

## PRE-FOREST STAGE HABITATS NARRATIVE

### Habitat description

This is the initial stage as an area begins to revert from a cleared condition to forest. It is typified with annual/ perennial herbs, forbs and grasses with some shrubs and intolerant tree seedlings.

### Problems affecting species and habitats

#### Species threats

The respondent listed the following as “serious threat” to wildlife in pre-forest stage habitats in Indiana (not ranked):

- Invasive/non-native species
- Predators (native or domesticated)

The respondent listed the following as “somewhat of a threat” to wildlife (not ranked):

- Unintentional take/ direct mortality (e.g., vehicle collisions, power line collisions, by-catch, harvesting equipment, land preparation machinery)
- Habitat loss (breeding range)
- Habitat loss (feeding/foraging areas)

The respondent listed the following as “slight threat” to wildlife (not ranked):

- High sensitivity to pollution
- Bioaccumulation of contaminants
- Diseases/parasites (of the species itself)

The respondent offered no additional threats to wildlife in pre-forest stage habitats in Indiana.

The respondent listed top threats to wildlife in pre-forest stage habitats in Indiana:

- The eastern towhee is considered a habitat generalist that uses early successional habitats within deciduous forests. With prevailing land management that does not generate early succession habitat (such as maturation of forest on former farm lands), habitat is reduced. A second top threat is loss of nest and nesting females to cats, chipmunks, snakes and other ground predators

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the threats to wildlife in pre-forest stage habitats. There were no responses.

#### Habitat threats

The respondent listed the following as “serious threat” to pre-forest stage habitats in Indiana (not ranked):

- Commercial or residential development (sprawl)
- Successional change
- Agricultural/forestry practices

The respondent listed the following as “somewhat of a threat” (not ranked):

- Invasive/non-native species
- Habitat fragmentation
- Habitat degradation

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The respondent listed no "critical threat" or "slight threat" to pre-forest stage habitats in Indiana.

The respondent noted no additional threats to pre-forest stage habitats in Indiana.

The respondent listed top threats to pre-forest stage habitats in Indiana (not ranked):

- Urban development and sprawl
- Maturation of existing forest out of young forest age classes

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the threats to pre-forest stage habitats. There were no responses.

## Additional research and survey efforts

### Current body of research

#### Species research

The respondent stated that the current body of science is adequate for wildlife in pre-forest stage habitats in Indiana.

Respondents identified the following citations (title, author, date, publisher) that would give the best overview of wildlife in pre-forest stage habitats in Indiana.

Title = Eastern Towhee, Birds of North American account #262;  
Author = Greenlaw, J.S.;  
Date = 1996;  
Publisher = The Birds of North America, Inc.

Title = Decline of the Rufous-sided Towhee in the eastern United States;  
Author = Hagan, J.M.;  
Date = 1993;  
Publisher = Auk 110:863-874.

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the current body of science for wildlife in pre-forest stage habitats. There were no responses.

#### Habitat research

The respondent stated that the current body of science is inadequate for pre-forest stage habitats in Indiana.

Respondents did not identify citations (title, author, date, publisher) that would give the best overview of pre-forest stage habitats in Indiana.

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the current body of science for pre-forest stage habitats. There were no responses.

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### **Research needs**

#### Species research

The respondent listed the following research as “greatly needed” for wildlife in pre-forest stage habitats in Indiana (not ranked):

- Threats (predators/competition, contamination)
- Relationship/dependence on specific habitats

The respondent listed the following research as “needed” (not ranked):

- Distribution and abundance
- Limiting factors (food, shelter, water, breeding sites)

The respondent listed the following research as “slightly needed:”

- Life cycle

The respondent listed no research as “urgently needed” for wildlife in pre-forest stage habitats in Indiana.

The respondent noted additional research needs for wildlife in pre-forest stage habitats in Indiana:

- The eastern towhee is a well-known, fairly common species. The general life-history literature is extensive. Population trends, habitat needs and threats are not well defined for Indiana. Documented population declines in databases such as the Breeding Bird Surveys are poorly explained.

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the research needs for wildlife in pre-forest stage habitats. There were no responses.

#### Habitat research

The respondent listed research as “urgently needed” for pre-forest stage habitats in Indiana:

- Successional changes

The respondent listed research as “greatly needed:”

- Distribution and abundance (fragmentation)

The respondent listed research as “needed:”

- Threats (land use change/competition, contamination/global warming)

The respondent listed research as “slightly needed:”

- Relationship/dependence on specific site conditions

The respondent noted additional research needs for pre-forest stage habitats in Indiana:

- The relationship between towhee occupancy and habitat age is not explicitly well studied here

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the research needs for pre-forest stage habitats. There were no responses.

### **Conservation actions necessary**

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### Species actions

The respondent stated that the following conservation efforts address threats to wildlife in pre-forest stage habitats in Indiana “somewhat” well (not ranked):

- Food plots
- Exotic/invasive species control
- Public education to reduce human disturbance

The respondent did not indicate that any conservation efforts address threats to wildlife “very well.”

The respondent noted additional conservation practices for wildlife in pre-forest stage habitats in Indiana:

- Education of public to reduce losses due to exotic predators such as cats probably is important to some local populations

The respondent recommended these practices for more effective conservation of wildlife in pre-forest stage habitats in Indiana (not ranked):

- Regional land management plans to retain young forest age classes and mixes of habitats within regional landscapes
- Exotic plant control: Garlic mustard and Amur honeysuckle have the ability to change vegetative structure of ground and understory layers. As ground nester and ground forager, towhees could be affected, but this is unstudied

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the practices for more effective conservation of wildlife in pre-forest stage habitats. There were no responses.

### Habitat actions

The respondent indicated that the following conservation efforts address threats to pre-forest stage habitats in Indiana “very well” (not ranked):

- Succession control (fire, mowing)
- Land use planning

The respondent stated that the following conservation efforts address threats “somewhat” well (not ranked):

- Habitat restoration on public lands
- Protection of adjacent buffer zone

The respondent listed no other current conservation practices for pre-forest stage habitats in Indiana.

The respondent recommended the following practices for more effective conservation of pre-forest stage habitats in Indiana:

- Encouragement of forest management plans that retain/creates a mix of young and older forest should retain towhees in regional avifaunas. Forest habitat restoration provides habitat in early stages

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Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the practices for more effective conservation of pre-forest stage habitats. There were no responses.

### Proposed plans for monitoring

#### Current monitoring

##### Species monitoring

The respondent was aware of the following monitoring efforts by state agencies for wildlife in pre-forest stage habitats in Indiana:

- Occasional statewide (less than once a year and not regularly scheduled) monitoring

The respondent was aware of the following monitoring efforts by other organizations for wildlife in pre-forest stage habitats in Indiana (not ranked):

- Statewide once-a-year monitoring
- Periodic statewide (less than once a year but still regularly scheduled) monitoring
- Regional or local once-a-year monitoring
- Periodic regional or local (less than once a year but still regularly scheduled) monitoring

The respondent listed the following monitoring efforts by state agencies as “somewhat crucial” for conservation of wildlife in pre-forest stage habitats in Indiana:

- Occasional statewide (less than once a year and not regularly scheduled) monitoring

The respondent listed the following monitoring efforts by other organizations as “very crucial” for conservation of wildlife in pre-forest stage habitats in Indiana (not ranked):

- Statewide once-a-year monitoring
- Regional or local once-a-year monitoring
- Periodic regional or local (less than once a year but still regularly scheduled) monitoring

The respondent listed regional or local monitoring by state agencies for wildlife in pre-forest stage habitats in Indiana (not ranked):

- Statewide breeding bird atlas efforts are coordinated by IDNR. This atlas effort was done in the 1980s, and is being redone now.
- IDNR nongame bird program coordinates publication of a summer bird count that generates data on towhee numbers (along with all other summer birds). No analysis is done, however

The respondent listed regional or local monitoring by other organizations for wildlife in pre-forest stage habitats in Indiana (not ranked):

- Other bird monitoring efforts that collect data nationwide generate information on eastern towhees:
  - Breeding Bird Surveys
  - Christmas Bird Counts (towhees are rare in winter, though)
  - Cornell nest record program
  - The Hoosier National Forest conducts breeding bird monitoring on the forest since 1991

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The respondent listed organizations that monitor wildlife in pre-forest stage habitats in Indiana (not ranked):

- USGS coordinates Breeding Bird Survey
- National Audubon Society coordinates Christmas Bird Counts
- Cornell's Laboratory of Ornithology collects nest records
- Federal agencies monitor lands they manage within the state (e.g., Hoosier National Forest)

The respondent considered monitoring techniques for wildlife in pre-forest stage habitats in Indiana:

Monitoring techniques for wildlife in pre-forest stage habitats	Used	Not used but possible with existing technology and data	Not economically feasible
Spot mapping	X	--	--
Driving a survey route	X	--	--
Mark and recapture	--	X	--
Professional survey/census	X	--	--
Volunteer survey/census	X	--	--

The respondent noted other no monitoring techniques for wildlife in pre-forest stage habitats in Indiana.

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the monitoring techniques for wildlife in pre-forest stage habitats. There were no responses.

### Habitat inventory and assessment

The respondent was aware of the following inventory and assessment efforts by state agencies and other organizations for pre-forest stage habitats in Indiana:

- Periodic statewide (less than once a year but still regularly scheduled) inventory and assessment

The respondent was unaware of the importance these efforts for conservation of pre-forest stage habitats in Indiana.

The respondent listed regional or local inventory and assessment by state agencies for pre-forest stage habitats in Indiana (not ranked):

- Forest inventory plots in established forest management lands give some information on trends in early succession habitat
- Analysis of remote sensing data can provide some trend information where young forest classes can be mapped

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The respondent added, "I am unaware of any regular coordinated effort by state or other agencies to monitor young forest age classes." The respondent referred readers to the above response regarding other inventory and assessment efforts or organizations that do them.

The respondent considered inventory and assessment techniques for pre-forest stage habitats in Indiana:

<b>Inventory and assessment techniques for pre-forest stage habitats</b>	<b>Used</b>	<b>Not used but possible with existing technology and data</b>	<b>Not economically feasible</b>
GIS mapping	X	--	--
Aerial photography and analysis	--	X	--
Modeling	X	--	--

The respondent listed no additional inventory and assessment techniques for pre-forest stage habitats in Indiana.

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the inventory and assessment techniques for pre-forest stage habitats. There were no responses.

### **Recommended monitoring** Species monitoring

The respondent recommended the following monitoring techniques for effective conservation of wildlife in pre-forest stage habitats in Indiana (not ranked):

- Primary technique used is point counts of singing birds in breeding season, either by roadside counts (Breeding Bird Survey) or set survey points (e.g., Hoosier National Forest monitoring)
- Roadside surveys are most effective because towhees are edge/early successional species, using habitats found near roads
- Long term banding programs (e.g., MAPS) provide demographic information not gained with other monitoring, but are more intensive

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the monitoring techniques for effective conservation of wildlife in pre-forest stage habitats. There were no responses.

### Habitat inventory and assessment

The respondent recommended the following inventory and assessment techniques for effective conservation of pre-forest stage habitats in Indiana (not ranked):

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- GIS mapping can certainly generate amounts and trends of habitat if forest type and age are mapped
- Aerial photography can be used when young age classes appear distinct from other habitat classes

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the inventory and assessment techniques for effective conservation of pre-forest stage habitats. There were no responses.