

Appendix E-10: Rivers and Streams

Appendix E-10: Rivers and Streams

10. Please rank the following threats to the HABITAT of the Wildlife in Rivers and Streams Habitat in Indiana.

	Critical threat	Serious threat	Somewhat of a threat	Slight threat	No threat	Unknown	Response Total
Commercial or residential development (sprawl)	0% (0)	50% (2)	50% (2)	0% (0)	0% (0)	0% (0)	4
Counterproductive financial incentives or regulations	0% (0)	25% (1)	25% (1)	0% (0)	25% (1)	25% (1)	4
Invasive/non-native species	0% (0)	0% (0)	25% (1)	25% (1)	50% (2)	0% (0)	4
Nonpoint source pollution (sedimentation and nutrients)	0% (0)	0% (0)	50% (2)	25% (1)	25% (1)	0% (0)	4
Habitat fragmentation	0% (0)	25% (1)	50% (2)	0% (0)	25% (1)	0% (0)	4
Successional change	0% (0)	50% (2)	0% (0)	0% (0)	50% (2)	0% (0)	4
Diseases (of plants that create habitat)	0% (0)	0% (0)	0% (0)	25% (1)	75% (3)	0% (0)	4
Habitat degradation	0% (0)	75% (3)	0% (0)	0% (0)	25% (1)	0% (0)	4
Climate change	0% (0)	0% (0)	0% (0)	50% (2)	25% (1)	25% (1)	4
Stream channelization	75% (3)	25% (1)	0% (0)	0% (0)	0% (0)	0% (0)	4
Impoundment of water/flow regulation	25% (1)	25% (1)	25% (1)	0% (0)	25% (1)	0% (0)	4
Agricultural/forestry practices	25% (1)	25% (1)	25% (1)	0% (0)	25% (1)	0% (0)	4
Residual contamination (persistent toxins)	0% (0)	0% (0)	25% (1)	50% (2)	25% (1)	0% (0)	4
Point source pollution (continuing)	0% (0)	0% (0)	25% (1)	50% (2)	25% (1)	0% (0)	4
Mining/acidification	0% (0)	0% (0)	0% (0)	50% (2)	25% (1)	25% (1)	4
Drainage practices (stormwater runoff)	25% (1)	0% (0)	50% (2)	0% (0)	25% (1)	0% (0)	4
Unknown	0% (0)	0% (0)	0% (0)	50% (1)	0% (0)	50% (1)	2
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
						Total Respondents	67

11. Other HABITAT threats to the Wildlife in Rivers and Streams Habitat in Indiana.

No responses were entered for this question.

Total Respondents **0**

Appendix E-10: Rivers and Streams

12. Please briefly describe the top two HABITAT threats to the Wildlife in Rivers and Streams Habitat in Indiana identified above.

1. Stream channelization removing nesting sites and destroying brood habitat. Soil runoff caused by poor agricultural practices and urban development.

2. 1. Channelization removes and/or changes the vegetative and invertebrate communities. Channelization also alters the natural water flow which results in a much degraded habitat.

2. The loss of bottomland hardwoods continues to be a threat. These areas provide a high quality food source and nesting sites for woodies.

3. Drainage Practices
Stream Channelization

The participant is forced to speculate about the meaning of successional and climate change. Agriculture/Forestry practices have different effects. Grouping these practices as a single category does not appropriately represent the individual practice. Point and nonpoint pollution may have a positive or negative impact.

Total Respondents 4

Appendix E-10: Rivers and Streams

13. What current monitoring efforts by state agencies are you aware of for the Wildlife in Rivers and Streams Habitat in Indiana?

	Yes, these efforts occur	Not aware of these efforts occurring	Response Total
Statewide year-round monitoring conducted by state agencies	50% (2)	50% (2)	4
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	33% (1)	67% (2)	3
Regional or local once a year monitoring conducted by state agencies	67% (2)	33% (1)	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	25

14. What current monitoring efforts by other organizations are you aware of for the Wildlife in Rivers and Streams Habitat in Indiana?

	Yes, these efforts occur	Not aware of these efforts occurring	Response Total
Statewide year-round monitoring conducted by other organizations	25% (1)	75% (3)	4
Statewide once a year monitoring conducted by other organizations	25% (1)	75% (3)	4
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	33% (1)	67% (2)	3
Regional or local once a year monitoring conducted by other organizations	0% (0)	100% (3)	3
Periodic regional or local (less than once a year but still regularly scheduled) monitoring conducted by other organizations	0% (0)	100% (3)	3
Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by other	0% (0)	100% (3)	3

Appendix E-10: Rivers and Streams

organizations

Total Respondents 26

15. How crucial are these monitoring efforts by state agencies for the conservation of the Wildlife in Rivers and Streams Habitat in Indiana?

	Very crucial	Somewhat crucial	Slightly crucial	Not crucial	Unknown	Response Total
Statewide year-round monitoring conducted by state agencies	50% (2)	0% (0)	0% (0)	25% (1)	25% (1)	4
Statewide once a year monitoring conducted by state agencies	0% (0)	0% (0)	33% (1)	33% (1)	33% (1)	3
Periodic statewide (less than once a year but still regularly scheduled) monitoring conducted by state agencies	0% (0)	0% (0)	0% (0)	33% (1)	67% (2)	3
Occasional statewide (less than once a year and not regularly scheduled) monitoring conducted by state agencies	0% (0)	0% (0)	0% (0)	33% (1)	67% (2)	3
Regional or local year-round monitoring conducted by state agencies	0% (0)	33% (1)	0% (0)	33% (1)	33% (1)	3
Regional or local once a year monitoring conducted by state agencies	0% (0)	33% (1)	33% (1)	33% (1)	0% (0)	3
Periodic regional or local (less than once a year but still regularly scheduled) monitoring conducted by state agencies	0% (0)	0% (0)	0% (0)	33% (1)	67% (2)	3
Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by state agencies	0% (0)	0% (0)	0% (0)	33% (1)	67% (2)	3
				Total Respondents		25

Appendix E-10: Rivers and Streams

18. Regional or local monitoring by other organizations for the Wildlife in Rivers and Streams Habitat in Indiana.

1. Muscatatuck NWR also perform wood duck banding operations.
2. Muscatatuck NWR

Total Respondents 2

19. Please list organizations that are monitoring the Wildlife in Rivers and Streams Habitat in Indiana.

1. IDNR
USFWS
2. USFWS

Indiana Division of Fish and Wildlife. Population monitoring efforts at the state, regional and local scales are to monitor annual trends. Monitoring programs are not limited to river and stream habitats for mink.

Total Respondents 3

Appendix E-10: Rivers and Streams

20. What are the current monitoring techniques for the Wildlife in Rivers and Streams 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)	67% (2)	0% (0)	0% (0)	33% (1)	3
Modeling	0% (0)	33% (1)	0% (0)	0% (0)	0% (0)	67% (2)	3
Coverboard routes	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
Spot mapping	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
Driving a survey route	0% (0)	0% (0)	33% (1)	0% (0)	0% (0)	67% (2)	3
Reporting from harvest, depredation, or unintentional take (road kill, bycatch)	100% (3)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	3
Mark and recapture	67% (2)	0% (0)	0% (0)	0% (0)	0% (0)	33% (1)	3
Professional survey/census	50% (1)	0% (0)	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)	67% (2)	0% (0)	0% (0)	0% (0)	0% (0)	33% (1)	3
Representative sites	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
Probabilistic sites	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
Other (please specify below)	100% (1)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	1
Total Respondents							31

21. Other monitoring techniques for the Wildlife in Rivers and Streams Habitat in Indiana.

1. nest box survey

2. Nest box surveys

Total Respondents **2**

(skipped this question) **1**

Appendix E-10: Rivers and Streams

22. What one or two monitoring techniques would you recommend for effective conservation of the Wildlife in Rivers and Streams Habitat in Indiana?

1. brood surveys

2. 1. Continued participation in HIP is perhaps the most cost effective method for monitoring the flyway population.
2. Banding operations help in determining the status of populations on a local or statewide level

3. Brood counts
Increased banding efforts

See #19

Total Respondents 4

23. What current HABITAT inventory and assessment efforts or activities by state agencies are you aware of for the Wildlife in Rivers and Streams 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	25% (1)	75% (3)	4
Statewide once a year inventory and assessment conducted by state agencies	0% (0)	100% (4)	4
Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	100% (4)	4
Occasional statewide (less than once a year and not regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	100% (4)	4
Regional or local year-round inventory and assessment conducted by state agencies	25% (1)	75% (3)	4
Regional or local once a year inventory and assessment conducted by state agencies	0% (0)	100% (4)	4
Periodic regional or local (less than once a year but still regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	100% (4)	4
Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	100% (4)	4
		Total Respondents	32

Appendix E-10: Rivers and Streams

24. What current HABITAT inventory and assessment efforts or activities by other organizations are you aware of for the Wildlife in Rivers and Streams 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	25% (1)	75% (3)	4
Statewide once a year inventory and assessment conducted by other organizations	0% (0)	100% (4)	4
Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (4)	4
Occasional statewide (less than once a year and not regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (4)	4
Regional or local year-round inventory and assessment conducted by other organizations	25% (1)	75% (3)	4
Regional or local once a year inventory and assessment conducted by other organizations	0% (0)	100% (4)	4
Periodic regional or local (less than once a year but still regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (4)	4
Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (4)	4
		Total Respondents	32

Appendix E-10: Rivers and Streams

regard to land use patterns within these habitats.

Total Respondents 1

29. Please list organizations that are monitoring this HABITAT for the Wildlife in Rivers and Streams Habitat in Indiana.

IDNR
 USFWS
 USDA
 IDEM
 USACE
 EPA
 local government entities (area plan commissions, zoning boards etc..)

Total Respondents 1

30. What are the current monitoring techniques for the Wildlife in Rivers and Streams Habitat in Indiana.
 If a technique is not applicable to the Wildlife in Rivers and Streams Habitat, 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	25% (1)	25% (1)	0% (0)	0% (0)	0% (0)	50% (2)	4
Aerial photography and analysis	25% (1)	25% (1)	0% (0)	0% (0)	0% (0)	50% (2)	4
Systematic sampling	0% (0)	0% (0)	25% (1)	0% (0)	0% (0)	75% (3)	4
Property tax estimates	33% (1)	0% (0)	0% (0)	0% (0)	0% (0)	67% (2)	3
State revenue data	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (3)	3
Regulatory information	33% (1)	0% (0)	0% (0)	0% (0)	0% (0)	67% (2)	3
Participation in landuse programs	33% (1)	0% (0)	0% (0)	0% (0)	0% (0)	67% (2)	3
Modeling	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (3)	3
Voluntary landowner reporting	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (3)	3
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (3)	3
							Total Respondents 32

Appendix E-10: Rivers and Streams

31. Other HABITAT inventory and assessment techniques for the Wildlife in Rivers and Streams Habitat in Indiana.

No responses were entered for this question.

Total Respondents 0

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

1. gis mapping
aerial photo. and analysis
2. Developing and maintaing accurate GIS data sets on the habitat is very important.
3. spring, summer, fall and winter surveys

Total Respondents 3

33. What is the current body of science for the Wildlife in Rivers and Streams Habitat in Indiana?

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

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

Title = Ecology and Management of the Wood Duck
 Author = Bellrose and Holm
 Date = 1994
 Publisher = Stackpole Books

**Response
Total Response
Percent**

Appendix E-10: Rivers and Streams

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

Title = Ducks, Geese and Swans of North America
 Author = Bellrose
 Date = 1976
 Publisher = Stackpole Books

**Response
 Total Response
 Percent**

36. What is the current HABITAT body of science for the Wildlife in Rivers and Streams Habitat in Indiana?

		Response Total	Response Percent
Complete, up to date and extensive		0	0%
Adequate		0	0%
Inadequate		0	0%
Nonexistent		1	33%
Other (please explain below)	The body of science is better than adequate, it is quite extensive and up to date, but by no means is it complete.	2	67%
Total Respondents		2	

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

Title = Wetlands
 Author = Mitsch & Gosselink
 Date = 1993
 Publisher = Van Nostrand Rheinhold

**Response
 Total Response
 Percent**

Appendix E-10: Rivers and Streams

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

Title = Southern Forested Wetlands

Author = Messina & Conner

Date = 1998

Publisher = CRC Press LLC

**Response
Total Response
Percent**

39. What are the research needs for the Wildlife in Rivers and Streams Habitat in Indiana?

	Urgently needed	Greatly needed	Needed	Slightly needed	Not needed	Unknown	Response Total						
Life cycle	0% (0)	0% (0)	25% (1)	0% (0)	75% (3)	0% (0)	4						
Distribution and abundance	0% (0)	25% (1)	50% (2)	0% (0)	25% (1)	0% (0)	4						
Limiting factors (food, shelter, water, breeding sites)	0% (0)	50% (2)	25% (1)	0% (0)	25% (1)	0% (0)	4						
Threats (predators/competition, contamination)	0% (0)	0% (0)	75% (3)	0% (0)	25% (1)	0% (0)	4						
Relationship/dependence on specific habitats	0% (0)	0% (0)	50% (2)	25% (1)	25% (1)	0% (0)	4						
Population health (genetic and physical)	0% (0)	0% (0)	25% (1)	0% (0)	50% (2)	25% (1)	4						
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1						
							Total Respondents	25					

40. Other research needs for the Wildlife in Rivers and Streams Habitat in Indiana.

Research needs are not limited to river and stream habitats

Total Respondents 1

Appendix E-10: Rivers and Streams

43. How well do the following conservation efforts address the threats to the Wildlife in Rivers and Streams Habitat in Indiana?

	Very well	Somewhat	Not at all	Not used	Unknown	Response Total
Habitat protection (use below for details)	75% (3)	0% (0)	25% (1)	0% (0)	0% (0)	4
Population management (hunting, trapping)	50% (2)	50% (2)	0% (0)	0% (0)	0% (0)	4
Population enhancement (captive breeding and release)	0% (0)	0% (0)	0% (0)	100% (4)	0% (0)	4
Reintroduction (restoration)	0% (0)	0% (0)	0% (0)	100% (4)	0% (0)	4
Food plots	0% (0)	50% (2)	25% (1)	25% (1)	0% (0)	4
Threats reduction	0% (0)	25% (1)	25% (1)	0% (0)	50% (2)	4
Native predator control	0% (0)	25% (1)	25% (1)	50% (2)	0% (0)	4
Exotic/invasive species control	0% (0)	50% (2)	0% (0)	25% (1)	25% (1)	4
Regulation of collecting	25% (1)	0% (0)	0% (0)	75% (3)	0% (0)	4
Disease/parasite management	0% (0)	0% (0)	25% (1)	50% (2)	25% (1)	4
Translocation to new geographic range	0% (0)	0% (0)	0% (0)	100% (4)	0% (0)	4
Protection of migration routes	25% (1)	50% (2)	0% (0)	25% (1)	0% (0)	4
Limiting contact with pollutants/contaminants	0% (0)	50% (2)	25% (1)	25% (1)	0% (0)	4
Public education to reduce human disturbance	0% (0)	50% (2)	25% (1)	25% (1)	0% (0)	4
Culling/selective removal	0% (0)	0% (0)	0% (0)	100% (4)	0% (0)	4
Stocking	0% (0)	0% (0)	0% (0)	100% (4)	0% (0)	4
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
						Total Respondents
						65

44. Other current conservation practices for the Wildlife in Rivers and Streams Habitat in Indiana.

No responses were entered for this question.

Total Respondents **0**

Appendix E-10: Rivers and Streams

45. What one or two specific practices would you recommend for more effective conservation of the Wildlife in Rivers and Streams Habitat in Indiana?

1. To best benefit the Wood Duck, one must first improve the habitat. This particular question seems redundant with #48. Therefore refer to my answer in box number 48.

2. Habitat protection
nest boxes

See #43. In addition, although not habitat specific, outreach programs are needed to effectively and accurately educate citizens about wildlife (game and non-game), the wildlife conservation model (for game and non-game), and the need for effective mink management programs.

Total Respondents 3

46. How well do the following conservation efforts address the HABITAT threats to the Wildlife in Rivers and Streams Habitat in Indiana?

	Very well	Somewhat	Not at all	Not used	Unknown	Response Total
Habitat protection through regulation	25% (1)	50% (2)	25% (1)	0% (0)	0% (0)	4
Habitat protection on public lands	50% (2)	25% (1)	25% (1)	0% (0)	0% (0)	4
Habitat protection incentives (financial)	50% (2)	25% (1)	25% (1)	0% (0)	0% (0)	4
Habitat restoration through regulation	75% (3)	0% (0)	25% (1)	0% (0)	0% (0)	4
Habitat restoration on public lands	75% (3)	25% (1)	0% (0)	0% (0)	0% (0)	4
Habitat restoration incentives (financial)	75% (3)	25% (1)	0% (0)	0% (0)	0% (0)	4
Artificial habitat creation (artificial reefs, nesting platforms)	25% (1)	50% (2)	0% (0)	25% (1)	0% (0)	4
Selective use of functionally equivalent exotic species in place of extirpated natives	0% (0)	25% (1)	0% (0)	50% (2)	25% (1)	4
Succession control (fire, mowing)	0% (0)	50% (2)	25% (1)	25% (1)	0% (0)	4
Corridor development/protection	25% (1)	50% (2)	0% (0)	25% (1)	0% (0)	4
Managing water regimes	25% (1)	50% (2)	0% (0)	25% (1)	0% (0)	4
Pollution reduction	0% (0)	75% (3)	0% (0)	25% (1)	0% (0)	4
Protection of adjacent buffer zone	50% (2)	25% (1)	0% (0)	25% (1)	0% (0)	4
Restrict public access and disturbance	0% (0)	75% (3)	0% (0)	25% (1)	0% (0)	4
Land use planning	50 (2)	25% (1)	0% (0)	25% (1)	0% (0)	4
Technical assistance	0% (0)	75% (3)	0% (0)	25% (1)	0% (0)	4
Cooperative land management agreements (conservation easements)	33% (1)	33% (1)	0% (0)	0% (0)	33% (1)	3
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	1
						Total Respondents 68

Appendix E-10: Rivers and Streams

- 47.** Other current HABITAT conservation practices for the **Wildlife in rivers and streams** habitat in Indiana.

No responses were entered for this question.

Total Respondents	0
(skipped this question)	3

Appendix E-10: Rivers and Streams

48. What one or two specific HABITAT practices would you recommend for more effective conservation of the Wildlife in Rivers and Streams Habitat in Indiana?

1. Elimination of, or at the very least, reducing, the amount of stream channelization that occurs.
2. Restoration of bottomland hardwoods through the farmbill and other incentive type programs is also very good.
Elimination of ditches and stream channelization

Total Respondents **2**

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

No responses were entered for this question.

Total Respondents **0**