





## Appendix E-58: Vegetated Dunes and Swales

Impoundment of water/flow regulation	0% (0)	0% (0)	0% (0)	100% (1)	0% (0)	0% (0)	<b>1</b>
Agricultural/forestry practices	0% (0)	0% (0)	100% (1)	0% (0)	0% (0)	0% (0)	<b>1</b>
Residual contamination (persistent toxins)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	<b>1</b>
Point source pollution (continuing)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	<b>1</b>
Mining/acidification	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	<b>1</b>
Drainage practices (stormwater runoff)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	<b>1</b>
Unknown	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	<b>1</b>
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	<b>1</b>
							<b>Total Respondents 18</b>

### 11. Other HABITAT threats to the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana.

No responses were entered for this question.

**Total Respondents 0**

(skipped this question) 1

### 12. Please briefly describe the top two HABITAT threats to the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana identified above.

Fragmentation and small habitat size – most habitats are small remnants of native grassland, surrounded by either agriculture or fire-suppressed oak savanna. Habitat size needs to be expanded at sites which support seemingly salvageable populations of the Ornate box turtle

1. Much potentially suitable habitat has been lost through succession to exotic species and oak woodland. This turtle requires expansive open grassland. Lack of habitat management, or in the case of invasive species, because of the purposeful introduction of invasive shrubs, has resulted in open native grassland being lost to shrub land and oak woodland.

**Total Respondents 1**

### 13. What current monitoring efforts by state agencies are you aware of for the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana?

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

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regularly scheduled) monitoring conducted by state agencies			
Regional or local year-round monitoring conducted by state agencies	0% (0)	100% (1)	<b>1</b>
Regional or local once a year monitoring conducted by state agencies	0% (0)	100% (1)	<b>1</b>
Periodic regional or local (less than once a year but still regularly scheduled) monitoring conducted by state agencies	0% (0)	100% (1)	<b>1</b>
Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by state agencies	100% (1)	0% (0)	<b>1</b>
		<b>Total Respondents</b>	<b>8</b>

### 14. What current monitoring efforts by other organizations are you aware of for the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana?

	<b>Yes, these efforts occur</b>	<b>Not aware of these efforts occurring</b>	<b>Response Total</b>
Statewide year-round monitoring conducted by other organizations	0% (0)	100% (1)	<b>1</b>
Statewide once a year monitoring conducted by other organizations	0% (0)	100% (1)	<b>1</b>
Periodic statewide (less than once a year but still regularly scheduled) monitoring conducted by other organizations	0% (0)	100% (1)	<b>1</b>
Occasional statewide (less than once a year and not regularly scheduled) monitoring conducted by other organizations	0% (0)	100% (1)	<b>1</b>
Regional or local year-round monitoring conducted by other organizations	0% (0)	100% (1)	<b>1</b>
Regional or local once a year monitoring conducted by other organizations	0% (0)	100% (1)	<b>1</b>
Periodic regional or local (less than once a year but still regularly scheduled) monitoring conducted by other organizations	0% (0)	100% (1)	<b>1</b>
Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by other organizations	0% (0)	100% (1)	<b>1</b>
		<b>Total Respondents</b>	<b>8</b>

### 15. How crucial are these monitoring efforts by state agencies for the conservation of the Wildlife in Vegetated Dunes and Swales Grasslands Habitat 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)	100% (1)	0% (0)	0% (0)	0% (0)	<b>1</b>



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**Total Respondents 8**

**17.** Regional or local state agency monitoring for the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana.

No responses were entered for this question.

**Total Respondents 0**

(skipped this question) 1

**18.** Regional or local monitoring by other organizations for the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana.

No responses were entered for this question.

**Total Respondents 0**

(skipped this question) 1

**19.** Please list organizations that are monitoring the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana.

No responses were entered for this question.

**Total Respondents 0**

(skipped this question) 1

**20.** What are the current monitoring techniques for the Wildlife in Vegetated Dunes and Swales Grasslands Habitat 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)	100% (1)	0% (0)	0% (0)	0% (0)	1
Modeling	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
Coverboard routes	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0
Spot mapping	0% (0)	100% (1)	0% (0)	0% (0)	0% (0)	0% (0)	1
Driving a survey route	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0
Reporting from harvest, depredation, or unintentional take (road kill,	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1

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bycatch)							
Mark and recapture	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
Professional survey/census	0% (0)	100% (1)	0% (0)	0% (0)	0% (0)	0% (0)	1
Volunteer survey/census	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
Trapping (by any technique)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
Representative sites	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
Probabilistic sites	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
						<b>Total Respondents</b>	<b>11</b>

### 21. Other monitoring techniques for the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana.

No responses were entered for this question.

**Total Respondents** 0

(skipped this question) 1

### 22. What one or two monitoring techniques would you recommend for effective conservation of the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana?

- I'm not sure if a salvageable population exists for some wildlife species in the State of Indiana. It would be critical to survey known populations to determine population structure, density and potential for recruitment. This information could then be used to plan and implement a conservation effort geared towards the ornate box turtle.

**Total Respondents** 1

### 23. What current HABITAT inventory and assessment efforts or activities by state agencies are you aware of for the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana?

	Yes, these efforts occur	No effort that I'm aware of	Response Total
Statewide annual inventory and assessment conducted by state agencies	0% (0)	100% (1)	1
Statewide once a year inventory and assessment conducted by state agencies	0% (0)	100% (1)	1
Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	100% (1)	1
Occasional statewide (less than once a year and not regularly			

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scheduled) inventory and assessment conducted by state agencies			
Regional or local year-round inventory and assessment conducted by state agencies	0% (0)	100% (1)	<b>1</b>
Regional or local once a year inventory and assessment conducted by state agencies	0% (0)	100% (1)	<b>1</b>
Periodic regional or local (less than once a year but still regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	100% (1)	<b>1</b>
Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	100% (1)	<b>1</b>
		<b>Total Respondents</b>	<b>8</b>

### 24. What current HABITAT inventory and assessment efforts or activities by other organizations are you aware of for the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana?

	Yes, these efforts occur	No effort that I'm aware of	Response Total
Statewide year-round inventory and assessment conducted by other organizations	0% (0)	100% (1)	<b>1</b>
Statewide once a year inventory and assessment conducted by other organizations	0% (0)	100% (1)	<b>1</b>
Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (1)	<b>1</b>
Occasional statewide (less than once a year and not regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (1)	<b>1</b>
Regional or local year-round inventory and assessment conducted by other organizations	0% (0)	100% (1)	<b>1</b>
Regional or local once a year inventory and assessment conducted by other organizations	0% (0)	100% (1)	<b>1</b>
Periodic regional or local (less than once a year but still regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (1)	<b>1</b>
Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (1)	<b>1</b>
		<b>Total Respondents</b>	<b>8</b>

### 25. How crucial are these HABITAT efforts by state agencies for the conservation of the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana?

	These efforts are very crucial	These efforts are somewhat crucial for	These efforts are slightly	These efforts are not crucial	Unknown	Response Total







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**33.** What is the current body of science for the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana?

	Response Total	Response Percent
Complete, up to date and extensive	0	0%
Adequate	0	0%
Inadequate	1	100%
Nonexistent	0	0%
Other (please explain below)	0	0%
<b>Total Respondents</b>	<b>1</b>	

**34.** Please provide a citation (title, author, date, publisher) that would give the best overview of the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana, if available. This resource may be used if further detail is needed.

	Response Total	Response Percent
Title	0	0%
Author	0	0%
Date	0	0%
Publisher	0	0%
<b>Total Respondents</b>	<b>0</b>	
(skipped this question)		1

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

	Response Total	Response Percent
Title	0	0%
Author	0	0%
Date	0	0%
Publisher	0	0%
<b>Total Respondents</b>	<b>0</b>	
(skipped this question)		1

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**36.** What is the current HABITAT body of science for the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana?

	Response Total	Response Percent
Complete, up to date and extensive	0	0%
Adequate	0	0%
Inadequate	1	100%
Nonexistent	0	0%
Other (please explain below)	0	0%
<b>Total Respondents</b>	<b>1</b>	

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

	Response Total	Response Percent
Title	0	0%
Author	0	0%
Date	0	0%
Publisher	0	0%
<b>Total Respondents</b>	<b>0</b>	
(skipped this question)		1

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

	Response Total	Response Percent
Title	0	0%
Author	0	0%
Date	0	0%
Publisher	0	0%
<b>Total Respondents</b>	<b>0</b>	
(skipped this question)		1

**39.** What are the research needs for the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana?



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No responses were entered for this question.

**Total Respondents** 0

(skipped this question) 1

### 43. How well do the following conservation efforts address the threats to the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana?

	Very well	Somewhat	Not at all	Not used	Unknown	Response Total
Habitat protection (use below for details)	0% (0)	100% (1)	0% (0)	0% (0)	0% (0)	1
Population management (hunting, trapping)	0% (0)	0% (0)	0% (0)	100% (1)	0% (0)	1
Population enhancement (captive breeding and release)	0% (0)	0% (0)	0% (0)	100% (1)	0% (0)	1
Reintroduction (restoration)	0% (0)	0% (0)	0% (0)	100% (1)	0% (0)	1
Food plots	0% (0)	0% (0)	0% (0)	100% (1)	0% (0)	1
Threats reduction	0% (0)	0% (0)	0% (0)	100% (1)	0% (0)	1
Native predator control	0% (0)	0% (0)	0% (0)	100% (1)	0% (0)	1
Exotic/invasive species control	100% (1)	0% (0)	0% (0)	0% (0)	0% (0)	1
Regulation of collecting	0% (0)	100% (1)	0% (0)	0% (0)	0% (0)	1
Disease/parasite management	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
Translocation to new geographic range	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
Protection of migration routes	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
Limiting contact with pollutants/contaminants	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
Public education to reduce human disturbance	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
Culling/selective removal	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
Stocking	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
						<b>Total Respondents</b> 17

### 44. Other current conservation practices for the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana.

No responses were entered for this question.

**Total Respondents** 0

(skipped this question) 1

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**45.** What one or two specific practices would you recommend for more effective conservation of the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana?

1. Restoration of grassland habitats adjacent to known population sites would be a great start. Restoration could involve creation of native grassland system from adjacent agricultural fields, with the restoration designed to create habitat specifically for this and other wildlife species.
- Restoration of oak savanna at known sites would involve opening the canopy in oak woodlands to ~50% cover and control of invasive exotic shrubs. This would restore connectivity between potentially occupied habitat patches at larger public lands, and expand potential habitat.

**Total Respondents 1**

**46.** How well do the following conservation efforts address the HABITAT threats to the Wildlife in Vegetated Dunes and Swales Grasslands Habitat 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% (1)	0% (0)	0% (0)	0% (0)	<b>1</b>
Habitat protection on public lands	0% (0)	0% (0)	100% (1)	0% (0)	0% (0)	<b>1</b>
Habitat protection incentives (financial)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	<b>1</b>
Habitat restoration through regulation	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	<b>1</b>
Habitat restoration on public lands	100% (1)	0% (0)	0% (0)	0% (0)	0% (0)	<b>1</b>
Habitat restoration incentives (financial)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	<b>1</b>
Artificial habitat creation (artificial reefs, nesting platforms)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	<b>1</b>
Selective use of functionally equivalent exotic species in place of extirpated natives	0% (0)	0% (0)	100% (1)	0% (0)	0% (0)	<b>1</b>
Succession control (fire, mowing)	100% (1)	0% (0)	0% (0)	0% (0)	0% (0)	<b>1</b>
Corridor development/protection	100% (1)	0% (0)	0% (0)	0% (0)	0% (0)	<b>1</b>
Managing water regimes	0% (0)	0% (0)	100% (1)	0% (0)	0% (0)	<b>1</b>
Pollution reduction	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	<b>1</b>
Protection of adjacent buffer zone	0% (0)	100% (1)	0% (0)	0% (0)	0% (0)	<b>1</b>
Restrict public access and disturbance	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	<b>1</b>
Land use planning	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	<b>1</b>
Technical assistance	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	<b>1</b>
Cooperative land management agreements (conservation easements)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	<b>1</b>
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	<b>1</b>
						<b>Total Respondents 18</b>

**47.** Other current HABITAT conservation practices for the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana.

No responses were entered for this question.

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**Total Respondents** 0

(skipped this question) 1

**48.** What one or two specific HABITAT practices would you recommend for more effective conservation of the Wildlife in Vegetated Dunes and Swales Grasslands Habitat in Indiana?

No responses were entered for this question.

**Total Respondents** 0

(skipped this question) 1

**49.** Do you have any additional comments or information on the Wildlife in Vegetated Dunes and Swales Grasslands Habitat that you feel would be useful in the development of the Indiana Comprehensive Wildlife Strategy?

1. Ornate box turtles are too often taken for granted on managed lands. Populations that were once among the best in the state may be senescent or extinct due to loss or inappropriate management of habitat. Loss of early successional native grasslands, due to uncontrolled succession or invasion of purposefully introduced invasive shrubs, are the likely culprits. Some species need to be explicitly incorporated into management plans for public lands where it still persists.

**Total Respondents** 1