

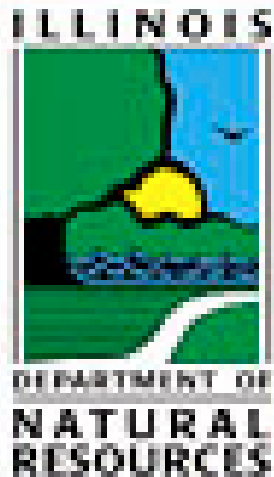
# Glacial Drift Hill Prairies of the Prairie Peninsula

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# Prairies in the Prairie State

- Mesic or Black Soil Prairies
- Wet-Mesic Prairies
- Sand Prairies





**Prairie Ridge State Natural Area, near Newton**

# Wet-Mesic Prairie

- *Spartina pectinata*  
(slough grass)



# Heliopsis helianthoides

- False sunflower or oxeye
- obtuse phyllaries



Dan Busemeyer, Illinois Natural History Survey



Dan Busemeyer, Illinois Natural History Survey

# What are Hill Prairies?

Hill prairies are island-like patches of prairie vegetation occurring on otherwise wooded steep slopes that face south or south-west. In Illinois, hill prairies appear intermittently along most of the western border of the state formed by the Mississippi River and along the Illinois River from north of Peoria south to its junction with the Mississippi, with a few in east-central Illinois and other scattered localities.

- Loess Hill Prairies
- Glacial Till Hill Prairies
- Sand Hill Prairies
- Gravel Hill Prairies



# What is Loess?

- Loess is a term for the type of dry, well-drained soil found along many portions of the bluffs of the Mississippi River.
- This loess soil layer resulted from a fine silt that was blown up from the floodplain and deposited on the bluffs over hundreds of years.

# Loess Hill Prairie

- Certain plants are adapted to the harsh, dry conditions of the loess hill prairies, creating unique communities at these sites.
- Grasses such as side-oats gramma, little bluestem, big bluestem, and Indian grass dominate.
- Wildfires once helped to maintain these open areas, preventing trees from taking over.
- DNR now manages hill prairies using controlled burns to mimic that historically natural process.

# Fults Hill Prairie Nature Preserve

- 532 acres of uplands and includes woodland, prairie and glade communities.
- largest complex of high quality loess hill prairies in Illinois.
- dedicated as a preserve in 1970
- in 1986 it was recognized federally by the U.S. Department of Interior as a National Natural Landmark.

# Characteristics of Glacial Drift Hill Prairies

- extensively studied by Vestal 1918
- S- to SW-facing slopes (high insolation/dry winds)
- Unstable soil surface (steep slopes/sparse cover)
- Heavy clay soils (slumping/soil slipping)
- Anthropomorphic (fire/grazing/cutting)

# Dominant Grasses

- *Schizachyrium scoparium*
- *Sorghastrum nutans*
- *Andropogon gerardii*



# Occasional Grasses

- *Bouteloua curtipendula*
- *Dichanthelium acuminatum*
- *Sporobolus heterolepis*
- *Dichanthelium oligosanthos*

# Common Forbs

(high frequency and cover)

- *Euphorbia corollata* >>
- *Echinacea pallida*
- *Lithospermum canescens*
- *Monarda bradburiana*
- *Silphium terebinthinaceum*
- *Solidago nemoralis*
- *Thaspium barbinode*



# Forbs (usually present in low numbers)

- *Brickellia eupatorioides*
- *Calystegia spithamea*
- *Chamaecrista fasciculata*
- *Comandra umbellata*
- *Coreopsis tripteris*
- *Galium circaezans*
- *Helianthus divaricatus* >>
- *Parthenium integrifolium*



# Common Woody Species

- *Amorpha canescens*
- *Ceanothus americanus*
- *Cornus drummondii*
- *Corylus americana* >>
- *Rosa carolina*



# Exotic Species

- *Melilotus albus*\*\*\*\*
- *Medicago lupulina*
- *Poa compressa*
- *Poa pratensis*
- *Prunella vulgaris* >>



# Woody Encroachment at Waterworks Hill Prairie (Behnke and Ebinger, 1989)



Species	Area A		Area B	
	Freq.%	stems/ha	Freq.%	stems/ha
<i>Euonymus alatus</i>	32	2518	100	13100
<i>Cornus florida</i>	26	1710	72	5600
<i>Viburnum prunifolium</i>	18	1176	68	7900
<i>Ostrya virginiana</i>	18	1066	32	1700
<i>Quercus velutina</i>	15	735	4	200
<i>Hydrangea arborescens</i>	2	478		
<i>Malus ioensis</i>	9	422	20	800
<i>Lonicera maackii</i>	7	220	44	1600
<i>Fraxinus americana</i>	6	202	40	1600
<i>Toxicodendron radicans</i>	4	202	72	6700
<i>Ligustrum vulgare</i>	6	165	36	1300
<b>Others</b>		<b>808</b>		<b>7400</b>
<b>Totals</b>		<b>9537</b>		<b>47900</b>

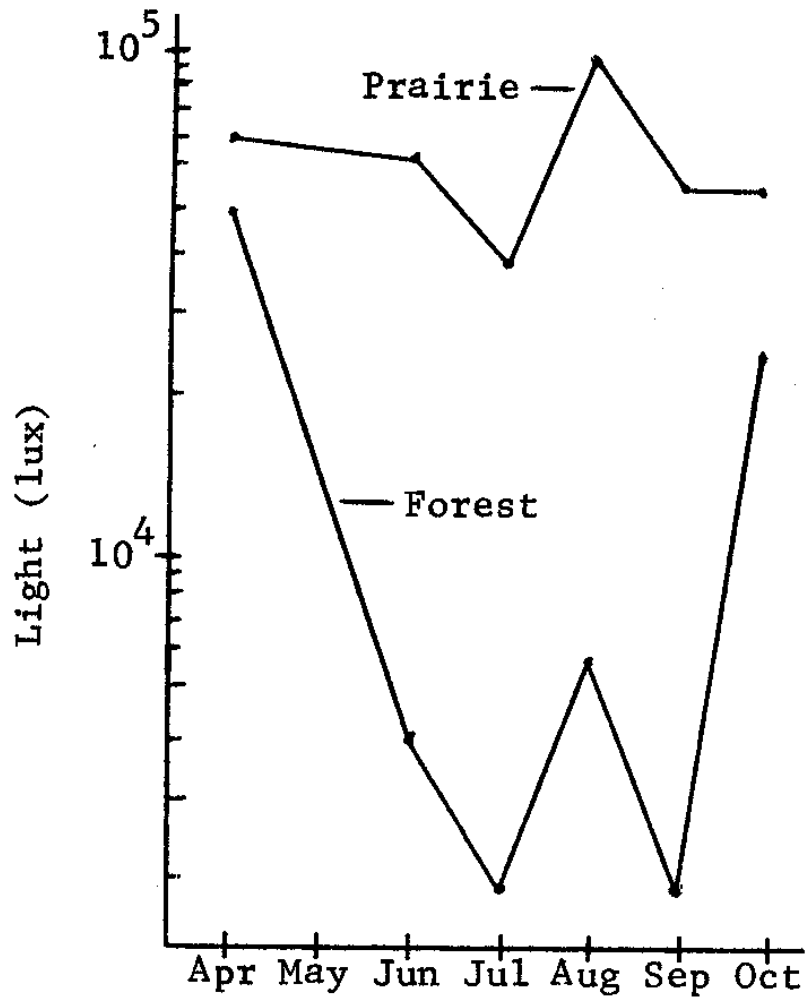


Fig. 1. Average daily light intensity during the growing season at the Waterworks sampling stations.

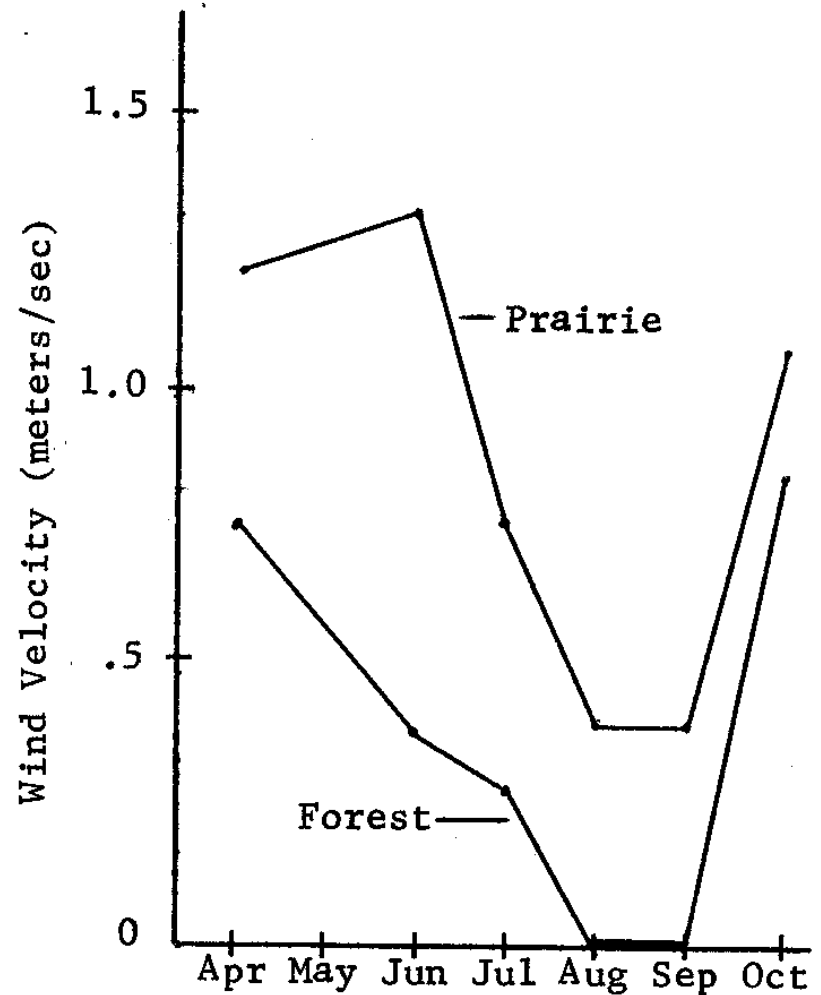


Fig. 2. Average daily wind velocity during the growing season at the Waterworks sampling stations.

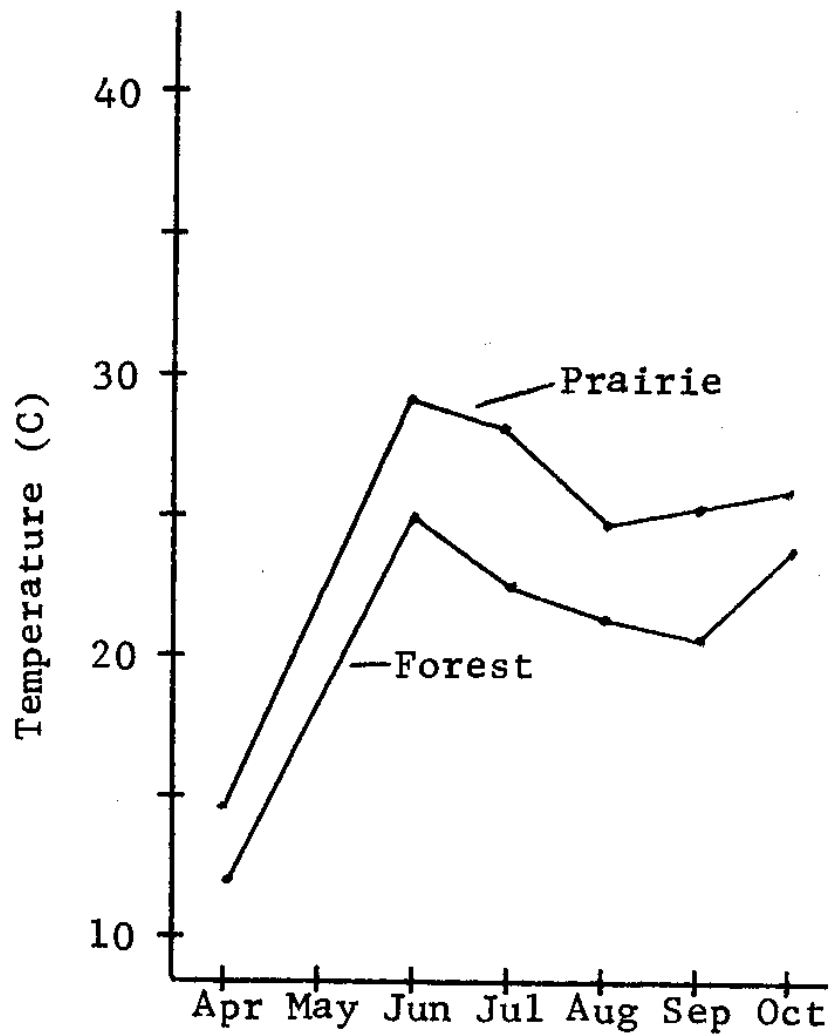


Fig. 3. Average daily air temperature during the growing season at the Waterworks sampling stations.

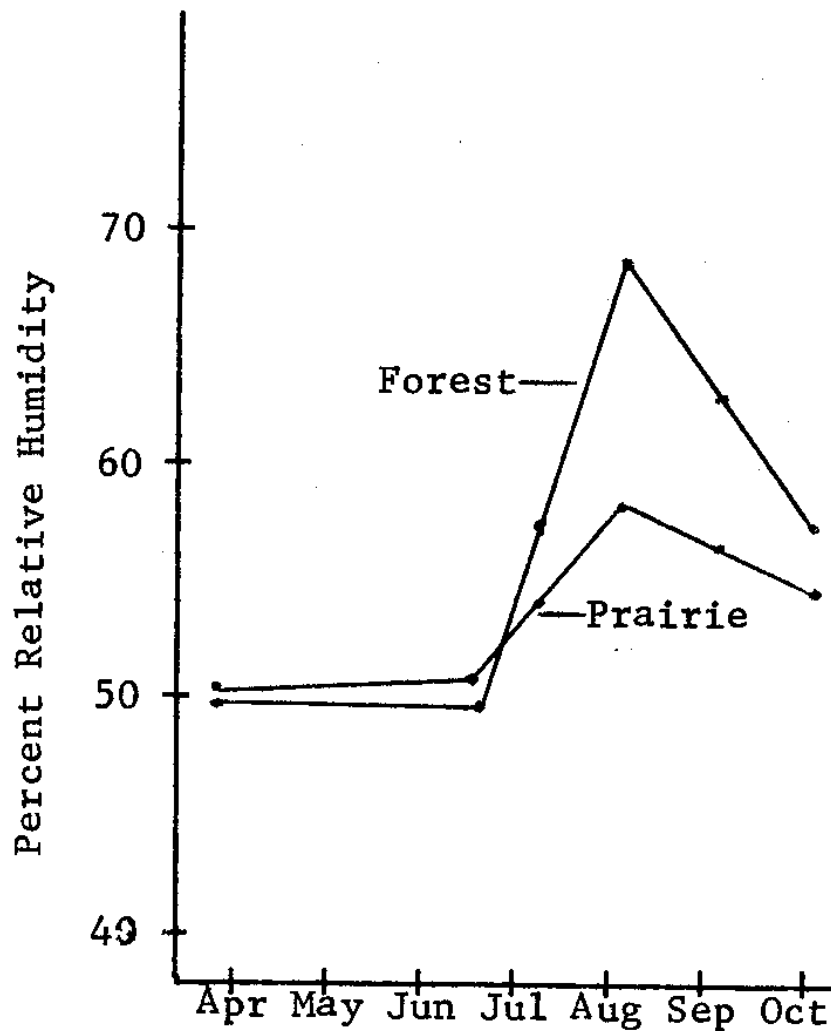


Fig. 4. Average daily relative humidity during the growing season at the Waterworks sampling stations.

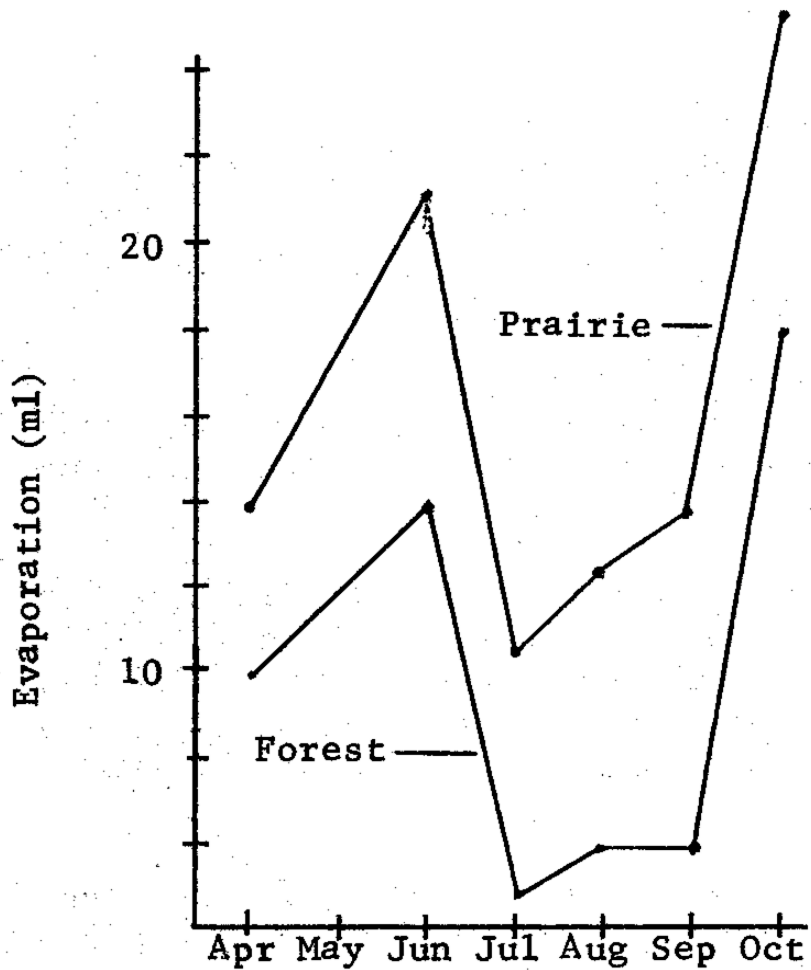


Fig. 5. Average daily evaporation during the growing season at the Waterworks sampling stations.

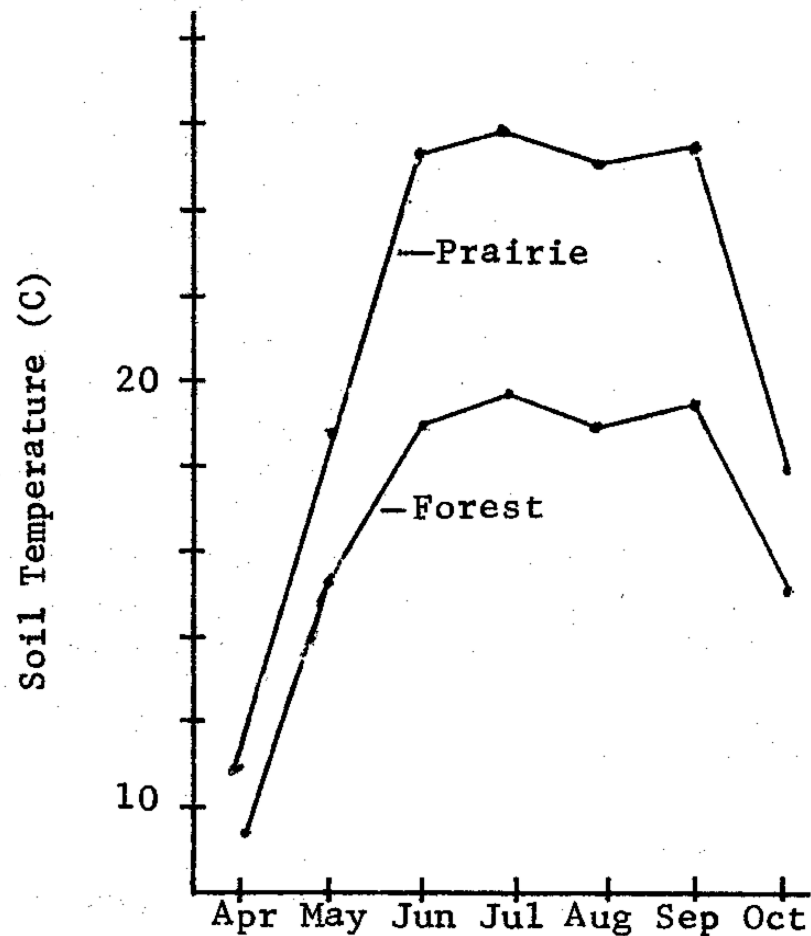


Fig. 6. Average daily soil temperature during the growing season at the Waterworks sampling stations.

# Macoupin County Glacial Drift Prairies

Parameters	Beaver Dam State Park	Roderick Prairie N. P.	Humphries Farm-South	Humphries Farm-North
Total species	<b>114</b>	<b>95</b>	<b>106</b>	<b>95</b>
Native species	<b>103</b>	<b>85</b>	<b>95</b>	<b>83</b>
% Adventive sp.	<b>9.6</b>	<b>10.5</b>	<b>10.4</b>	<b>12.6</b>
FQI (native sp.)	<b>47.3</b>	<b>41.4</b>	<b>44.9</b>	<b>40.4</b>
Mean CC (native)	<b>4.7</b>	<b>4.5</b>	<b>4.6</b>	<b>4.4</b>
FQI (all sp.)	<b>44.8</b>	<b>39.0</b>	<b>42.2</b>	<b>38.0</b>
Mean CC (all)	<b>4.2</b>	<b>4.0</b>	<b>4.1</b>	<b>3.9</b>

# MACOUPIN COUNTY (DOMINANT SPECIES)

Species	Beaver Dam	Roderick N. P.	Humphries South	Humphries North
<i>Andropogon gerardii</i>	32.5	24.1	13.6	24.9
<i>Schizachyrium scoparium</i>	6.7	18.1	37.8	43.2
<i>Echinacea pallida</i>	11.0	14.9	15.6	13.6
<i>Ratibida pinnata</i>	6.4	25.7	3.6	9.0
<i>Physostegia virginiana</i>	12.4	6.7	--	10.7
<i>Oligoneuron rigidum</i>	9.1	--	2.1	24.3
<i>Amorpha canescens</i>	10.4	--	--	3.5
<i>Carex spp.</i>	5.3	16.1	1.6	6.1
<i>Ruellia humilis</i>	10.3	2.7	--	7.6
<i>Euphorbia corollata</i>	7.5	1.4	3.1	2.5
<i>Eupatorium altissimum</i>	5.6	2.0	--	1.7
<i>Lithospermum canescens</i>	5.6	1.9	--	1.4
<i>Solidago nemoralis</i>	3.8	4.0	16.1	18.3

# *Ratibida pinnata* – Drooping Coneflower



# WINDFALL PRAIRIE



Species	Importance Value
<i>Schizachyrium scoparium</i>	24.6
<i>Sorghastrum nutans</i>	22.9
<i>Bouteloua curtipendula</i>	20.3
<i>Aster laevis</i>	17.6
<i>Silphium terebinthinaceum</i>	14.9
<i>Solidago nemoralis</i>	8.6
<i>Coreopsis tripteris</i>	7.3
<i>Lithospermum canescens</i>	6.8
<i>Pedicularis canadensis</i>	6.7
<i>Phlox pilosa</i>	6.6
<i>Carex spp.</i>	6.4
<i>Thaspium barbinode</i>	6.0
<i>Comandra umbellate</i>	4.6
<i>Liatris cylindracea</i>	4.6
<i>Blephilia ciliata</i>	4.1

# CONFLOWER PRAIRIE



Species	Importance Value
<i>Andropogon gerardii</i>	42.2
<i>Euphorbia corollata</i>	19.1
<i>Helianthus divaricatus</i>	18.8
<i>Ratibida pinnata</i>	14.9
<i>Comandra umbellata</i>	13.4
<i>Rosa carolina</i>	12.3
<i>Echinacea pallida</i>	10.8
<i>Chamaecrista fasciculata</i>	9.2
<i>Monarda fistulosa</i>	6.6
<i>Solidago canadensis</i>	6.1
<i>Schizachyrium scoparium</i>	5.3
<i>Dichanthelium acuminatum</i>	5.0
<i>Verbesina helianthoides</i>	4.2
<i>Sporobolus heterolepis</i>	3.8

# Coneflower Glacial Drift Hill Prairie Natural Area, Moultrie County



*Echinacea pallida*, pale coneflower



# Coneflower Hill Prairie, Moultrie Co., Illinois









- *Andropogon gerardii* – Big Bluestem



# *Schizachyrium scoparium* – Little Bluestem



*Comandra umbellata* – False Toadflax





**Special Thanks to:**

**•IL DNR grant, Non-game Wildlife Funds**