

Appendix E-27: Aggregated Developed Lands

6. Please rank the following threats to the Wildlife in All Developed Lands Habitats in Indiana.

	Critical threat	Serious threat	Somewhat of a threat	Slight threat	No threat	Unknown	Response Total
Invasive/non-native species	0% (0)	0% (0)	50% (4)	0% (0)	38% (3)	12% (1)	8
High sensitivity to pollution	0% (0)	12% (1)	50% (4)	0% (0)	12% (1)	25% (2)	8
Bioaccumulation of contaminants	0% (0)	14% (1)	29% (2)	14% (1)	14% (1)	29% (2)	7
Predators (native or domesticated)	0% (0)	0% (0)	25% (2)	38% (3)	38% (3)	0% (0)	8
Dependence on other species (mutualism, pollinators)	0% (0)	0% (0)	14% (1)	14% (1)	71% (5)	0% (0)	7
Diseases/parasites (of the species itself)	0% (0)	25% (2)	25% (2)	38% (3)	0% (0)	12% (1)	8
Regulated hunting/fishing pressure (too much)	0% (0)	0% (0)	12% (1)	25% (2)	63% (5)	0% (0)	8
Species over population	25% (2)	25% (2)	0% (0)	0% (0)	50% (4)	0% (0)	8
Unintentional take/ direct mortality (e.g., vehicle collisions, power line collisions, by-catch, harvesting equipment, land preparation machinery)	0% (0)	12% (1)	25% (2)	0% (0)	63% (5)	0% (0)	8
Unregulated collection pressure	0% (0)	0% (0)	12% (1)	12% (1)	63% (5)	12% (1)	8
Dependence on irregular resources (cyclical annual variations) (e.g., food, water, habitat limited due to annual variations in availability)	0% (0)	12% (1)	25% (2)	25% (2)	38% (3)	0% (0)	8
Total Respondents							86

7. Please also rank these threats to the Wildlife in All Developed Lands Habitats in Indiana.

	Critical threat	Serious threat	Somewhat of a threat	Slight threat	No threat	Unknown	Response Total
Habitat loss (breeding range)	0% (0)	12% (1)	12% (1)	50% (4)	25% (2)	0% (0)	8

Appendix E-27: Aggregated Developed Lands

Habitat loss (feeding/foraging areas)	0% (0)	12% (1)	12% (1)	25% (2)	50% (4)	0% (0)	8
Small native range (high endemism)	0% (0)	0% (0)	0% (0)	12% (1)	88% (7)	0% (0)	8
Near limits of natural geographic range	0% (0)	0% (0)	0% (0)	14% (1)	86% (6)	0% (0)	7
Large home range requirements	0% (0)	0% (0)	0% (0)	14% (1)	86% (6)	0% (0)	7
Viable reproductive population size or availability	0% (0)	0% (0)	12% (1)	12% (1)	75% (6)	0% (0)	8
Specialized reproductive behavior or low reproductive rates	0% (0)	0% (0)	12% (1)	0% (0)	88% (7)	0% (0)	8
Degradation of movement/migration routes (overwintering habitats, nesting and staging sites)	0% (0)	50% (4)	12% (1)	25% (2)	0% (0)	12% (1)	8
Genetic pollution (hybridization)	12% (1)	0% (0)	25% (2)	25% (2)	38% (3)	0% (0)	8
Unknown	0% (0)	0% (0)	0% (0)	33% (1)	0% (0)	66% (2)	3
Other (please specify below)	0% (0)	50% (2)	25% (1)	0% (0)	0% (0)	25% (1)	4
Total Respondents							77

8. Other threats to the Wildlife in All Developed Lands Habitats in Indiana.

1. Urban Canada Geese are a real problem in Indiana. I deal specifically with Ft. Wayne (Allen County). Canada geese have benefitted from the way humans have altered the landscape within Urban areas. Human-goose conflicts within the urban environment will increase.
2. "Urbanization and domestication of "wild" Mallards leading to the hybridization w/ domestic stock of ducks. The threat is one of unusual circumstance. As opposed to typical habitat loss or fragmentation, this threat constitutes displacement of Mallards into undesirable/"unnatural" areas creating nuisance problems and genetic integrity concerns. The "developed" land itself creates wild scale loss of "high quality" habitat for Mallards. However, Mallard ducks are adaptable creatures and have adapted to this "developed" environment. Nonetheless, their adaptiveness could also be their downfall in "developed" lands.
3. 1. Abrupt changes in drainage patterns due to development. Kirtland's snakes prefer moist soils that support earthworms.
2. Mowing, or moving or clearing of debris (cover items) on the ground as Kirtland's snakes are found in moist open environments; but, often under natural and man-made debris on the ground
4. Tolerance by building managers of nesting sites.

Total Respondents 4

Appendix E-27: Aggregated Developed Lands

Stream channelization	0% (0)	38% (3)	12% (1)	12% (1)	25% (2)	12% (1)	8
Impoundment of water/flow regulation	0% (0)	50% (4)	0% (0)	0% (0)	50% (4)	0% (0)	8
Agricultural/forestry practices	0% (0)	25% (2)	0% (0)	38% (3)	25% (2)	12% (1)	8
Residual contamination (persistent toxins)	0% (0)	0% (0)	50% (4)	38% (3)	0% (0)	12% (1)	8
Point source pollution (continuing)	0% (0)	0% (0)	38% (3)	50% (4)	0% (0)	12% (1)	8
Mining/acidification	0% (0)	0% (0)	0% (0)	14% (1)	57% (4)	29% (2)	7
Drainage practices (stormwater runoff)	0% (0)	25% (2)	12% (1)	38% (3)	25% (2)	0% (0)	8
Unknown	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
Other (please specify below)	0% (0)	50% (1)	0% (0)	0% (0)	0% (0)	50% (1)	2
Total Respondents							131

11. Other HABITAT threats to the Wildlife in All Developed Lands Habitats in Indiana.

1. The developed land itself creates a threat to "quality habitat" for Mallards. The Mallards are simply placed in an urban/suburban setting creating a whole host of problems and for humans and Mallards alike (genetic pollution, nuisance ducks, possible fecal contamination, etc.).

2. Although I marked invasive/non-native species as a slight threat, the impact of non-native earthworms should be closely monitored as the Kirtland's snake's natural diet is believed to be comprised predominately of earthworms and slugs. The ecological impact of some non-native invertebrates has not been adequately studied.

3. Potential for pollution reducing productivity of aquatic habitats over which Cliff Swallows feed.

Total Respondents **3**

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

1. Commercial and residential development with lakes and ponds offer all the resources Canada Geese need to survive. With an overpopulation of Canada Geese in Urban areas; it's hard to say there is a habitat threat.

2. Regulations
urban development

1. 1) Urban sprawl creating attractive areas for Mallards to become "more domesticated" (i.e. retention/detention ponds)

Appendix E-27: Aggregated Developed Lands

(i.e retention/detention ponds).

2)Feeding of birds by people.

3)Destruction of beneficial areas for Mallards (and other puddle ducks), ie wetlands, streams, small ponds, etc. These areas are converted to retention/detention ponds.

4. 2. urban sprawl
retention ponds

5. 1. Developement of drainage areas and flood plains, including development of park-like areas in which natural or man-made cover is removed.

2. Habitat fragmentation that disrupts gene flow and re-colonization.

6 Reduction in quantity and quality of prey populations.
Design of buildings that do not provide nesting ledges.

7. Changes in design of bridges and causeways to make them less suitable for nest placement.

Total Respondents 7

13. What current monitoring efforts by state agencies are you aware of for the Wildlife in All Developed Lands Habitats in Indiana?

	Yes, these efforts occur	Not aware of these efforts occuring	Response Total
Statewide year-round monitoring conducted by state agencies	50% (4)	50% (4)	8
Statewide once a year monitoring conducted by state agencies	67% (4)	33% (2)	6
Periodic statewide (less than once a year but still regularly scheduled) monitoring conducted by state agencies	50% (3)	50% (3)	6
Occasional statewide (less than once a year and not regularly scheduled) monitoring conducted by state agencies	33% (2)	67% (4)	6
Regional or local year-round monitoring conducted by state agencies	17% (1)	83% (5)	6
Regional or local once a year monitoring conducted by state agencies	50% (3)	50% (3)	6
Periodic regional or local (less than once a year but still regularly scheduled) monitoring conducted by state agencies	33% (2)	67% (4)	6
Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by state agencies	33% (2)	67% (4)	6

Appendix E-27: Aggregated Developed Lands

Total Respondents 50

14. What current monitoring efforts by other organizations are you aware of for the Wildlife in All Developed Lands Habitats in Indiana?

	Yes, these efforts occur	Not aware of these efforts occurring	Response Total
Statewide year-round monitoring conducted by other organizations	14% (1)	86% (6)	7
Statewide once a year monitoring conducted by other organizations	63% (5)	38% (3)	8
Periodic statewide (less than once a year but still regularly scheduled) monitoring conducted by other organizations	14% (1)	86% (6)	7
Occasional statewide (less than once a year and not regularly scheduled) monitoring conducted by other organizations	14% (1)	86% (6)	7
Regional or local year-round monitoring conducted by other organizations	14% (1)	86% (6)	7
Regional or local once a year monitoring conducted by other organizations	17% (1)	83% (5)	6
Periodic regional or local (less than once a year but still regularly scheduled) monitoring conducted by other organizations	14% (1)	86% (6)	7
Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by other organizations	14% (1)	86% (6)	7
		Total Respondents	56

15. How crucial are these monitoring efforts by state agencies for the conservation of the Wildlife in All Developed Lands Habitats in Indiana?

	Very crucial	Somewhat crucial	Slightly crucial	Not crucial	Unknown	Response Total
Statewide year-round monitoring conducted by state agencies	33% (2)	12% (1)	0% (0)	25% (2)	38% (3)	8
Statewide once a year monitoring conducted by state agencies	29% (2)	43% (3)	0% (0)	14% (1)	14% (1)	7
Periodic statewide (less than once a year but still regularly scheduled) monitoring conducted by state agencies	17% (1)	17% (1)	17% (1)	17% (1)	33% (2)	6
Occasional statewide (less than once						

Appendix E-27: Aggregated Developed Lands

Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by other organizations	0% (0)	0% (0)	29% (2)	29% (2)	43% (3)	7
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Total Respondents 58

17. Regional or local state agency monitoring for the Wildlife in All Developed Lands Habitats in Indiana.

1. The division of Fish & Wildlife conducts Canada Goose banding yearly. This consists of neck collars and leg bands. Water fowl surveys are also conducted. Hunter harvest are reported.
2. The Wildlife Diversity Section of the DFW coordinates Indiana's North American Amphibian Monitoring and Frog Watch Programs. These two programs collectively are the statewide effort to monitor frog and toad populations in Indiana, including bull frogs. The data can be analysed regionally.
3. The Wildlife Diversity Section of the DFW coordinates Indiana's North American Amphibian Monitoring and Frog Watch Programs. These two programs collectively are the statewide effort to monitor frog and toad populations in Indiana, including bull frogs. The data can be analysed regionally.
4. Regionally (throughout the state)-waterfowl breeding status surveys, population surveys
Regionally (throughout the state)-Statewide trapping, banding, and recapture efforts
5. Kirtland snake encounters are reported to the Indiana Natural Heritage Database on a sporadic basis by citizens and scientist. Although sporadic these reports are often sufficient to demonstrate persistent Kirtland snake occupied sites. However, the environmental parameters of these sites have not been adequately studied or described to reveal important micro-habitat associations.
6. DNR monitors most nest sites in the state and obtains information from others.
7. None exist.

Total Respondents 7

18. Regional or local monitoring by other organizations for the Wildlife in All Developed Lands Habitats in Indiana.

1. I believe Ducks Unlimited conducts waterfowl surveys
2. Breeding surveys, population surveys
3. None known.
4. Building managers and volunteers report nesting activity at many nests.

Total Respondents 4

19. Please list organizations that are monitoring the Wildlife in All Developed Lands Habitats in Indiana.

Appendix E-27: Aggregated Developed Lands

- US Fish & Wildlife Service
1. Indiana Division of Fish & Wildlife
Ducks Unlimited
 2. IDNR-Division of Fish and Wildlife
IDNR-Division of Parks and Reservoirs
U.S. FWS
Ducks Unlimited
Waterfowl USA
 3. None know to be "monitoring" the Wildlife Diversity Section of the Indiana Division of Fish and Wildlife accepts sighting information as does the Division of Nature Preserves for inclusion in the Heritage Database.
 4. Private companies (NIPSCO, Ispat Inland, building managers).
 5. Federal Breeding Bird Survey serves this function. But does not focus on suitable habitat; yet, occurrence on these surveys would be tied to nearby presence of this breeding habitat.

Total Respondents 5

20. What are the current monitoring techniques for the Wildlife in All Developed Lands 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)	83% (5)	0% (0)	17% (1)	0% (0)	6
Modeling	14% (1)	29% (2)	43% (3)	0% (0)	0% (0)	14% (1)	7
Coverboard routes	0% (0)	0% (0)	33% (1)	33% (1)	0% (0)	33% (1)	3
Spot mapping	25% (1)	25% (1)	0% (0)	25% (1)	0% (0)	25% (1)	4
Driving a survey route	50% (4)	12% (1)	12% (1)	25% (2)	0% (0)	0% (0)	8
Reporting from harvest, depredation, or unintentional take (road kill, bycatch)	71% (5)	29% (2)	0% (0)	0% (0)	0% (0)	0% (0)	7
Mark and recapture	57% (4)	0% (0)	43% (3)	0% (0)	0% (0)	0% (0)	7

Appendix E-27: Aggregated Developed Lands

Professional survey/census	60% (3)	0% (0)	40% (2)	0% (0)	0% (0)	0% (0)	5
Volunteer survey/census	50% (3)	0% (0)	33% (2)	0% (0)	0% (0)	17% (1)	6
Trapping (by any technique)	29% (2)	14% (1)	71% (4)	0% (0)	0% (0)	0% (0)	7
Representative sites	50% (3)	17% (1)	33% (2)	0% (0)	0% (0)	0% (0)	6
Probabilistic sites	66% (2)	33% (1)	33% (1)	0% (0)	0% (0)	0% (0)	4
Other (please specify below)	0% (0)	50% (1)	0% (0)	0% (0)	0% (0)	50% (1)	2
Total Respondents							74

21. Other monitoring techniques for the Wildlife in All Developed Lands Habitats in Indiana.

1. aerial surveys

Bull frog tadpoles and adults are often recorded during amphibian surveys of particular sites, such as a military base or superfund sites. Bull frogs are also encountered and recorded during fish surveys.

2. 1. N/A

3. 2. aerial breeding survey

A standardized protocol could be developed as suggested by Gibson and Kingsbury 2004. However, a more difficult question might be where should the standardized protocol be implemented to provide an adequate picture of the status of the Kirtland's snake in Indiana.

4. Surveys for colonies and periodic censuses of nests/ populations.

Total Respondents 5

22. What one or two monitoring techniques would you recommend for effective conservation of the Wildlife in All Developed Lands Habitats in Indiana?

1. Neck collars and leg bands - Driving surveys

2. population surveys

1. 1)Mark and Recapture

2)Modelling-To determine population dynamics and evaluate genetic integrity of Mallards in developed lands versus "wild" Mallards (i.e Mallards in undeveloped areas).

3.

2. monitoring throughout annual cycle

Appendix E-27: Aggregated Developed Lands

4. I do not believe that an effective nationally or regionally accepted monitoring technique exist. This should be identified as a need in the CWS.
5. Nest monitoring of all known nests (or representative sample) with 2-3 visits according to USFWS protocol.
6. Surveys for colonies and periodic censuses of nests/ populations.

Total Respondents 6

23. What current HABITAT inventory and assessment efforts or activities by state agencies are you aware of for the Wildlife in All Developed Lands 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	0% (0)	100% (8)	8
Statewide once a year inventory and assessment conducted by state agencies	0% (0)	100% (8)	8
Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	100% (8)	8
Occasional statewide (less than once a year and not regularly scheduled) inventory and assessment conducted by state agencies	12% (1)	88% (7)	8
Regional or local year-round inventory and assessment conducted by state agencies	0% (0)	100% (8)	8
Regional or local once a year inventory and assessment conducted by state agencies	0% (0)	100% (8)	8
Periodic regional or local (less than once a year but still regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	100% (8)	8
Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment conducted by state agencies	12% (1)	88% (7)	8
Total Respondents			64

24. What current HABITAT inventory and assessment efforts or activities by other organizations are you aware of for the Wildlife in All Developed Lands 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% (8)	8
Statewide once a year inventory and assessment conducted by other organizations	0% (0)	100% (8)	8

Appendix E-27: Aggregated Developed Lands

Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (8)	8
Occasional statewide (less than once a year and not regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (8)	8
Regional or local year-round inventory and assessment conducted by other organizations	0% (0)	100% (8)	8
Regional or local once a year inventory and assessment conducted by other organizations	0% (0)	100% (8)	8
Periodic regional or local (less than once a year but still regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (8)	8
Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (8)	8
		Total Respondents	64

25. How crucial are these HABITAT efforts by state agencies for the conservation of the Wildlife in All Developed Lands 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	25% (2)	0% (0)	12% (1)	50% (4)	12% (1)	8
Statewide once a year inventory and assessment conducted by state agencies	14% (1)	0% (0)	14% (1)	43% (3)	29% (2)	7
Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment conducted by state agencies	17% (1)	17% (1)	17% (1)	33% (2)	17% (1)	6
Occasional statewide (less than once a year and not regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	0% (0)	0% (0)	67% (4)	33% (2)	6

Appendix E-27: Aggregated Developed Lands

4. None known to me.

Total Respondents 4

29. Please list organizations that are monitoring this HABITAT for the Wildlife in All Developed Lands Habitats in Indiana.

1. I'm not aware of any
2. None known
3. None known
4. None
5. None known to me.

Total Respondents 4

30. What are the current HABITAT inventory and/or assessment techniques for Wildlife in All Developed Lands 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)	25% (2)	63% (5)	0% (0)	0% (0)	12% (1)	8
Aerial photography and analysis	12% (1)	38% (3)	38% (3)	0% (0)	12% (1)	0% (0)	8
Systematic sampling	0% (0)	0% (0)	75% (6)	0% (0)	12% (1)	12% (1)	8
Property tax estimates	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (5)	5
State revenue data	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (5)	5
Regulatory information	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (5)	5
Participation in landuse programs	0% (0)	0% (0)	29% (2)	0% (0)	0% (0)	71% (5)	7
Modeling	0% (0)	0% (0)	86% (6)	0% (0)	0% (0)	14% (1)	7

Appendix E-27: Aggregated Developed Lands

Voluntary landowner reporting	20% (1)	40% (2)	0% (0)	0% (0)	0% (0)	40% (2)	5
Other (please specify below)	0% (0)	33% (1)	0% (0)	0% (0)	0% (0)	67% (2)	3
Total Respondents							61

31. Other HABITAT inventory and assessment techniques for the Wildlife in All Developed Lands Habitats in Indiana.

If there was a significant decline in bull frog habitat on state owned properties the state would hear about it from frog hunters.

Insufficient data on Kirtland's snake habitat.

"Habitat" for some wildlife species is defined primarily by suitable nesting sites near water. Volunteer participation in building a database of known breeding colonies and volunteer periodic censusing of colony sizes.

Total Respondents 3

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

1. Aerial Photography and modeling
2. Urban residents could be encouraged to participate in the Frog Watch program.
 1. N/A
3.
 2. aerial spring surveys
4. Insufficient data on Kirtland's snake habitat.
5. Only casual assessment needed.

6. "Habitat" for this species is defined primarily by suitable nesting sites near water. Volunteer participation in building a database of known breeding colonies and volunteer periodic censusing of colony sizes.

Total Respondents 7

33. What is the current body of science for the Wildlife in All Developed Lands Habitats in Indiana?

	Response Total	Response Percent
Complete, up to date and	1	12%

Appendix E-27: Aggregated Developed Lands

extensive			
Adequate		2	25%
Inadequate		3	38%
Nonexistent		2	25%
Other (please explain below)		0	0%
		Total Respondents	8

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

		Response Total	Response Percent
Title	Managing Canada Geese in Urban Environments		
	Amphibians and Reptiles of Indiana	4	100%
Author	Peregrine Falcon nesting and management in Indiana Arthur E. Smith, Scott R. Craven and Paul D. Curtis		
	Sherman A. Minton, Jr.	4	100%
	Castrale, J.S., and A. Parker		
Date	1199		
	2001	4	100%
	1999		
Publisher	Indiana Audubon Quaterly 77:65-74. Cornell Cooperative Extension		
	Indiana Academy of Sciences	4	100%
		Total Respondents	4

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

		Response Total	Response Percent
	Prevention and Control of Wildlife Damage		

Appendix E-27: Aggregated Developed Lands

	Blank		
	N/A		
	Midwest Peregrine Falcon Restoration - 2004 Annual Report		
Author	Blank www.natureserve.org/explorer	3	75%
	Blank Tordoff, H.B., J.A. Goggin, J.S. Castrale		
Date	1994 Blank Blank 2004	2	50%
Publisher	University of Nebraska Blank Blank The Raptor Center at the Univ. of Minnesota	2	50%
		Total Respondents	4

36. What is the current HABITAT body of science for the Wildlife in All Developed Lands Habitats in Indiana?			
		Response Total	Response Percent
Complete, up to date and extensive		1	14%
Adequate		1	14%
Inadequate		1	14%
Nonexistent		3	43%
Other (please explain below)	Unknown-Developed land "IS NOT" quality habitat AT ALL for Mallards. Therefore, it should not be addressed or perceived as such.	1	14%
		Total Respondents	7

37. Please provide a citation (title, author, date, publisher) that would give the best HABITAT overview of the Wildlife in All Developed Lands Habitats in Indiana, if available. This resource may be used if further detail is needed.			
		Response Total	Response Percent
Title	Managing Canada Geese in Urban Environments		
	NA	3	100%
	Amphibians and Reptiles of Indiana		
	Arthur E. Smith, Scott R. Craven and Paul D. Curtis		

Appendix E-27: Aggregated Developed Lands

	Blank		
	Sherman A. Minton, Jr.		
	1999		
Date	Blank	2	67%
	2001		
	Cornel Cooperative Extension		
Publisher	Blank	2	67%
	Indiana Academy of Science		
		Total Respondents	3

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

		Response Total	Response Percent
Title	Indiana Heritage Database	2	100%
Author	Indiana Division of Nature Preserves	1	50%
Date		0	0%
Publisher		0	0%
		Total Respondents	2

39. What are the research needs for the Wildlife in All Developed Lands Habitats in Indiana?

	Urgently needed	Greatly needed	Needed	Slightly needed	Not needed	Unknown	Response Total
Life cycle	0% (0)	12% (1)	25% (2)	25% (2)	38% (3)	0% (0)	8
Distribution and abundance	12% (1)	38% (3)	25% (2)	25% (2)	0% (0)	0% (0)	8
Limiting factors (food, shelter, water, breeding sites)	0% (0)	38% (3)	25% (2)	25% (2)	12% (1)	0% (0)	8
Threats (predators/competition, contamination)	0% (0)	25% (2)	38% (3)	25% (2)	12% (1)	0% (0)	8
Relationship/dependence on specific habitats	25% (2)	0% (0)	25% (2)	25% (2)	25% (2)	0% (0)	8

Appendix E-27: Aggregated Developed Lands

Population health (genetic and physical)	0% (0)	12% (1)	38% (3)	50% (4)	0% (0)	0% (0)	8
Other (please specify below)	0% (0)	33% (1)	0% (0)	0% (0)	0% (0)	66% (2)	3
Total Respondents							51

40. Other research needs for the Wildlife in All Developed Lands Habitats in Indiana.

Movement pattern of urban Canada Geese.

1. Affinity for Canada Geese hatched in an urban environment to move or migrate back to a similar environment.
2. Ways to reduce urban populations
3. None known
 - 1) To determine the genetic integrity of Mallards in Developed Areas.
 - 2) To determine effective management tools and a management plan of Mallards in Developed Lands.

Total Respondents 4

41. What are the HABITAT research needs for the Wildlife in All Developed Lands Habitats in Indiana?

	Urgently needed	Greatly needed	Needed	Slightly needed	Not needed	Unknown	Response Total
Successional changes	0% (0)	0% (0)	12% (1)	25% (2)	50% (5)	0% (0)	8
Distribution and abundance (fragmentation)	0% (0)	25% (2)	25% (2)	25% (2)	25% (2)	0% (0)	8
Threats (land use change/competition, contamination/global warming)	0% (0)	25% (2)	38% (3)	25% (2)	12% (1)	0% (0)	8
Relationship/dependence on specific site conditions	12% (1)	25% (2)	38% (3)	0% (0)	25% (2)	0% (0)	8
Growth and development of individual components of the habitat	12% (1)	12% (1)	38% (3)	0% (0)	38% (3)	0% (0)	8
Other (please specify below)	0% (0)	67% (2)	0% (0)	0% (0)	0% (0)	33% (1)	3
Total Respondents							43

42. Other HABITAT research needs for the Wildlife in All Developed Lands Habitats in Indiana.

1. Ways to exclude geese

Appendix E-27: Aggregated Developed Lands

2. None known

1) To determine the long term effects of Mallards in Developed Lands on the overall Mallard population

3. 2) To device management tools and concepts to help professionals manage better for Mallards in Developed Lands

4. The highest priority should be to understand why Kirtland's snake occur where we are currently finding them. With that information, we can maintain current populations before we determine the feasibility of increasing their numbers and distribution.

Total Respondents 4

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

	Very well	Somewhat	Not at all	Not used	Unknown	Response Total
Habitat protection (use below for details)	38% (3)	38% (3)	12% (1)	0% (0)	12% (1)	8
Population management (hunting, trapping)	12% (1)	12% (1)	25% (2)	38% (3)	12% (1)	8
Population enhancement (captive breeding and release)	0% (0)	12% (1)	12% (1)	50% (4)	25% (2)	8
Reintroduction (restoration)	0% (0)	12% (1)	12% (1)	50% (4)	25% (2)	8
Food plots	12% (1)	12% (1)	12% (1)	50% (4)	12% (1)	8
Threats reduction	0% (0)	38% (3)	12% (1)	38% (3)	12% (1)	8
Native predator control	0% (0)	12% (1)	12% (1)	63% (5)	12% (1)	8
Exotic/invasive species control	0% (0)	25% (2)	0% (0)	63% (5)	12% (1)	8
Regulation of collecting	38% (3)	25% (2)	12% (1)	12% (1)	12% (1)	8
Disease/parasite management	0% (0)	38% (3)	12% (1)	50% (4)	0% (0)	8
Translocation to new geographic range	0% (0)	38% (3)	25% (2)	38% (3)	0% (0)	8
Protection of migration routes	25% (2)	12% (1)	12% (1)	25% (2)	25% (2)	8
Limiting contact with pollutants/contaminants	12% (1)	25% (2)	25% (2)	25% (2)	12% (1)	8
Public education to reduce human disturbance	25% (2)	38% (3)	12% (1)	25% (2)	0% (0)	8
Culling/selective removal	0% (0)	50% (4)	12% (1)	38% (3)	0% (0)	8
Stocking	0% (0)	0% (0)	12% (1)	75% (6)	12% (1)	8
Other (please specify below)	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	2
						Total Respondents 130

Appendix E-27: Aggregated Developed Lands

44. Other current conservation practices for the Wildlife in All Developed Lands Habitats in Indiana.

1. Bull frog tadpoles could be introduced into an area as by-product to fish stocking or from released pet tadpoles.
2. Habitat Alteration
3. None known to me.

Total Respondents 3

45. What one or two specific practices would you recommend for more effective conservation of the Wildlife in All Developed Lands Habitats in Indiana?

1. See question 49
2. Population reduction
3. None needed
 1. 1)HUNTING (first and foremost)
 - 2)Habitat Alteration
4.
 2. removal of habitat in urban zones
5. When areas known or suspected to have Kirtlans's snakes are threatened with development, seek to have the developer include shrubs and rock features near drainages to provide cover and to reduce mowing in areas Kirtland's snakes are likely to use.
6. Education/awareness of falcon needs for feeding and nesting.
7. Continued use of bridge architecture that favors nest placement.

Total Respondents 7

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

	Very well	Somewhat	Not at all	Not used	Unknown	Response Total
Habitat protection through regulation	25% (2)	38% (3)	0% (0)	12% (1)	25% (2)	8
Habitat protection on public lands	25% (2)	12% (1)	12% (1)	25% (2)	25% (2)	8
Habitat protection incentives (financial)	25% (2)	0% (0)	12% (1)	38% (3)	25% (2)	8
Habitat restoration through regulation	25% (2)	12% (1)	0% (0)	38% (3)	25% (2)	8
Habitat restoration on public lands	38% (3)	12% (1)	0% (0)	25% (2)	25% (2)	8
Habitat restoration incentives (financial)	25% (2)	0% (0)	12% (1)	38% (3)	25% (2)	8
Artificial habitat creation (artificial reefs, nesting platforms)	50% (4)	0% (0)	12% (1)	25% (2)	12% (1)	8

Appendix E-27: Aggregated Developed Lands

Selective use of functionally equivalent exotic species in place of extirpated natives	0% (0)	25% (2)	12% (1)	50% (4)	12% (1)	8
Succession control (fire, mowing)	25% (2)	0% (0)	12% (1)	38% (3)	12% (1)	7
Corridor development/protection	25% (2)	12% (1)	12% (1)	25% (2)	25% (2)	8
Managing water regimes	29% (2)	29% (2)	29% (2)	14% (1)	0% (0)	7
Pollution reduction	12% (1)	33% (3)	0% (0)	25% (2)	25% (2)	8
Protection of adjacent buffer zone	25% (2)	25% (2)	17% (1)	17% (1)	25% (2)	8
Restrict public access and disturbance	25% (2)	25% (2)	0% (0)	25% (2)	25% (2)	8
Land use planning	25% (2)	0% (0)	25% (2)	38% (3)	12% (1)	8
Technical assistance	25% (2)	38% (3)	12% (1)	12% (1)	12% (1)	8
Cooperative land management agreements (conservation easements)	25% (2)	12% (1)	12% (1)	25% (2)	25% (2)	8
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	100% (2)	2
Total Respondents						137

47. Other current HABITAT conservation practices for the Wildlife in All Developed Lands Habitats in Indiana.

1. The development and proliferation of storm water retention ponds.
2. N/A

Total Respondents 2

48. What one or two specific HABITAT practices would you recommend for more effective conservation of the Wildlife in All Developed Lands Habitats in Indiana?

1. See question 49
2. Landscaping to excluded geese
3. None needed
4.
 1. Habitat Alteration
 2. Removal of habitat in urban zones
5. When areas known or suspected to have Kirtlans's snakes are threatened with development, seek to have the developer include shrubs and rock features near drainages to provide cover and to reduce mowing in areas Kirtland's snakes are likely to use.
6. Education/awareness programs for building managers.
7. Critical habitat for Cliff Swallows is nesting sites, most are on public (DOT) structures (bridges). Much less important is water quality, etc. for feeding areas.

Total Respondents 7

Appendix E-27: Aggregated Developed Lands

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

This survey was hard to complete for Canada Geese in Developed land Habitats. What is effective conservation? I consider the large numbers of Canada Geese in urban environments (developed lands) a real problem. So do many residents of Fort Wayne.

Urban goose-human conflicts are on the rise. Each year the Division of Fish & Wildlife issues more and more egg/nest destruction and trap/transport permits. Urban areas attract geese by offering lakes and ponds, short lush lawns, protection and even those

1. individuals that intentionally feed geese. Effective conservation for urban geese should deal with how to limit numbers through education and habitat modifications. I.e.: if a retention pond must be constructed, install habitats around the pond that help limit geese. Urban geese can nest in inappropriate sites, demonstrate aggressive behavior, cause damage to lawns, beaches, sidewalks, parking lots, etc. In my opinion, the best conservation practice would be to limit Canada Goose numbers in developed land habitats.

2. There is currently an overpopulation of Canada geese in developed lands. State, municipal, and federal governments and private landowners need to work together to reduce the population of nuisance geese.

3. Bull frogs are mobil, hearty, omnivorous and indiscriminate predator, and habitat generalist. They are believed to be detrimental to other frogs. They do not require management at this time and should be monitored as an environmental sentinel. If bull frogs start declining then something serious is happening to the environment

The information and comments that I have provided are true and accurate to the best of my knowledge. However, I don't feel that this was the best platform to have conveyed information on Mallards in Developed Habitats. Mallards in developed lands is a topic unlike that of most species threatened by habitat loss and its accompanying problems. Rather, Mallards in Developed Lands is a situation which must be dealt with in a responsible manner if we are to maintain the integrity of Mallards in a "natural" or less developed setting in Indiana. As the size and distribution of developed lands in Indiana grows, this situation becomes more and more complex for a multitude of reasons (genetic pollution, fecal contamination, habitat loss or destruction, nuisance animal complaints, nutrient loading, etc.) I tried to convey that message in the format provided in this survey. However, Mallards in Developed Lands is not always a positive situation (which I tried to convey throughout this survey). Nonetheless, it is a crucial issue which must be addressed by the DFW. Proper planning and management now on the part of the DFW may result in "quality" Mallard habitat in Developed lands (in the future), better understanding of current Mallard and Developed Land dynamics, and a reduction of problems and conflicts in this current genre. This is my hope as well as justification for the answers and comments I provided on this topic.

Total Respondents

3