



Appendix E-57: Savanna

**7.** Please also rank these threats to the Wildlife in Savanna Grassland Habitats in Indiana.

	<b>Critical threat</b>	<b>Serious threat</b>	<b>Somewhat of a threat</b>	<b>Slight threat</b>	<b>No threat</b>	<b>Unknown</b>	<b>Response Total</b>													
Habitat loss (breeding range)	100% (2)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	<b>2</b>													
Habitat loss (feeding/foraging areas)	100% (2)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	<b>2</b>													
Small native range (high endemism)	0% (0)	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	<b>2</b>													
Near limits of natural geographic range	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	0% (0)	<b>2</b>													
Large home range requirements	0% (0)	0% (0)	0% (0)	50% (1)	0% (0)	50% (1)	<b>2</b>													
Viable reproductive population size or availability	0% (0)	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	<b>2</b>													
Specialized reproductive behavior or low reproductive rates	0% (0)	0% (0)	0% (0)	50% (1)	0% (0)	50% (1)	<b>2</b>													
Degradation of movement/migration routes (overwintering habitats, nesting and staging sites)	0% (0)	50% (1)	0% (0)	0% (0)	0% (0)	50% (1)	<b>2</b>													
Genetic pollution (hybridization)	0% (0)	0% (0)	0% (0)	0% (0)	50% (1)	50% (1)	<b>2</b>													
Unknown	0% (0)	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	<b>2</b>													
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>													
<b>Total Respondents</b>							<b>2</b>													

**8.** Other threats to the Wildlife in Savanna Grassland Habitats in Indiana.

1. Fire suppression

2. Fire suppression is a major threat to many, many wildlife species in the state. Savanna habitats are seriously degraded because fire suppression has allowed shade tolerant species to dominate the understory, changing the open savanna structure into a dense forest with an impenetrable understory. Fire keeps the structure open and results in a varied mosaic of habitats, including fire killed trees which provide both food and shelter.

**Total Respondents 2**

**9.** Please briefly describe the top two threats to the Wildlife in Savanna Grassland Habitats in Indiana identified above.

1. This species is more of an obligate to open areas with scattered dead trees than most Indiana species. Outright loss of this habitat configuration is probably the leading threat to the Red-headed Woodpecker. West Nile Virus is probably currently the second greatest threat.

2. Fire suppression. See above.

**10.** Please rank the following threats to the HABITAT of the Wildlife in Savanna Grassland Habitats in Indiana.

	Critical threat	Serious threat	Somewhat of a threat	Slight threat	No threat	Unknown	Response Total												
Commercial or residential development (sprawl)	50% (1)	50% (1)	0% (0)	0% (0)	0% (0)	0% (0)	2												
Counterproductive financial incentives or regulations	0% (0)	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	2												
Invasive/non-native species	50% (1)	50% (1)	0% (0)	0% (0)	0% (0)	0% (0)	2												
Nonpoint source pollution (sedimentation and nutrients)	0% (0)	0% (0)	0% (0)	50% (1)	0% (0)	50% (1)	2												
Habitat fragmentation	50% (1)	0% (0)	50% (1)	0% (0)	0% (0)	0% (0)	2												
Successional change	100% (2)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	2												
Diseases (of plants that create habitat)	0% (0)	50% (1)	0% (0)	0% (0)	0% (0)	50% (1)	2												
Habitat degradation	100% (2)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	2												
Climate change	0% (0)	50% (1)	0% (0)	0% (0)	0% (0)	50% (1)	2												
Stream channelization	0% (0)	0% (0)	0% (0)	0% (0)	50% (1)	50% (1)	2												
Impoundment of water/flow regulation	0% (0)	0% (0)	0% (0)	50% (1)	0% (0)	50% (1)	2												
Agricultural/forestry practices	100% (2)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	2												
Residual contamination (persistent toxins)	0% (0)	0% (0)	0% (0)	50% (1)	0% (0)	50% (1)	2												
Point source pollution (continuing)	0% (0)	0% (0)	0% (0)	50% (1)	0% (0)	50% (1)	2												
Mining/acidification	0% (0)	0% (0)	0% (0)	0% (0)	50% (1)	50% (1)	2												
Drainage practices (stormwater runoff)	0% (0)	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	2												
Unknown	0% (0)	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	2												
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0												
<b>Total Respondents</b>							<b>2</b>												

**11.** Other HABITAT threats to the Wildlife in Savanna Grassland Habitats in Indiana.

1. Loss of disturbance regimes that maintained the open structure of savannas (and swamp-forests) where the Red-headed Woodpecker resides.

2. Fire suppression is the major threat. Lack of fire also results in an increase of shade-tolerant invasive species like garlic mustard and Asian bush honeysuckle, further degrading the savanna habitat.

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**12.** Please briefly describe the top two HABITAT threats to the Wildlife in Savanna Grassland Habitats in Indiana identified above.

1. Conversion of savanna to agricultural and development uses.  
Loss of open structure in existing savannas due to loss of disturbances such as fire.
2. Fire suppression is resulting in successional change to more shade-tolerant forests. Forestry practices are not emphasizing the need for fire in savanna areas enough.

**Total Respondents**      **2**

**13.** What current monitoring efforts by state agencies are you aware of for the Wildlife in Savanna Grassland Habitats in Indiana?

	Yes, these efforts occur	Not aware of these efforts occurring	Response Total
Statewide year-round monitoring conducted by state agencies	0% (0)	100% (2)	<b>2</b>
Statewide once a year monitoring conducted by state agencies	0% (0)	100% (2)	<b>2</b>
Periodic statewide (less than once a year but still regularly scheduled) monitoring conducted by state agencies	0% (0)	100% (2)	<b>2</b>
Occasional statewide (less than once a year and not regularly scheduled) monitoring conducted by state agencies	0% (0)	100% (2)	<b>2</b>
Regional or local year-round monitoring conducted by state agencies	0% (0)	100% (2)	<b>2</b>
Regional or local once a year monitoring conducted by state agencies	0% (0)	100% (2)	<b>2</b>
Periodic regional or local (less than once a year but still regularly scheduled) monitoring conducted by state agencies	0% (0)	100% (2)	<b>2</b>
Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by state agencies	0% (0)	100% (2)	<b>2</b>
<b>Total Respondents</b>			<b>2</b>

**14.** What current monitoring efforts by other organizations are you aware of for the Wildlife in Savanna Grassland Habitats in Indiana?

	Yes, these efforts occur	Not aware of these efforts occurring	Response Total
Statewide year-round monitoring conducted by other organizations	0% (0)	100% (2)	<b>2</b>
Statewide once a year monitoring conducted by other organizations	50% (1)	50% (1)	<b>2</b>
Periodic statewide (less than once a year but still regularly scheduled) monitoring conducted by other organizations	0% (0)	100% (2)	<b>2</b>

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Occasional statewide (less than once a year and not regularly scheduled) monitoring conducted by other organizations	0% (0)	100% (2)	<b>2</b>
Regional or local year-round monitoring conducted by other organizations	0% (0)	100% (2)	<b>2</b>
Regional or local once a year monitoring conducted by other organizations	0% (0)	100% (2)	<b>2</b>
Periodic regional or local (less than once a year but still regularly scheduled) monitoring conducted by other organizations	0% (0)	100% (2)	<b>2</b>
Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by other organizations	50% (1)	50% (1)	<b>2</b>
<b>Total Respondents</b>			<b>2</b>

**15.** How crucial are these monitoring efforts by state agencies for the conservation of the Wildlife in Savanna Grassland Habitats in Indiana?

	<b>Very crucial</b>	<b>Somewhat crucial</b>	<b>Slightly crucial</b>	<b>Not crucial</b>	<b>Unknown</b>	<b>Response Total</b>
Statewide year-round monitoring conducted by state agencies	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>
Statewide once a year monitoring conducted by state agencies	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>
Periodic statewide (less than once a year but still regularly scheduled) monitoring conducted by state agencies	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>
Occasional statewide (less than once a year and not regularly scheduled) monitoring conducted by state agencies	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>
Regional or local year-round monitoring conducted by state agencies	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>
Regional or local once a year monitoring conducted by state agencies	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>
Periodic regional or local (less than once a year but still regularly scheduled) monitoring conducted by state agencies	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>
Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by state agencies	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>
<b>Total Respondents</b>						<b>2</b>

**16.** How crucial are these monitoring efforts by other organizations for the conservation of the Wildlife in Savanna Grassland Habitats in Indiana?

	<b>Very crucial</b>	<b>Somewhat crucial</b>	<b>Slightly crucial</b>	<b>Not crucial</b>	<b>Unknown</b>	<b>Response Total</b>
Statewide year-round monitoring	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>



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**20.** What are the current monitoring techniques for the Wildlife in Savanna Grassland Habitats in Indiana?

	Frequently used	Occasionally used	Not used but possible with existing technology and data	Not used and not possible with existing technology and data	Not economically feasible	Unknown	Response Total
Radio telemetry and tracking	0% (0)	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	2
Modeling	0% (0)	50% (1)	0% (0)	0% (0)	0% (0)	50% (1)	2
Coverboard routes	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
Spot mapping	0% (0)	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	2
Driving a survey route	0% (0)	50% (1)	0% (0)	0% (0)	0% (0)	50% (1)	2
Reporting from harvest, depredation, or unintentional take (road kill, bycatch)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
Mark and recapture	0% (0)	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	2
Professional survey/census	0% (0)	50% (1)	0% (0)	0% (0)	0% (0)	50% (1)	2
Volunteer survey/census	0% (0)	50% (1)	0% (0)	0% (0)	0% (0)	50% (1)	2
Trapping (by any technique)	0% (0)	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	2
Representative sites	0% (0)	50% (1)	0% (0)	0% (0)	0% (0)	50% (1)	2
Probabilistic sites	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
<b>Total Respondents</b>							<b>2</b>

**21.** Other monitoring techniques for the Wildlife in Savanna Grassland Habitats in Indiana.

Distance sampling

**Total Respondents**      **1**  
(skipped this question)      1

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**22.** What one or two monitoring techniques would you recommend for effective conservation of the **Wildlife in Savanna Grassland Habitats in Indiana?**

Point counts in potential habitats using distance sampling. This technique is relatively simple to implement and provides density information rather than an index. Observers count birds from points randomly located in the studied habitat and measure or estimate distance to observed birds. Calculation of density from the data, however, does require some technical expertise.

Buckland, S. T., D. R. Anderson, et al. (2001). Introduction to distance sampling. Oxford, UK, Oxford University Press.

<b>Total Respondents</b>	<b>1</b>
(skipped this question)	1

**23.** What current HABITAT inventory and assessment efforts or activities by state agencies are you aware of for the **Wildlife in Savanna Grassland Habitats in Indiana?**

	<b>Yes, these efforts occur</b>	<b>No effort that I'm aware of</b>	<b>Response Total</b>
Statewide annual inventory and assessment conducted by state agencies	0% (0)	100% (2)	<b>2</b>
Statewide once a year inventory and assessment conducted by state agencies	0% (0)	100% (2)	<b>2</b>
Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	100% (2)	<b>2</b>
Occasional statewide (less than once a year and not regularly scheduled) inventory and assessment conducted by state agencies	50% (1)	50% (1)	<b>2</b>
Regional or local year-round inventory and assessment conducted by state agencies	0% (0)	100% (2)	<b>2</b>
Regional or local once a year inventory and assessment conducted by state agencies	0% (0)	100% (2)	<b>2</b>
Periodic regional or local (less than once a year but still regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	100% (2)	<b>2</b>
Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment conducted by state agencies	50% (1)	50% (1)	<b>2</b>
		<b>Total Respondents</b>	<b>2</b>

**24.** What current HABITAT inventory and assessment efforts or activities by other organizations are you aware of for the **Wildlife in Savanna Grassland Habitats in Indiana?**

	<b>Yes, these efforts occur</b>	<b>No effort that I'm aware of</b>	<b>Response Total</b>
Statewide year-round inventory and assessment conducted by other organizations	0% (0)	100% (2)	<b>2</b>
Statewide once a year inventory and assessment conducted by other organizations	0% (0)	100% (2)	<b>2</b>

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Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (2)	<b>2</b>
Occasional statewide (less than once a year and not regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (2)	<b>2</b>
Regional or local year-round inventory and assessment conducted by other organizations	0% (0)	100% (2)	<b>2</b>
Regional or local once a year inventory and assessment conducted by other organizations	0% (0)	100% (2)	<b>2</b>
Periodic regional or local (less than once a year but still regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (2)	<b>2</b>
Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment conducted by other organizations	50% (1)	50% (1)	<b>2</b>
		<b>Total Respondents</b>	<b>2</b>

25. How crucial are these HABITAT efforts by state agencies for the conservation of the Wildlife in Savanna Grassland Habitats in Indiana?						
	These efforts are very crucial for this HABITAT	These efforts are somewhat crucial for this HABITAT	These efforts are slightly crucial for this HABITAT	These efforts are not crucial for this HABITAT	Unknown	Response Total
Statewide annual inventory and assessment conducted by state agencies	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>
Statewide once a year inventory and assessment conducted by state agencies	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>
Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>
Occasional statewide (less than once a year and not regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>
Regional or local year-round inventory and assessment conducted by state agencies	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>
Regional or local once a year inventory and assessment conducted by state agencies	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	<b>2</b>
Periodic regional or local (less than once a year but still regularly	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>

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scheduled) inventory and assessment conducted by state agencies							
Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)		<b>2</b>
						<b>Total Respondents</b>	<b>2</b>

**26.** How crucial are these HABITAT efforts by other organizations for the conservation of the Wildlife in Savanna Grassland Habitats in Indiana?

	<b>These efforts are very crucial for this HABITAT</b>	<b>These efforts are somewhat crucial for this HABITAT</b>	<b>These efforts are slightly crucial for this HABITAT</b>	<b>These efforts are not crucial for this HABITAT</b>	<b>Unknown</b>	<b>Response Total</b>	
Statewide year-round inventory and assessment conducted by other organizations	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>	
Statewide once a year inventory and assessment conducted by other organizations	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>	
Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>	
Occasional statewide (less than once a year and not regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>	
Regional or local year-round inventory and assessment conducted by other organizations	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>	
Regional or local once a year inventory and assessment conducted by other organizations	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>	
Periodic regional or local (less than once a year but still regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>	
Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	<b>2</b>	
						<b>Total Respondents</b>	<b>2</b>

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**27.** Regional or local state agency HABITAT inventory and assessment for the **Wildlife in Savanna Grassland Habitats in Indiana.**

Indiana DNR/DNP has inventoried habitats across the state over the past three decades. Savannas mainly occur in the northern third of the state.

**Total Respondents**      **1**  
(skipped this question)      1

**28.** Regional or local HABITAT inventory and assessment by other organizations for the **Wildlife in Savanna Grassland Habitats in Indiana.**

In the northern third of the state.

**Total Respondents**      **1**  
(skipped this question)      1

**29.** Please list organizations that are monitoring this HABITAT for the **Wildlife in Savanna Grassland Habitats in Indiana.**

Indiana DNR/DNP, The Nature Conservancy, Chicago Wilderness, U.S. Geological Survey, National Park Service, U.S. Fish and Wildlife Service.

**Total Respondents**      **1**  
(skipped this question)      1

**30.** What are the current HABITAT inventory and/or assessment techniques for the **Wildlife in Savanna Grassland Habitats in Indiana.**

If a technique is not applicable to the **Wildlife in Savanna Grassland Habitats**, do not select a response in that row.

	Frequently used	Occasionally used	Not used but possible with existing technology and data	Not used and not possible with existing technology and data	Not economically feasible	Unknown	Response Total
GIS mapping	50% (1)	0% (0)	0% (0)	0% (0)	0% (0)	50% (1)	<b>2</b>
Aerial photography and analysis	50% (1)	0% (0)	0% (0)	0% (0)	0% (0)	50% (1)	<b>2</b>
Systematic sampling	0% (0)	50% (1)	0% (0)	0% (0)	0% (0)	50% (1)	<b>2</b>
Property tax estimates	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>
State revenue data	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>

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Regulatory information	0% (0)	50% (1)	0% (0)	0% (0)	0% (0)	50% (1)	<b>2</b>	
Participation in landuse programs	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>	
Modeling	0% (0)	50% (1)	0% (0)	0% (0)	0% (0)	50% (1)	<b>2</b>	
Voluntary landowner reporting	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>	
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	<b>2</b>	
<b>Total Respondents</b>							<b>2</b>	

**31.** Other HABITAT inventory and assessment techniques for the **Wildlife in Savanna Grassland Habitats** in Indiana.

View responses to this question [view](#)

**Total Respondents** **1**

(skipped this question) 1

**32.** What one or two HABITAT inventory and assessment techniques would you recommend for effective conservation of the **Wildlife in Savanna Grassland Habitats** in Indiana?

View responses to this question [view](#)

**Total Respondents** **1**

(skipped this question) 1

**33.** What is the current body of science for the **Wildlife in Savanna Grassland Habitats** in Indiana?

		Response Total	Response Percent
Complete, up to date and extensive		0	0%
Adequate	<div style="width: 50%;"></div>	1	50%
Inadequate		0	0%
Nonexistent		0	0%
Other (please explain below)	We know quite a bit about habitat use patterns of the Red-headed Woodpecker but much less about the effects of landscape fragmentation.	1	50%
<b>Total Respondents</b>		<b>2</b>	

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**34.** Please provide a citation (title, author, date, publisher) that would give the best overview of the **Wildlife in Savanna Grassland Habitats** in Indiana, if available. This resource may be used if further detail is needed.

Title = Red-headed Woodpecker (*Melanerpes erythrocephalus*). In *The Birds of North America*, No. 518  
 Author = Smith, K. G., J. H. Withgott, and P. G. Rodewald.  
 Date = 2000  
 Publisher = The Birds of North America, Inc., Philadelphia, PA.

**Response Total    Response Percent**

**35.** If possible, please provide a second citation (title, author, date, publisher) that would give another good overview of the **Wildlife in Savanna Grassland Habitats** in Indiana. This resource may also be used if further detail is needed.

Title = 1998. *Atlas of Breeding Birds of Indiana*  
 Author = Castrale, John S., Edward M. Hopkins, and Charles E. Keller.  
 Date = 1998  
 Publisher = Indiana Department of Natural Resources

**Response Total    Response Percent**

**36.** What is the current HABITAT body of science for the **Wildlife in Savanna Grassland Habitats** in Indiana?

	<b>Response Total</b>	<b>Response Percent</b>
Complete, up to date and extensive	0	0%
Adequate	2	100%
Inadequate	0	0%
Nonexistent	0	0%
Other (please explain below)	0	0%
<b>Total Respondents</b>	<b>2</b>	

**37.** Please provide a citation (title, author, date, publisher) that would give the best HABITAT overview of the **Wildlife in Savanna Grassland Habitats** in Indiana, if available. This resource may be used if further detail is needed.

Title = *Surviving where ecosystems meet: ecotonal animal communities of midwestern oak savannas and woodlands*  
 Author = Temple, Stanley A.  
 Date = 1998  
 Publisher = *Transactions of the Wisconsin Academy of Sciences, Arts and Letters* 86:206-222

**38.** If possible, please provide a second citation (title, author, date, publisher) that would give another good HABITAT overview of the **Wildlife in Savanna Grassland Habitats** in Indiana. This resource may also be used if further detail is needed.

Title = *Savannas, barrens, and rock outcrop plant communities of North America*  
 Author = Anderson, Roger C., Fralish, James S. , and Baskin, Jerry M.  
 Date = 1999  
 Publisher = Cambridge University Press

## Appendix E-57: Savanna

### 39. What are the research needs for the Wildlife in Savanna Grassland Habitats in Indiana?

	<b>Urgently needed</b>	<b>Greatly needed</b>	<b>Needed</b>	<b>Slightly needed</b>	<b>Not needed</b>	<b>Unknown</b>	<b>Response Total</b>
Life cycle	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	0% (0)	<b>2</b>
Distribution and abundance	50% (1)	0% (0)	50% (1)	0% (0)	0% (0)	0% (0)	<b>2</b>
Limiting factors (food, shelter, water, breeding sites)	0% (0)	100% (2)	0% (0)	0% (0)	0% (0)	0% (0)	<b>2</b>
Threats (predators/competition, contamination)	0% (0)	50% (1)	50% (1)	0% (0)	0% (0)	0% (0)	<b>2</b>
Relationship/dependence on specific habitats	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	0% (0)	<b>2</b>
Population health (genetic and physical)	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	0% (0)	<b>2</b>
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	0% (0)	<b>1</b>
							<b>Total Respondents 2</b>

### 40. Other research needs for the Wildlife in Savanna Grassland Habitats in Indiana.

Detailed demographic data need to be gathered and the effects of habitat structure and fragmentation on those demographic parameters understood.

**Total Respondents 1**  
(skipped this question) 1

### 41. What are the HABITAT research needs for the Wildlife in Savanna Grassland Habitats in Indiana?

	<b>Urgently needed</b>	<b>Greatly needed</b>	<b>Needed</b>	<b>Slightly needed</b>	<b>Not needed</b>	<b>Unknown</b>	<b>Response Total</b>
Successional changes	50% (1)	50% (1)	0% (0)	0% (0)	0% (0)	0% (0)	<b>2</b>
Distribution and abundance (fragmentation)	50% (1)	0% (0)	50% (1)	0% (0)	0% (0)	0% (0)	<b>2</b>
Threats (land use change/competition, contamination/global warming)	50% (1)	0% (0)	50% (1)	0% (0)	0% (0)	0% (0)	<b>2</b>
Relationship/dependence on specific site conditions	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	0% (0)	<b>2</b>
Growth and development of individual components of the habitat	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	0% (0)	<b>2</b>
Other (please specify below)	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	0% (0)	<b>2</b>
							<b>Total Respondents 2</b>

## Appendix E-57: Savanna

### 42. Other HABITAT research needs for the Wildlife in Savanna Grassland Habitats in Indiana.

Relationship of fire to habitat structure needs to be better elucidated.

<b>Total Respondents</b>	<b>1</b>
(skipped this question)	1

### 43. How well do the following conservation efforts address the threats to the Wildlife in Savanna Grassland Habitats in Indiana?

	<b>Very well</b>	<b>Somewhat</b>	<b>Not at all</b>	<b>Not used</b>	<b>Unknown</b>	<b>Response Total</b>
Habitat protection (use below for details)	0% (0)	100% (2)	0% (0)	0% (0)	0% (0)	<b>2</b>
Population management (hunting, trapping)	0% (0)	0% (0)	50% (1)	50% (1)	0% (0)	<b>2</b>
Population enhancement (captive breeding and release)	0% (0)	0% (0)	0% (0)	100% (2)	0% (0)	<b>2</b>
Reintroduction (restoration)	0% (0)	0% (0)	0% (0)	100% (2)	0% (0)	<b>2</b>
Food plots	0% (0)	0% (0)	50% (1)	50% (1)	0% (0)	<b>2</b>
Threats reduction	0% (0)	0% (0)	50% (1)	50% (1)	0% (0)	<b>2</b>
Native predator control	0% (0)	0% (0)	0% (0)	50% (1)	50% (1)	<b>2</b>
Exotic/invasive species control	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	<b>2</b>
Regulation of collecting	0% (0)	0% (0)	0% (0)	100% (2)	0% (0)	<b>2</b>
Disease/parasite management	0% (0)	0% (0)	50% (1)	50% (1)	0% (0)	<b>2</b>
Translocation to new geographic range	0% (0)	0% (0)	0% (0)	100% (2)	0% (0)	<b>2</b>
Protection of migration routes	0% (0)	50% (1)	0% (0)	50% (1)	0% (0)	<b>2</b>
Limiting contact with pollutants/contaminants	0% (0)	0% (0)	0% (0)	50% (1)	50% (1)	<b>2</b>
Public education to reduce human disturbance	0% (0)	50% (1)	0% (0)	50% (1)	0% (0)	<b>2</b>
Culling/selective removal	0% (0)	0% (0)	0% (0)	100% (2)	0% (0)	<b>2</b>
Stocking	0% (0)	0% (0)	0% (0)	100% (2)	0% (0)	<b>2</b>
Other (please specify below)	0% (0)	0% (0)	0% (0)	100% (1)	0% (0)	<b>1</b>
				<b>Total Respondents</b>		<b>2</b>

### 44. Other current conservation practices for the Wildlife in Savanna Grassland Habitats in Indiana.

1. Fire management in savannas  
(Water level management in swamp forests)

2. FIRE!!! How can this critical process not be listed as one of the standard conservation practices in your template?

Appendix E-57: Savanna

**Total Respondents 2**

**45.** What one or two specific practices would you recommend for more effective conservation of the **Wildlife in Savanna Grassland Habitats** in Indiana?

1. Restoration of former savanna sites.  
Long-term fire management of existing savanna sites.
2. Using prescribed fire to manage savanna habitats is crucial and is not happening on nearly enough acres in the state.

**Total Respondents 2**

**46.** How well do the following conservation efforts address the **HABITAT** threats to the **Wildlife in Savanna Grassland Habitats** in Indiana?

	<b>Very well</b>	<b>Somewhat</b>	<b>Not at all</b>	<b>Not used</b>	<b>Unknown</b>	<b>Response Total</b>
Habitat protection through regulation	0% (0)	100% (2)	0% (0)	0% (0)	0% (0)	<b>2</b>
Habitat protection on public lands	0% (0)	100% (2)	0% (0)	0% (0)	0% (0)	<b>2</b>
Habitat protection incentives (financial)	0% (0)	0% (0)	0% (0)	50% (1)	50% (1)	<b>2</b>
Habitat restoration through regulation	0% (0)	50% (1)	0% (0)	50% (1)	0% (0)	<b>2</b>
Habitat restoration on public lands	0% (0)	100% (2)	0% (0)	0% (0)	0% (0)	<b>2</b>
Habitat restoration incentives (financial)	0% (0)	0% (0)	0% (0)	50% (1)	50% (1)	<b>2</b>
Artificial habitat creation (artificial reefs, nesting platforms)	0% (0)	0% (0)	0% (0)	100% (2)	0% (0)	<b>2</b>
Selective use of functionally equivalent exotic species in place of extirpated natives	0% (0)	0% (0)	0% (0)	100% (2)	0% (0)	<b>2</b>
Succession control (fire, mowing)	100% (2)	0% (0)	0% (0)	0% (0)	0% (0)	<b>2</b>
Corridor development/protection	0% (0)	50% (1)	0% (0)	50% (1)	0% (0)	<b>2</b>
Managing water regimes	0% (0)	50% (1)	0% (0)	50% (1)	0% (0)	<b>2</b>
Pollution reduction	0% (0)	0% (0)	0% (0)	50% (1)	50% (1)	<b>2</b>
Protection of adjacent buffer zone	0% (0)	50% (1)	0% (0)	50% (1)	0% (0)	<b>2</b>
Restrict public access and disturbance	0% (0)	0% (0)	0% (0)	50% (1)	50% (1)	<b>2</b>
Land use planning	0% (0)	0% (0)	0% (0)	100% (1)	0% (0)	<b>1</b>
Technical assistance	0% (0)	50% (1)	0% (0)	50% (1)	0% (0)	<b>2</b>
Cooperative land management agreements (conservation easements)	0% (0)	0% (0)	0% (0)	50% (1)	50% (1)	<b>2</b>
Other (please specify below)	0% (0)	0% (0)	0% (0)	100% (1)	0% (0)	<b>1</b>
						<b>Total Respondents 2</b>

**47.** Other current **HABITAT** conservation practices for the **Wildlife in Savanna Grassland Habitats** in Indiana.

## Appendix E-57: Savanna

I apologize - I finally found fire in the list!

**Total Respondents** 1

(skipped this question) 1

### 48. What one or two specific HABITAT practices would you recommend for more effective conservation of the Wildlife in Savanna Grassland Habitats in Indiana?

1. Purchase of remnant savannas, restoration of savannas that have undergone succession to forest or have been farmed.

2. Burn more. And get rid of the invasive species degrading savanna habitats, including those invasive species deliberately plant by wildlife agencies.

**Total Respondents** 2

### 49. Do you have any additional comments or information on the Wildlife in Savanna Grassland Habitats that you feel would be useful in the development of the Indiana Comprehensive Wildlife Strategy?

1. In many ways, savanna is a mixture of forest and grassland habitats so conserving those habitat types will aid savanna species. However, there are species, such as the Red-headed Woodpecker, that specifically benefit from oak savanna. Understanding the conservation value, for different species, of habitats along the grassland-forest gradient can help guide our allocation of resources to produce different landscape compositions.

2. This is the last one I'll have time to do and I'd like to add some general comments.

The unfortunate reality is that the biggest legacy of wildlife biologists in Indiana is the list of invasive species they have unleashed on this state. Asian bush honeysuckle, Japanese honeysuckle, multiflora rose, autumn olive - this list goes on and on. Where is the accountability for the incredible damage some species are now causing to wildlife in the state? Where is the effort to undo this damage? For those of us spending hundreds of thousands of dollars each year to control these species so that we can provide wildlife habitat in Indiana it is very disheartening to have no wildlife biologists step up and admit those species were a mistake and work alongside us to control these problems. And the phrase "Selective use of functionally equivalent exotic species in place of extirpated natives" may be the most insulting statement I've ever read. That is the whole problem with wildlife biology in this state - they think that statement makes sense!! It is time for biologists to join all the other natural resource managers on this issue.

**Total Respondents** 2