

Summer Survey of 5 grasslands at Pyramid State Park in Perry County, Illinois



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A survey of 5 grasslands that may be used for field competition exercises at Pyramid State Park in Perry County, Illinois was performed on August 12th and 13th in 2019 (Figure 1.). The objective of the survey was to locate occurrences of plants because some may be harmful to dogs. One resource chronicling these plants of concern, often referred to as “mean seeds” is located at the URL <http://www.meanseeds.com/resources/the-bad-grass-list/>.

All vascular plant species encountered in the 5 grasslands were recorded and the list, along with some floristic metrics, is provided (Table 1.). A total of 206 species were observed within the 5 fields (Fig 1-5.) during the March and August surveys in 2019. Nomenclature follows Taft *et al.* 1997, Floristic Quality Assessment for Vegetation in Illinois, A Method for Assessing Vegetation Integrity (<https://illinoisplants.org/erigenia/#15>). There are 4 species that are not in table 1 (or floristic quality analysis) because of taxonomic reasons and include *Carex aureolensis*, *Carex mesochorea*, *Chamaesyce nutans*, and *Polygonum coccineum*. A total of 52 species of the 97 species located last spring were relocated during the summer surveys. An additional 109 species were added to the total list during the summer surveys (Table 2.).

Figures 1-5 are maps that include several locations found during the summer survey of one plant species (Virginia Wild Rye, *Elymus virginicus*) that is included among the list of “mean seeds” that might be harmful to dogs. Additionally, the maps contain the tracks the two botanists followed in each field during both the spring and summer surveys.

At least 3 fields contained some plants of concern. Field 1 has 4 *Elymus virginicus* populations that occur within the tall Common Reed (*Phragmites australis*) in the ditches to the south. Field 3 has 4 *Elymus virginicus* populations that occur near the front of the field by the parking area (southern edge). Field 4 has many *Elymus virginicus* populations in the ditches in between the fields. This field was also partially mowed during the summer survey. These locations are indicated on the maps provided and GPS coordinates for each occurrence of *Elymus virginicus* are also provided in Table 3 and follow the WGS 1984 projection system. Nimblewill (*Muhlenbergia schreberi*) was also mentioned on one of the websites provided in the initial request and was observed on the NW edge of field 2 during the spring survey, but the plants were not relocated during the summer survey.

Other plants that inhabit the fields are listed in the tables and some may possibly be of concern to dog enthusiasts. This report attempts to inform the reader so that each individual can make his or her own decision regarding their participation in events held at the locations listed in the report. All dog owners, handlers, and participants should review the list of plants and endeavor to become educated with regard to “mean seeds” and make independent decisions regarding the safety of their animals. This report is descriptive in nature and neither its author nor the committee that commissioned it can guarantee the safety of any individual dog from harmful plants. It is impossible to certify any field as 100% clear of harmful plants; however, the providers of this report are confident that each field was surveyed intensively and pertinent information regarding harmless plants is provided.

Table 1. Total Species List for 5 Grasslands at Pyramid State Park.

8/13/2019

Practitioners:

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Conservatism-Based Metrics:

Total Mean C:	1.6
Native Mean C:	2.5
Total FQI:	22.7
Native FQI:	28.6
Adjusted FQI:	20.1
% C value 0:	46.5
% C value 1-3:	34.2
% C value 4-6:	17.8
% C value 7-10:	1.5
Native Tree Mean C:	2.4
Native Shrub Mean C:	2
Native Herbaceous Mean C:	2.5

Species Richness:

Total Species:	202	
Native Species:	131	64.90%
Non-native Species:	71	35.10%

Species Wetness:

Mean Wetness:	0.9
Native Mean Wetness:	-0.1

Physiognomy Metrics:

Tree:	12	5.90%
Shrub:	7	3.50%
Vine:	5	2.50%
Forb:	125	61.90%
Grass:	38	18.80%
Sedge:	15	7.40%

Duration Metrics:

Annual:	60	29.70%
Perennial:	123	60.90%
Biennial:	19	9.40%
Native Annual:	32	15.80%
Native Perennial:	93	46%
Native Biennial:	6	3%

Species:

Scientific Name	Native?	C value	Physiognomy	Duration	Common Name
<i>Acalypha gracilens</i>	native	4	forb	annual	slender three-seeded mercury
<i>Acalypha virginica</i>	native	2	forb	annual	three-seeded mercury
<i>Acer negundo</i>	native	1	tree	perennial	boxelder
<i>Achillea millefolium</i>	non-native	0	forb	perennial	common milfoil
<i>Agrimonia parviflora</i>	native	5	forb	perennial	swamp agrimony
<i>Agropyron repens</i>	non-native	0	grass	perennial	quack grass
<i>Agrostis alba</i>	native	0	grass	perennial	red top
<i>Alisma plantago-aquatica v. parviflorum</i>	native	2	forb	perennial	common water plantain
<i>Allium vineale</i>	non-native	0	forb	perennial	field garlic
<i>Ambrosia artemisiifolia</i>	native	0	forb	annual	common ragweed
<i>Ambrosia trifida</i>	native	0	forb	annual	giant ragweed
					long-leaved
<i>Ammannia coccinea</i>	native	5	forb	annual	ammannia
<i>Andropogon gerardii</i>	native	5	grass	perennial	big bluestem
<i>Andropogon virginicus</i>	native	1	grass	perennial	broom sedge
<i>Apocynum cannabinum</i>	native	2	forb	perennial	dogbane
<i>Arabidopsis thaliana</i>	non-native	0	forb	annual	mouse-eared cress
					thyme-leaved
<i>Arenaria serpyllifolia</i>	non-native	0	forb	annual	sandwort
<i>Asclepias hirtella</i>	native	6	forb	perennial	tall green milkweed
<i>Asclepias incarnata</i>	native	4	forb	perennial	swamp milkweed
<i>Asclepias syriaca</i>	native	0	forb	perennial	common milkweed
<i>Aster lateriflorus</i>	native	2	forb	perennial	side-flowering aster
<i>Aster pilosus</i>	native	0	forb	perennial	hairy aster
<i>Barbarea vulgaris</i>	non-native	0	forb	biennial	winter cress
<i>Bidens aristosa v. retrorsa</i>	native	1	forb	annual	bur marigold
					purplestemmed
<i>Bidens connata</i>	native	2	forb	annual	tickseed
<i>Bidens vulgata</i>	native	0	forb	annual	tall beggars ticks
<i>Boehmeria cylindrica</i>	native	3	forb	perennial	false nettle
<i>Bouteloua curtipendula</i>	native	7	grass	perennial	side-oats grama
<i>Bromus arvensis</i>	non-native	0	grass	perennial	chess
<i>Bromus inermis</i>	non-native	0	grass	perennial	hungarian brome
<i>Campsis radicans</i>	native	2	vine	perennial	trumpet creeper
<i>Capsella bursa-pastoris</i>	non-native	0	forb	annual	shepherds purse
<i>Cardamine hirsuta</i>	non-native	0	forb	annual	hairy bitter cress
<i>Carduus nutans</i>	non-native	0	forb	biennial	musk bristle thistle
<i>Carex blanda</i>	native	2	sedge	perennial	common wood sedge
<i>Carex festucacea</i>	native	6	sedge	perennial	fescue oval sedge
<i>Carex frankii</i>	native	4	sedge	perennial	bristly cattail sedge

<i>Carex glaucoidea</i>	native	5	sedge	perennial	blue sedge
<i>Carex hirsutella</i>	native	5	sedge	perennial	hairy green sedge
<i>Carex squarrosa</i>	native	5	sedge	perennial	narrow-leaved cattail
<i>Carex tribuloides</i>	native	3	sedge	perennial	awl-fruited oval sedge
<i>Carex vulpinoidea</i>	native	3	sedge	perennial	brown fox sedge
<i>Cassia fasciculata</i>	native	1	forb	annual	golden cassia
<i>Cassia marilandica</i>	native	4	forb	perennial	maryland senna
<i>Celtis occidentalis</i>	native	3	tree	perennial	hackberry
<i>Cerastium dubium</i>	non-native	0	forb	annual	three-styled chickweed
<i>Chamaesyce supina</i>	native	0	forb	annual	spotted creeping spurge
<i>Cirsium discolor</i>	native	3	forb	biennial	pasture thistle
<i>Cirsium vulgare</i>	non-native	0	forb	biennial	bull thistle
<i>Conium maculatum</i>	non-native	0	forb	biennial	poison hemlock
<i>Conyza canadensis</i>	native	0	forb	annual	horseweed
<i>Cornus drummondii</i>	native	2	shrub	perennial	rough-leaved dogwood
<i>Corydalis flavula</i>	native	5	forb	biennial	pale corydalis
<i>Croton capitatus</i>	native	0	forb	annual	hogwort
<i>Croton monanthogynus</i>	native	2	forb	annual	prairie tea
<i>Cynanchum laeve</i>	native	1	vine	perennial	blue vine
<i>Cyperus esculentus</i>	native	0	sedge	perennial	field nut sedge
<i>Cyperus ovularis</i>	native	2	sedge	perennial	hedgehog club rush
<i>Cyperus strigosus</i>	native	0	sedge	perennial	longl-scaled nut sedge
<i>Dactylis glomerata</i>	non-native	0	grass	perennial	orchard grass
<i>Daucus carota</i>	non-native	0	forb	biennial	queen annes lace
<i>Desmanthus illinoensis</i>	native	4	forb	perennial	illinois bundle flower
<i>Digitaria sanguinalis</i>	non-native	0	grass	annual	hairy crab grass
<i>Diospyros virginiana</i>	native	2	tree	perennial	persimmon
<i>Dipsacus laciniatus</i>	non-native	0	forb	biennial	cut-leaved teasel
<i>Dipsacus sylvestris</i>	non-native	0	forb	biennial	common teasel
<i>Draba brachycarpa</i>	native	2	forb	annual	short-fruited whitlow grass
<i>Echinochloa crusgalli</i>	non-native	0	grass	annual	barnyard grass
<i>Echinochloa muricata</i>	native	0	grass	annual	spiny barnyard grass
<i>Elaeagnus umbellata</i>	non-native	0	shrub	perennial	autumn olive
<i>Eleocharis elliptica v. compressa</i>	native	7	sedge	perennial	flat-stemmed spike rush
<i>Eleocharis obtusa</i>	native	2	sedge	annual	blunt spike rush
<i>Eleocharis palustris</i>	native	8	sedge	perennial	great spike rush
<i>Eleusine indica</i>	non-native	0	grass	annual	crowfoot grass
<i>Elymus virginicus</i>	native	4	grass	perennial	virginia wild rye

<i>Eragrostis minor</i>	non-native	0	grass	annual	lesser love grass
<i>Eragrostis pectinacea</i>	native	0	grass	annual	small love grass
<i>Eragrostis spectabilis</i>	native	3	grass	perennial	purple love grass
<i>Erechtites hieracifolia</i>	native	2	forb	annual	fireweed
<i>Erigeron annuus</i>	native	1	forb	biennial	annual fleabane
<i>Erigeron philadelphicus</i>	native	3	forb	perennial	marsh fleabane
<i>Eriochloa contracta</i>	non-native	0	grass	annual	prairie cup grass
<i>Eupatorium altissimum</i>	native	2	forb	perennial	tall boneset
<i>Eupatorium coelestinum</i>	native	3	forb	perennial	mistflower
<i>Eupatorium perfoliatum</i>	native	4	forb	perennial	common boneset
<i>Eupatorium serotinum</i>	native	1	forb	perennial	late boneset grass-leaved
<i>Euthamia graminifolia</i>	native	3	forb	perennial	goldenrod
<i>Festuca pratensis</i>	non-native	0	grass	perennial	meadow fescue
<i>Galium aparine</i>	native	0	forb	annual	annual bedstraw
<i>Galium pedemontanum</i>	non-native	0	forb	annual	foothill bedstraw
<i>Gaura parviflora</i>	non-native	0	forb	biennial	small-flowered gaura
<i>Geranium carolinianum</i>	native	2	forb	annual	carolina cranesbill
<i>Gleditsia triacanthos</i>	native	2	tree	perennial	honey locust
<i>Gnaphalium obtusifolium</i>	native	2	forb	biennial	old-field balsam
<i>Helianthus annuus</i>	non-native	0	forb	annual	common sunflower
<i>Hibiscus lasiocarpus</i>	native	5	forb	perennial	hairy rose mallow
<i>Holosteum umbellatum</i>	non-native	0	forb	annual	jagged chickweed spotted st. johns
<i>Hypericum punctatum</i>	native	3	forb	perennial	wort
<i>Ipomoea pandurata</i>	native	2	forb	perennial	wild sweet potato
<i>Iva annua</i>	native	0	forb	annual	marsh elder
<i>Juncus acuminatus</i>	native	4	forb	perennial	sharp-fruited rush
<i>Juncus biflorus</i>	native	5	forb	perennial	two-flowered rush
<i>Juncus dudleyi</i>	native	4	forb	perennial	dudleys rush
<i>Juncus effusus v. solutus</i>	native	4	forb	perennial	common rush
<i>Juncus tenuis</i>	native	0	forb	perennial	path rush
<i>Juncus torreyi</i>	native	3	forb	perennial	torreys rush
<i>Juniperus virginiana</i>	native	1	tree	perennial	eastern red cedar
<i>Kummerowia striata</i>	non-native	0	forb	annual	japanese lespedeza
<i>Lactuca canadensis</i>	native	1	forb	biennial	wild lettuce
<i>Lactuca saligna</i>	non-native	0	forb	biennial	willow-leaved lettuce
<i>Lactuca serriola</i>	non-native	0	forb	biennial	prickly lettuce
<i>Lamium amplexicaule</i>	non-native	0	forb	annual	henbit
<i>Leersia oryzoides</i>	native	3	grass	perennial	rice cut grass common
<i>Lepidium virginicum</i>	native	0	forb	annual	peppergrass
<i>Lespedeza cuneata</i>	non-native	0	forb	perennial	silky bush clover
<i>Lonicera japonica</i>	non-native	0	vine	perennial	japanese honeysuckle

<i>Lonicera maackii</i>	non-native	0	shrub	perennial	amur honeysuckle
<i>Lotus corniculatus</i>	non-native	0	forb	perennial	birdsfoot trefoil
<i>Ludwigia palustris v. americana</i>	native	4	forb	perennial	marsh purslane
<i>Ludwigia peploides v. glabrescens</i>	native	5	forb	perennial	creeping primrose willow
<i>Lycopus americanus</i>	native	3	forb	perennial	horehound
<i>Medicago lupulina</i>	non-native	0	forb	annual	black medick
<i>Medicago sativa</i>	non-native	0	forb	perennial	alfalfa
<i>Melilotus alba</i>	non-native	0	forb	biennial	white sweet clover
<i>Melilotus officinalis</i>	non-native	0	forb	biennial	yellow sweet clover winged monkey
<i>Mimulus alatus</i>	native	6	forb	perennial	flower
<i>Morus alba</i>	non-native	0	tree	perennial	white mulberry
<i>Morus rubra</i>	native	4	tree	perennial	red mulberry
<i>Muhlenbergia schreberi</i>	native	0	grass	perennial	nimblewill common evening
<i>Oenothera biennis</i>	native	1	forb	biennial	primrose
<i>Oxalis stricta</i>	native	0	forb	perennial	tall wood sorrel
<i>Panicum capillare</i>	native	0	grass	annual	old witch grass philadelphia panic
<i>Panicum philadelphicum</i>	native	5	grass	annual	grass
<i>Panicum virgatum</i>	native	4	grass	perennial	prairie switch grass
<i>Paspalum laeve</i>	native	2	grass	perennial	smooth lens grass
<i>Paspalum pubiflorum v. glabrum</i>	native	3	grass	perennial	four-rowed bead grass
<i>Passiflora incarnata</i>	native	3	vine	perennial	large passion flower
<i>Phalaris arundinacea</i>	non-native	0	grass	perennial	reed canary grass
<i>Phleum pratense</i>	non-native	0	grass	perennial	timothy
<i>Phragmites australis</i>	native	1	grass	perennial	common reed
<i>Phyla lanceolata</i>	native	1	forb	perennial	fog fruit
<i>Physalis longifolia</i>	non-native	0	forb	perennial	tall ground cherry
<i>Phytolacca americana</i>	native	1	forb	perennial	pokeweed
<i>Plantago aristata</i>	native	1	forb	annual	poor joe
<i>Plantago lanceolata</i>	non-native	0	forb	perennial	english plantain
<i>Plantago major</i>	non-native	0	forb	perennial	common plantain
<i>Platanus occidentalis</i>	native	3	tree	perennial	buttonwood
<i>Poa compressa</i>	non-native	0	grass	perennial	canadian blue grass
<i>Poa pratensis</i>	non-native	0	grass	perennial	kentucky blue grass
<i>Polygonum hydropiperoides</i>	native	4	forb	perennial	mild water pepper
<i>Polygonum persicaria</i>	non-native	0	forb	annual	ladys thumb
<i>Polygonum punctatum</i>	native	3	forb	annual	smartweed
<i>Populus deltoides</i>	native	2	tree	perennial	eastern cottonwood
<i>Portulaca oleracea</i>	non-native	0	forb	annual	purslane

<i>Potentilla simplex</i>	native	3	forb	perennial	common cinquefoil slender mountain mint
<i>Pycnanthemum tenuifolium</i>	native	4	forb	perennial	false dandelion
<i>Pyrrhopappus carolinianus</i>	native	1	forb	annual	pin oak
<i>Quercus palustris</i>	native	4	tree	perennial	little-leaf buttercup
<i>Ranunculus abortivus</i>	native	1	forb	annual	dwarf sumac
<i>Rhus copallina</i>	native	3	shrub	perennial	smooth sumac
<i>Rhus glabra</i>	native	1	shrub	perennial	black locust
<i>Robinia pseudo-acacia</i>	native	1	tree	perennial	japanese rose
<i>Rosa multiflora</i>	non-native	0	shrub	perennial	common blackberry
<i>Rubus allegheniensis</i>	native	2	shrub	perennial	black-eyed susan
<i>Rudbeckia hirta</i>	native	2	forb	perennial	curly dock
<i>Rumex crispus</i>	non-native	0	forb	perennial	swamp dock
<i>Rumex verticillatus</i>	native	5	forb	perennial	black willow
<i>Salix nigra</i>	native	3	tree	perennial	little bluestem
<i>Schizachyrium scoparium</i>	native	5	grass	perennial	bristleless dark green rush
<i>Scirpus georgianus</i>	native	4	sedge	perennial	giant foxtail
<i>Setaria faberii</i>	non-native	0	grass	annual	pigeon grass
<i>Setaria glauca</i>	non-native	0	grass	annual	prickly sida
<i>Sida spinosa</i>	non-native	0	forb	perennial	horse nettle
<i>Solanum carolinense</i>	native	0	forb	perennial	canada goldenrod
<i>Solidago canadensis</i>	native	1	forb	perennial	field sow thistle
<i>Sonchus arvensis</i>	non-native	0	forb	perennial	indian grass
<i>Sorghastrum nutans</i>	native	4	grass	perennial	johnson grass
<i>Sorghum halepense</i>	non-native	0	grass	perennial	rough dropseed
<i>Sporobolus asper</i>	native	3	grass	perennial	sand chickweed
<i>Stellaria pallida</i>	non-native	0	forb	annual	small wild bean
<i>Strophostyles leiosperma</i>	native	4	forb	annual	common dandelion
<i>Taraxacum officinale</i>	non-native	0	forb	perennial	boreale
<i>Teucrium canadense v.</i>	native	3	forb	perennial	gray germander
<i>Thlaspi arvense</i>	non-native	0	forb	annual	field penny cress
<i>Torilis arvensis</i>	non-native	0	forb	annual	field hedge parsley
<i>Toxicodendron radicans</i>	native	1	vine	perennial	poison ivy
<i>Tridens flavus</i>	native	1	grass	perennial	common purpletop
<i>Trifolium hybridum</i>	non-native	0	forb	perennial	alsike clover
<i>Trifolium pratense</i>	non-native	0	forb	perennial	red clover
<i>Trifolium repens</i>	non-native	0	forb	perennial	white clover
<i>Triticum aestivum</i>	non-native	0	grass	annual	wheat
<i>Typha angustifolia</i>	non-native	0	forb	perennial	narrow-leaved cattail
<i>Valerianella radiata</i>	native	1	forb	annual	corn salad
<i>Verbascum thapsus</i>	non-native	0	forb	biennial	woolly mullein
<i>Verbena hastata</i>	native	3	forb	perennial	blue vervain
<i>Verbena urticifolia</i>	native	3	forb	perennial	white vervain

<i>Vernonia missurica</i>	native	5	forb	perennial	missouri ironweed
<i>Veronica arvensis</i>	non-native	0	forb	annual	corn speedwell
<i>Veronica peregrina</i>	native	0	forb	annual	purslane speedwell
<i>Vicia dasycarpa</i>	non-native	0	forb	annual	woolly-pod vetch
<i>Viola rafinesquii</i>	non-native	0	forb	annual	wild pansy
<i>Xanthium strumarium</i>	native	0	forb	annual	cocklebur

Table 2. Plant species found during the spring and summer survey

Species	Spring	Summer			
<i>Acalypha gracilens</i>		x			x
<i>Acalypha virginica</i>		x			x
<i>Acer negundo</i>	x				x
<i>Achillea millefolium</i>	x	x			
<i>Agrimonia parviflora</i>	x	x			
<i>Agropyron repens</i>		x			
<i>Agrostis alba</i>		x			
<i>Alisma plantago-aquatica v. parviflorum</i>	x				
<i>Allium vineale</i>	x	x			
<i>Ambrosia artemisiifolia</i>		x			
<i>Ambrosia trifida</i>	x	x			
<i>Ammannia coccinea</i>		x			
<i>Andropogon gerardii</i>	x	x			
<i>Andropogon virginicus</i>	x				
<i>Apocynum cannabinum</i>	x	x			
<i>Arabidopsis thaliana</i>	x				
<i>Arenaria serpyllifolia</i>	x				
<i>Asclepias hirtella</i>		x			
<i>Asclepias incarnata</i>		x			
<i>Asclepias syriaca</i>	x	x			
<i>Aster lateriflorus</i>	x				
<i>Aster pilosus</i>		x			
<i>Barbarea vulgaris</i>	x	x			
<i>Bidens aristosa v. retrorsa</i>		x			
<i>Bidens connata</i>		x			
<i>Bidens vulgata</i>		x			
<i>Boehmeria cylindrica</i>	x	x			
<i>Bouteloua curtipendula</i>		x			
<i>Bromus arvensis</i>		x			
<i>Bromus inermis</i>	x	x			
<i>Campsis radicans</i>		x			
<i>Capsella bursa-pastoris</i>	x				
<i>Cardamine hirsuta</i>	x				
<i>Carduus nutans</i>		x			
<i>Carex aureolensis</i>		x			
<i>Carex blanda</i>		x			
<i>Carex festucacea</i>		x			
<i>Carex frankii</i>		x			
<i>Carex glaucoidea</i>	x				
<i>Carex hirsutella</i>		x			
<i>Carex mesochorea</i>					x
<i>Carex squarrosa</i>					x
<i>Carex tribuloides</i>					x
<i>Carex vulpinoidea</i>					x
<i>Cassia fasciculata</i>					x
<i>Cassia marilandica</i>					x
<i>Celtis occidentalis</i>			x	x	
<i>Cerastium dubium</i>			x		
<i>Chamaesyce nutans</i>					x
<i>Chamaesyce supina</i>					x
<i>Cirsium discolor</i>			x	x	
<i>Cirsium vulgare</i>			x	x	
<i>Conium maculatum</i>			x		
<i>Conyza canadensis</i>			x	x	
<i>Cornus drummondii</i>			x		
<i>Corydalis flavula</i>			x		
<i>Croton capitatus</i>					x
<i>Croton monanthogynus</i>					x
<i>Cynanchum laeve</i>					x
<i>Cyperus esculentus</i>					x
<i>Cyperus ovularis</i>					x
<i>Cyperus strigosus</i>					x
<i>Dactylis glomerata</i>					x
<i>Daucus carota</i>			x	x	
<i>Desmanthus illinoensis</i>					x
<i>Digitaria sanguinalis</i>			x		
<i>Diospyros virginiana</i>					x
<i>Dipsacus laciniatus</i>			x		
<i>Dipsacus sylvestris</i>			x	x	
<i>Draba brachycarpa</i>			x		
<i>Echinochloa crusgalli</i>					x
<i>Echinochloa muricata</i>					x
<i>Elaeagnus umbellata</i>			x	x	
<i>Eleocharis elliptica v. compressa</i>					x
<i>Eleocharis obtusa</i>					x
<i>Eleocharis palustris</i>					x
<i>Eleusine indica</i>					x
<i>Elymus virginicus</i>			x	x	
<i>Eragrostis minor</i>					x
<i>Eragrostis pectinacea</i>					x
<i>Eragrostis spectabilis</i>					x

<i>Erechtites hieracifolia</i>		x	
<i>Erigeron annuus</i>		x	
<i>Erigeron philadelphicus</i>	x	x	
<i>Eriochloa contracta</i>		x	
<i>Eupatorium altissimum</i>		x	
<i>Eupatorium coelestinum</i>	x	x	
<i>Eupatorium perfoliatum</i>		x	
<i>Eupatorium serotinum</i>		x	
<i>Euthamia graminifolia</i>		x	
<i>Festuca pratensis</i>		x	
<i>Galium aparine</i>	x	x	
<i>Galium pedemontanum</i>	x		
<i>Gaura parviflora</i>		x	
<i>Geranium carolinianum</i>	x		
<i>Gleditsia triacanthos</i>	x	x	
<i>Gnaphalium obtusifolium</i>		x	
<i>Helianthus annuus</i>	x		
<i>Hibiscus lasiocarpus</i>		x	
<i>Holosteum umbellatum</i>	x		
<i>Hypericum punctatum</i>		x	
<i>Ipomoea pandurata</i>		x	
<i>Iva annua</i>		x	
<i>Juncus acuminatus</i>		x	
<i>Juncus biflorus</i>		x	
<i>Juncus dudleyi</i>	x	x	
<i>Juncus effusus v. solutus</i>	x	x	
<i>Juncus tenuis</i>		x	
<i>Juncus torreyi</i>		x	
<i>Juniperus virginiana</i>	x	x	
<i>Kummerowia striata</i>		x	
<i>Lactuca canadensis</i>	x	x	
<i>Lactuca saligna</i>		x	
<i>Lactuca serriola</i>		x	
<i>Lamium amplexicaule</i>	x		
<i>Leersia oryzoides</i>		x	
<i>Lepidium virginicum</i>	x	x	
<i>Lespedeza cuneata</i>	x	x	
<i>Lonicera japonica</i>	x	x	
<i>Lonicera maackii</i>	x	x	
<i>Lotus corniculatus</i>	x	x	
<i>Ludwigia palustris</i>		x	
<i>Ludwigia peploides</i>		x	
<i>Lycopus americanus</i>		x	
<i>Medicago lupulina</i>		x	
<i>Medicago sativa</i>		x	
<i>Melilotus alba</i>			x
<i>Melilotus officinalis</i>			x
<i>Mimulus alatus</i>			x
<i>Morus alba</i>			x
<i>Morus rubra</i>			x
<i>Muhlenbergia schreberi</i>	x		
<i>Oenothera biennis</i>	x		
<i>Oxalis stricta</i>	x	x	
<i>Panicum capillare</i>	x		
<i>Panicum philadelphicum</i>			x
<i>Panicum virgatum</i>	x	x	
<i>Paspalum laeve</i>			x
<i>Paspalum pubiflorum v. glabrum</i>			x
<i>Passiflora incarnata</i>			x
<i>Phalaris arundinacea</i>			x
<i>Phleum pratense</i>			x
<i>Phragmites australis</i>	x	x	
<i>Phyla lanceolata</i>			x
<i>Physalis longifolia</i>			x
<i>Phytolacca americana</i>	x	x	
<i>Plantago aristata</i>			x
<i>Plantago lanceolata</i>	x	x	
<i>Plantago major</i>			x
<i>Platanus occidentalis</i>	x		
<i>Poa compressa</i>			x
<i>Poa pratensis</i>	x		
<i>Polygonum coccineum</i>			x
<i>Polygonum hydropiperoides</i>			x
<i>Polygonum persicaria</i>			x
<i>Polygonum punctatum</i>			x
<i>Populus deltoides</i>	x	x	
<i>Portulaca oleracea</i>			x
<i>Potentilla simplex</i>	x	x	
<i>Pycnanthemum tenuifolium</i>	x	x	
<i>Pyrrhopappus carolinianus</i>			x
<i>Quercus palustris</i>	x		
<i>Ranunculus abortivus</i>	x		
<i>Rhus copallina</i>	x		
<i>Rhus glabra</i>	x		
<i>Robinia pseudo-acacia</i>			x

<i>Rosa multiflora</i>	x	x
<i>Rubus allegheniensis</i>	x	x
<i>Rudbeckia hirta</i>		x
<i>Rumex crispus</i>		x
<i>Rumex verticillatus</i>	x	
<i>Salix nigra</i>	x	x
<i>Schizachyrium scoparium</i>	x	x
<i>Scirpus georgianus</i>		x
<i>Setaria faberi</i>		x
<i>Setaria glauca</i>	x	x
<i>Sida spinosa</i>		x
<i>Solanum carolinense</i>		x
<i>Solidago canadensis</i>	x	x
<i>Sonchus arvensis</i>	x	
<i>Sorghastrum nutans</i>	x	x
<i>Sorghum halepense</i>		x
<i>Sporobolus asper</i>	x	
<i>Stellaria pallida</i>	x	
<i>Strophostyles leiosperma</i>		x
<i>Taraxacum officinale</i>	x	
<i>Teucrium canadense</i>		x
<i>Thlaspi arvense</i>	x	
<i>Torillus arvensis</i>		x
<i>Toxicodendron radicans</i>		x
<i>Tridens flavus</i>	x	x
<i>Trifolium hybridum</i>		x
<i>Trifolium pratense</i>		x
<i>Trifolium repens</i>	x	x
<i>Triticum aestivum</i>	x	
<i>Typha angustifolia</i>	x	x
<i>Valerianella radiata</i>	x	
<i>Verbascum thapsus</i>	x	x
<i>Verbena hastata</i>	x	x
<i>Verbena urticifolia</i>		x
<i>Vernonia missurica</i>	x	x
<i>Veronica arvensis</i>	x	
<i>Veronica peregrina</i>	x	
<i>Vicia dasycarpa</i>	x	
<i>Viola rafinesquii</i>	x	
<i>Xanthium strumarium</i>	x	

Table 3. *Elymus virginicus* locations found during the summer surveys (WGS 1984).

Species	Date	Point_X	Point_Y
<i>Elymus virginicus</i>	8/12/2019	-89.5231	38.01874
<i>Elymus virginicus</i>	8/12/2019	-89.5225	38.01832
<i>Elymus virginicus</i>	8/12/2019	-89.4580	38.04152
<i>Elymus virginicus</i>	8/12/2019	-89.4696	38.03608
<i>Elymus virginicus</i>	8/12/2019	-89.5233	38.01795
<i>Elymus virginicus</i>	8/12/2019	-89.5236	38.01780
<i>Elymus virginicus</i>	8/12/2019	-89.4578	38.04142
<i>Elymus virginicus</i>	8/12/2019	-89.4577	38.04138
<i>Elymus virginicus</i>	8/13/2019	-89.4661	38.03873
<i>Elymus virginicus</i>	8/13/2019	-89.4669	38.03877
<i>Elymus virginicus</i>	8/13/2019	-89.4671	38.03877
<i>Elymus virginicus</i>	8/13/2019	-89.4674	38.03873
<i>Elymus virginicus</i>	8/13/2019	-89.4682	38.03864
<i>Elymus virginicus</i>	8/13/2019	-89.4697	38.03823
<i>Elymus virginicus</i>	8/13/2019	-89.4701	38.03795
<i>Elymus virginicus</i>	8/13/2019	-89.4704	38.03786
<i>Elymus virginicus</i>	8/13/2019	-89.4709	38.03759
<i>Elymus virginicus</i>	8/13/2019	-89.4709	38.03867
<i>Elymus virginicus</i>	8/13/2019	-89.4665	38.03876
<i>Elymus virginicus</i>	8/13/2019	-89.4685	38.03892

Figure 1. Field 1 at Pyramid State Park.

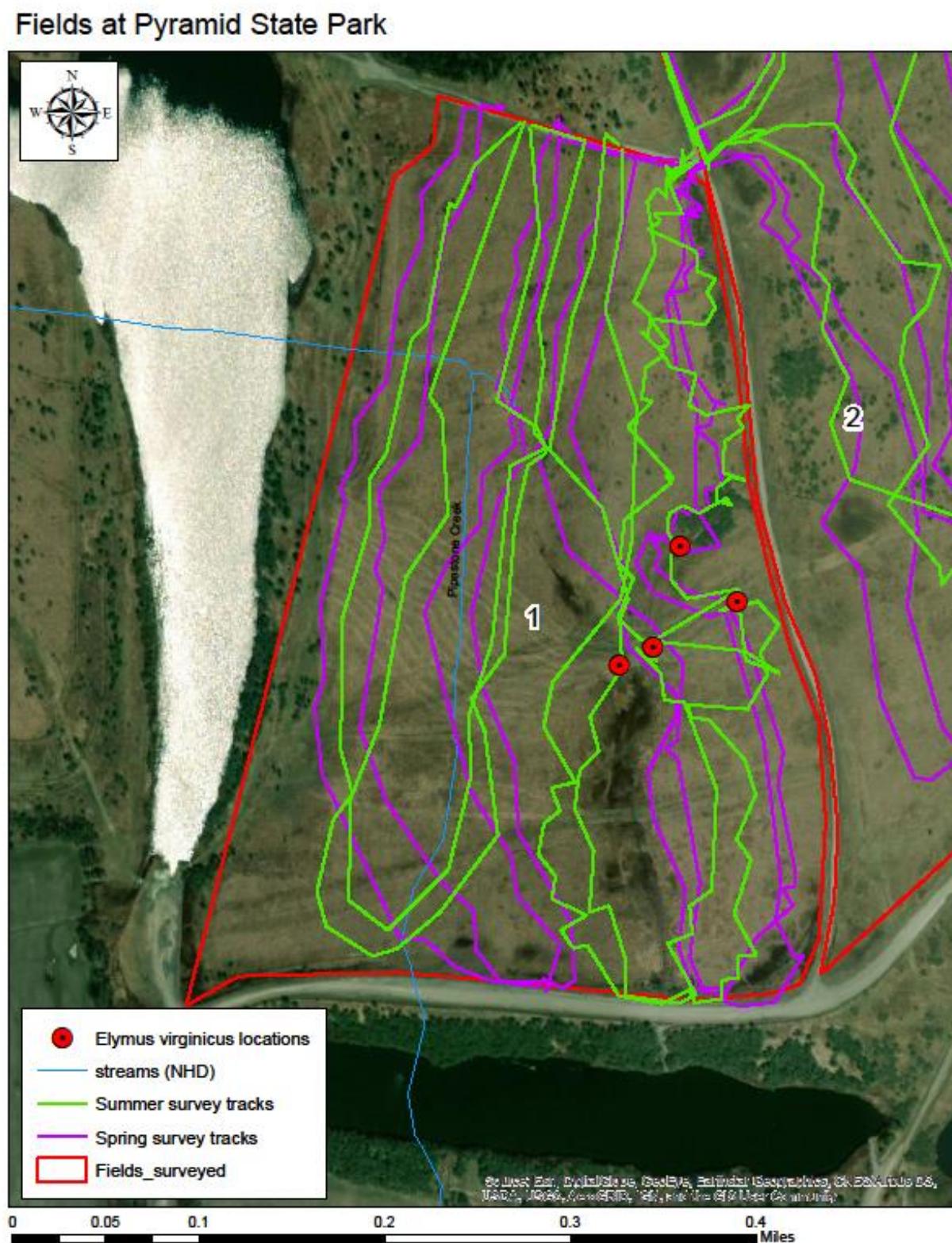


Figure 2. Field 2 at Pyramid State Park.

Fields at Pyramid State Park

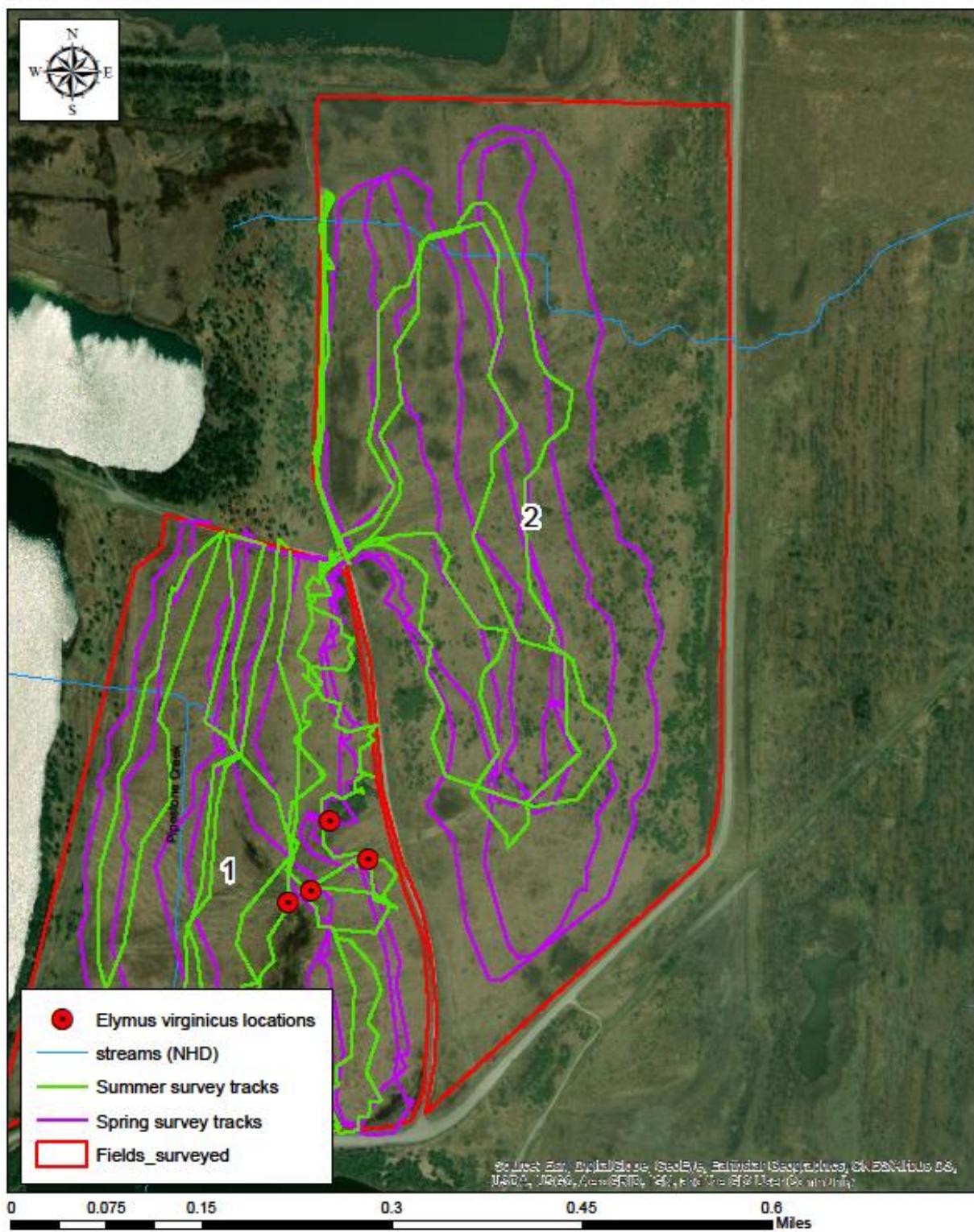


Figure 3. Field 3 at Pyramid State Park.

Fields at Pyramid State Park

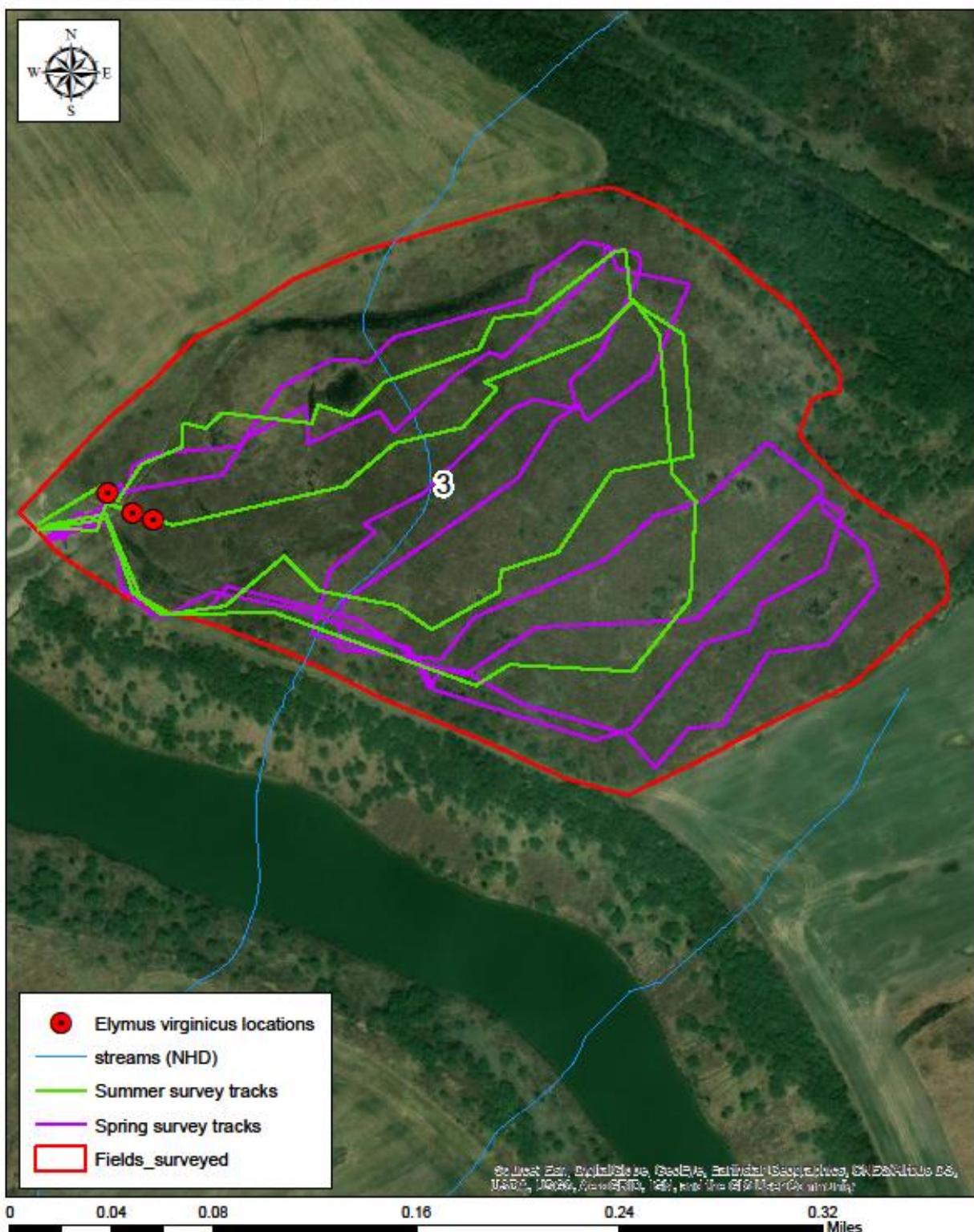


Figure 4. Field 4 at Pyramid State Park.

Fields at Pyramid State Park

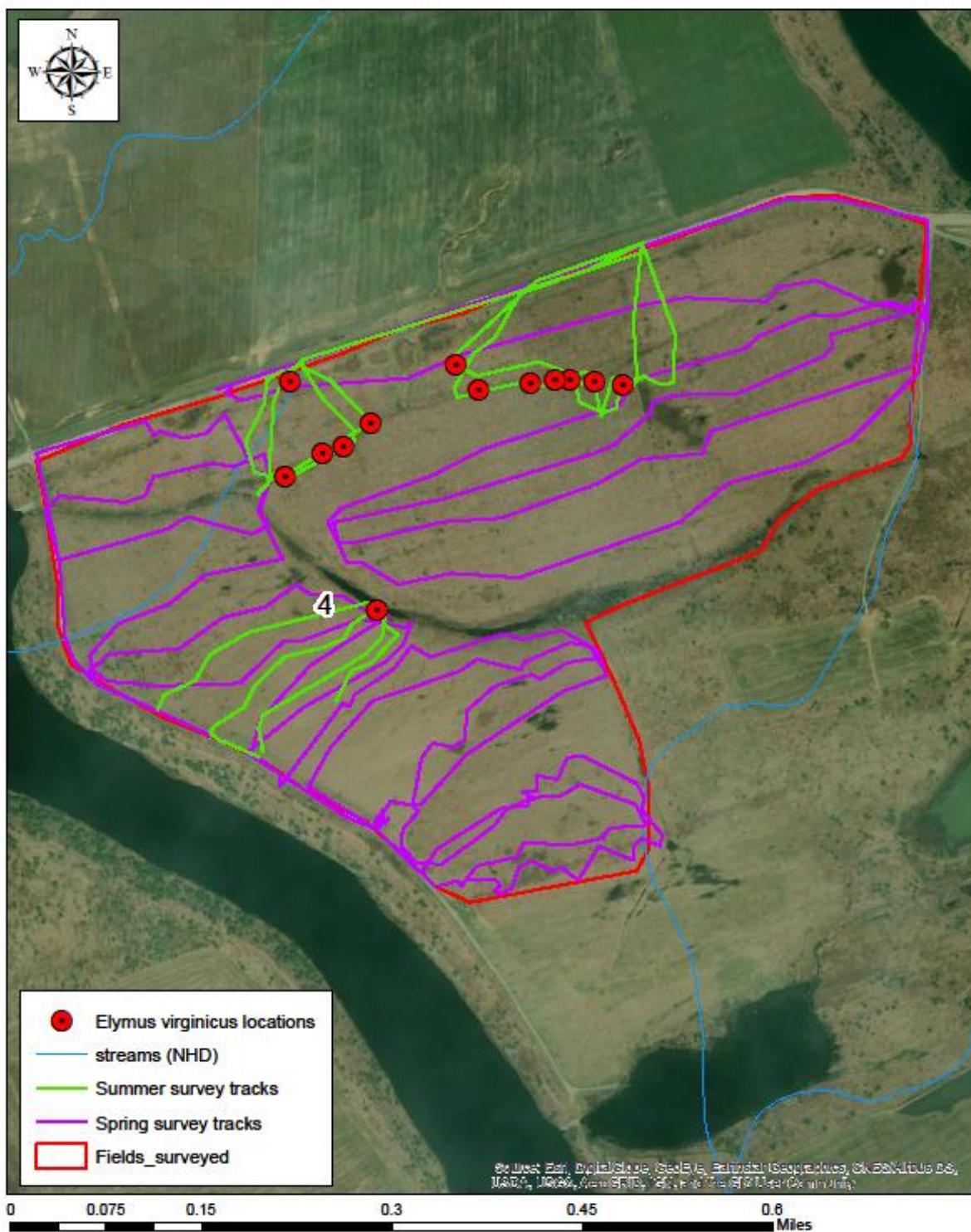


Figure 5. Field 5 at Pyramid State Park.

Fields at Pyramid State Park

