

Huffman Prairie Management State Natural Landmark

Report for 2016

1. **Wildlife:** The year started off with a big interest in raptors. In mid-November, 2015 I noted the presence of short-eared owls and northern harriers on the prairie and posted these sightings on the popular birding website ebird.com. Before long birders started congregating near dusk to watch these rare birds of prey. Several wildlife photographers came as well and took some rather amazing shots. Short-eared owls arrived in November, 2015. The peak population, 18 individuals, was observed on 1-2-2016 by Dan Enders. The population apparently started dispersing elsewhere, the last sighting reported on 2-7. At least one bird apparently wandered too close to the active airfield and refused to leave. Darryn said this individual was removed for safety reasons. Northern Harriers arrived in mid-November, 2015. Up to 7 of these raptors hunted on the prairie. Other raptors seen were red-tailed hawk, American kestrel, and Merlin.



Short-eared owl at HPSNL by Jeremy Mudd, 12-6-2015



Short-eared owl at HPSNL by Chong Zhang



Male Northern harrier at HPSNL by Roger Garber, 1-30-2015



Northern harrier at HPSNL by David and Terry Norris, 1-28-2016

Nesting grassland birds started setting up territories on the prairie right after it was mowed. Bobolinks arrived the first week of May. A count of males conducted on June found nine pair utilizing the Landmark, two on the field by the Rod and Gun Club, and 3-4 on the Flying Field. The Flying Field and the Gun Club fields were both mowed by WPAFB in mid-June. A subsequent inventory of these sites revealed that the mowing had not destroyed all the nest sites, they still contained adults feeding young. I assume that because the mowers were cutting at about 12" many of the nests were not destroyed, unless the tractor wheels ran them over. Overall it was a good year for most grassland species. I purchased a better camera and got some decent pictures of grassland birds. At least two pair of dickcissels nested in the south end, and at least one pair of blue grosbeaks nested in the northwest end of the prairie.



Male Bobolink



Female Bobolink



Male Dickcissel



Grasshopper Sparrow



Henslow's Sparrow (photo by R. Bicknell)



Blue Grosbeak



Red-winged Blackbird



Willow Flycatcher



The bird that received the highest amount of notoriety in 2016 was the ruby-throated hummingbird. Usually a woodland resident, hummingbirds descend on the prairie in large numbers when the royal catchfly blooms in July. Perhaps a hundred of these birds could be seen hovering by the bright red flowers and chasing each other about. Ohio naturalist Jim McCormac spent considerable time on the obtaining some great pictures of this bird and flower show.

In mid-late summer the prairie attracts large number of swallows from the region that forage overhead for insects, particularly barn, tree, rough-winged and cliff swallows.

Reptiles and amphibians observed on the prairie in 2016 include American toad, leopard frog, smooth green snake, eastern garter snake and brown snake.



Smooth green snake at HPSNL, 2016



Brown snake at HPSNL, 2016

Mammals observed were Eastern Mole, Coyote, white-tailed deer, groundhog, and thirteen-lined ground squirrel.



Groundhog (right),
Photo by Roger Garber

Thirteen-lined ground
squirrel
Photo by Roger Garber



White-tailed deer
family, photo by
Roger Garber



It appeared to be a good year for insects on the prairie. Large numbers of honeybees and several species of bumblebees could be seen from mid-summer through September. Another bee that was noted was a newcomer, the Giant Rosin Bee (*Megachile sculpturalis*), an Asian species that is moving into this area. Another notable insect observed was the clouded crimson moth (*Schinia gaurae*)



Bumblebee and honey bee on common milkweed



Giant rosin bee on butterfly milkweed



Larvae of clouded crimson moth on Biennial Gaura



Fall katydid on big bluestem

A good diversity of butterflies was documented on the prairie in 2016, partially because of the ongoing butterfly monitoring research happening there. These pics were taken at HPSNL in the 2016 season:



Pipevine swallowtail



Black swallowtail



Giant swallowtail



Tiger swallowtail



Cabbage White



Clouded sulphur



Yellow Sulphur



Pearl Crescent



Monarch



Red Admiral



Eastern Comma



Variegated fritillary



Common Buckeye



Meadow fritillary



Peck's Skipper



Com. Checkered Skipper

Other species documented in 2016 were Orange Sulphur, Sleepy Orange, Cloudless Sulphur, American Copper, Banded hairstreak, Eastern Tailed Blue, Spring Azure, Summer Azure, Great Spangled Fritillary, Question Mark, Mourning Cloak, American Lady, Red-Spotted Purple, Viceroy, Hackberry Emperor, Little Wood Satyr, Common Wood Nymph, Silver-Spotted Skipper, Wild Indigo Duskywing, Fiery Skipper, European Skipper, Least Skipper, Delaware Skipper, Swarthy Skipper, and Tawny Emperor. A total of 41

species. Although some moth species were documented during daylight hours there was no night study done this year.

2. Flora:

Huffman Prairie State Natural Landmark contains a mix of native and non-native plant species. Management since 1986 has strived to increase the native species, decrease non-native species, and carefully reintroduce species that have been extirpated from the site since settlement times. To date 311 species have been documented. This includes 212 native species, 108 of which are indicative of an Ohio prairie. Thirty-one of these species have been reintroduced by planting seed obtained from local sources. An additional 96 species are non-native. An excel file of vascular plants that have been documented from the HPSNL is attached to this report.

There are few flowering plants on HPSNL in early spring. To determine if this was a natural condition a group of volunteers toured several prairie remnants in southwestern Ohio in early May. The group found that while all of these sites have their main blooming periods in mid-late summer, there are several spring blooming species that are present or common on these Ohio prairie remnants. in early spring. All that were observed are also woodland species that bloom in early spring: wild hyacinth, starry false solomons plume, wild geranium, Ohio spiderwort and golden alexanders. Based on these observations of other mesic blacksoil prairie remnants in the area, the reintroduction of these species to HPSNL would be appropriate.

Starting in early May I started noticing a strange plant coming up in the middle of the prairie. It turned out to be the fern *Ophioglossum pusillum*, a State endangered species. The plant grew in several groupings totaling over 200 individuals. Most groupings were around the cut stalks of gray dogwood



shrubs that had been cut several weeks before. The largest grouping was within the unit that had been sprayed with glyphosate. These observations suggest that this is a species that responds to these disturbances. The only other known population in Ohio is in Lucas County. It is remarkable that a species like this can appear on the site after thirty years of study and management. Other species that have appeared from the seed bank, in 2016 were smooth aster (*Symphyotrichum laeve*), plantain-leaved



pussytoes (*Antennaria plantaginifolia*), and golden ragwort (*Packera aurea*). New native species that appeared from seed in planted sections for the first time were white wild indigo (*Baptisia lactea*), prairie dropseed (*Sporobolus heterolepis*), false boneset (*Brickellia eupatorioides*), and partridge pea (*Chamaecrista fasciculata*).

The July bloom east of the 1905 hangar was spectacular once again, attracting groups such as the Midwest Native Plant Conference, the local chapter of the Wild Ones, and Five Rivers MetroParks volunteers.



The 8-acre planting done in 2008 on the east side of the prairie was also impressive this year, especially considering that this used to be the most degraded section of the Landmark.





The main section of the original prairie remnant on the north side of the Landmark benefitted from the early spring glyphosate application in art of Unit 2. Native grasses dominate here, but large patches of common milkweed appeared this year where the herbicide was applied.

Restoration of the entire site to a community of native prairie species continues to slowly improve the site, but challenges remain. The main sections that continue to be dominated by non-native species are the two lower swales containing peaty soil, as well as scattered small patches throughout the Landmark.

3. Management Actions

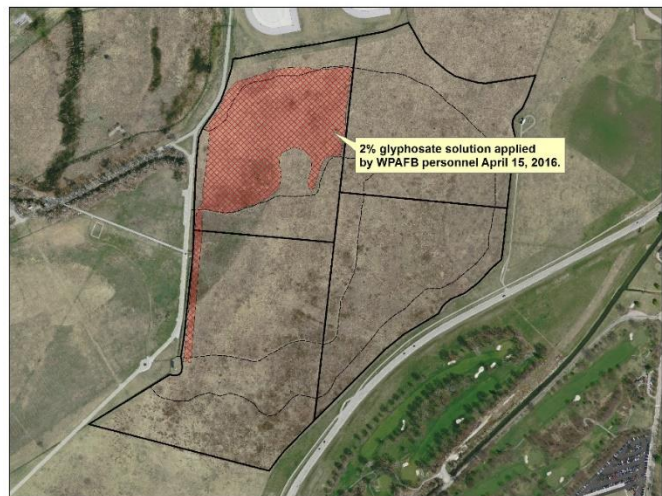
Trail Mowing- Five Rivers MetroParks contracted with a mowing contractor to mow the public and research trail loops regularly throughout the growing season. This action greatly improves access, use, and enjoyment of the site by the public, and makes remote sections available for research and monitoring.

Spring Mowing- Although a spring burn was planned this did not turn out to be possible. Alternatively, the entire prairie was mowed in the second week of April.



Spring Glyphosate Application- WPAFB applied a 2% glyphosate solution to a 17-acre section of Unit 2, on April 15. This application was very effective at controlling smooth brome, Canada thistle, nodding thistle, poison hemlock,

Early May after spraying



June growth of common milkweed in spray unit



September growth of native grasses in spray unit

and wild parsnip. It resulted in a strong growth of native grasses and common milkweed that filled in most of the open spaces, particularly on the drier sections of the spray unit. The two photos above are of the sprayed section, formerly sparse with natives. On the down side, the chemical appeared to affect native forbs more significantly than in the past. The may be because it was too late in the season, or because the rate was higher than prescribed. Future efforts should target these early season invasives earlier, before significant native forb growth.

Ailanthus Control- USFWS staff cut and treated Ailanthus trees that were appearing on the west edge of the prairie.

Seed Collection- During the fall of 2015 I made an effort to collect seed from nearby prairie remnants and Huffman Prairie for restoration work. These seeds were collected from HPSNL, Selma Railroad Prairie (Clark County), Leadingham Prairie Preserve (Clark County), Doorley Fen (Greene County), Beaver Creek Wetlands (Greene County), and Zimmerman Prairie (Greene County).

<i>Agalinis tenuifolium</i>	Roundstem False Foxglove	<i>Lysimachia quadriflora</i>	Linear leaved loosetrife
<i>Anemone canadensis</i>	Canada anemone	<i>Napaea dioica</i>	Glademallow
<i>Asclepias incarnata</i>	Swamp milkweed	<i>Oligoneuron rigida</i>	Stiff goldenrod
<i>Asclepias incarnata</i>	Swamp milkweed	<i>Onosmodium bejariense</i>	False gromwell
<i>Asclepias syriaca</i>	Common milkweed	<i>Orbexilum onobrychis</i>	Scurf pea
<i>Asclepias tuberosa</i>	Butterfly Milkweed	<i>Phlox paniculata</i>	Fall phlox
<i>Asclepias viridiflora</i>	green-flowered milkweed	<i>Pycnanthemum virginianum</i>	Virginia mountainmint
<i>Bidens aristosa</i>	Midwest tickseed	<i>Rudbeckia fulgida</i>	orange coneflower
<i>Blephilia ciliata</i>	Downy wood-mint	<i>Schizachyrium scoparium</i>	Little bluestem
<i>Bouteloua curtipendula</i>	side-oats grama	<i>Senna hebecarpa</i>	Wild Senna
<i>Cacalia atriplicifolia</i>	Pale Indian plantain	<i>Senna marilandica</i>	Maryland wild senna
<i>Coreopsis tripteris</i>	tall tickseed	<i>Silene regia</i>	Royal catchfly
<i>Delphinium exaltatum</i>	tall larkspur	<i>Silphium terebinthinaceum</i>	Prairie Dock
<i>Euphorbia corollata</i>	Flowering spurge	<i>Silphium trifoliatum</i>	whorled rosinweed
<i>Frasera americana</i>	American Columbo	<i>Solidago patula</i>	Elm leaved goldenrod
<i>Gentiana andrewsii</i>	bottle gentian	<i>Solidago uliginosa</i>	bog goldenrod
<i>Gentianella quinquefolia</i>	stiff gentian	<i>Spartina pectinata</i>	prairie cordgrass
<i>Helianthus giganteus</i>	Giant sunflower	<i>Symphotrichum firmum</i>	Shining aster
<i>Kuhnia eupatroides</i>	false boneset	<i>Symphyotrichum praeltus</i>	willow aster
<i>Liatris scariaosa</i>	Savannah blazing star	<i>Symphyotrichum laeve</i>	Smooth blue aster
<i>Liatris spicata</i>	Dense blazing star	<i>Symphyotrichum urophyllum</i>	arrowleaf aster
<i>Lobelia cardinalis</i>	Cardinal flower	<i>Veronicastrum virginicum</i>	Culver's root
<i>Lobelia spicata</i>	spiked lobelia	<i>Zizia aurea</i>	Golden alexanders

Spring Planting- Since restoration efforts began in 1986 the lower “swale” sections of the prairie have resisted restoration efforts. The seed collected previously was intended for planting into a portion of this low peaty section. The goal was to have a planting unit disked up to expose a seed bed, and hand broadcast these seeds into two sections that continue to have poor growth of native species. This did not turn out to be possible, so volunteers planted the seed by hand into the designated planting areas in April and May. The glyphosate application made the soil accessible, and volunteers dropped the seed onto the exposed soil and compacted it with their feet.



It is possible that one reason for past failures of seeding efforts here is the abundance of tall non-native vegetation that grows quickly, smothering the newly planted seed. Mowing planting areas at least twice in the growing season may improve success.

Summer Mowing- In early August two units totaling about 9 acres were mowed by WPAFB to control tall goldenrod (*Solidago altissima*) and woody vegetation. The increase of these is likely due to insufficient disturbance events. Historically, prairie vegetation required disturbances such as burning and grazing to flourish. Without these, vegetation that thrives in the absence of disturbance will overtake the prairie. These units were mowed at 10”, leaving the basal rosettes of native forbs and grasses intact.

Fall Burn- On 11-16-2016 a burn team composed of members of WPAFB and the USFWS conducted a successful controlled burn on units 1 and 2, promising a good surge of prairie growth in 2017. Great job everyone!



OVERALL MANAGEMENT PLAN

This map is an estimate of the status of the restoration of HPSNL. I think it is pretty accurate, and shows the areas that still need attention (in gray). These areas will benefit by the established routine of early spring/fall spraying and overseeding of locally collected seeds.

Overall, problem species have changed somewhat overall. Non-native invasives such as smooth brome and wild parsnip have been greatly reduced. The new challenges are tall goldenrod and native blackberries/raspberries. The spread of these species is due to an insufficient disturbance interval. Blacksoil prairies in a rainy climate like southwest Ohio exist only if they receive sufficient disturbance. Historically that meant fire and grazing animals, but at HPSNL it now includes WPAFB's large mowing equipment. Prairie plants are adapted to thrive with limited disturbances. Tall goldenrod and woody plants decrease if mowed in the growing season. Therefore, I suggest mowing one unit per year in late summer between August 15 and August 30. Mowing should be at about 10-12" height.

I think the burn interval recommended by The Nature Conservancy in the 1990's shown here, should be reinitiated. Each year two units would be burned. Also, there will always be a unit that is not burned for a season, and one that is burned for two sequential years. If we combine this with the mowing suggested above a schedule would look like this:

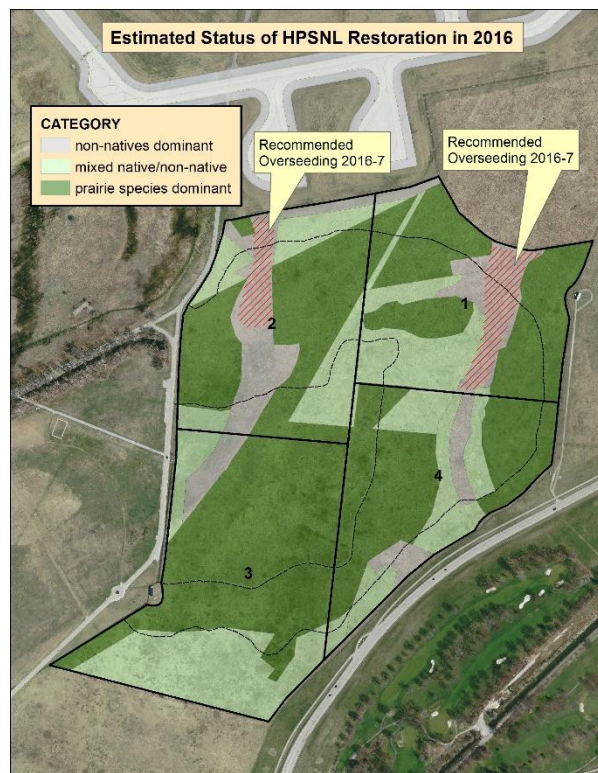
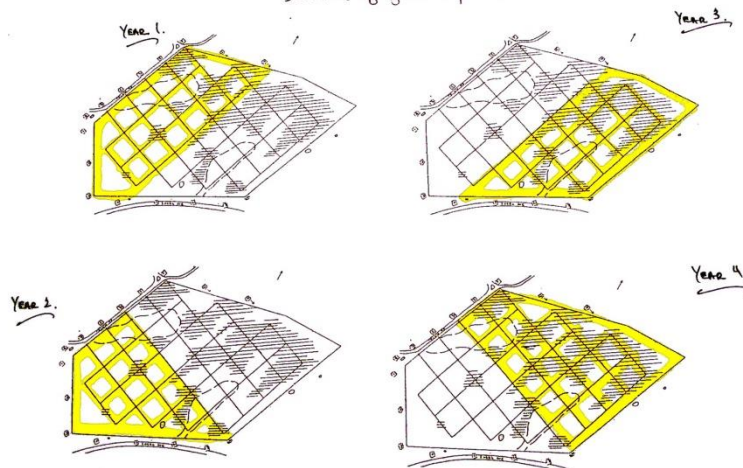


Figure 4. Prescribed fire management notation for Hoffman Prairie. Burn units highlighted in yellow.



	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>
Prescribed Fire	1 and 2	1 and 4	4 and 3	3 and 2	1 and 2
Early Spring Mowing	n/a	3	2	1	3
August Mowing	n/a	4	3	2	1

Advantages of this proposal are:

- A likely increase in desired prairie species and decrease of non-prairie/woody species.
- A variety of cover thicknesses will always be present that will accommodate a variety of wildlife/insect species.
- It's a simple process that is easy to plan and implement. Plan to be reviewed and amended as necessary.

Proposed 2016-17 Action Items

1. Spray areas crosshatched in red on map with glyphosate after first frost in November '16.
2. Lightly disk sprayed units, hand broadcast collected seed, and lightly disk again between December 1 and February 15.
3. Five Rivers MetroParks continues to engage contractor to mow the trails.
4. Mow unit 3 between March 15 and April 15. Mow planted areas in early June and early August.
5. Mow unit 4 between August 15 and 30 at a 12" height.
6. In November 2017 burn units 1 and 4.