



Anderson Princeton Development – Floristic
Quality Assessment Report

Prepared For:

The Anderson 400 Property
Paul and Marijo Anderson

Project No. 3174430

SHIVEHATTERY
ARCHITECTURE + ENGINEERING

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Executive Summary

February 25, 2019

Floristic Quality Assessment
Shive-Hattery PN: 3174430

Enclosed, please find the Floristic Quality Assessment Report and associated maps for the Anderson 400 property in Princeton, Iowa. The Anderson family is in the IEDA Green Certification Program process of obtaining site certification from the Iowa Economic Development Authority (IEDA) for their 400-acre property. The certification they are working to obtain is for a Green Business Park per the IEDA's certification requirements.

The Results of the Floristic Quality Assessment were made by using the Universal FQA Calculator which are resulted below and conclude our determination. The report includes the ratings of 12 areas within the property, 6 wetlands, and 6 uplands points which were evaluated for their floristic qualities. In result, none of the quadrant/subplot were found to have a FQI of 35 and a Mean C Value of 3.5. This area, along with all other 11 areas within the property regardless of their floristic quality values will be protected within a 100' buffer or more within the property and will be permanent open space.

Please find the full report below for the full data analysis of the Floristic Quality Assessment.

» Quadrat/Subplot Level Metrics:

Quadrat/Subplot	Species Richness	Native Species Richness	Total Mean C	Native Mean C	Total FQI	Native FQI	Cover-weighted FQI	Cover-weighted Native FQI	Adjusted FQI	Mean Wetness	Mean Native Wetness	Latitude	Longitude
1	3	3	1.3	1.3	2.3	2.3	3.5	3.5	13	-1	-1	41.665592	-90.360544
2	3	1	1	3	1.7	3	2.6	3	17.3	2.3	-3	41.665576	-90.360501
3	4	3	1.5	2	3	3.5	3.2	4.5	17.3	-2.3	-1.7	41.665147	-90.360526
4	3	2	1.7	2.5	2.9	3.5	3.6	3.8	20.4	1.7	0	41.665131	-90.360466
5	5	3	2	3.3	4.5	5.7	5.1	6.1	25.6	1	0.7	41.666135	-90.355915
6	6	5	2.7	3.2	6.6	7.2	7.6	7.6	29.2	0.5	0	41.666105	-90.355907
7	2	1	1.5	3	2.1	3	1	3	21.2	-4.5	-5	41.655945	-90.349937
8	4	1	0	0	0	0	0	0	0	2.8	1	41.655974	-90.349937
9	2	1	2.5	5	3.5	5	3.3	5	35.4	-3.5	-3	41.658112	-90.345360
10	5	4	1.8	2.3	4	4.6	4	5	20.6	1.8	1.5	41.658147	-90.345338
11	1	0	0	0	0	0	0	0	0	-4	0	41.655014	-90.348566
12	3	2	0.7	1	1.2	1.4	2.1	2.1	8.2	0	2	41.655029	-90.348522
Average	3.4	2.2	1.4	2.2	2.7	3.3	3	3.6	17.4	-0.4	-0.7	n/a	n/a
Standard Deviation	1.4	1.4	0.8	1.4	1.8	2.1	2	2.2	10.3	2.5	2	n/a	n/a

In summary, the intent of this development is to be a Green Business Park. Therefore, the Floristic Quality Assessment areas in this report with the areas listed to have a FQI of 35 or higher or a mean C value of 3.5 or higher are undevelopable and are required to be designated as “undevelopable” and will be preserved within the Master Development Plan and integrated into the property’s permanent open space areas for preservation. A city ordinance and property covenants have been adopted by the City of Princeton to ensure that this occurs as the property develops. Future developers of this property will be required to provide a minimum of a 100-foot buffer surrounding the wetlands and floristic zones within the 400-acre business park.

Sincerely,
SHIVE-HATTERY, INC.



Stacey Brockett, Landscape Architect Intern.



Daniel C. Solchenberger, P.E.

Enclosures: Floristic Quality Assessment Report
Wetland Exhibits





Transect/Plot Assessment

[Edit This Transect/Plot Download Report Done](#)

Anderson 400 FQA- Floristic Quality Assessment

» Date & Location:

October, 2018

Anderson 400

Princeton

Scott, Iowa, USA

» FQA Database:

Region: **Iowa**

Year Published: **2001**

Description:

Drobney, P.D., G.S. Wilhelm, D. Horton, M. Leoschke, D. Lewis, J. Pearson, D. Roosa, D. Smith. 2001. Floristic quality assessment for the state of Iowa. Unpublished report.

» Details:

Practitioner: **SLB**

Latitude:

Longitude:

Community Code:

Community Name: Princeton, Ia.

Community Type Notes:

Weather Notes:

Duration Notes:

Environmental Description:

Other Notes:

This assessment is **public** (viewable by all users of this website).



» Conservatism-Based Metrics:

Total Mean C: 1.8

Cover-weighted Mean C: 2.1

Native Mean C: 2.6

Total FQI: 9

Native FQI: 10.7

Cover-weighted FQI: 10.5

Cover-weighted Native FQI: 12

Adjusted FQI: 21.4

% C value 0: 44%

% C value 1-3: 40%

% C value 4-6: 16%

% C value 7-10: 0%

» Species Richness:

Total Species: 25

Native Species: 17 (68%)

Non-native Species: 8 (32%)

» Species Wetness:

Mean Wetness: 0.5

Native Mean Wetness: -0.4

» Duration Metrics:

Annual: 3 (12%)

Perennial: 21 (84%)

Biennial: 1 (4%)

Native Annual: 1 (4%)

Native Perennial: 16 (64%)

Native Biennial: 0 (0%)



» **Physiognomic Relative Importance Values:**

Physiognomy	Frequency	Coverage	Relative Frequency (%)	Relative Coverage (%)	Relative Importance Value
Native forb	12	705	29.3	31.3	30.3
Non-native grass	9	575	22	25.6	23.8
Native tree	9	460	22	20.4	21.2
Non-native shrub	3	160	7.3	7.1	7.2
Native vine	3	120	7.3	5.3	6.3
Non-native forb	2	80	4.9	3.6	4.3
Native sedge	1	70	2.4	3.1	2.8
Native shrub	1	50	2.4	2.2	2.3
Non-native tree	1	30	2.4	1.3	1.9

» **Species Relative Importance Values:**

Species	Family	Acronym	Nativity	C W	Physiognomy	Duration	Frequency	Coverage	Relative Frequency (%)	Relative Coverage (%)	Relative Importance Value
Phalaris arundinacea	Poaceae	PHAARU	non-native	0	-4 grass	perennial	5	405	12.2	18	15.1
Solidago gigantea	Asteraceae	SOLGIG	native	3	-3 forb	perennial	3	285	7.3	12.7	10
Lonicera tatarica	Caprifoliaceae	LONTAT	non-native	0	3 shrub	perennial	3	160	7.3	7.1	7.2



Monarda fistulosa	Lamiaceae	MONFIS	native	2 3 forb	perennial 2	110	4.9	4.9	4.9
Quercus alba	Fagaceae	QUEALB	native	6 3 tree	perennial 2	110	4.9	4.9	4.9
Toxicodendron radicans negundo	Anacardiaceae	TOXRAN	native	0 -1 vine	perennial 2	90	4.9	4	4.5
Salix nigra	Salicaceae	SALNIG	native	3 -5 tree	perennial 2	90	4.9	4	4.5
Celtis occidentalis	Ulmaceae	CELOCC	native	2 1 tree	perennial 2	80	4.9	3.6	4.3
Bromus inermis	Poaceae	BROINE	non-native	0 5 grass	perennial 2	80	4.9	3.6	4.3
Helianthus annuus	Asteraceae	HELANN	native	0 1 forb	annual 2	60	4.9	2.7	3.8
Asclepias syriaca	Asclepiadaceae	ASCSYR	native	0 5 forb	perennial 2	30	4.9	1.3	3.1
Platanus occidentalis	Platanaceae	PLAOCC	native	5 -3 tree	perennial 1	80	2.4	3.6	3
Typha latifolia	Typhaceae	TYPLAT	native	1 -5 forb	perennial 1	80	2.4	3.6	3
Osmorhiza longistylis	Apiaceae	OSMLON	native	5 4 forb	perennial 1	80	2.4	3.6	3
Carex vulpinoidea	Cyperaceae	CXVULP	native	3 -5 sedge	perennial 1	70	2.4	3.1	2.8
Laportea canadensis	Urticaceae	LAPCAN	native	3 -3 forb	perennial 1	60	2.4	2.7	2.6



Juniperus virginiana	Cupressaceae	JUNVIR	native	1 3 tree	perennial 1	60	2.4	2.7	2.6
Zea mays	Poaceae	ZEAMAY	non-native	0 5 grass	annual 1	50	2.4	2.2	2.3
Ribes americanum	Saxifragaceae	RIBAME	native	6 -3 shrub	perennial 1	50	2.4	2.2	2.3
Monarda didyma	Lamiaceae	MONDID	non-native	0 5 forb	perennial 1	50	2.4	2.2	2.3
Setaria glauca	Poaceae	SETGLA	non-native	0 0 grass	annual 1	40	2.4	1.8	2.1
Ulmus rubra	Ulmaceae	ULMRUB	native	2 0 tree	perennial 1	40	2.4	1.8	2.1
Parthenocissus quinquefolia	Vitaceae	PARQUI	native	2 1 vine	perennial 1	30	2.4	1.3	1.9
Morus alba	Moraceae	MORALB	non-native	0 0 tree	perennial 1	30	2.4	1.3	1.9
Pastinaca sativa	Apiaceae	PASSAT	non-native	0 5 forb	biennial 1	30	2.4	1.3	1.9



» **Quadrat/Subplot Level Metrics:**

Quadrat/Subplot	Species Richness	Native Species Richness	Total Mean C	Native Mean C	Total FQI	Native FQI	Cover- weighted FQI	Cover- weighted Native FQI	Adjusted FQI	Mean Wetness	Mean Native Wetness	Latitude	Longitude
1	3	3	1.3	1.3	2.3	2.3	3.5	3.5	13	-1	-1	41.665592	-90.360544
2	3	1	1	3	1.7	3	2.6	3	17.3	2.3	-3	41.665576	-90.360501
3	4	3	1.5	2	3	3.5	3.2	4.5	17.3	-2.3	-1.7	41.665147	-90.360526
4	3	2	1.7	2.5	2.9	3.5	3.6	3.8	20.4	1.7	0	41.665131	-90.360466
5	5	3	2	3.3	4.5	5.7	5.1	6.1	25.6	1	0.7	41.666135	-90.355915
6	6	5	2.7	3.2	6.6	7.2	7.6	7.6	29.2	0.5	0	41.666105	-90.355907
7	2	1	1.5	3	2.1	3	1	3	21.2	-4.5	-5	41.655945	-90.349937
8	4	1	0	0	0	0	0	0	0	2.8	1	41.655974	-90.349937
9	2	1	2.5	5	3.5	5	3.3	5	35.4	-3.5	-3	41.658112	-90.345360
10	5	4	1.8	2.3	4	4.6	4	5	20.6	1.8	1.5	41.658147	-90.345338
11	1	0	0	0	0	0	0	0	0	-4	0	41.655014	-90.348566
12	3	2	0.7	1	1.2	1.4	2.1	2.1	8.2	0	2	41.655029	-90.348522
Average	3.4	2.2	1.4	2.2	2.7	3.3	3	3.6	17.4	-0.4	-0.7	n/a	n/a
Standard Deviation	1.4	1.4	0.8	1.4	1.8	2.1	2	2.2	10.3	2.5	2	n/a	n/a



» **Quadrat/Subplot 1 Species:**

Scientific Name	Family	Acronym	% Cover	Cover Range (Midpt)	Nativity	C W	Physiognomy	Duration	Common Name
<i>Asclepias syriaca</i>	Asclepiadaceae	ASCSYR	10	% Cover (0 - 100)	native	0 5	forb	perennial	common milkweed
<i>Solidago gigantea</i>	Asteraceae	SOLGIG	95	% Cover (0 - 100)	native	3 -3	forb	perennial	smooth goldenrod
<i>Typha latifolia</i>	Typhaceae	TYPLAT	80	% Cover (0 - 100)	native	1 -5	forb	perennial	common cattail

» **Quadrat/Subplot 2 Species:**

Scientific Name	Family	Acronym	% Cover	Cover Range (Midpt)	Nativity	C W	Physiognomy	Duration	Common Name
<i>Bromus inermis</i>	Poaceae	BROINE	40	% Cover (0 - 100)	non-native	0 5	grass	perennial	smooth brome
<i>Monarda didyma</i>	Lamiaceae	MONDID	50	% Cover (0 - 100)	non-native	0 5	forb	perennial	oswego tea
<i>Solidago gigantea</i>	Asteraceae	SOLGIG	95	% Cover (0 - 100)	native	3 -3	forb	perennial	smooth goldenrod

» **Quadrat/Subplot 3 Species:**

Scientific Name	Family	Acronym	% Cover	Cover Range (Midpt)	Nativity	C W	Physiognomy	Duration	Common Name
<i>Asclepias syriaca</i>	Asclepiadaceae	ASCSYR	20	% Cover (0 - 100)	native	0 5	forb	perennial	common milkweed
<i>Carex vulpinoidea</i>	Cyperaceae	CXVULP	70	% Cover (0 - 100)	native	3 -5	sedge	perennial	brown fox sedge
<i>Phalaris arundinacea</i>	Poaceae	PHAARU	95	% Cover (0 - 100)	non-native	0 -4	grass	perennial	reed canary grass
<i>Salix nigra</i>	Salicaceae	SALNIG	60	% Cover (0 - 100)	native	3 -5	tree	perennial	black willow



» **Quadrat/Subplot 4 Species:**

Scientific Name	Family	Acronym	% Cover	Cover Range (Midpt)	Nativity	C W	Physiognomy	Duration	Common Name
Bromus inermis	Poaceae	BROINE	40	% Cover (0 - 100)	non-native	0 5	grass		perennial smooth brome
Monarda fistulosa	Lamiaceae	MONFIS	50	% Cover (0 - 100)	native	2 3	forb		perennial wild bergamot; horsemint
Solidago gigantea	Asteraceae	SOLGIG	95	% Cover (0 - 100)	native	3 -3	forb		perennial smooth goldenrod

» **Quadrat/Subplot 5 Species:**

Scientific Name	Family	Acronym	%Cover	CoverRange(Midpt)	Nativity	C W	Physiognomy	Duration	Common Name
Celtis occidentalis	Ulmaceae	CELOCC	60	% Cover (0 - 100)	native	2 1	tree		perennial hackberry
Laportea canadensis	Urticaceae	LAPCAN	60	% Cover (0 - 100)	native	3 -3	forb		perennial wood nettle
Lonicera tatarica	Caprifoliaceae	LONTAT	70	% Cover (0 - 100)	non-native	0 3	shrub		perennial tartarian honeysuckle
Morus alba	Moraceae	MORALB	30	% Cover (0 - 100)	non-native	0 0	tree		perennial chinese mulberry; white mulberry
Osmorhiza longistylis	Apiaceae	OSMLON	80	% Cover (0 - 100)	native	5 4	forb		perennial anise root

» **Quadrat/Subplot 6 Species:**

Scientific Name	Family	Acronym	%Cover	CoverRange(Midpt)	Nativity	C W	Physiognomy	Duration	Common Name
Celtis occidentalis	Ulmaceae	CELOCC	20	% Cover (0 - 100)	native	2 1	tree		perennial hackberry
Lonicera tatarica	Caprifoliaceae	LONTAT	20	% Cover (0 - 100)	non-native	0 3	shrub		perennial tartarian honeysuckle
Quercus alba	Fagaceae	QUEALB	60	% Cover (0 - 100)	native	6 3	tree		perennial white oak



Ribes americanum	Saxifragaceae	RIBAME	50	% Cover (0 - 100)	native	6 -3 shrub	perennial wild black currant
Toxicodendron radicans negundo	Anacardiaceae	TOXRAN	60	% Cover (0 - 100)	native	0 -1 vine	perennial poison ivy
Ulmus rubra	Ulmaceae	ULMRUB	40	% Cover (0 - 100)	native	2 0 tree	perennial red elm; slippery elm

» **Quadrat/Subplot 7 Species:**

Scientific Name	Family	Acronym	% Cover	Cover Range (Midpt)	Nativity	C W Physiognomy	Duration	Common Name
Phalaris arundinacea	Poaceae	PHAARU	100	% Cover (0 - 100)	non-native	0 -4 grass	perennial	reed canary grass
Salix nigra	Salicaceae	SALNIG	30	% Cover (0 - 100)	native	3 -5 tree	perennial	black willow

» **Quadrat/Subplot 8 Species:**

Scientific Name	Family	Acronym	% Cover	Cover Range (Midpt)	Nativity	C W Physiognomy	Duration	Common Name
Helianthus annuus	Asteraceae	HELANN	40	% Cover (0 - 100)	native	0 1 forb	annual	common sunflower
Pastinaca sativa	Apiaceae	PASSAT	30	% Cover (0 - 100)	non-native	0 5 forb	biennial	wild parsnip
Setaria glauca	Poaceae	SETGLA	40	% Cover (0 - 100)	non-native	0 0 grass	annual	yellow foxtail
Zea mays	Poaceae	ZEAMAY	50	% Cover (0 - 100)	non-native	0 5 grass	annual	cultivated corn

» **Quadrat/Subplot 9 Species:**

Scientific Name	Family	Acronym	% Cover	Cover Range (Midpt)	Nativity	C W Physiognomy	Duration	Common Name
Phalaris arundinacea	Poaceae	PHAARU	95	% Cover (0 - 100)	non-native	0 -4 grass	perennial	reed canary grass
Platanus occidentalis	Platanaceae	PLAOCC	80	% Cover (0 - 100)	native	5 -3 tree	perennial	sycamore



» **Quadrat/Subplot 10 Species:**

Scientific Name	Family	Acronym	% Cover	Cover Range (Midpt)	Nativity	C W	Physiognomy	Duration	Common Name
<i>Juniperus virginiana</i>	Cupressaceae	JUNVIR	60	% Cover (0 - 100)	native	1	3 tree	perennial	red cedar
<i>Lonicera tatarica</i>	Caprifoliaceae	LONTAT	70	% Cover (0 - 100)	non-native	0	3 shrub	perennial	tartarian honeysuckle
<i>Parthenocissus quinquefolia</i>	Vitaceae	PARQUI	30	% Cover (0 - 100)	native	2	1 vine	perennial	virginia creeper
<i>Quercus alba</i>	Fagaceae	QUEALB	50	% Cover (0 - 100)	native	6	3 tree	perennial	white oak
<i>Toxicodendron radicans</i> negundo	Anacardiaceae	TOXRAN	30	% Cover (0 - 100)	native	0	-1 vine	perennial	poison ivy

» **Quadrat/Subplot 11 Species:**

Scientific Name	Family	Acronym	% Cover	Cover Range (Midpt)	Nativity	C W	Physiognomy	Duration	Common Name
<i>Phalaris arundinacea</i>	Poaceae	PHAARU	95	% Cover (0 - 100)	non-native	0	-4 grass	perennial	reed canary grass

» **Quadrat/Subplot 12 Species:**

Scientific Name	Family	Acronym	%Cover	Cover Range (Midpt)	Nativity	C W	Physiognomy	Duration	Common Name
<i>Helianthus annuus</i>	Asteraceae	HELANN	20	% Cover (0 - 100)	native	0	1 forb	annual	common sunflower
<i>Monarda fistulosa</i>	Lamiaceae	MONFIS	60	% Cover (0 - 100)	native	2	3 forb	perennial	wild bergamot; horsemint
<i>Phalaris arundinacea</i>	Poaceae	PHAARU	20	% Cover (0 - 100)	non-native	0	-4 grass	perennial	reed canary grass



Appendix: Plant Guide

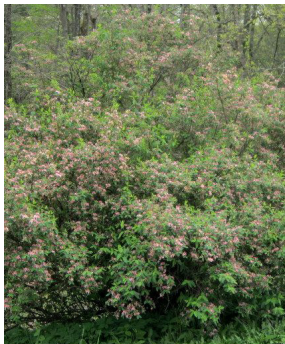
Species					
Botanical Name	Common Name	Family	Acronym	Nativity	Physiognomy
Phalaris arundinacea	Reed Canary Grass	Poaceae	PHAARU	non-native	Grass, perennial



Solidago gigantea	Giant Goldenrod	Asteraceae	SOLGIG	native	Forb, perennial
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Lonicera tatarica	Honeysuckle	Caprifoliaceae	LONTAT	non-native	Shrub
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Quercus alba	White Oak	Fagaceae	QUEALB	native	Tree
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Species Botanical Name	Common Name	Family	Acronym	Native	Physiognomy
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Toxicodendron radicans negundo	Poison Ivy	Anacardiaceae	TOXRAN	native	Vine, perennial
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Salix nigra	Black Willow	Salicaceae	SALNIG	native	Tree
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Bromus inermis	Smooth Brome Brome Grass	Poaceae	BROINE	non-native	Grass, perennial
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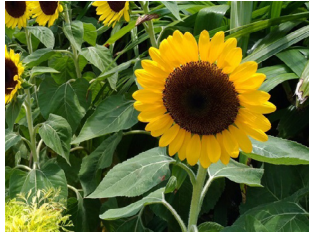


Celtis occidentalis	Common Hackberry	Ulmaceae	CELOCC	native	Tree
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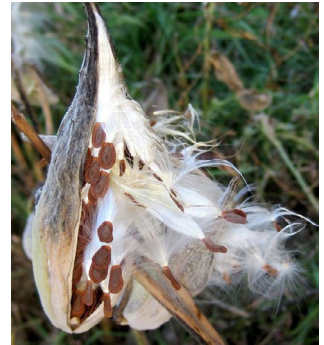


Species Botanical Name	Common Name	Family	Acronym	Native	Physiognomy
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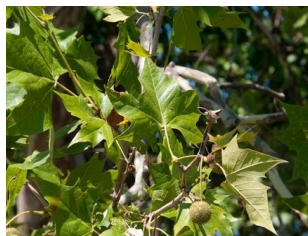
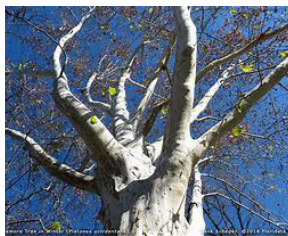
Helianthus annuus	Sunflower Common	Asteraceae	HELANN	native	Forb, annual
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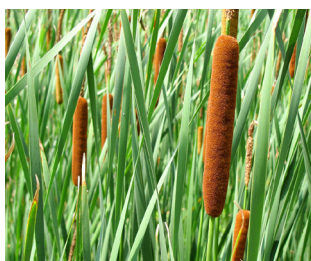
Asclepias syriaca	Common Milkweed	Asclepiadaceae	ASCSYR	native	Forb, perennial
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Platanus occidentalis	American Sycamore	Platanaceae	PLAOCC	native	Tree
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Typha latifolia	Broadleaf Cattail	Typhaceae	TYPLAT	native	Forb, perennial
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Species

Botanical Name

Common Name

Family

Acronym

Native

Physiognomy

Osmorhiza longistylis

Long Sweet-Cicely
Sweet Root, Anise

Apiaceae

OSMLON

native

Forb, perennial



Carex vulpinoidea

American Fox Sedge

Cyperaceae

CXVULP

native

Sedge, perennial



Laportea canadensis

Wood Nettle
Canadian Nettle,
Stinging nettle

Urticaceae

LAPCAN

native

Forb, perennial



Juniperus virginiana

Red Cedar

Cupressaceae

JUNVIR

native

Tree



**Species
Botanical
Name**

**Common
Name**

Family

Acronym

Native

Physiognomy

Zea mays

Corn

Poaceae

ZEAMAY

non-native

Grass, annual



Ribes americanum

Wild Black
Currant

Saxifragaceae

RIBAME

native

Shrub,



Monarda didyma

Oswego Tea

Lamiaceae

MONDID

non-native

Forb, perennial



Setaria glauca

Pearl Millet, Millet
Green Bristlegrass

Poaceae

SETGLA

non-native

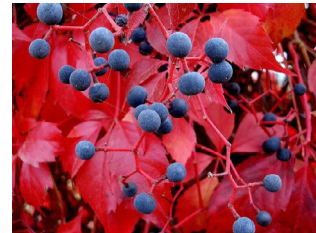
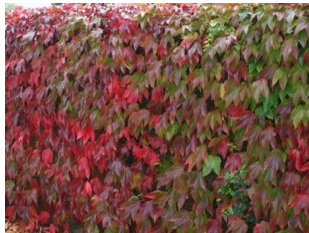
Grass, annual



Species Botanical Name	Common Name	Family	Acronym	Nativity	Physiognomy
Ulmus rubra	Slippery Elm Red Elm	Ulmaceae	ULMRUB	native	Tree



Parthenocissus quinquefolia	Virginia Creeper	Vitaceae	PARQUI	native	Vine, perennial
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Morus alba	White Mulberry	Moraceae	MORALB	non-native	Tree
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Pastinaca sativa	Parsnip	Apiaceae	PASSAT	non-native	Forb, perennial
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Species

Botanical Name	Common Name	Family	Acronym	Nativity	Physiognomy
Monarda fistulosa	Wild Bergamont Horsemint	Lamiaceae	MONFIS	native	Forb, perennial

