

Appendix E-1: Agriculture

7. Please also rank these threats to the Wildlife in Agricultural Habitats in Indiana.

	Critical threat	Serious threat	Somewhat of a threat	Slight threat	No threat	Unknown	Response Total
Habitat loss (breeding range)	33% (1)	33% (1)	33% (1)	0% (0)	0% (0)	0% (0)	3
Habitat loss (feeding/foraging areas)	0% (0)	0% (0)	50% (1)	50% (1)	0% (0)	0% (0)	2
Small native range (high endemism)	0% (0)	0% (0)	33% (1)	0% (0)	67% (2)	0% (0)	3
Near limits of natural geographic range	0% (0)	0% (0)	33% (1)	0% (0)	67% (2)	0% (0)	3
Large home range requirements	0% (0)	0% (0)	0% (0)	0% (0)	100% (3)	0% (0)	3
Viable reproductive population size or availability	0% (0)	0% (0)	0% (0)	0% (0)	100% (3)	0% (0)	3
Specialized reproductive behavior or low reproductive rates	0% (0)	0% (0)	0% (0)	0% (0)	100% (3)	0% (0)	3
Degradation of movement/migration routes (overwintering habitats, nesting and staging sites)	0% (0)	0% (0)	0% (0)	0% (0)	67% (2)	33% (1)	3
Genetic pollution (hybridization)	0% (0)	0% (0)	0% (0)	33% (1)	67% (2)	0% (0)	3
Unknown	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0
Other (please specify below)	100% (1)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	1
							Total Respondents 27

8. Other threats to the Wildlife in Agricultural Habitats in Indiana.

sporadic occurrence of early and mid successional fields is the greatest deterrent to higher abundance

Total Respondents 1

(skipped this question) 1

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

Loss of ephemeral & semipermanent wetlands

lack and distance apart of available patches of habitat
these habitats are ephemeral

Total Respondents 2

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10. Please rank the following threats to the HABITAT of the Wildlife in Agricultural Habitats in Indiana.

	Critical threat	Serious threat	Somewhat of a threat	Slight threat	No threat	Unknown	Response Total	
Commercial or residential development (sprawl)	0% (0)	33% (1)	33% (1)	33% (1)	0% (0)	0% (0)	3	
Counterproductive financial incentives or regulations	0% (0)	0% (0)	0% (0)	33% (1)	33% (1)	33% (1)	3	
Invasive/non-native species	0% (0)	0% (0)	33% (1)	0% (0)	33% (1)	33% (1)	3	
Nonpoint source pollution (sedimentation and nutrients)	0% (0)	0% (0)	0% (0)	33% (1)	0% (0)	67% (2)	3	
Habitat fragmentation	0% (0)	67% (2)	33% (1)	0% (0)	0% (0)	0% (0)	3	
Successional change	0% (0)	33% (1)	0% (0)	0% (0)	33% (1)	33% (1)	3	
Diseases (of plants that create habitat)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (3)	3	
Habitat degradation	0% (0)	67% (2)	0% (0)	33% (1)	0% (0)	0% (0)	3	
Climate change	0% (0)	0% (0)	0% (0)	0% (0)	33% (1)	67% (2)	3	
Stream channelization	0% (0)	0% (0)	0% (0)	0% (0)	100% (3)	0% (0)	3	
Impoundment of water/flow regulation	0% (0)	0% (0)	0% (0)	0% (0)	100% (3)	0% (0)	3	
Agricultural/forestry practices	0% (0)	0% (0)	33% (1)	33% (1)	33% (1)	0% (0)	3	
Residual contamination (persistent toxins)	0% (0)	0% (0)	0% (0)	33% (1)	0% (0)	67% (2)	3	
Point source pollution (continuing)	0% (0)	0% (0)	0% (0)	33% (1)	33% (1)	33% (1)	3	
Mining/acidification	0% (0)	0% (0)	0% (0)	67% (2)	0% (0)	33% (1)	3	
Drainage practices (stormwater runoff)	0% (0)	0% (0)	33% (1)	0% (0)	33% (1)	33% (1)	3	
Unknown	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)	0% (0)	0	
							Total Respondents	49

11. Other HABITAT threats to the Wildlife in Agricultural Habitats in Indiana.

No responses were entered for this question.

Total Respondents **0**

(skipped this question) 1

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

Habitat loss & degradation

farming practices and succession
suitable habitat is ephemeral and spread out

Ephemeral Wetland loss and fragmentation

Total Respondents 3

13. What current monitoring efforts by state agencies are you aware of for the Wildlife in Agricultural 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% (3)	3
Statewide once a year monitoring conducted by state agencies	33% (1)	67% (2)	3
Periodic statewide (less than once a year but still regularly scheduled) monitoring conducted by state agencies	0% (0)	100% (3)	3
Occasional statewide (less than once a year and not regularly scheduled) monitoring conducted by state agencies	0% (0)	100% (3)	3
Regional or local year-round monitoring conducted by state agencies	0% (0)	100% (3)	3
Regional or local once a year monitoring conducted by state agencies	0% (0)	100% (3)	3
Periodic regional or local (less than once a year but still regularly scheduled) monitoring conducted by state agencies	0% (0)	100% (3)	3
Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by state agencies	0% (0)	100% (3)	3
		Total Respondents	24

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14. What current monitoring efforts by other organizations are you aware of for the Wildlife in Agricultural 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% (3)	3
Statewide once a year monitoring conducted by other organizations	0% (0)	100% (3)	3
Periodic statewide (less than once a year but still regularly scheduled) monitoring conducted by other organizations	0% (0)	100% (3)	3
Occasional statewide (less than once a year and not regularly scheduled) monitoring conducted by other organizations	0% (0)	100% (3)	3
Regional or local year-round monitoring conducted by other organizations	0% (0)	100% (3)	3
Regional or local once a year monitoring conducted by other organizations	67% (2)	33% (1)	3
Periodic regional or local (less than once a year but still regularly scheduled) monitoring conducted by other organizations	67% (2)	33% (1)	3
Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by other organizations	100% (3)	0% (0)	3
		Total Respondents	24

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

	Very crucial	Somewhat crucial	Slightly crucial	Not crucial	Unknown	Response Total
Statewide year-round monitoring conducted by other organizations	0% (0)	0% (0)	0% (0)	50% (1)	50% (1)	2
Statewide once a year monitoring conducted by other organizations	0% (0)	0% (0)	0% (0)	50% (1)	50% (1)	2
Periodic statewide (less than once a year but still regularly scheduled) monitoring conducted by other organizations	0% (0)	0% (0)	0% (0)	50% (1)	50% (1)	2
Occasional statewide (less than once a year and not regularly scheduled) monitoring conducted by other organizations	0% (0)	0% (0)	0% (0)	50% (1)	50% (1)	2
Regional or local year-round monitoring conducted by other organizations	0% (0)	0% (0)	0% (0)	50% (1)	50% (1)	2
Regional or local once a year monitoring conducted by other organizations	33% (1)	33% (1)	0% (0)	33% (1)	0% (0)	3
Periodic regional or local (less than once a year but still regularly scheduled) monitoring conducted by other organizations	0% (0)	33% (1)	33% (1)	33% (1)	0% (0)	3
Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by other organizations	0% (0)	0% (0)	100% (3)	0% (0)	0% (0)	3
						Total Respondents
						19

17. Regional or local state agency monitoring for the Wildlife in Agricultural Habitats in Indiana.

IDNR has a NAAMP frog call program

Total Respondents **1**

(skipped this question) 1

18. Regional or local monitoring by other organizations for the Wildlife in Agricultural Habitats in Indiana.

Robert Brodman, Saint Joseph's College

monitored twice, 1975 by Ford, and 1998 by Leibacher and Whitaker

1. Chicago Wilderness

Robert Brodman, Saint Joseph's College

Total Respondents **3**

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19. Please list organizations that are monitoring the Wildlife in Agricultural Habitats in Indiana.

ISU

Chicago Wilderness
Robert Brodman, Saint Joseph's College

Total Respondents **2**

(skipped this question) **1**

20. What are the current monitoring techniques for the Wildlife in Agricultural 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)	67% (2)	33% (1)	0% (0)	0% (0)	3
Modeling	0% (0)	0% (0)	100% (3)	0% (0)	0% (0)	0% (0)	3
Coverboard routes	0% (0)	33% (1)	0% (0)	67% (2)	0% (0)	0% (0)	3
Spot mapping	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
Driving a survey route	33% (1)	0% (0)	0% (0)	67% (2)	0% (0)	0% (0)	3
Reporting from harvest, depredation, or unintentional take (road kill, bycatch)	0% (0)	0% (0)	0% (0)	67% (2)	0% (0)	33% (1)	3
Mark and recapture	0% (0)	0% (0)	67% (2)	33% (1)	0% (0)	0% (0)	3
Professional survey/census	67% (2)	0% (0)	33% (1)	0% (0)	0% (0)	0% (0)	3
Volunteer survey/census	33% (1)	0% (0)	67% (2)	0% (0)	0% (0)	0% (0)	3
Trapping (by any technique)	67% (2)	0% (0)	0% (0)	33% (1)	0% (0)	0% (0)	3
Representative sites	67% (2)	0% (0)	0% (0)	33% (1)	0% (0)	0% (0)	3
Probabilistic sites	67% (2)	0% (0)	0% (0)	33% (1)	0% (0)	0% (0)	3
Other (please specify below)	0% (0)	0% (0)	100% (1)	0% (0)	0% (0)	0% (0)	1
							Total Respondents 36

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21. Other monitoring techniques for the Wildlife in Agricultural Habitats 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 Agricultural Habitats in Indiana?

Aquatic surveys for eggs & larva, trapping during breeding migration

trap periphery of known range in Indiana

Frog call surveys and tadpole surveys

Total Respondents 3

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

	Yes, these efforts occur	No effort that I'm aware of	Response Total
Statewide annual inventory and assessment conducted by state agencies	33% (1)	67% (2)	3
Statewide once a year inventory and assessment conducted by state agencies	33% (1)	67% (2)	3
Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment conducted by state agencies	33% (1)	67% (2)	3
Occasional statewide (less than once a year and not regularly scheduled) inventory and assessment conducted by state agencies	33% (1)	67% (2)	3
Regional or local year-round inventory and assessment conducted by state agencies	33% (1)	67% (2)	3
Regional or local once a year inventory and assessment conducted by state agencies	33% (1)	67% (2)	3
Periodic regional or local (less than once a year but still regularly scheduled) inventory and assessment conducted by state agencies	33% (1)	67% (2)	3
Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment conducted by state agencies	67% (2)	33% (1)	3
	Total Respondents		24

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24. What current HABITAT inventory and assessment efforts or activities by other organizations are you aware of for the Wildlife in Agricultural Habitats 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% (3)	3
Statewide once a year inventory and assessment conducted by other organizations	0% (0)	100% (3)	3
Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (2)	2
Occasional statewide (less than once a year and not regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (2)	2
Regional or local year-round inventory and assessment conducted by other organizations	33% (1)	67% (2)	3
Regional or local once a year inventory and assessment conducted by other organizations	33% (1)	67% (2)	3
Periodic regional or local (less than once a year but still regularly scheduled) inventory and assessment conducted by other organizations	67% (2)	33% (1)	3
Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment conducted by other organizations	100% (3)	0% (0)	3
		Total Respondents	22

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

Frog call surveys include rural and agricultural areas throughout the state.

Total Respondents 1

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

Brodman in NW Indiana

twice assessed; SurveyAnswerTextNull

Chicago Wilderness & Saint Joseph's College have frog call monitoring programs in NW IN.

Total Respondents 3

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

ISU; 1975 by Ford, 1998 by Leibacher and Whitaker; I have already done this page twice, and had to do one other page twice when it jumped back when I hit "next"

ISU twice- 1995 by Ford. 1998 by Leibacher and Whitaker

Total Respondents 1

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30. What are the current HABITAT inventory and/or assessment techniques for Wildlife in Agricultural 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
GIS mapping	0% (0)	0% (0)	100% (2)	0% (0)	0% (0)	0% (0)	2
Aerial photography and analysis	0% (0)	50% (1)	50% (1)	0% (0)	0% (0)	0% (0)	2
Systematic sampling	50% (1)	50% (1)	0% (0)	0% (0)	0% (0)	0% (0)	2
Property tax estimates	0% (0)	0% (0)	0% (0)	100% (2)	0% (0)	0% (0)	2
State revenue data	0% (0)	0% (0)	0% (0)	100% (2)	0% (0)	0% (0)	2
Regulatory information	0% (0)	0% (0)	0% (0)	100% (2)	0% (0)	0% (0)	2
Participation in landuse programs	0% (0)	0% (0)	0% (0)	100% (2)	0% (0)	0% (0)	2
Modeling	0% (0)	0% (0)	100% (2)	0% (0)	0% (0)	0% (0)	2
Voluntary landowner reporting	0% (0)	0% (0)	0% (0)	100% (2)	0% (0)	0% (0)	2
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0
Total Respondents							18

31. Other HABITAT inventory and assessment techniques for the Wildlife in Agricultural Habitats in Indiana.

No responses were entered for this question.

Total Respondents 0

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

systematic sampling and GIS

same as used

Frog call surveys include rural and agricultural areas throughout the state.

Total Respondents 3

33. What is the current body of science for the Wildlife in Agricultural Habitats in Indiana?

		Response Total	Response Percent
Complete, up to date and extensive		0	0%
Adequate		2	67%
Inadequate		1	33%
Nonexistent		0	0%
Other (please explain below)		0	0%
Total Respondents		3	

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

		Response Total	Response Percent
Title	Amphibians and reptiles from 23 counties of Indiana. Distribution of the western harvest mouse in Indiana	2	100%
Author	Robert Brodman Leibacher and Whitaker	2	100%
Date	2003 1998	2	100%
Publisher	Proceedings of the Indiana Academy of Science, 112: 43-54. Ind, Acad. Sci. 107:167-170	2	100%
Total Respondents		2	

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

		Response Total	Response Percent
Title	Multivariate analyses of the influences of water chemistry and habitat parameters on the abundances of pond-breeding amphibians.	2	100%
Author	see above for more Robert Brodman et al	1	50%
Date	2003	1	50%
Publisher	Journal of Freshwater Ecology 18: 425-436.	1	50%
Total Respondents		2	

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

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

37. Please provide a citation (title, author, date, publisher) that would give the best HABITAT overview of the Wildlife in Agricultural Habitats 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%
Total Respondents		0	

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38. If possible, please provide a second citation (title, author, date, publisher) that would give another good HABITAT overview of the Wildlife in Agricultural Habitats 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%
Total Respondents	0	

39. What are the research needs for the Wildlife in Agricultural Habitats in Indiana?

	Urgently needed	Greatly needed	Needed	Slightly needed	Not needed	Unknown	Response Total
Life cycle	0% (0)	0% (0)	33% (1)	67% (2)	0% (0)	0% (0)	3
Distribution and abundance	0% (0)	33% (1)	33% (1)	33% (1)	0% (0)	0% (0)	3
Limiting factors (food, shelter, water, breeding sites)	67% (2)	0% (0)	0% (0)	33% (1)	0% (0)	0% (0)	3
Threats (predators/competition, contamination)	67% (2)	33% (1)	0% (0)	0% (0)	0% (0)	0% (0)	2
Relationship/dependence on specific habitats	67% (2)	0% (0)	0% (0)	33% (1)	0% (0)	0% (0)	3
Population health (genetic and physical)	33% (1)	67% (2)	0% (0)	0% (0)	0% (0)	0% (0)	3
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0
Total Respondents							17

40. Other research needs for the Wildlife in Agricultural Habitats in Indiana.

No responses were entered for this question.

Total Respondents 0

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

	Very well	Somewhat	Not at all	Not used	Unknown	Response Total
Habitat protection (use below for details)	67% (2)	0% (0)	33% (1)	0% (0)	0% (0)	3
Population management (hunting, trapping)	0% (0)	0% (0)	33% (1)	67% (2)	0% (0)	3
Population enhancement (captive breeding and release)	0% (0)	0% (0)	33% (1)	67% (2)	0% (0)	3
Reintroduction (restoration)	0% (0)	0% (0)	33% (1)	67% (2)	0% (0)	3
Food plots	0% (0)	0% (0)	33% (1)	67% (2)	0% (0)	3
Threats reduction	0% (0)	0% (0)	33% (1)	0% (0)	67% (2)	3
Native predator control	0% (0)	0% (0)	33% (1)	0% (0)	67% (2)	3
Exotic/invasive species control	0% (0)	33% (1)	33% (1)	0% (0)	33% (1)	3
Regulation of collecting	0% (0)	0% (0)	33% (1)	67% (2)	0% (0)	3
Disease/parasite management	0% (0)	0% (0)	33% (1)	33% (1)	33% (1)	3
Translocation to new geographic range	0% (0)	0% (0)	33% (1)	67% (2)	0% (0)	3
Protection of migration routes	0% (0)	0% (0)	33% (1)	33% (1)	33% (1)	3
Limiting contact with pollutants/contaminants	0% (0)	0% (0)	33% (1)	33% (1)	33% (1)	3
Public education to reduce human disturbance	0% (0)	0% (0)	67% (2)	0% (0)	33% (1)	3
Culling/selective removal	0% (0)	0% (0)	33% (1)	67% (2)	0% (0)	3
Stocking	0% (0)	0% (0)	33% (1)	67% (2)	0% (0)	3
Other (please specify below)	0% (0)	0% (0)	100% (1)	0% (0)	0% (0)	1
						Total Respondents 49

44. Other current conservation practices for the Wildlife in Agricultural Habitats 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 Agricultural Habitats in Indiana?

Protection of fishless breeding habitat, wetland restoration

about the only one that would be effective would be to manage succession such that proper habitat was more abundant and closer together

Protection of ephemeral wetlands and control of purple loosesrife

Total Respondents 3

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

	Very well	Somewhat	Not at all	Not used	Unknown	Response Total
Habitat protection through regulation	50% (1)	50% (1)	0% (0)	0% (0)	0% (0)	2
Habitat protection on public lands	50% (1)	50% (1)	0% (0)	0% (0)	0% (0)	2
Habitat protection incentives (financial)	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	2
Habitat restoration through regulation	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	2
Habitat restoration on public lands	50% (1)	50% (1)	0% (0)	0% (0)	0% (0)	2
Habitat restoration incentives (financial)	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	2
Artificial habitat creation (artificial reefs, nesting platforms)	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	2
Selective use of functionally equivalent exotic species in place of extirpated natives	0% (0)	0% (0)	0% (0)	50% (1)	50% (1)	2
Succession control (fire, mowing)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
Corridor development/protection	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
Managing water regimes	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
Pollution reduction	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
Protection of adjacent buffer zone	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
Restrict public access and disturbance	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
Land use planning	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
Technical assistance	0% (0)	0% (0)	0% (0)	50% (1)	50% (1)	2
Cooperative land management agreements (conservation easements)	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
						Total Respondents 34

Appendix E-1: Agriculture

47. Other current HABITAT conservation practices for the Wildlife in Agricultural Habitats in Indiana.

none for this species

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 Agricultural Habitats in Indiana?

Habitat protection & restoration

see above

Ephemeral wetland protection and restoration

Total Respondents **3**

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

1. Research on metapopulation dynamics and colonization of new breeding habitat is needed.

This species entered Indiana by range expansion from Illinois about 1969 in or near Newton County (Willow Slough) and has continued to sprad since then until it occured in at least 18 counties. We can always learn more about it, but and we could attempt to learn more about how it spreads and what deters it from spreading (the latter seems to be larger rivers).

Total Respondents **2**