



Whetstone Prairie Five Year Plan

2023-2027

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1. Introduction

Columbus Recreation and Parks Department manages over 13,900 acres of parkland, totaling over 400 parks. Columbus parkland encompasses many diverse ecosystems such as wetland and vernal pools, shoreline and riparian habitats, forest areas, nature preserves and pollinator habitats. We currently manage 36 pollinator habitats, which includes the Whetstone prairie.

Our Mission: We connect the people of our community through the power of nature, wellness and creativity.

1.1 Management Plan Purpose

To support the biodiversity and quality habitat of Whetstone prairie through sustainable, long-term management. The plan reviews past management practices, sets new key performance indicators to meet objectives, and outlines a maintenance schedule. Updates will be added yearly.

1.2 Supporting Documents

Whetstone Five Year Plan (2018-2022)

Pollinator Habitat Guidelines

Volunteer Pollinator Monitoring Documentation Protocol

Integrated Pest Management Policy

2. Location Context and History

2.1 Location Context

Whetstone Park, Franklin County Parcel ID #010-071202 located in Clintonville, Columbus, Ohio is an approximately 148-acre urban park located off of High Street on Hollenback Road. Most of the property was purchased by the City of Columbus in 1944, and Whetstone Park opened in 1950. The park is developed for passive and active recreational use. There is significant acreage of forest, most of which is the riparian corridor of the Olentangy River. The park is bisected by Adena Brook, a tributary of the Olentangy River.

Whetstone Park includes a 3.67-acre prairie that serves as a pollinator and wildlife habitat. The prairie is located in the floodplain of the Olentangy River and is adjacent to the Olentangy multi-use trail to the west, south, and north. Adena Brook is immediately to the north of the prairie, and the Olentangy River is to the west.

2.2 History and Past Management

The prairie was previously maintained as an open field since at least the 1990s, according to aerial imagery. In 2007, Columbus Recreation and Parks Department (CRPD) arranged for a prescribed burn of the area with the help of the Columbus Fire Department. In 2010 the prairie was burned again, this time with the help of the Columbus and Franklin County Metro Parks (Metro Parks). In the past thirteen years, the prairie has not been burned. Reseeding and planting of native prairie species has occurred on several occasions, and the prairie has been mowed yearly. Partner

organizations such as the Wild Ones and the Whetstone Prairie Stewards helped maintain the prairie in the past.

In 2018, a five-year plan for Whetstone Prairie was developed to restore the previous prairie. At the time, the prairie encompassed 4.5 acres but was reduced to 3.67 acres. One area was returned to forest in 2018, as part of the last five-year plan to reduce maintenance needs and to allow for succession to occur. The 2018 plan incorporated community feedback obtained through the Clintonville Area Commission. Refer to the 2018-2022 Whetstone Prairie Management Plan (the 2018-2022 Plan) for previous conditions and specific outcomes. The 2018-2022 Plan described the past management of the prairie, objectives, key performance indicators and a five-year maintenance plan. By implementing the 2018-2022 Plan, CRPD was able to increase native plant diversity, disturb the prairie to prevent the area from succeeding to a forest by mowing, and encouraged the establishment of depressional palustrine emergent (PEM) wetlands, as shown in Table 1.

Table 1. 2018-2022 Outcomes

2018-2022 Key Performance Indicators	Outcomes
Reduced occurrence of woody plants.	INCOMPLETE: From 2017 to 2022, number of woody plant species increased from 15 to 16.
Reduced occurrence of invasive woody species (Amur honeysuckle, Callery pear, Tree-of-Heaven).	INCOMPLETE: From 2017 to 2022, the number of woody invasive plant species increased from two (2) to three (3).
Reduced occurrence of invasive herbaceous species.	INCOMPLETE: From 2017 to 2022, the percentage of invasive herbaceous species slightly increased as a share of the overall total species from 20% to 21%. However, the percentage of native species increased from 45% to 64%.
Prescribed burn conducted every 3 years.	INCOMPLETE: Prescribed burns were not conducted.
Mow vegetation every 3 years.	MET: Mowing occurred every year from 2018-2022 to maintain prairie disturbance.
Increased native plant diversity.	MET: Number of native plant species from 2017 to 2022 increased from 20 to 76—an increase of 280%.
Encouraged establishment of PEM wetlands in the prairie as determined through wetland delineation procedures.	MET: In 2020, wetland determination data forms were completed for suspected PEM wet meadow in Areas 2 and 6, which determined these areas to be developing wetlands. Hydric soil indicators were projected to develop in a few years; these were observed in 2022. Acreage of wetlands also increased. See 2023 Whetstone Map. Since 2020, these wetlands have been flagged so that they are not mowed.

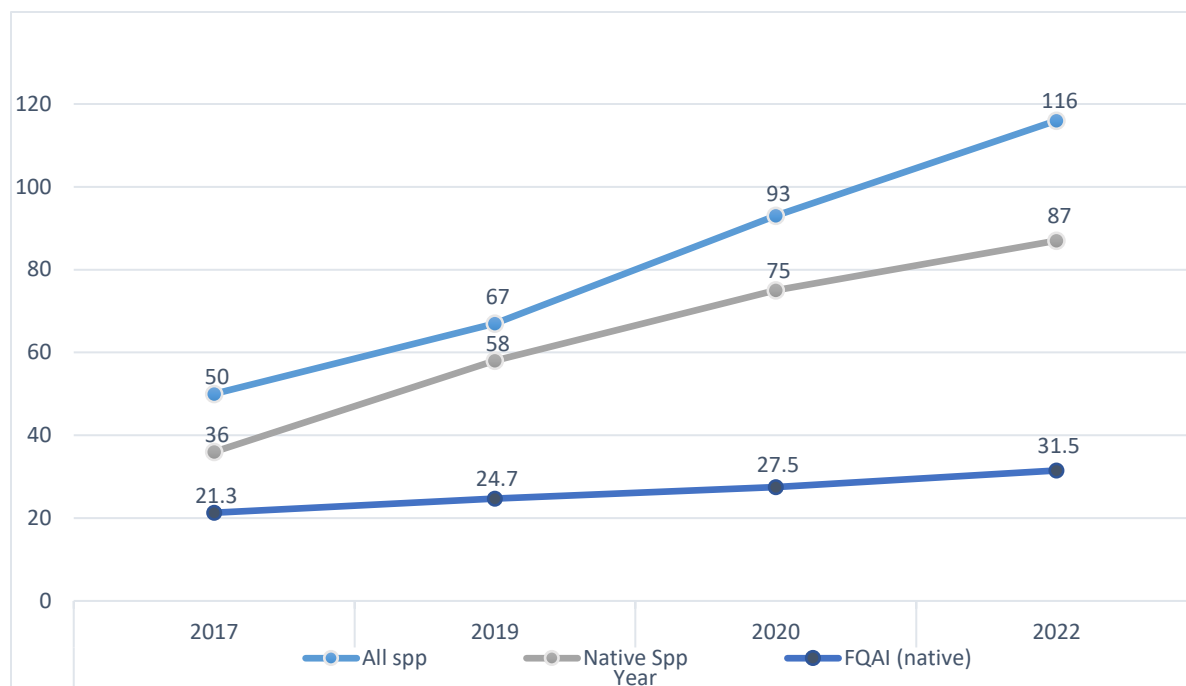
Since the 2018-2022 Plan was released, CRPD created Pollinator Habitat Guidelines that guide the creation, maintenance, and public engagement of Columbus pollinator habitats. The Pollinator Habitat Guidelines serve as a support document to this five year plan. In 2022, CRPD also launched a

Volunteer Pollinator Monitoring and Documentation Program for volunteers to document existing plants, pollinators, site conditions, and recommendations. CRPD utilizes the data collected from volunteers to manage these habitats.

A wetland biologist, Hugh Crowell, volunteered his time to conduct plant surveys of Whetstone Prairie in 2017, 2019, 2020, and 2022. Crowell found measurable increases in the quality of Whetstone prairie over the time period. See Appendix for plant survey species list. Crowell’s field data and data analysis of the coefficient of conservatism (C of C) and the floristic quality assessment index (FQAI) contributed to the specific key performance indicators for the next five years. C of C values are utilized in the FQAI for vascular plants. High quality habitats typically have high FQAI scores, while low-quality habitats have low scores. The C of C are numeric values (0-10) assigned to plant species to indicate their sensitivity to disturbances and degradation (Mid Atlantic Wetland Workgroup). Species with values of 0 to 3 show little connection with remnant natural habitats and will opportunistically occupy disturbed areas. Species with values in the 4 to 6 range are matrix species of intact natural communities. Species with values 7 through 10 are conservative species, which need high quality stable natural communities (Davitt, 2020). Plant species with high C-values typically occur in high quality habitats, while species with low C-values occur in a wide variety of conditions and generally are highly tolerant of disturbance (Mid Atlantic Wetland Workgroup).

Crowell calculated FQAI two ways: 1) FQAI based on native species only (FQAI-native) and 2) FQAI based on all species present including non-native species (FQAI-allspecies) (Andreas, Mack and McCormac, 2004). While FQAI-native is useful when comparing Whetstone Prairie with other prairie restorations and prairie remnants in Ohio for which there are data, FQAI-allspecies is also useful for focusing maintenance activities on reducing the number of non-native/invasive species. [Note that if all non-native species were somehow removed – a practically impossible task- the two FQAI’s would have the same value.] See Graph 1 to show the changes of FQAI from 2017 to 2022.

Graph 1. Species Richness and FQAI



3. 2023-2027 Objectives

These objectives and key performance indicators were based on the 2018-2022 Plan, input from the Clintonville Area Commission, research studies conducted by Hugh Crowell, reference prairies in Ohio, and volunteer data. See Table 2.

Table 2. 2023-2027 Objectives and Key Performance Indicators (KPIs)

Objectives	Key Performance Indicators
Reduce the presence of woody species.	Decrease the number of woody plant species (both native and invasive) by 50%.
Increase the biodiversity of the prairie with a focus on native grasses and forbs.	Increase the number of native plant species from 76 to 100. Increase the Floristic Quality Assessment Index (FQAI-native) from 31.5 to 40.
Increase the native biodiversity of the prairie with a focus on decreasing non-native/invasive species	Decrease the number of non-native herbaceous species from 29 to 15. Increase the Floristic Quality Assessment Index (FQAI-allspecies) from 27.4 to 35.
Disturb the prairie annually	Mow the prairie annually. If CRPD has support from the community, then a prescribed burn can occur in place of a mow (with help from partners).
Increase community involvement and education in efforts to enhance the prairie.	Continue to hold an annual Pollinator Field Day at Whetstone Prairie. Increase the number of yearly volunteer events from 3 to 5. Increase the number of iNaturalist observations of pollinators and plants in the prairie by 35% from 739 to 1,000 observations documented.
Increase wetland diversity and quality.	Conduct wetland assessments by completing new wetland determination forms for each wetland area (PEM wetlands and vernal pools), preparing Ohio Rapid Assessment Method for Wetlands (ORAM) data sheets for all wetland areas, and measuring the depth of vernal pools annually. Continue to avoid mowing developing wetland areas.

4. Prairie Maintenance

If a prairie is left unmanaged, the prairie would go through succession and eventually return to woodland. This transformation is usually accelerated in fragmented landscapes in which tracts of land surrounding prairies act as reservoirs for seeds of woody plants (Grassland Heritage Foundation). Whetstone Prairie is surrounded by floodplain forest, and without annual disturbance the prairie would likely become wooded. Two common methods for prairie disturbance include prescribed burning and controlled mowing.

4.1 Prescribed Burning

Prescribed burns control woody vegetation, manage non-native invasive species, and stimulate native plant growth. Currently, CRPD does not have the ability to conduct prescribed burns on their own. In the instance that CRPD has help from partners and with support from the community, then

prescribed burns can occur. Since Whetstone Park is a centrally located urban regional park, meeting the site criteria/parameters for a burn to occur may be difficult.

4.2 Controlled Mowing

Mowing is effective in controlling weeds and stimulating plant growth. CRPD determines the time of mow and the equipment used based on resources available and on the assessment of existing wildlife. To reserve habitat for wildlife while also controlling woody plants and weeds, the height that the prairie is mowed is set to the highest the equipment will allow. In years past, mowing has occurred in the fall because CRPD parks maintenance staff have the availability to conduct annual mows during this time of the year. In the late fall, pollinators with larval stages that utilize the prairie's vegetation will be able to complete their full life cycles and flowering plants will be able to bloom and provide pollinators with an uninterrupted supply of pollen and nectar throughout the growing season. CRPD did not mow in the spring due to nesting birds, sites being too wet to mow, and the CRPD parks maintenance staff being unavailable due to the upkeep of mowing hundreds of CRPD parks. However, with continuous assessments and new research that arises, the timing of mowing may change.

5. Yearly Maintenance Schedule

**Specific to Year One (2023):* Present the Whetstone Prairie Five-Year Plan to the public at the Clintonville Area Commission. [CRPD](#)

Monitor and document plant and pollinator species. [Volunteers](#)

Host Annual Pollinator Field Day. [CRPD and Volunteers](#)

Collect native seeds. [CRPD and Volunteers](#)

Remove invasive plants and/or woody species as needed. [CRPD and Volunteers](#)

Herbicide application to spot treat perennial weeds, invasive plants (i.e. Canada thistle, teasel, introduced grasses), or woody species as needed. [CRPD](#)

Disturb the prairie. [CRPD](#)

**Specific to Years Two and Four (2024 and 2026):* Potential spring prescribed burning of the prairie depending on the success of efforts to coordinate a burn with local partners and residents; Potential seeding based on information analyzed from monitoring documentation. [CRPD and Volunteers](#)

6. Maintenance Updates

(To be filled out once year completed)

Year One (2023)

Year Two (2024)

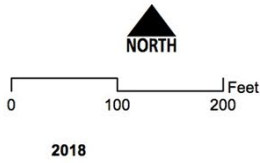
Year Three (2025)

Year Four (2026)

Year Five (2027)

Whetstone Map
2018



Whetstone Park Prairie Areas



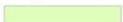
Whetstone Prairie Areas (3.04 acres prairie, 1.38 forest)

- 1. Prairie with saplings (Cup Plant) 1.0 acres
- 2. Prairie with saplings (Goldenrod, Green Ash) 0.89 acres
- 3. Prairie with saplings. (Goldenrod, Green Ash, Honeysuckle) 0.26 acres
- 4. Early successional forest (cottonwood, saplings) 1.38 acres
- 5. Prairie with saplings (Goldenrod) 0.42 acres
- 6. Prairie (Goldenrod, teasel, thistle) 0.47 acres

Legend

-  Vernal Pools
-  CRPD Park Boundary

Proposed Management

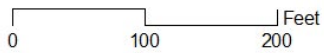
-  Forest
-  Prairie

2023



WHETSTONE PRAIRIE

2023



- 2023_Vernal Pools
- Prairie
- CRPD Property Boundary



Areas labeled 1-6 were labeled based on the original areas from Crowell's survey in 2017. Since the plants are surveyed by these numbered areas, CRPD have not renumbered them after area 4 was allowed to become forest.

Appendix. Whetstone Prairie Plant Species List

Scientific Name	Common Name	Woody?	C of C&	2017	2022
<i>Acer negundo</i>	box elder saplings	Yes	3	1	1
<i>Acer rubrum</i>	red maple	Yes	3	1	1
<i>Acer saccharinum</i>	silver maple	Yes	3	1	1
<i>Acorus calamus</i>	sweetflag	No	*	1	1
<i>Ageritina altissima</i>	white snakeroot	No	3		1
<i>Agrimonia parviflora</i>	small flowered agrimony	No	2		1
<i>Aliaria petiolata</i>	garlic mustard	No	*		1
<i>Alisma subcordata</i>	southern water plantain	No	2		1
<i>Allium canadense</i>	wild garlic	No	2		1
<i>Ambrosia trifida</i>	giant ragweed	No	0		1
<i>Andropogon gerardi</i>	big bluestem	No	5	1	1
<i>Apocynum cannabinum</i>	Indian hemp	No	1		1
<i>Arctium minus</i>	common burdock	No	*		1
<i>Asclepias incarnata</i>	swamp milkweed	No	4		1
<i>Asclepias sullivantii</i>	Sullivant's milkweed	No	8		1
<i>Asclepias syriaca</i>	common milkweed	No	1		1
<i>Asclepias tuberosa</i>	butterflyweed	No	4		1
<i>Aster laevis</i>	smooth aster	No	6	1	1
<i>Bidens frondosa</i>	devil's beggar-ticks	No	2		1
<i>Bouteloua curtipendula</i>	sideoats gramma grass	No	8	1	
<i>Bromus japonicus</i>	Japanese brome	No	*		1
<i>Bromus pubescens</i>	Canada brome	No	4		1
<i>Bromus squarrosus</i>	rough brome	No	*		1
<i>Carex davisii</i>	Davis's sedge	No	5		1
<i>Carex grisea</i>	narrow leaved sedge	No	4		1
<i>Carex lurida</i>	bottlebrush sedge	No	3		1
<i>Carex molesta</i>	troublesome sedge	No	3		1
<i>Carex tribuloides</i>	blunt broom sedge	No	4		1
<i>Carex vulpinoidea</i>	fox sedge	No	1	1	1
<i>Catalpa speciosa</i>	catalpa (saplings)	Yes	*		1
<i>Cephalanthus occidentalis</i>	buttonbush	Yes	6	1	1
<i>Chamaecrista fasciculata</i>	partridge pea	No	3		1
<i>Cichorium intybus</i>	chicory	No	*		1
<i>Cirsium vulgare</i>	common thistle	No	*	1	1
<i>Conium maculatum</i>	poison hemlock	No	*		1
<i>Coreopsis tinctoria</i>	plains tickseed	No	*		1
<i>Cyperus esculenta</i>	yellow nut-sedge	No	0		1
<i>Daucus carota</i>	wild carrot	No	*	1	1
<i>Dipsacus folanum</i>	teasel	No	*	1	1

Scientific Name	Common Name	Woody?	C of C&	2017	2022
Echinacea purpurea	purple coneflower	No	6		1
Echinochloa crus-galli	rough barnyard grass	No	*	1	
Eleocharis erythropoda	red-footed spike-rush	No	4		1
Elymus canadensis	Canada wild rye	No	6	1	1
Elymus virginicus	Virginia wild rye	No	3	1	1
Eupatorium perfoliatum	common boneset	No	3		1
Eupatorium purpureum	purple joe-pye weed	No	5		1
Eupatorium serotinum	late-flowering boneset	No	2		1
Euthamia graminifolia	flat top goldenrod	No	2	1	1
Falopia scandens	climbing false buckwheat	No	2		1
Filipendula rubra	queen of the prairie	No	8		1
Fraxinus pennsylvanica	green ash saplings	Yes	3	1	1
Galium (aparine)	bedstraw	No	0	1	1
Geum canadense	white avens	No	2		1
Glechoma hederacea	ground ivy	No	*		1
Gleditsia triacanthos	honey locust	Yes	4	1	
Glyceria striata	white grass	No	2	1	1
Helenium autumnale	common sneezeweed	No	4		1
Helianthus mollis	ashy sunflower	No	7		1
Impatiens capensis	spotted jewelweed	No	2		1
Ipomoea hederacea	ivy-leaved morning glory	No	*		1
Juglans nigra	black walnut (saplings)	Yes	5	1	1
Juncus dudleyi	path rush	No	3		1
Juncus effusus	bulrush	No	1	1	1
Lobelia cardinalis	cardinal flower	No	5		1
Lonicera maackii	amur honeysuckle	Yes	*	1	1
Lycopus americanus	American water horehound	No	3		1
Lycopus uniflorus	northern water-horehound	No	3		1
Lysimachia nummularia	moneywort	No	*		1
Mimulus ringens	common monkey-flower	No	4		1
Monarda fistulosa	wild bergamot	No	3	1	1
Panicum virgatum	switchgrass	No	4		1
Penthorum sedoides	ditch stonecrop	No	2		1
Persicaria hydropiper	water pepper	No	1		1
Persicaria pennsylvanica	Pennsylvania smartweed	No	0		1
Persicaria persicaria	knotweed	No	*	1	1
Persicaria virginiana	jumpseed	No	3		1
Phalaris arundinacea	canary reed grass	No	*	1	
Phleum pratense	timothy	No	*		1

Scientific Name	Common Name	Woody?	C of C&	2017	2022
<i>Phyla lanceolata</i>	lance-leaf fogfruit	No	3		1
<i>Phytolacca americana</i>	pokeweed	No	1		1
<i>Phytostegia virginiana</i>	obedient plant	No	5		1
<i>Plantago major</i>	common plantain	No	*		1
<i>Platanus occidentalis</i>	sycamore saplings	Yes	7	1	1
<i>Poa trivialis</i>	rough bluegrass	No	*		1
<i>Populus deltoides</i>	cottonwood	Yes	3	1	1
<i>Potentilla norvegica</i>	strawberry-weed	No	1		1
<i>Prunella vulgaris</i>	self-heal	No	0		1
<i>Prunus virginiana</i>	choke cherry tree	Yes	2	1	
<i>Pyrus calleryana</i>	Bradford pear	Yes	*	1	1
<i>Pyrus coronaria</i>	wild crabapple	Yes	3	1	1
<i>Quercus bicolor</i> (sapling planted 2021)	swamp white oak	Yes	7		1
<i>Ranunculus ficaria</i>	lesser celandine	No	*	1	1
<i>Rhus typhina</i>	staghorn sumac	Yes	2		1
<i>Rubus allegheniensis</i>	Allegheny blackberry	Yes	1	1	1
<i>Rudbeckia hirta</i>	black-eyed susan	No	1		1
<i>Rudbeckia laciniata</i>	green-headed coneflower	No	6		1
<i>Rudbeckia triloba</i>	thin-leaved coneflower	No	5		1
<i>Rumex crispus</i>	curly dock	No	*		1
<i>Salix exigua</i>	sandbar willow	Yes	1	1	1
<i>Schoenoplectus tabermontanii</i>	soft bulrush	No	1		1
<i>Schoenoplectus tabernaemontani</i>	softstem bulrush	No	2		1
<i>Senna marilandica</i>	southern wild senna	No	4		1
<i>Setaria faberii</i>	foxtail grass	No	*		1
<i>Silene regia</i>	royal catchfly	No	8		1
<i>Silphium laciniatum</i>	compass plant	No	8	1	1
<i>Silphium perfoliatum</i>	cup plant	No	6	1	1
<i>Silphium terebinthinaceum</i>	prairie dock	No	8	1	1
<i>Solidago canadensis</i>	Canada goldenrod	No	1	1	1
<i>Sorghastrum nutans</i>	indian grass	No	5		1
<i>Symphotrichum laevis</i>	bushy aster	No	6	1	1
<i>Symphotrichum lateriflorus</i>	calico aster	No	2		1
<i>Symphotrichum novae-angliae</i>	New England Aster	No	2	1	1
<i>Taraxacum officinale</i>	common dandelion	No	*		1
<i>Thalictrum pubescens</i>	tall meadow rue	No	5		1
<i>Tradescantia virginiana</i>	Virginia spiderwort	No	5		1
<i>Trifolium pratense</i>	red clover	No	*		1

Scientific Name	Common Name	Woody?	C of C&	2017	2022
Trifolium repens	white clover	No	*		1
Urtica dioica var dioica	European stinging nettle	No	*		1
Verbena hastata	blue vervain	No	4	1	
Verbena urticifolia	white vervain	No	3		1
Verbesina alternifolia	wingstem	No	5	1	1
Vernonia novaboracensis	New York ironweed	No	3		1
Vitis aestivalis	summer grape	No	4	1	1
Xanthium strumarium	cocklebur	No	*	1	1

Summary of Whetstone Species 2017-2022			
	2017	2022	Percent Change
Total Species	44	118	168%
All Woody	15	16	7%
Woody, Invasive	2	3	50%
All Invasives	11	29	164%
Natives, nonwoody	20	76	280%

References

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