

## Appendix E-28: Developed Lands

### 6. Please rank the following threats to the Wildlife in Developed Land Habitats in Indiana.

	<b>Critical threat</b>	<b>Serious threat</b>	<b>Somewhat of a threat</b>	<b>Slight threat</b>	<b>No threat</b>	<b>Unknown</b>	<b>Response Total</b>
Invasive/non-native species	0% (0)	0% (0)	50% (3)	0% (0)	33% (2)	17% (1)	<b>6</b>
High sensitivity to pollution	0% (0)	17% (1)	50% (3)	0% (0)	17% (1)	17% (1)	<b>6</b>
Bioaccumulation of contaminants	0% (0)	20% (1)	20% (1)	20% (1)	20% (1)	20% (1)	<b>5</b>
Predators (native or domesticated)	0% (0)	0% (0)	33% (2)	17% (1)	50% (3)	0% (0)	<b>6</b>
Dependence on other species (mutualism, pollinators)	0% (0)	0% (0)	17% (1)	17% (1)	67% (4)	0% (0)	<b>6</b>
Diseases/parasites (of the species itself)	0% (0)	33% (2)	17% (1)	50% (3)	0% (0)	0% (0)	<b>6</b>
Regulated hunting/fishing pressure (too much)	0% (0)	0% (0)	17% (1)	33% (2)	50% (3)	0% (0)	<b>6</b>
Species over population	33% (2)	33% (2)	0% (0)	0% (0)	33% (2)	0% (0)	<b>6</b>
Unintentional take/ direct mortality (e.g., vehicle collisions, power line collisions, by-catch, harvesting equipment, land preparation machinery)	0% (0)	17% (1)	17% (1)	0% (0)	67% (4)	0% (0)	<b>6</b>
Unregulated collection pressure	0% (0)	0% (0)	17% (1)	17% (1)	50% (3)	17% (1)	<b>6</b>
Dependence on irregular resources (cyclical annual variations) (e.g., food, water, habitat limited due to annual variations in availability)	0% (0)	17% (1)	17% (1)	17% (1)	50% (3)	0% (0)	<b>6</b>
							<b>65</b>

### 7. Please also rank these threats to the Wildlife in Developed Land Habitats in Indiana.

	<b>Critical threat</b>	<b>Serious threat</b>	<b>Somewhat of a threat</b>	<b>Slight threat</b>	<b>No threat</b>	<b>Unknown</b>	<b>Response Total</b>
Habitat loss (breeding range)	0% (0)	17% (1)	17% (1)	33% (2)	33% (2)	0% (0)	<b>6</b>
Habitat loss (feeding/foraging areas)	0% (0)	17% (1)	17% (1)	17% (1)	50% (3)	0% (0)	<b>6</b>
Small native range (high endemism)	0% (0)	0% (0)	0% (0)	17% (1)	83% (5)	0% (0)	<b>6</b>
Near limits of natural geographic range	0% (0)	0% (0)	0% (0)	0% (0)	100% (5)	0% (0)	<b>5</b>
Large home range requirements	0% (0)	0% (0)	0% (0)	17% (1)	83% (5)	0% (0)	<b>6</b>
Viable reproductive population size or availability	0% (0)	0% (0)	17% (1)	0% (0)	83% (5)	0% (0)	<b>6</b>
Specialized reproductive behavior or low reproductive rates	0% (0)	0% (0)	17% (1)	0% (0)	83% (5)	0% (0)	<b>6</b>
Degradation of movement/migration routes (overwintering habitats, nesting and staging sites)	0% (0)	67% (4)	17% (1)	17% (1)	0% (0)	0% (0)	<b>6</b>

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Genetic pollution (hybridization)	17% (1)	0% (0)	33% (2)	33% (2)	17% (1)	0% (0)	<b>6</b>
Unknown	0% (0)	0% (0)	0% (0)	50% (1)	0% (0)	50% (1)	<b>2</b>
Other (please specify below)	0% (0)	100% (2)	0% (0)	0% (0)	0% (0)	0% (0)	<b>2</b>
<b>Total Respondents</b>							<b>57</b>

### 8. Other threats to the Wildlife in Developed Land 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

**Total Respondents 3**

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

1. The top two threats to Canada Geese in Developed Land habitats are: Overpopulation and aggressive behavior during courtship/nesting
2. Over population  
Migratory habitat loss
3.
  - 1) Genetic pollution
  - 2) Population explosions and accompanying diseases, nuisance concerns, etc.
 urbanization  
overpopulation
4.
  1. Development 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.

**Total Respondents 4**

### 10. Please rank the following threats to the HABITAT of the Wildlife in Developed Land Habitats in Indiana.

	Critical threat	Serious threat	Somewhat of a threat	Slight threat	No threat	Unknown	Response Total
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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).  
2)Feeding of birds by people.

3. 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.

2. urban sprawl  
retention ponds

4. 1. Development 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.

**Total Respondents 5**

**13.** What current monitoring efforts by state agencies are you aware of for the Wildlife in Developed Land Habitats 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	50% (3)	50% (3)	<b>6</b>
Statewide once a year monitoring conducted by state agencies	75% (3)	25% (1)	<b>4</b>
Periodic statewide (less than once a year but still regularly scheduled) monitoring conducted by state agencies	50% (2)	50% (2)	<b>4</b>
Occasional statewide (less than once a year and not regularly scheduled) monitoring conducted by state agencies	50% (2)	50% (2)	<b>4</b>
Regional or local year-round monitoring conducted by state agencies	25% (1)	75% (3)	<b>4</b>
Regional or local once a year monitoring conducted by state agencies	75% (3)	25% (1)	<b>4</b>
Periodic regional or local (less than once a year but still regularly scheduled) monitoring conducted by state agencies	50% (2)	50% (2)	<b>4</b>
Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by state agencies	50% (2)	50% (2)	<b>4</b>
		<b>Total Respondents</b>	<b>34</b>

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

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	Yes, these efforts occur	Not aware of these efforts occurring	Response Total
Statewide year-round monitoring conducted by other organizations	0% (0)	100% (5)	5
Statewide once a year monitoring conducted by other organizations	50% (3)	50% (3)	6
Periodic statewide (less than once a year but still regularly scheduled) monitoring conducted by other organizations	20% (1)	80% (4)	5
Occasional statewide (less than once a year and not regularly scheduled) monitoring conducted by other organizations	20% (1)	80% (4)	5
Regional or local year-round monitoring conducted by other organizations	20% (1)	80% (4)	5
Regional or local once a year monitoring conducted by other organizations	25% (1)	75% (3)	4
Periodic regional or local (less than once a year but still regularly scheduled) monitoring conducted by other organizations	20% (1)	80% (4)	5
Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by other organizations	20% (1)	80% (4)	5
		<b>Total Respondents</b>	<b>40</b>

15. How crucial are these monitoring efforts by state agencies for the conservation of the Wildlife in Developed Land Habitats in Indiana?						
	Very crucial	Somewhat crucial	Slightly crucial	Not crucial	Unknown	Response Total
Statewide year-round monitoring conducted by state agencies	33% (2)	0% (0)	0% (0)	17% (1)	50% (3)	6
Statewide once a year monitoring conducted by state agencies	40% (2)	40% (2)	0% (0)	0% (0)	20% (1)	5
Periodic statewide (less than once a year but still regularly scheduled) monitoring conducted by state agencies	20% (1)	20% (1)	20% (1)	0% (0)	40% (2)	5
Occasional statewide (less than once a year and not regularly scheduled) monitoring conducted by state agencies	0% (0)	0% (0)	40% (2)	20% (1)	40% (2)	5
Regional or local year-round monitoring conducted by state agencies	20% (1)	0% (0)	20% (1)	20% (1)	40% (2)	5
Regional or local once a year monitoring conducted by state agencies	20% (1)	0% (0)	40% (2)	0% (0)	40% (2)	5
Periodic regional or local (less than once a year but still regularly scheduled) monitoring conducted by state agencies	40% (2)	0% (0)	20% (1)	0% (0)	40% (2)	5
Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by state agencies	0% (0)	20% (1)	20% (1)	20% (1)	40% (2)	5

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**Total Respondents 41**

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

	<b>Very crucial</b>	<b>Somewhat crucial</b>	<b>Slightly crucial</b>	<b>Not crucial</b>	<b>Unknown</b>	<b>Response Total</b>
Statewide year-round monitoring conducted by other organizations	0% (0)	17% (1)	0% (0)	17% (1)	67% (4)	<b>6</b>
Statewide once a year monitoring conducted by other organizations	0% (0)	50% (3)	0% (0)	0% (0)	50% (3)	<b>6</b>
Periodic statewide (less than once a year but still regularly scheduled) monitoring conducted by other organizations	17% (1)	0% (0)	33% (2)	0% (0)	50% (3)	<b>6</b>
Occasional statewide (less than once a year and not regularly scheduled) monitoring conducted by other organizations	0% (0)	0% (0)	33% (2)	17% (1)	50% (3)	<b>6</b>
Regional or local year-round monitoring conducted by other organizations	17% (1)	0% (0)	17% (1)	0% (0)	67% (4)	<b>6</b>
Regional or local once a year monitoring conducted by other organizations	0% (0)	0% (0)	50% (3)	0% (0)	50% (3)	<b>6</b>
Periodic regional or local (less than once a year but still regularly scheduled) monitoring conducted by other organizations	17% (1)	0% (0)	33% (2)	0% (0)	50% (3)	<b>6</b>
Occasional regional or local (less than once a year and not regularly scheduled) monitoring conducted by other organizations	0% (0)	0% (0)	33% (2)	17% (1)	50% (3)	<b>6</b>
						<b>Total Respondents 48</b>

### 17. Regional or local state agency monitoring for the Wildlife in Developed Land 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

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occupied sites. However, the environmental parameters of these sites have not been adequately studied or described to reveal important micro-habitat associations.

**Total Respondents 5**

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

1. I believe Ducks Unlimited conducts waterfowl surveys
2. Breeding surveys, population surveys
3. None known.

**Total Respondents 3**

### 19. Please list organizations that are monitoring the Wildlife in Developed Land Habitats in Indiana.

1. US Fish & Wildlife Service  
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.

**Total Respondents 3**

### 20. What are the current monitoring techniques for the Wildlife in Developed Land 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)	80% (4)	0% (0)	20% (1)	0% (0)	5
Modeling	17% (1)	17% (1)	50% (3)	0% (0)	0% (0)	17% (1)	6
Coverboard routes	0% (0)	0% (0)	50% (1)	0% (0)	0% (0)	50% (1)	2
Spot mapping	33% (1)	33% (1)	0% (0)	0% (0)	0% (0)	33% (1)	3
Driving a survey route	67% (4)	17% (1)	17% (1)	0% (0)	0% (0)	0% (0)	6



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2. monitoring throughout annual cycle

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.

**Total Respondents 4**

### 23. What current HABITAT inventory and assessment efforts or activities by state agencies are you aware of for the Wildlife in Developed Land 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% (6)	6
Statewide once a year inventory and assessment conducted by state agencies	0% (0)	100% (6)	6
Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	100% (6)	6
Occasional statewide (less than once a year and not regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	100% (6)	6
Regional or local year-round inventory and assessment conducted by state agencies	0% (0)	100% (6)	6
Regional or local once a year inventory and assessment conducted by state agencies	0% (0)	100% (6)	6
Periodic regional or local (less than once a year but still regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	100% (6)	6
Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment conducted by state agencies	20% (1)	80% (5)	6
		<b>Total Respondents</b>	<b>48</b>

### 24. What current HABITAT inventory and assessment efforts or activities by other organizations are you aware of for the Wildlife in Developed Land 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% (6)	6
Statewide once a year inventory and assessment conducted by other organizations	0% (0)	100% (6)	6
Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (6)	6
Occasional statewide (less than once a year and not regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (6)	6

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Regional or local year-round inventory and assessment conducted by other organizations	0% (0)	100% (6)	<b>6</b>
Regional or local once a year inventory and assessment conducted by other organizations	0% (0)	100% (6)	<b>6</b>
Periodic regional or local (less than once a year but still regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (6)	<b>6</b>
Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	100% (6)	<b>6</b>
		<b>Total Respondents</b>	<b>48</b>

<b>25.</b>	How crucial are these HABITAT efforts by state agencies for the conservation of the Wildlife in Developed Land Habitats in Indiana?					
	<b>These efforts are very crucial for this HABITAT</b>	<b>These efforts are somewhat crucial for this HABITAT</b>	<b>These efforts are slightly crucial for this HABITAT</b>	<b>These efforts are not crucial for this HABITAT</b>	<b>Unknown</b>	<b>Response Total</b>
Statewide annual inventory and assessment conducted by state agencies	33% (2)	0% (0)	17% (1)	33% (2)	17% (1)	<b>6</b>
Statewide once a year inventory and assessment conducted by state agencies	20% (1)	0% (0)	0% (0)	40% (2)	40% (2)	<b>5</b>
Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment conducted by state agencies	25% (1)	25% (1)	0% (0)	25% (1)	25% (1)	<b>4</b>
Occasional statewide (less than once a year and not regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	0% (0)	0% (0)	50% (2)	50% (2)	<b>4</b>
Regional or local year-round inventory and assessment conducted by state agencies	0% (0)	0% (0)	0% (0)	50% (2)	50% (2)	<b>4</b>
Regional or local once a year inventory and assessment conducted by state agencies	0% (0)	0% (0)	0% (0)	50% (2)	50% (2)	<b>4</b>
Periodic regional or local (less than once a year but still regularly scheduled) inventory and assessment conducted by state agencies	25% (1)	25% (1)	0% (0)	25% (1)	25% (1)	<b>4</b>
Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment conducted by state agencies	0% (0)	0% (0)	0% (0)	50% (2)	50% (2)	<b>4</b>

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Total Respondents 35

**26.** How crucial are these HABITAT efforts by other organizations for the conservation of the Wildlife in Developed Land 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 year-round inventory and assessment conducted by other organizations	0% (0)	0% (0)	0% (0)	40% (2)	60% (3)	5
Statewide once a year inventory and assessment conducted by other organizations	0% (0)	0% (0)	0% (0)	40% (2)	60% (3)	5
Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment conducted by other organizations	20% (1)	20% (1)	0% (0)	20% (1)	40% (2)	5
Occasional statewide (less than once a year and not regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	0% (0)	0% (0)	40% (2)	60% (3)	5
Regional or local year-round inventory and assessment conducted by other organizations	0% (0)	0% (0)	0% (0)	25% (1)	75% (3)	4
Regional or local once a year inventory and assessment conducted by other organizations	0% (0)	0% (0)	0% (0)	40% (2)	60% (3)	5
Periodic regional or local (less than once a year but still regularly scheduled) inventory and assessment conducted by other organizations	20% (1)	20% (1)	0% (0)	20% (1)	40% (2)	5
Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment conducted by other organizations	0% (0)	0% (0)	0% (0)	40% (2)	60% (3)	5
				<b>Total Respondents</b>		<b>39</b>

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

- I'm not aware of any  
None known
- (Bull frogs are amphibian habitat generalist and fairly mobile. I know of no habitat inventory protocol for bull frogs in developed land habitat.)

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None known:

3. At this time, the habitat characteristics of Kirtland's snake are not sufficiently defined as to be monitored by general habitat measures (such as habitat classification based on remote sensing). More information on Kirtland's snake habitat requirements is needed to define a reasonable habitat model for this species and to monitor the distribution and abundance of suitable habitat in the state.

**Total Respondents 2**

### 28. Regional or local HABITAT inventory and assessment by other organizations for the Wildlife in Developed Land Habitats in Indiana.

1. I'm not aware of any
2. None known
3. None known

**Total Respondents 3**

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

1. I'm not aware of any
2. None known
3. None known

**Total Respondents 2**

### 30. What are the current HABITAT inventory and/or assessment techniques for Wildlife in Developed Land 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)	17% (1)	67% (4)	0% (0)	0% (0)	17% (1)	6
Aerial photography and analysis	17% (1)	33% (2)	50% (3)	0% (0)	0% (0)	0% (0)	6
Systematic sampling	0% (0)	0% (0)	67% (4)	0% (0)	17% (1)	17% (1)	6
Property tax estimates	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (4)	4
State revenue data	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (4)	4
Regulatory	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	100% (4)	4

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information								
Participation in landuse programs	0% (0)	0% (0)	33% (2)	0% (0)	0% (0)	67% (4)	<b>6</b>	
Modeling	0% (0)	0% (0)	83% (5)	0% (0)	0% (0)	17% (1)	<b>6</b>	
Voluntary landowner reporting	25% (1)	25% (1)	0% (0)	0% (0)	0% (0)	50% (2)	<b>4</b>	
Other (please specify below)	0% (0)	33% (1)	0% (0)	0% (0)	0% (0)	67% (2)	<b>3</b>	
<b>Total Respondents</b>							<b>49</b>	

### 31. Other HABITAT inventory and assessment techniques for the Wildlife in Developed Land 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.

**Total Respondents 2**

### 32. What one or two HABITAT inventory and assessment techniques would you recommend for effective conservation of the Wildlife in Developed Land 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.

**Total Respondents 5**

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

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

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**Total Respondents 6**

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

		<b>Response Total</b>	<b>Response Percent</b>
Title	Managing Canada Geese in Urban Environments	3	100%
Author	Amphibians and Reptiles of Indiana Arthur E. Smith, Scott R. Craven and Paul D. Curtis	3	100%
Date	Sherman A. Minton, Jr.	3	100%
Publisher	1199 2001 Cornell Cooperative Extension Indiana Academy of Sciences	3	100%
<b>Total Respondents</b>		<b>3</b>	

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

		<b>Response Total</b>	<b>Response Percent</b>
Title	Prevention and Control of Wildlife Damage Blank N/A	3	100%
Author	Blank www.natureserve.org/explorer Blank	2	67%
Date	1994 Blank Blank	1	33%
Publisher	University of Nebraska Blank Blank	1	33%
<b>Total Respondents</b>		<b>3</b>	

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

**Response Total Response Percent**

## Appendix E-28: Developed Lands

Complete, up to date and extensive		0	0%
Adequate		1	17%
Inadequate		1	17%
Nonexistent		3	33%
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	17%
<b>Total Respondents</b>		<b>6</b>	

**37.** Please provide a citation (title, author, date, publisher) that would give the best HABITAT overview of the Wildlife in Developed Land 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%
Author	Amphibians and Reptiles of Indiana Arthur E. Smith, Scott R. Craven and Paul D. Curtis Blank	2	67%
Date	Sherman A. Minton, Jr. 1999 Blank	2	67%
Publisher	2001 Cornel Cooperative Extension Blank Indiana Academy of Science	2	67%
<b>Total Respondents</b>		<b>3</b>	

**38.** If possible, please provide a second citation (title, author, date, publisher) that would give another good HABITAT overview of the Wildlife in Developed Land 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%

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Total Respondents 2

### 39. What are the research needs for the Wildlife in Developed Land Habitats in Indiana?

	Urgently needed	Greatly needed	Needed	Slightly needed	Not needed	Unknown	Response Total
Life cycle	0% (0)	17% (1)	33% (2)	17% (1)	33% (2)	0% (0)	6
Distribution and abundance	17% (1)	50% (3)	17% (1)	17% (1)	0% (0)	0% (0)	6
Limiting factors (food, shelter, water, breeding sites)	0% (0)	50% (3)	17% (1)	17% (1)	17% (1)	0% (0)	6
Threats (predators/competition, contamination)	0% (0)	33% (2)	33% (2)	17% (1)	17% (1)	0% (0)	6
Relationship/dependence on specific habitats	33% (2)	0% (0)	33% (2)	0% (0)	33% (2)	0% (0)	6
Population health (genetic and physical)	0% (0)	17% (1)	50% (3)	33% (2)	0% (0)	0% (0)	6
Other (please specify below)	0% (0)	50% (1)	0% (0)	0% (0)	0% (0)	50% (1)	2
							<b>Total Respondents</b>
							<b>38</b>

### 40. Other research needs for the Wildlife in Developed Land 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
  4. 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 Developed Land Habitats in Indiana?

	Urgently needed	Greatly needed	Needed	Slightly needed	Not needed	Unknown	Response Total
Successional changes	0% (0)	0% (0)	17% (1)	33% (2)	50% (3)	0% (0)	6
Distribution and abundance (fragmentation)	0% (0)	33% (2)	17% (1)	17% (1)	33% (2)	0% (0)	6
Threats (land use change/competition, contamination/global warming)	0% (0)	33% (2)	33% (2)	17% (1)	17% (1)	0% (0)	6

## Appendix E-28: Developed Lands

Relationship/dependence on specific site conditions	17% (1)	17% (1)	33% (2)	0% (0)	33% (2)	0% (0)	<b>6</b>
Growth and development of individual components of the habitat	17% (1)	17% (1)	50% (3)	0% (0)	17% (1)	0% (0)	<b>6</b>
Other (please specify below)	0% (0)	100% (2)	0% (0)	0% (0)	0% (0)	0% (0)	<b>2</b>
							<b>Total Respondents 32</b>

### 42. Other HABITAT research needs for the Wildlife in Developed Land Habitats in Indiana.

1. Ways to exclude geese
2. None known
3.
  - 1) To determine the long term effects of Mallards in Developed Lands on the overall Mallard population
  - 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 Developed Land Habitats in Indiana?

	Very well	Somewhat	Not at all	Not used	Unknown	Response Total
Habitat protection (use below for details)	33% (2)	33% (2)	17% (1)	0% (0)	17% (1)	<b>6</b>
Population management (hunting, trapping)	17% (1)	17% (1)	17% (1)	33% (2)	17% (1)	<b>6</b>
Population enhancement (captive breeding and release)	0% (0)	0% (0)	0% (0)	67% (4)	33% (2)	<b>6</b>
Reintroduction (restoration)	0% (0)	0% (0)	0% (0)	67% (4)	33% (2)	<b>6</b>
Food plots	17% (1)	17% (1)	0% (0)	50% (3)	17% (1)	<b>6</b>
Threats reduction	0% (0)	33% (2)	0% (0)	50% (3)	17% (1)	<b>6</b>
Native predator control	0% (0)	17% (1)	0% (0)	67% (4)	17% (1)	<b>6</b>
Exotic/invasive species control	0% (0)	17% (1)	0% (0)	67% (4)	17% (1)	<b>6</b>
Regulation of collecting	33% (2)	33% (2)	0% (0)	17% (1)	17% (1)	<b>6</b>
Disease/parasite management	0% (0)	17% (1)	17% (1)	67% (4)	0% (0)	<b>6</b>
Translocation to new geographic range	0% (0)	33% (2)	17% (1)	50% (3)	0% (0)	<b>6</b>
Protection of migration routes	33% (2)	0% (0)	17% (1)	33% (2)	17% (1)	<b>6</b>

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Limiting contact with pollutants/contaminants	0% (0)	33% (2)	17% (1)	33% (2)	17% (1)	<b>6</b>
Public education to reduce human disturbance	17% (1)	50% (3)	0% (0)	33% (2)	0% (0)	<b>6</b>
Culling/selective removal	0% (0)	67% (4)	0% (0)	33% (2)	0% (0)	<b>6</b>
Stocking	0% (0)	0% (0)	0% (0)	83% (5)	17% (1)	<b>6</b>
Other (please specify below)	0% (0)	100% (1)	0% (0)	0% (0)	0% (0)	<b>1</b>
				<b>Total Respondents</b>		<b>97</b>

### 44. Other current conservation practices for the Wildlife in Developed Land 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

**Total Respondents** **2**

### 45. What one or two specific practices would you recommend for more effective conservation of the Wildlife in Developed Land 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.

**Total Respondents** **5**

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

	<b>Very well</b>	<b>Somewhat</b>	<b>Not at all</b>	<b>Not used</b>	<b>Unknown</b>	<b>Response Total</b>
Habitat protection through regulation	33% (2)	17% (1)	0% (0)	17% (1)	33% (2)	<b>6</b>
Habitat protection on public lands	33% (2)	17% (1)	0% (0)	17% (1)	33% (2)	<b>6</b>
Habitat protection incentives (financial)	33% (2)	0% (0)	0% (0)	33% (2)	33% (2)	<b>6</b>
Habitat restoration through regulation	33% (2)	00% (0)	0% (0)	33% (2)	33% (2)	<b>6</b>
Habitat restoration on public lands	33% (2)	17% (1)	0% (0)	17% (1)	33% (2)	<b>6</b>

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Habitat restoration incentives (financial)	33% (2)	0% (0)	0% (0)	33% (2)	33% (2)	<b>6</b>
Artificial habitat creation (artificial reefs, nesting platforms)	33% (2)	0% (0)	17% (1)	33% (2)	17% (1)	<b>6</b>
Selective use of functionally equivalent exotic species in place of extirpated natives	0% (0)	33% (2)	0% (0)	50% (3)	17% (1)	<b>6</b>
Succession control (fire, mowing)	40% (2)	0% (0)	0% (0)	40% (2)	20% (1)	<b>5</b>
Corridor development/protection	33% (2)	0% (0)	0% (0)	33% (2)	33% (2)	<b>6</b>
Managing water regimes	40% (2)	40% (2)	20% (1)	0% (0)	0% (0)	<b>5</b>
Pollution reduction	0% (0)	33% (2)	0% (0)	33% (2)	33% (2)	<b>6</b>
Protection of adjacent buffer zone	33% (2)	17% (1)	0% (0)	17% (1)	33% (2)	<b>6</b>
Restrict public access and disturbance	17% (1)	17% (1)	0% (0)	33% (2)	33% (2)	<b>6</b>
Land use planning	33% (2)	0% (0)	17% (1)	33% (2)	17% (1)	<b>6</b>
Technical assistance	17% (1)	50% (3)	0% (0)	17% (1)	17% (1)	<b>6</b>
Cooperative land management agreements (conservation easements)	33% (2)	0% (0)	0% (0)	33% (2)	33% (2)	<b>6</b>
Other (please specify below)	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	<b>1</b>
				<b>Total Respondents</b>		<b>102</b>

**47.** Other current HABITAT conservation practices for the Wildlife in Developed Land 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 Developed Land 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 Kirtland'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.

**Total Respondents 5**

## Appendix E-28: Developed Lands

**49.** Do you have any additional comments or information on the Wildlife in Developed Land 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 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.

1.

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.

2.

Bullfrogs are mobile, 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 bullfrogs start declining then something serious is happening to the environment.

3.

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.

4.

**Total Respondents**

**3**