

WISCONSIN PRAIRIE ENTHUSIASTS

EFFECTS OF FIRE ON SPIDER DISTRIBUTION IN SOUTHWESTERN WISCONSIN PRAIRIES

by Susan E. Riechert & William G. Reeder

ABSTRACT

The effects of burning on spider population composition and distribution was assessed on two prairies in southwestern Wisconsin. Seasonal activity patterns largely determine the difference responses of spider populations to immediate effects of burning. Soil and surface temperatures recorded during a burn on Curtis Prairie in the University of Wisconsin Arboretum and the changes in species composition observed following burns on Curtis and Oliver Prairies indicate that species active on the surface at the time of burning are eliminated, while those occupying sub-surface burrows or sacs under rocks or in clumps of dense vegetation escape thermal damage. Pitfall trap captures suggest that movement of individuals occurs following a burn between burned and unburned patches of prairie. The burned section of one prairie was largely inhabited by vagrants and other spiders which select areas of lesser cover on unburned prairie, while those species with higher moisture requirements and needing structural features for web production apparently moved onto the unburned section. No movement of spiders from the prairie onto surrounding monotypic agricultural lands was detected.

Chi square tests showed all arachnid species studied to have significant associations (99%) with plant species. Many of these associations remained after statistical removal of the influence of burning on spider and plant species distributions. Some of these positive associations appear to be

related to plant physiognomy.

The lasting effects of burning on spider distribution appear to be related to the state of prairie establishment. The changing nature of vegetation on Curtis Prairie appears to be reflected in modification of the arachnid component of the community through time. Spider species inhabiting a well-developed native prairie community (Oliver Prairie) appear to have adapted to the effects of periodic burning and show no change in species composition over time.

*reprint from "The Second Midwest Prairie Conference" Madison, WI September 18-20, 1970.

CALENDAR

JUNE 30 - WPE meeting, 7:00pm Thursday Rob Baller will be giving us helpful hints on Prairie Plant Identification and How to Identify Plants.

July 9 - Field trip to Prairie Nursery in Westfield.

CONSERVATION RESERVE PROGRAM

by Roger D. Allan, District Conservationist,
Soil Conservation Service, Rock County

A provision of the 1985 Federal Food Security Act has indirectly re-established prairie grasses on cropland in Rock and Green County. The program called CONSERVATION

RESERVE (CRP), takes highly erodible crop land out of production for 10 years. Landowners of eligible cropland submit a bid to the Agricultural Stabilization & Conservation Service (ASCS). The bid is basically a per acre payment the landowner will receive if his bid is accepted.

Landowners who successfully bid highly erodible cropland into CRP must establish a perennial cover of grasses, shrubs or trees. Cost-sharing is provided by ASCS to establish the perennial cover. In Rock County approximately 40 landowners have selected the native prairie grass cover. The most popular prairie grass cover used has been a mixture of Big Bluestem, Indiangrass and Switchgrass. Prairie Enthusiasts and the DNR wildlife staff have assisted many landowners in locating seed and completing the seeding.

The native prairie grass seeding option for CRP participants in Rock County has been successful because of a cooperative effort by many individuals. If that cooperative effort continues, many more landowners will certainly be seeding prairie grasses.

If you would like more information on this program, contact the Soil Conservation Service in Janesville by calling 755-2187.

HONEY CREEK PARK - MONROE

by Kay Barry

A new park is on the drawing board for the City of Monroe - Honey Creek Park, a park with a different look. About 1 1/2 years ago, when the possibility of a park on the West edge of Monroe was first discussed, Fred Faessler approached the Park Department with a request for a small prairie area. The prairie planting - mesic, wet mesic, and wet has grown to about 10 acres! The landscaping plans have been developed in cooperation with John Harrington, Assistant Professor, Department of Landscape Architecture, University of Wisconsin-Madison, and 9 of his students. The Monroe Park Board has approved a plan that is actually a composite of the students'

individual plans along with the prairie plantings, a southern shrub car community will be developed along Honey Creek on the path boundary. On the East edge as a screen for future industrial development, a forest edge community will be planted. Along the Southern and Western boundaries, plantings of the forest edge vegetation will be used. The Southern half of the park will be a typical park with mowed turf, shelter house, toilets, picnic areas, a ball diamond, and playground equipment.

WPE members in the Monroe area have helped develop the prairie planting plan and will be involved in the actual planting in June. Original plans called for planting to be phased in over a 3 year period and involving great seed collecting efforts by WPE members and community volunteers. Newspaper articles, radio programs, and presentations to service clubs, and casual discussions have excited the people of Monroe. Just recently the Monroe Kiwanis Club has said they would underwrite the cost of the prairie plantings and the Park Board has decided to name the prairie "The Kiwanis Prairie". The Kiwanis Club would like to see the entire prairie planting completed this year. However, the amount of seed available will determine the extent of the 1988 planting.

SUCCESSFUL PRAIRIE BURNS IN JANESVILLE by Tom Presny, Janesville Park Director

Forgotten for many years, the practice of burning prairie areas as a management tool was revived recently in the City of Janesville. On Saturday, April 9, 1988 the Wisconsin Prairie Enthusiasts in combination with the Janesville Parks Department and other interested participants undertook the burning of four city prairie areas. Some twenty volunteers assisted in the prescribed burning under the direction of DNR Area Wildlife Manager Brian Buenzow.

Approximately twelve acres of prairie was successfully burned. Weather conditions were generally good but late afternoon winds did cause some concern. The four areas that were burned within the city included the cloverlea

interchanged around the Crosby-Willard Bridge on the city's west side, the Sussex section of the city greenbelt systems on the city's east side, the Jackman Park prairie restoration area location on South Pontiac Drive, and the hillside adjacent to the city's ice arena.

Each of these locations have either naturally occurring populations of prairie plants, or have been planted with prairie grasses and wildflowers within the last five years. At the time of the burn the Sussex greenbelt prairie area had Pasque flowers blooming. It's interesting to point out that after returning to the site one week after the burn Pasque flowers were again blooming in abundance within the burned area. This was to the delight of many of the area residents who were concerned that the burn would jeopardize the Pasque flower blooming this year.

Many side benefits resulted from the burn beyond simply managing the prairie areas. We were able to inform a large number of onlookers and interested people why a prairie needs to be burned and what benefits there are for not only the prairie but wildlife that inhabit the area. We were able to educate many people about prairies and the value they have. We established that prairies are areas worth preserving and worth caring about, and we instilled a sense of ownership with many of these people who will become the future guardians of these areas.

The Janesville Park Department is grateful for the time and assistance provided by volunteers of the Wisconsin Prairie Enthusiasts who helped to make this prairie burn a complete success. We hope for continued cooperation in the future when we solicit your volunteer assistance and expertise.

GLOSSARY

BULBS - An underground organ composed of fleshy scales attached to a central or basal stem.

COMPOSITES - An advanced family of plants

(Compositae or Asteraceae) whose members have flower heads composed of many small florets. More prairie plants belong to the composite family than any other family. Typical members include the Asters, Coneflowers, Blazingstars, Sunflowers, Silphiums, and the Goldenrods.

CORM - A modified underground stem that is fleshy and thickened, often similar in appearance to a bulb.

FORB - A specialized term for any non-grassy herbaceous plant. Used particularly for the broadleaved plants of the prairie.

HERBACEOUS - Refers to non-woody plants which normally die back to the ground at the end of a growing season. Has a green color and a leafy texture.

GRASS - Member of the Gramineae. Herbaceous plants which have a monocotyledon, jointed stem, slender sheathing leaves, and flowers borne in spikelets of bracts. Gramineae is second only to the Compositae in total number of prairie species. However, grasses are generally more abundant than forbs in natural prairies.

LEGUMES - Members of the Pea (Fabaceae) family. An important component of the prairie. Legumes are noted for their ability, in conjunction with Rhizobium bacterium, to transfer nitrogen from the air into a form utilized by plants.

PRAIRIE, SHORTGRASS - A general classification of prairie in which the average height is 2-3 feet.

PRAIRIE, TALLGRASS - A general classification of prairie in which the height is 4-8 feet.

RHIZOBIUM - A bacterium which grows on the roots of legumes. It is this bacterium which is responsible for transforming nitrogen from the air into a form utilized by plants. Legume seeds should be inoculated with the appropriate rhizobium bacterium at the time of planting.

RHIZOME - A modified underground stem, usually

growing horizontally. Usually contains buds on top and roots underneath.

SEDGES - Grass-like plants, with distinctive fruiting structure and triangular leaves that differentiate them from grasses. Most sedges grow in moist soils, but some prefer dry or mesic soils.

BOOKS

A GARDEN OF WILDFLOWERS by Henry W. Art - An informative book on the propagation of 101 Native Wildflowers found throughout the U.S. (\$13.45 from Prairie Nursery)

THE PRAIRIE GARDEN by J. Robert Smith and Beatrice S. Smith. Packed with information on 70 different prairie plants. Very useful for the wild plant gardener who wishes to grow and propagate these fascinating perennials. (\$10.95 from Prairie Nursery)

PRAIRIE PROPAGATION HANDBOOK by Harold W. Rock. Highly informative, with specific information on cultivating nearly 300 different prairie species, both well-known and obscure. (\$4.00 from Prairie Nursery)

PRAIRIE NURSERY catalog. This is very informative catalog about some of our native wild flowers and grasses. It can be purchased for \$1.00.

UPCOMING FIELD TRIP

On July 9th (Saturday) at 1pm, WPE is planning a field trip to Prairie Nursery in Westfield. Neil Diboll and Brian Bader will be conducting a tour through their nursery operation. They have been in business since 1972 providing their expertise in wild flowers and grasses to many people in the Midwest region.

Directions to Prairie Nursery are as follows. Interstate to Hwy 78 North (near Portage). Follow Hwy 78 to the Westfield

exit. Turn right, County E north 1 mile to stop sign. Go straight to 7th Court. Turn right on Dyke Avenue. 1 mile east, driveway is before bridge. LOOK FOR SIGN.

The following is a list of wild flowers and grasses that may be found in various soil types. You will notice that some of the same plants grow in different soil types. The list is courtesy of Prairie Nursery*.

PRAIRIE PLANTS FOR MOIST SOILS*

Alum Root (Heuchera richardsonii)
Bergamont (Monarda fistulosa)
Bottle Gentian (Gentiana andrewsii)
Canada Anemone (Anemone canadensis)
Cardinal Flower (Lobelia cardinalis)
Culver's Root (Veronicastrum virginicum)
Cupplant (Silphium perfoliatum)
Great St. Johnswort (Hypericum pyramidatum)
Illinois Bundle Flower (Desmanthus illinoense)
Ironweed (Vernonia fasciculata)
Joe Pye Weed (Eupatorium maculatum)
New England Aster (Aster novae-angliae)
Prairie Blazingstar (Liatris pycnostachya)
Prairie Dock (Silphium terebinthinaceum)
Queen of the Prairie (Filipendula rubra)
Red Milkweed (Asclepias incarnata)
Rosinweed (Silphium integrifolium)
Shootingstar (Dodecatheon meadia)
Spiderwort (Tradescantia ohiensis)
Stiff Goldenrod (Solidago rigida)
Sweet Black-Eyed Susan (Rudbeckia subtomentosa)
Turk's Cap Lily (Lilium superbum)
Turtlehead (Chelone glabra)
White False Indigo (Baptisia leucantha)
Wild Iris (Iris shrevei)
Yellow Coneflower (Ratibida pinnata)

Big Bluestem Grass (Andropogon gerardi)
Bluejoint Grass (Calamagrostis canadensis)
Prairie Cordgrass (Spartina pectinata)

PRAIRIE PLANTS FOR MESIC SOILS*

Alum Root (Heuchera richardsonii)
Bergamont (Monarda fistulosa)
Black-Eyed Susan (Rudbeckia hirta)

PRAIRIE PLANTS FOR DRY SANDY SOILS*

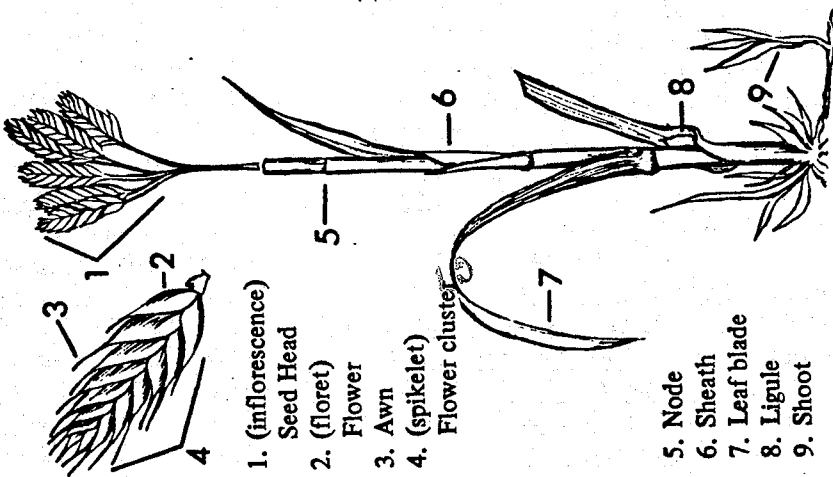
- Bushclover (Lespedeza capitata)
 Butterflyweed (Asclepias tuberosa)
 Canada Tick-trefoil (Desmodium canadense)
 Compassplant (Silphium laciniatum)
 Cream False Indigo (Baptisia leucophaea)
 Culver's Root (Veronicastrum virginicum)
 Flowering Spurge (Euphorbia corollata)
 Heartleaf Golden Alexander (Zizia aptera)
 Heath Aster (Aster ericoides)
 Illinois Bundle Flower (Desmanthus illinoense)
 Illinois Tick-trefoil (Desmodium illinoense)
 Leadplant (Amorpha canescens)
 Milk Vetch (Astragalus canadensis)
 New Jersey Tea (Ceanothus americanus)
 Nodding Pink Onion (Allium cernuum)
 Ox-Eye Sunflower (Heliopsis helianthoides)
 Pale Purple Coneflower (Echinacea pallida)
 Prairie Blazingstar (Liatris pycnostachya)
 Prairie Dock (Silphium terebinthiaceum)
 Prairie Cinquefoil (Potentilla arguta)
 Purple Coneflower (Echinacea purpurea)
 Purple Prairie Clover (Petalostemum purpureum)
 Rattlesnake Master (Eryngium yuccifolium)
 Rosinweed (Silphium integrifolium)
 Rough Blazingstar (Liatris aspera)
 Shootingstar (Dodecatheon meadia)
 Showy Goldenrod (Solidago speciosa)
 Sky Blue Aster (Aster azureus)
 Smooth Penstemon (Penstemon digitalis)
 Smooth Aster (Aster laevis)
 Spiderwort (Tradescantia ohiensis)
 Stiff Coreopsis (Coreopsis palmata)
 Stiff Goldenrod (Solidago rigida)
 Sweet Black-Eyed Susan (Rudbeckia subtomentosa)
 Thimbleweed (Anemone cylindrica)
 Western Sunflower (Helianthus occidentalis)
 White Prairie Clover (Petalostemum candidum)
 White False Indigo (Baptisia leucantha)
 Wild Quinine (Parthenium integrifolium)
 Wild Senna (Cassia hebecarpa)
 Yellow Coneflower (Ratibida pinnata)
 Big Bluestem Grass (Andropogon gerardi)
 Canada Wild Rye (Elymus canadensis)
 Indiangrass (Sorghastrum nutans)
 Little Bluestem Grass (Andropogon scoparius)
 Prairie Dropseed (Sporobolus heterolepis)
 Switchgrass (Panicum virgatum)
 Alum Root (Heuchara richardsonii)
 Bearsdtongue (Penstemon grandiflorus)
 Bergamont (Monarda fistulosa)
 Birdsfoot Violet (Viola pedata)
 Black-Eyed Susan (Rudbeckia hirta)
 Blue-Eyed Grass (Sisyrinchium campestre)
 Bushclover (Lespedeza capitata)
 Butterflyweed (Asclepias tuberosa)
 Dotted Mint (Monarda punctata)
 Downy Sunflower (Helianthus mollis)
 Dwarf Blazingstar (Liatris cylindracea)
 Fireweed (Epilobium angustifolium)
 Flowering Spurge (Euphorbia corollata)
 Gray Goldenrod (Solidago nemoralis)
 Hairy Puccoon (Lithospermum caroliniense)
 Harebell (Campanula rotundifolia)
 Heath Aster (Aster ericoides)
 Leadplant (Amorpha canescens)
 Lupine (Lupinus perennis)
 Pale Purple Coneflower (Echinacea pallida)
 Prairie Larkspur (Delphinium virescens)
 Pasque Flower (Anemone patens)
 Poppy Mallow (Callirhoe triangulata)
 Prairie Conquefoil (Potentilla arguta)
 Prairie Smoke (Geum triflorum)
 Rough Blazingstar (Liatris aspera)
 Showy Goldenrod (Solidago speciosa)
 Sky Blue Aster (Aster azureus)
 Slender Beardstongue (Penstemon gracilis)
 Smooth Aster (Aster laevis)
 Spiderwort (Tradescantia ohiensis)
 Stiff Coreopsis (Coreopsis palmata)
 Stiff Goldenrod (Solidago rigida)
 Thimbleweed (Anemone cylindrica)
 Western Sunflower (Helianthus occidentalis)
 White Aster (Aster ptarmicoides)
 Yellow Coneflower (Ratibida pinnata)
 Big Bluestem Grass (Andropogon gerardi)
 Indiangrass (Sorghastrum nutans)
 Little Bluestem Grass (Andropogon scoparius)
 Prairie Dropseed (Sporobolus heterolepis)
 Sideoats Grama Grass (Bouteloua curtipendula)
 Switchgrass (Panicum virgatum)

To "read" the prairie you have to know some of the characteristic plants. The following prairie species are a beginner's vocabulary—slightly over 50 plants. Some are grasses, some are shrubs, some are forbs (wild-flowers). Some of the species are general prairie plants found in a variety of prairie types. Others are more specific, showing distinct preferences for limited conditions. They vary in size, color, and flowering period. Plants illustrated here comprise a basic, utilitarian vocabulary. To help you understand the terminology used in the plant descriptions, the next illustrations describe parts of grasses and other plants.

Plant Parts

Other Plants

Grasses



1. (inflorescence) Seed Head
2. (floret) Flower
3. Awn
4. (spikelet) Flower cluster
5. Node
6. Sheath
7. Leaf blade
8. Ligule
9. Shoot

1. Terminal end of plant
2. Spike of flowers, or flower head
3. Bract
4. Stipule
5. Blade
6. Petiole (leaf stalk)
7. Simple leaf
8. Clasp leaf
9. Stem
10. Compound leaf (with three leaflets)
11. Opposite leaves
12. Alternate leaves
13. Whorled leaves
14. Flower
15. Margin lobed
16. Deeply cut leaf
17. Margin toothed
18. Basal leaf

The plant illustrations are first divided into two groups: grasses, and other plants. The other plants are further grouped by flower color, so that all the plants with blue-red-purple flowers are pictured first, then the plants with yellow-orange flowers, and finally the plants with white-pink-cream flowers. They are also in approximate chronologic order depending on their flowering date, so that, for example, blue flowered plants blooming in the spring are pictured before blue flowered plants blooming in the summer.

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