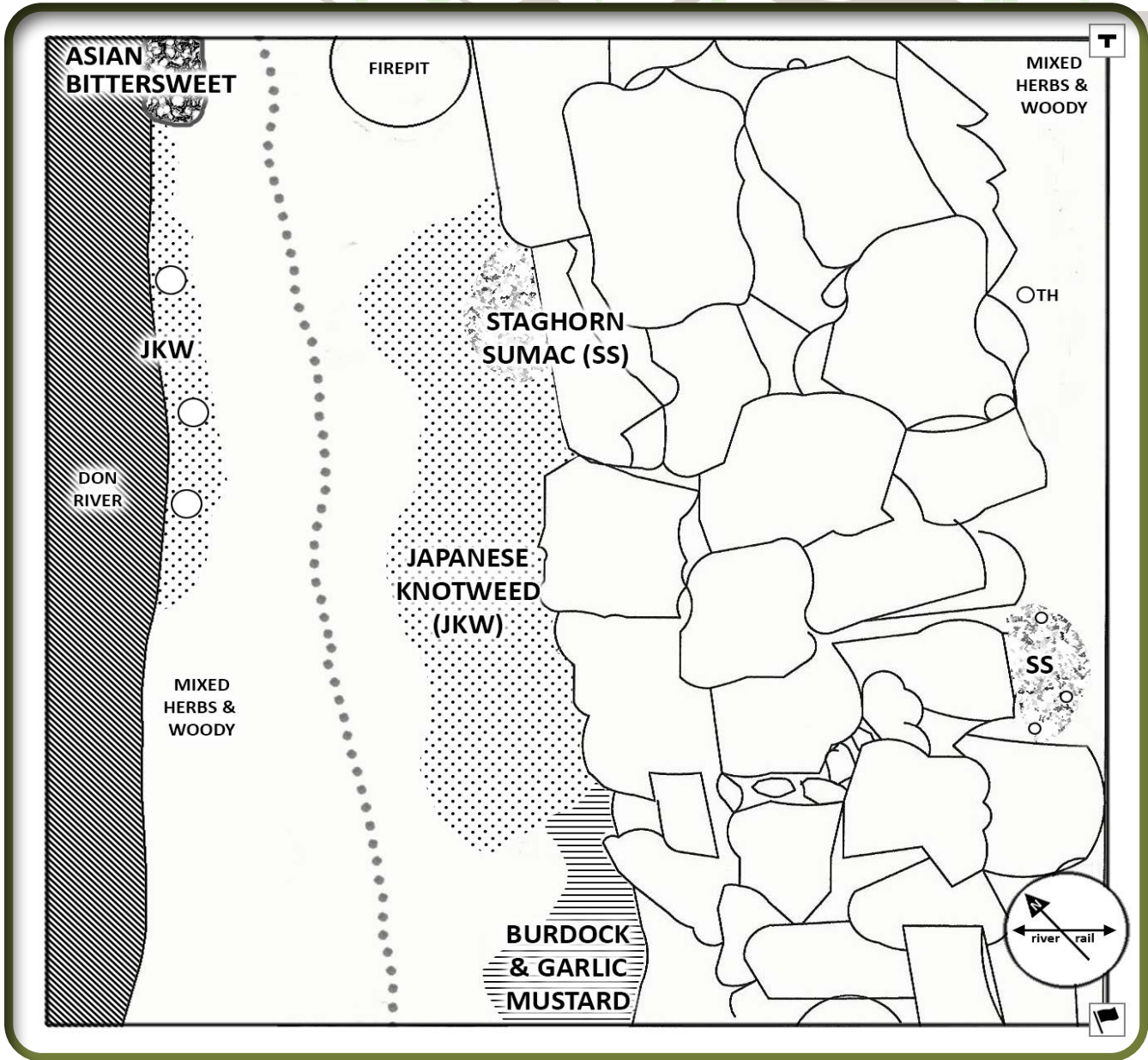


## PLOT 6



SCIENTIFIC NAME	COMMON NAME	COVER	NOTES
<i>Ambrosia artemisiifolia</i>	Ragweed	ND	
<i>Artemisia vulgaris</i>	Mugwort	5% ↑	
<i>Daucus carota</i>	Queen Anne's Lace	<1%	Flowering: Veg2, MS5
<i>Echium vulgare</i>	Viper's bugloss	ND	Flowering: MS3, Veg2, MS5
<i>Elymus repens</i>	Quack grass	ND	
<i>Erigeron annuus</i>	Daisy fleabane	NONE ↓	Flowering: MS3, Veg2
<i>Eryngium planum</i>	Sea holly	3 plants ↓	Flowering: Veg2, MS5;
<i>Festuca rubra</i>	Red fescue	ND**	Fruiting: Veg2
<i>Fraxinus pennsylvanica</i>	Green ash	20% ↑	Fruiting: Veg2
<i>Linaria vulgaris</i>	Common toadflax (butter-and-eggs)	ND	Flowering: Veg2
<i>Malva moschata</i>	Musk mallow	ND	
<i>Medicago lupulina</i>	Black medick	ND	Flowering: Veg2
<i>Melilotus albus</i>	White sweet clover	20.00%	Flowering: Veg2, MS5
<i>Poa pratensis</i>	Kentucky bluegrass	DG	Seeding: Veg2, MS5
<i>Populus deltoides</i>	Eastern cottonwood	40.00%	Seeding: MS3
<i>Potentilla recta</i>	Sulphur cinquefoil	ND	Flowering: Veg2; Seeding: MS5
<i>Rhus typhina</i>	Staghorn sumac	5% ↑	Fruiting: Veg2, MS5
<i>Salix exigua</i>	Sandbar willow	5.00%	
<i>Solidago altissima</i>	Tall goldenrod	15% ↓	Flowering: MS5
<i>Tanacetum vulgare</i>	Tansy	10.00%	Flowering: Veg2, MS5; Seeding: MS5
<i>Taraxacum officinale</i>	Common dandelion	ND	
<i>Vicia cracca</i>	Cow vetch	5 plants	Flowering: Veg2
<i>Vincetoxicum rossicum</i>	Dog-strangling vine	2% ↑	Flowering: Veg2, MS5; Seeding: Veg2, MS5
<i>Vitis riparia</i>	Riverbank grape	ND	

# PLOT 7



# PLOT 7



SCIENTIFIC NAME	COMMON NAME	COVER	NOTES
<i>Acer negundo</i>	Manitoba Maple	30.00%	
<i>Ailanthus altissima</i>	Tree of heaven	5 trees	
<i>Ageratina altissima</i>	White snakeroot	NONE↓	
<i>Alliaria petiolata</i>	Garlic mustard	15 plants	Flowering: Veg2
<i>Ambrosia artemisiifolia</i>	Ragweed	15 plants	
<i>Arctium minus</i>	Lesser burdock	3%↑	Flowering: Veg2; Seeding: MS5
<i>Artemisia vulgaris</i>	Mugwort	1 plant**	
<i>Bromus tectorum</i>	Downy chess	SD	
<i>Cardamine impatiens</i>	Balsam bittercress	NONE↓	Seeding: Veg2
<i>Celastrus orbiculatus</i>	Asian bittersweet	5.00%	
<i>Chenopodium album</i>	Lamb's quarters	SD	
<i>Cichorium intybus</i>	Chicory	NONE↓	Flowering: Veg2, MS5
<i>Cirsium arvense</i>	Creeping thistle	NONE↓	Flowering: Veg2, MS5
<i>Cirsium vulgare</i>	Bull thistle	NONE↓	
<i>Cornus alternifolia</i>	Alternate Dogwood	1 plant	
<i>Dactylis glomerata</i>	Orchard grass	ND	Flowering: Veg2
<i>Daucus carota</i>	Queen Anne's Lace	1.00%	Flowering: Veg2, MS5
<i>Echium vulgare</i>	Viper's bugloss	SD	Flowering: MS3, Veg2, MS5
<i>Elymus repens</i>	Quack grass	ND	
<i>Elymus riparius</i>	Riverbank wild rye	NONE↓	
<i>Elymus virginicus</i>	Virginia wild rye	NONE↓	
<i>Erigeron annuus</i>	Daisy fleabane	NONE↓	Flowering: MS3, Veg2
<i>Erigeron canadensis</i>	Horseweed	NONE↓	
<i>Erigeron strigosus</i>	Rough fleabane	NONE↓	Flowering: Veg2, MS5;
<i>Fallopia japonica</i>	Japanese knotweed	15%↑	
<i>Hesperis matronalis</i>	Dame's rocket	NONE↓	
<i>Lactuca serriola</i>	Prickly lettuce	NONE↓	
<i>Linaria vulgaris</i>	Common toadflax (butter-and-eggs)	SD	Flowering: Veg2
<i>Lolium perenne</i>	Perennial rye	SD	Flowering: Veg2
<i>Lycopus europaeus</i>	European bugleweed	NONE↓	
<i>Medicago lupulina</i>	Black medick	SD	Flowering: Veg2
<i>Melilotus albus</i>	White sweet clover	SD	Flowering: Veg2, MS5
<i>Morus alba</i>	White mulberry	1 seedling	
<i>Nepeta cataria</i>	Catnip	2.00%	
<i>Oenothera biennis</i>	Common evening primrose	NONE↓	Flowering: Veg2
<i>Oxalis stricta</i>	Yellow wood-sorrel	SD	
<i>Phalaris arundinacea</i>	Reed canary grass	SD	
<i>Phleum pratense</i>	Timothy-grass	SD	
<i>Plantago rugelii</i>	Red-stemmed plantain	SD	
<i>Poa compressa</i>	Flat-stemmed blue grass	SD	Fruiting: Veg2
<i>Poa nemoralis</i>	Wood bluegrass	NONE↓	

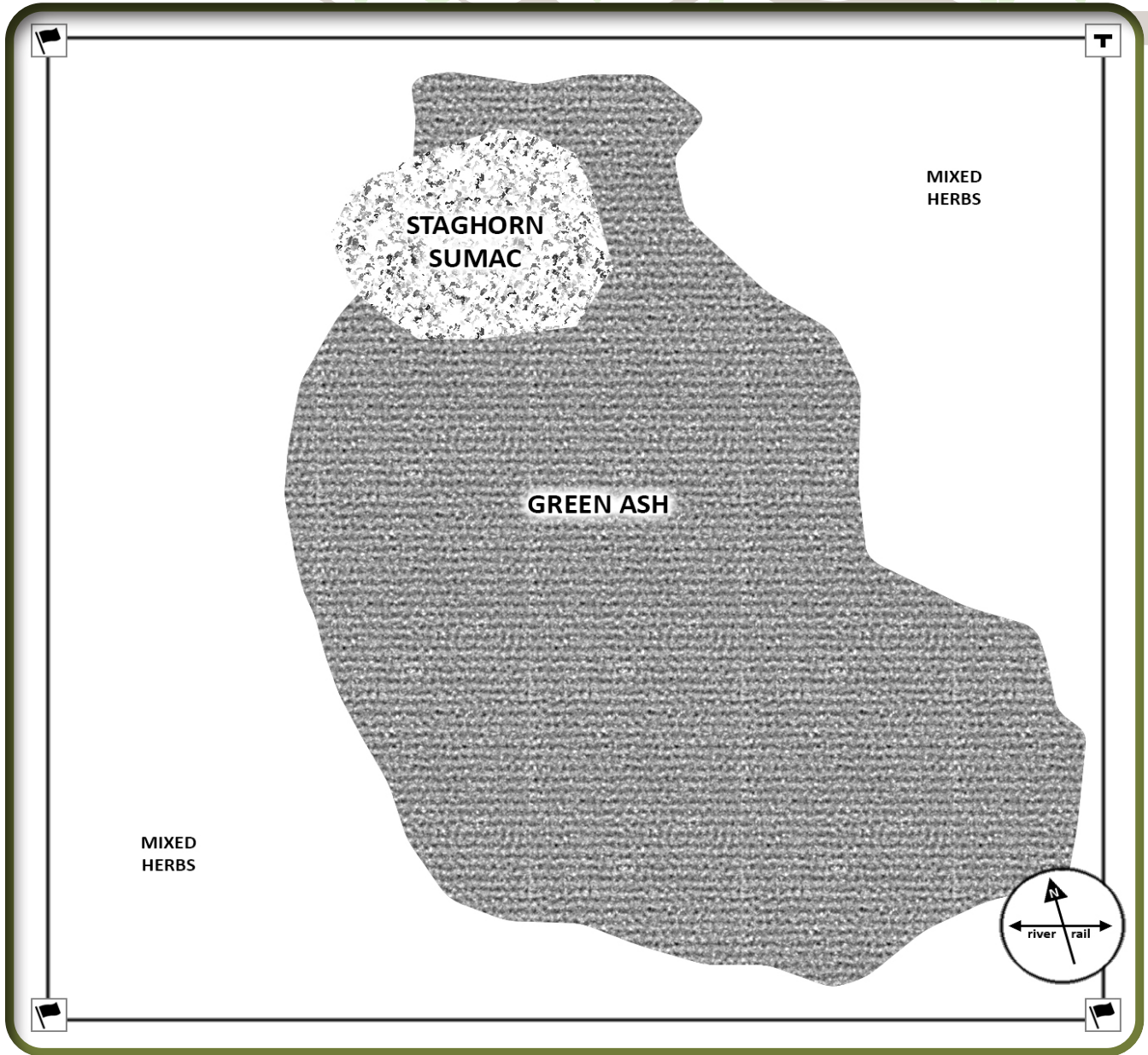


## PLOT 7 – Cont.



<i>Poa pratensis</i>	Kentucky bluegrass	SD	Seeding: Veg2, MS5
<i>Poa spp.</i>	Grass	SD	
<i>Polygonum persicaria</i>	Lady's-thumb	NONE↓	
<i>Potentilla recta</i>	Sulphur cinquefoil	ND	Flowering: Veg2; Seeding: MS5
<i>Prunus virginiana</i>	Chokecherry	SD	
<i>Ranunculus repens</i>	Creeping buttercup	SD	
<i>Rhamnus cathartica</i>	European buckthorn	6 trees	
<i>Rhus typhina</i>	Staghorn sumac	10.00%	Fruiting: Veg2, MS5
<i>Ribes rubrum</i>	Red currant	SD	Fruiting: MS5
<i>Rubus occidentalis</i>	Black raspberry	1 plant	
<i>Rubus odoratus</i>	Purple-flowering Raspberry	1 plant**	
<i>Rumex xcrispus</i>	Curly dock	3 plants	
<i>Saponaria officinalis</i>	Bouncing bet	SD	
<i>Silene latifolia</i>	White campion	10 plants	Flowering: Veg 2
<i>Solanum dulcamara</i>	Bittersweet nightshade	6 plants	Flowering: MS5
<i>Solidago altissima</i>	Tall goldenrod	5%↑	Flowering: MS5
<i>Sonchus oleraceus</i>	Annual sow-thistle	ND	
<i>Symphotrichum ericoides</i>	Heath aster	NONE↓	
<i>Symphotrichum lanceolatum</i>	Panicled aster	NONE↓	
<i>Tanacetum vulgare</i>	Tansy	30.00%	Flowering: Veg2, MS5; Seeding: MS5
<i>Taraxacum officinale</i>	Common dandelion	10 plants	
<i>Thlaspi arvense</i>	Field penny-cress	NONE↓	
<i>Torilis japonica</i>	Japanese hedge parsley	10 plants	
<i>Trifolium repens</i>	White Clover	ND	
<i>Verbascum thapsus</i>	Common mullein	3 plants↓	Flowering: Veg2
<i>Verbena urticifolia</i>	White vervain	SD	
<i>Vincetoxicum rossicum</i>	Dog-strangling vine	8.00%	Flowering: Veg2, MS5; Seeding: Veg2, MS5
<i>Vitis riparia</i>	Riverbank grape	15 plants	

# PLOT 8

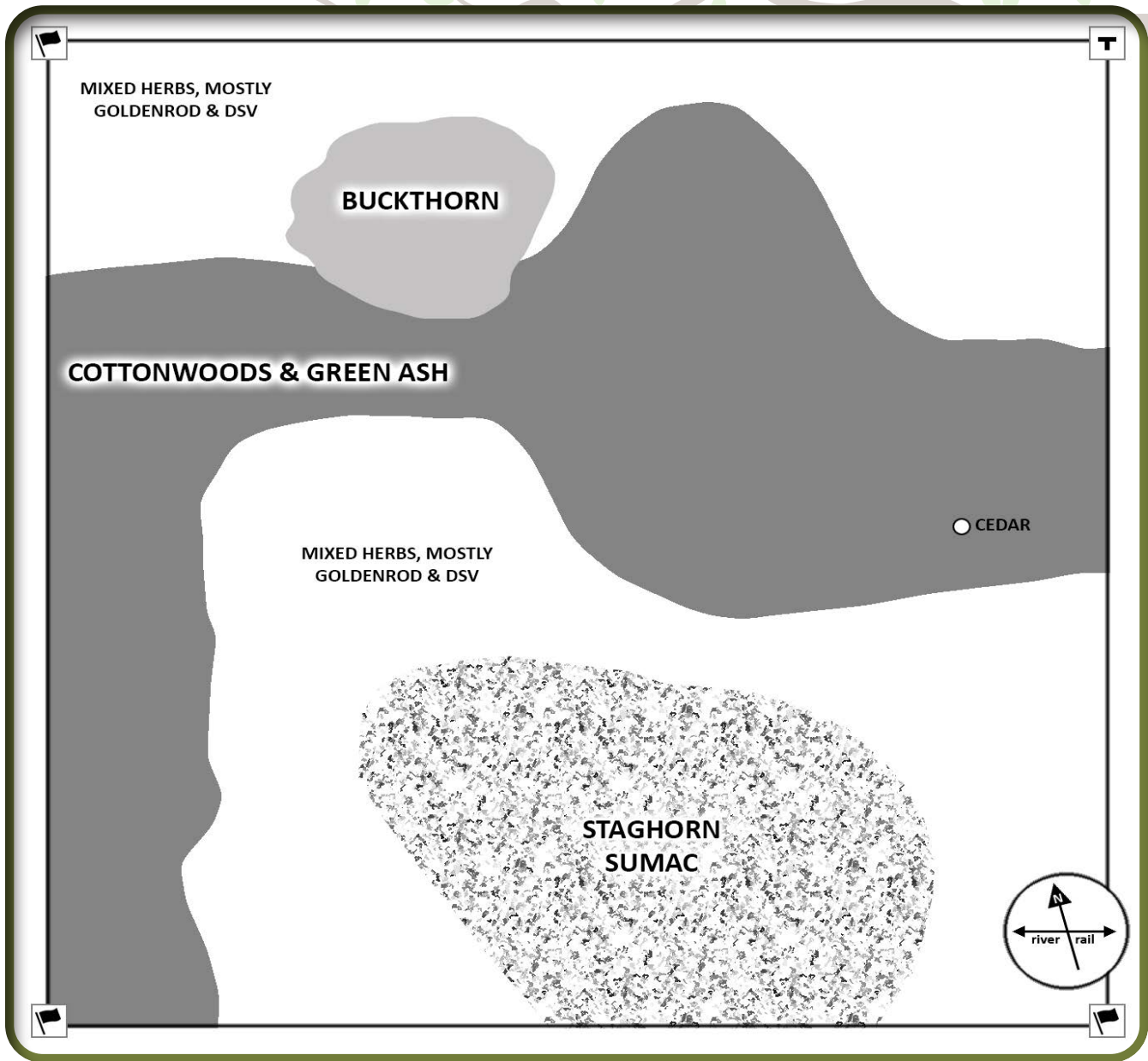


## PLOT 8



SCIENTIFIC NAME	COMMON NAME	COVER	NOTES
<i>Achillea millefolium</i>	Common yarrow	2.00%	Flowering: Veg2, MS5
<i>Ambrosia artemisiifolia</i>	Ragweed	2 plants	
<i>Asclepias syriaca</i>	Common milkweed	1 plant **	Fruiting: Veg2, MS5
<i>Bassia scoparia</i>	Summer cypress	5 plants	
<i>Centaurea maculosa</i>	Spotted knapweed	5.00%	Flowering: Veg 2, MS5
<i>Cichorium intybus</i>	Chicory	4 plants↑	Flowering: Veg2, MS5
<i>Daucus carota</i>	Queen Anne's Lace	3 plants	Flowering: Veg2, MS5
<i>Echium vulgare</i>	Viper's bugloss	ND	Flowering: MS3, Veg2, MS5
<i>Erigeron annuus</i>	Daisy fleabane	SD	Flowering: MS3, Veg2
<i>Eryngium planum</i>	Sea holly	1 plant↑	Flowering: Veg2, MS5;
<i>Fraxinus pennsylvanica</i>	Green ash	25%↑	Fruiting: Veg2
<i>Hypericum perforatum</i>	St. John's wort	NONE↓	Flowering: Veg2
<i>Juglans nigra</i>	Black walnut	4 seedlings**	
<i>Linaria vulgaris</i>	Common toadflax (butter-and-eggs)	2 plants	Flowering: Veg2
<i>Lotus corniculatus</i>	Birdsfoot trefoil	1 clump↓	Flowering: Veg2, MS5
<i>Medicago lupulina</i>	Black medick	ND	Flowering: Veg2
<i>Melilotus albus</i>	White sweet clover	1.00%	Flowering: Veg2, MS5
<i>Phalaris arundinacea</i>	Reed canary grass	1.00%	
<i>Poa spp.</i>	Grass	DG	
<i>Potentilla recta</i>	Sulphur cinquefoil	20 plants↑	Flowering: Veg2; Seeding: MS5
<i>Quercus rubra</i>	Red oak	1 sapling	
<i>Rhamnus cathartica</i>	European buckthorn	1 seedling**	
<i>Rhus typhina</i>	Staghorn sumac	8%↑	Fruiting: Veg2, MS5
<i>Rumex xcrispus</i>	Curly dock	NONE↓	
<i>Schizachyrium scoparium</i>	Little bluestem	3 plants**	
<i>Solidago altissima</i>	Tall goldenrod	20.00%	Flowering: MS5
<i>Symphotrichum ericoides</i>	Heath aster	NONE↓	
<i>Tanacetum vulgare</i>	Tansy	15.00%	Flowering: Veg2, MS5; Seeding: MS5
<i>Verbascum thapsus</i>	Common mullein	3 plants**	Flowering: Veg2
<i>Vicia cracca</i>	Cow vetch	NONE↓	Flowering: Veg2
<i>Vincetoxicum rossicum</i>	Dog-strangling vine	15%	Flowering: Veg2, MS5; Seeding: Veg2, MS5

# PLOT 9

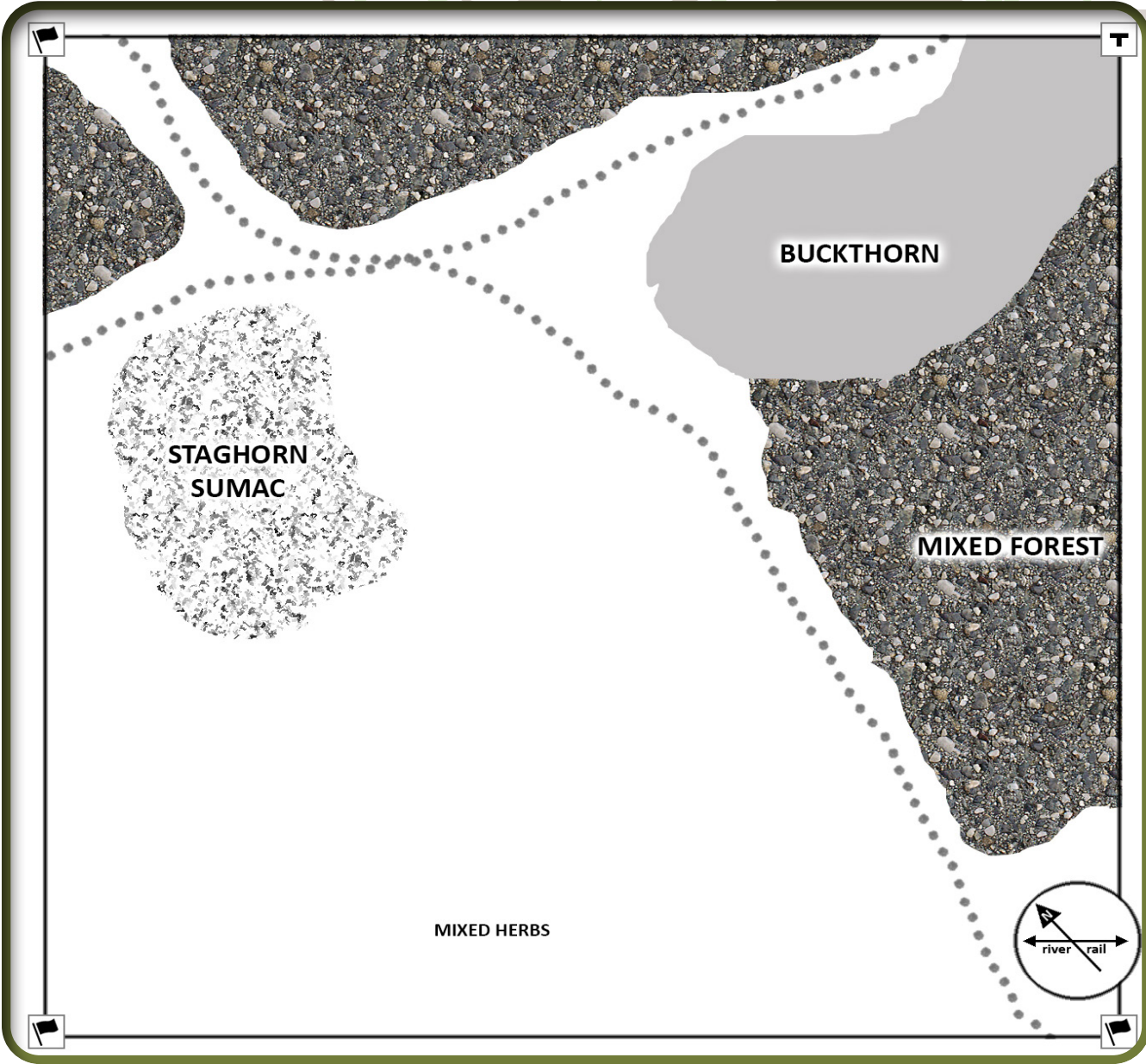


## PLOT 9



SCIENTIFIC NAME	COMMON NAME	COVER	NOTES
<i>Acer negundo</i>	Manitoba Maple	1 tree	
<i>Ambrosia artemisiifolia</i>	Ragweed	3 plants↑	
<i>Asclepias syriaca</i>	Common milkweed	2 plants	Fruiting: Veg2, MS5
<i>Campanula rapunculoides</i>	Creeping bellflower	NONE↓	
<i>Cirsium vulgare</i>	Bull thistle	NONE↓	
<i>Daucus carota</i>	Queen Anne's Lace	1.00%	Flowering: Veg2, MS5
<i>Fraxinus pennsylvanica</i>	Green ash	5.00%	Fruiting: Veg2
<i>Hypericum perforatum</i>	St. John's wort	NONE↓	Flowering: Veg2
<i>Juglans nigra</i>	Black walnut	3 seedlings	
<i>Juniperus virginiana</i>	Eastern red cedar	1 tree	
<i>Linaria vulgaris</i>	Common toadflax (butter-and-eggs)	ND	Flowering: Veg2
<i>Medicago lupulina</i>	Black medick	3%↑	Flowering: Veg2
<i>Melilotus albus</i>	White sweet clover	5.00%	Flowering: Veg2, MS5
<i>Poa spp.</i>	Grass	5.00%	
<i>Populus deltoides</i>	Eastern cottonwood	60%↑	Seeding: MS3
<i>Potentilla recta</i>	Sulphur cinquefoil	8 plants	Flowering: Veg2; Seeding: MS5
<i>Rhamnus cathartica</i>	European buckthorn	10%↑	
<i>Rhus typhina</i>	Staghorn sumac	15%↑	Fruiting: Veg2, MS5
<i>Robinia pseudoacacia</i>	Black locust	4 seedlings	
<i>Solidago altissima</i>	Tall goldenrod	40%↑	Flowering: MS5
<i>Symphotrichum ericoides</i>	Heath aster	NONE↓	
<i>Tanacetum vulgare</i>	Tansy	10%↓	Flowering: Veg2, MS5; Seeding: MS5
<i>Taraxacum officinale</i>	Common dandelion	NONE↓	
<i>Ulmus pumila</i>	Siberian elm	8 trees/saps	
<i>Vincetoxicum rossicum</i>	Dog-strangling vine	20.00%	Flowering: Veg2, MS5; Seeding: Veg2, MS5
<i>Vitis riparia</i>	Riverbank grape	2 plants↓	

PLOT 10



# PLOT 10



SCIENTIFIC NAME	COMMON NAME	COVER	NOTES
<a href="#">Acer negundo</a>	Manitoba Maple	<1%	
<a href="#">Alliaria petiolata</a>	Garlic mustard	NONE↓	Flowering: Veg2
<a href="#">Ambrosia artemisiifolia</a>	Ragweed	20 plants**	
<a href="#">Arctium minus</a>	Lesser burdock	NONE↓	Flowering: Veg2; Seeding: MS5
<a href="#">Bassia scoparia</a>	Summer cypress	1 plant	
<a href="#">Cichorium intybus</a>	Chicory	1.00%	Flowering: Veg2, MS5
<a href="#">Cirsium arvense</a>	Creeping thistle	NONE↓	Flowering: Veg2, MS5
<a href="#">Cirsium vulgare</a>	Bull thistle	NONE↓	
<a href="#">Daucus carota</a>	Queen Anne's Lace	1.00%	Flowering: Veg2, MS5
<a href="#">Dianthus armeria</a>	Deptford Pink	NONE↓	Flowering: Veg2
<a href="#">Echium vulgare</a>	Viper's bugloss	NONE↓	Flowering: MS3, Veg2, MS5
<a href="#">Erigeron strigosus</a>	<b>Rough fleabane</b>	1.00%	Flowering: Veg2, MS5;
<a href="#">Fraxinus pennsylvanica</a>	Green ash	5.00%	Fruiting: Veg2
<a href="#">Hypericum perforatum</a>	St. John's wort	NONE↓	Flowering: Veg2
<a href="#">Juglans nigra</a>	Black walnut	3 seedlings↓	
<a href="#">Juncus tenuis</a>	Slender rush	20 plants**	
<a href="#">Linaria vulgaris</a>	Common toadflax (butter-and-eggs)	NONE↓	Flowering: Veg2
<a href="#">Lonicera tatarica</a>	Tatarian honeysuckle	1 plant↓	
<a href="#">Malus pumila</a>	Apple tree	1 stem	
<a href="#">Medicago lupulina</a>	Black medick	2.00%	Flowering: Veg2
<a href="#">Melilotus albus</a>	White sweet clover	<1%	Flowering: Veg2, MS5
<a href="#">Nepeta cataria</a>	Catnip	NONE↓	
<a href="#">Phleum pratense</a>	Timothy-grass	<1%↓	
<a href="#">Pinus austrian</a>	Austrian pine	NONE↓	
<a href="#">Poa pratensis</a>	Kentucky bluegrass	10.00%	Seeding: Veg2, MS5
<a href="#">Populus deltoides</a>	Eastern cottonwood	10%↑	Seeding: MS3
<a href="#">Rhamnus cathartica</a>	European buckthorn	25%↑	
<a href="#">Rhus typhina</a>	Staghorn sumac	15%↑	Fruiting: Veg2, MS5
<a href="#">Rubus occidentalis</a>	Black raspberry	1 plant	
<a href="#">Securigera varia</a>	Crownvetch	12%↑	Flowering: Veg 2, MS5
<a href="#">Silene latifolia</a>	White campion	2 plants	Flowering: Veg 2
<a href="#">Solidago altissima</a>	Tall goldenrod	5.00%	Flowering: MS5
<a href="#">Symphyotrichum novae-angliae</a>	New England aster	NONE↓	
<a href="#">Tanacetum vulgare</a>	Tansy	10%↓	Flowering: Veg2, MS5; Seeding: MS5
<a href="#">Taraxacum officinale</a>	Common dandelion	30 plants	
<a href="#">Torilis japonica</a>	Japanese hedge parsley	NONE↓	
<a href="#">Trifolium repens</a>	White Clover	NONE↓	
<a href="#">Vincetoxicum rossicum</a>	Dog-strangling vine	40%↑	Flowering: Veg2, MS5; Seeding: Veg2, MS5
<a href="#">Vitis riparia</a>	Riverbank grape	3 plants	

## COMPLETE DATA SET (ALL PLOTS)

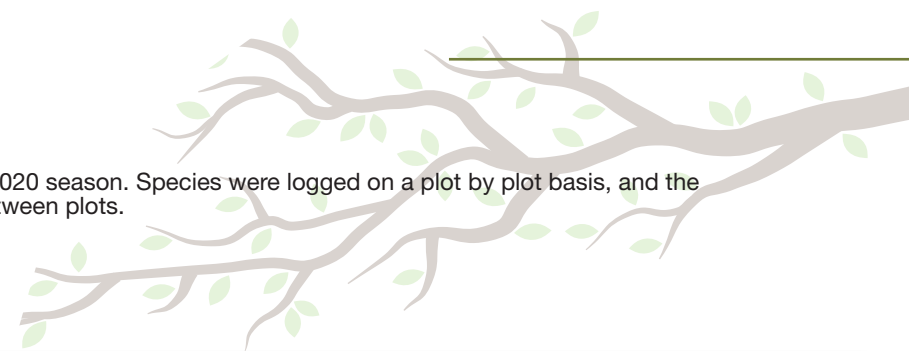


To facilitate robust use of data, a spreadsheet of all observations (flora & fauna) was delivered to NECP along with this report. For ease of use, this data set is maintained by Toronto Field Naturalists at the following URL:

<https://tfngo.to/cfmp-2021-data>

Should readers require a copy of this spreadsheet please contact [cfmp@torontofieldnaturalists.org](mailto:cfmp@torontofieldnaturalists.org).





## APPENDIX B: COMPILED FAUNA DATA

Data presented in this section has been compiled from all fauna logs submitted during the 2020 season. Species were logged on a plot by plot basis, and the possibility exists that the same animal may have been logged multiple times as it moved between plots.

### COMPLETE DATA SET (ALL PLOTS)

SCIENTIFIC NAME	COMMON NAME	PLOT 1	PLOT 2	PLOT 3	PLOT 4	PLOT 5	PLOT 6	PLOT 7	PLOT 8	PLOT 9	PLOT 10	CIRCLE
<i>Agelaius phoeniceus</i>	Red-winged blackbird							1				
<i>Cardinalis cardinalis</i>	Northern cardinal						2				1	
<i>Colias philodice</i>	Common sulphur butterfly				1							
<i>Cyanocitta cristata</i>	Blue jay		1							1		
<i>Danaus plexippus</i>	Monarch butterfly	5	4		3	3	3					
<i>Dumetella carolinensis</i>	Grey Catbird	1										
<i>Euphyes vestris</i> **	Dun Skipper butterfly		1				2					
<i>Larus delawarensis</i>	Ring-billed gull							1				
<i>Melospiza melodia</i>	Song sparrow	1				1		3			3	
<i>Pieris rapae</i>	Cabbage white butterfly	3	3	1	2	2	11					
<i>Poecile atricapillus</i>	Black-capped chickadee							1				
<i>Regulus spp.</i>	Kinglet			1				6				
<i>Setophaga petechia</i>	Yellow warbler		1		1						1	
<i>Sialia sialis</i>	Eastern bluebird		2									
<i>Spinus tristis</i>	American goldfinch	1			3		2	9	1	1	1	1
<i>Sturnus vulgaris</i>	European starling			1			1					2
<i>Tachycineta bicolor</i>	Tree swallow							2				
<i>Turdus migratorius</i>	American Robin		1		1		1	5	3	2	1	4

## APPENDIX B: COMPILED FAUNA DATA CONTINUED



### COMPLETE DATA SET (BY DATE)

SCIENTIFIC NAME	COMMON NAME	MS3	MS4	VEG2	MS5
<i>Agelaius phoeniceus</i>	Red-winged blackbird	1			
<i>Cardinalis cardinalis</i>	Northern cardinal		1	2	
<i>Colias philodice</i>	Common sulphur butterfly			1	
<i>Cyanocitta cristata</i>	Blue jay		1		1
<i>Danaus plexippus</i>	Monarch butterfly			18	
<i>Dumetella carolinensis</i>	Grey Catbird			1	
<i>Euphyes vestris</i> **	Dun Skipper butterfly			3	
<i>Larus delawarensis</i>	Ring-billed gull		1		
<i>Melospiza melodia</i>	Song sparrow	1	2	5	
<i>Pieris rapae</i>	Cabbage white butterfly			22	
<i>Poecile atricapillus</i>	Black-capped chickadee		1		
<i>Regulus spp.</i>	Kinglet				7
<i>Setophaga petechia</i>	Yellow warbler	2		1	
<i>Sialia sialis</i>	Eastern bluebird				2
<i>Spinus tristis</i>	American goldfinch		9	8	
<i>Sturnus vulgaris</i>	European starling	2			2
<i>Tachycineta bicolor</i>	Tree swallow			2	
<i>Turdus migratorius</i>	American Robin	8		1	9

## APPENDIX C: HUMAN USE DATA

Human use data was collected by the CFMP Site Ambassador and reflects observations recorded along the trail that connects the Lower Don Recreational Trail to Sun Valley / Crothers Woods. Individuals and/or dogs may have been counted more than once if they made a return journey and the Site Ambassador did not recognize them.

SIGHTING	MS1	MS2	MS3	VEG2	MS4	MS5
Person, on foot	N/A	N/A	*	142	*	121
Person, on bike	N/A	N/A	*	29	*	17
Dog, on leash	N/A	N/A	*	23	*	22
Dog, off leash	N/A	N/A	*	22	*	17

\* Data not collected (no ambassador)

## APPENDIX D: ASSESSMENT AND SESSION NOTES

Note: in previous years, CFMP protocol used 6 Monitoring Sessions & 2 Vegetation Assessments. This protocol was adjusted for 2021 to eliminate the first Monitoring Session & first Vegetation Assessment of the year, as recommended in the CFMP 2020 Report.

### MS1: MONITORING SESSION #1

Scheduled for April 27, 7:00am to 9:00am, this session was cancelled due to COVID-19 restrictions.

### MS2: MONITORING SESSION #2

Scheduled for May 16, 10:00am to 12:00pm, this session was cancelled due to COVID-19 restrictions.

### MS3: MONITORING SESSION #3

Date	Jun 13, 10:00am – 12:00pm
Temperature	16°C to 19°C
Beaufort Sky Code	1 (partly cloudy)
Beaufort Wind Code	1 (light); S/SW
Flora ID	Charles Bruce-Thompson, Leila Forsyth
Fauna ID	Anne Powell
Photographer	Andrew Interisano
Site Ambassador	<i>Volunteer unavailable</i>
Other participants	
Administrator	Charles Bruce-Thompson

## VEG2: VEGETATION ASSESSMENT

Date	July 25, 10:00am – 2:00pm
Temperature	26°C to 30°C
Beaufort Sky Code	2 (continuous cloud)
Beaufort Wind Code	2 (light breeze) to 3 (gentle breeze); S
Flora ID	Stephen Smith, Nancy Dengler, Leila Forsyth
Fauna ID	Latchin Poon
Photographer	Jason Ramsay-Brown
Site Ambassador	Nina Hunt
Other participants	Rosemary Warren, Katherine Parks
Administrator	Charles Bruce-Thompson

## MS4: MONITORING SESSION #4

Date	Aug 21, 10:00am – 12:00pm
Temperature	27°C
Beaufort Sky Code	1 (partly cloudy)
Beaufort Wind Code	2 (light breeze); NE
Flora ID	Rosemary Warren, Katherine Parks
Fauna ID	Latchin Poon
Photographer	Charles Bruce-Thompson
Site Ambassador	<i>Volunteer unavailable</i>
Other participants	
Administrator	Charles Bruce-Thompson

## MS5: MONITORING SESSION #5

Date	October 17, 10:00am – 12:00pm
Temperature	14°C to 18°C
Beaufort Sky Code	1 (partly cloudy)
Beaufort Wind Code	1 (light); S/SW
Flora ID	Lillian Natalizio, Sabrina Adamski, Charles Bruce-Thompson
Fauna ID	Anne Powell
Photographer	David Wallace Barr
Site Ambassador	Anna Waldvogel
Other participants	
Administrator	Charles Bruce-Thompson