

**APPENDIX E**

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**THREATENED AND ENDANGERED SPECIES**

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## **APPENDIX E THREATENED AND ENDANGERED SPECIES**

Appendix E provides additional information on species in the project area that are classified under the federal Endangered Species Act as threatened, endangered, proposed, or candidate, and species classified as threatened or endangered by the states of Indiana, Ohio, and Kentucky. Collectively, these species are referred to as threatened and endangered species. In addition, Appendix E provides detailed discussion of potential impacts of the Proposed Transaction on these species.

### **E.1 PROJECT BACKGROUND**

The Proposed Transaction would include operational changes, consisting of increases in train traffic and speed, on the Indianapolis Line Subdivision, Indianapolis Terminal Subdivision – Louisville Secondary Branch, and Louisville Connection. In addition, the Proposed Transaction would include operational changes as well as replacement of the Flatrock River Bridge on the Louisville & Indiana Railroad Company rail line (L&I Line). Two existing sidings on the L&I Line could also be extended if necessary to achieve operating efficiencies.

In the Supplemental Environmental Assessment (EA), impacts on threatened and endangered species are analyzed along the Indianapolis Line Subdivision and L&I Line. Although potential impacts on the L&I Line were analyzed in the Draft EA, changes have occurred in the list of threatened and endangered species that may exist in the project area, and updated information is available regarding proposed construction activities on the L&I Line. Specifically, two new sidings that were discussed in the Draft EA have been withdrawn by the Applicants as components of the Proposed Transaction, the two siding extensions are considered potential actions, and the Flatrock River Bridge would be replaced with a new bridge with longer spans and fewer piers (rather than using existing piers). In the Supplemental EA, impacts on threatened and endangered species are not analyzed along the Indianapolis Terminal Subdivision – Louisville Secondary Branch and the Louisville Connection because these rail lines are located in urban areas and do not have adequate habitat for threatened and endangered species.

For the purpose of analyzing impacts on threatened and endangered species, a study area was identified along the Indianapolis Line Subdivision between Indianapolis, Indiana, and Sidney, Ohio, and along the L&I Line between Indianapolis and Louisville, Kentucky. The counties crossed by these rail lines are listed in Table E.1-1.

**Table E.1-1. Counties Crossed by the Indianapolis Line Subdivision and L&I Line**

<b>Indianapolis Line Subdivision</b>	<b>L&amp;I Line</b>
Marion, IN	Marion, IN
Hancock, IN	Johnson, IN
Madison, IN	Bartholomew, IN
Delaware, IN	Jackson, IN
Randolph, IN	Scott, IN
Darke, OH	Clark, IN
Shelby, OH	Jefferson, KY

Under the Proposed Transaction, train traffic would increase by 11 trains per day along the Indianapolis Line Subdivision. In addition, train traffic would increase by 15 trains per day on the L&I Line segment from Indianapolis to Seymour, Indiana, and would increase by 13 trains per day on the L&I Line segment from Seymour to Louisville, Kentucky.

The Proposed Transaction includes the replacement of the Flatrock River Bridge in Columbus, Indiana. Although design plans are not yet refined, the proposed Flatrock River Bridge would include longer spans and fewer piers. The construction activities related to replacement of the bridge would be limited to work upon and within the existing right-of-way (ROW).

Construction associated with the Proposed Transaction could also include extending the existing sidings at Elvin (near Indianapolis in Marion County) and at Brook (near Columbus, Indiana, in Bartholomew County) to 10,000 feet. Construction of these siding extensions would be limited to work upon and within existing ROW.

## **E.2 METHODOLOGY FOR THREATENED AND ENDANGERED SPECIES ANALYSIS**

For the analysis of threatened and endangered species, the affected environment is described by presenting updated lists and descriptions of species protected under the federal Endangered Species Act (16 United States Code [U.S.C.] §§ 1531–1544), the Indiana Nongame and Endangered Species Conservation Act (Indiana Code [IC] 14-22-34), and the Ohio Revised Code § 1531.25 that could be present in the project area.

The environmental impacts on threatened and endangered species were determined by analyzing changes in operations, including the relative rate of increases in train traffic and speed. To evaluate potential effects on threatened and endangered species, the following tasks were completed:

- Identify species that might occur along the rail line, and that could be affected by rail operations, based on their distribution, behavior, and availability of habitat along and near the rail line.

- Evaluate effects on those species by considering whether their habitat could be altered by proposed activities and whether they would be vulnerable to being harmed or killed by operating trains<sup>1</sup> or other effects of rail operations.

The land cover types along the Indianapolis Line Subdivision and L&I Line were quantified to evaluate the availability of potential habitat for threatened and endangered species. The 2011 National Land Cover Database (NLCD) (U.S. Geological Survey [USGS] 2014a) was used to calculate the area of various land cover types, such as forested areas and developed land, within 0.5 mile of the Indianapolis Line Subdivision and L&I Line (see Table E.3-1 and Figures E.3-1 and E.3-2, below). For this analysis, the National Transportation Atlas Database 2013: Railway Network (U.S. Department of Transportation [USDOT] 2013) was digitized to match aerial imagery.

### **E.3 HABITAT IDENTIFICATION**

The land cover types along the Indianapolis Line Subdivision and L&I Line are quantified in Table E.3-1 and are shown in Figures E.3-1 and E.3-2.

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<sup>1</sup> The potential for threatened and endangered species to be hit by operating trains under the Proposed Transaction is discussed as part of the wildlife strike analysis in Appendix F.

**Table E.3-1. Land Cover along the Indianapolis Line Subdivision and L&I Line**

Land Cover <sup>a</sup>	Acre(s)	Percentage of Total Area (%)
<b>Indianapolis Line Subdivision</b>		
<i>Total Area<sup>b</sup></i>	76,869	--
Deciduous Forest	3,830	5.0
Evergreen Forest	27	0.0
Mixed Forest	4	0.0
Shrub/Scrub	61	0.0
Woody Wetlands	102	0.1
Emergent Herbaceous Wetlands	218	0.3
Hay/Pasture	2,312	3.0
Herbaceous	1,108	1.4
Open Water	419	0.6
Cultivated Crops	37,165	48.3
Developed	31,577	41.1
Barren Land	46	0.0
<b>L&amp;I Line</b>		
<i>Total Area<sup>b</sup></i>	68,062	--
Deciduous Forest	10,913	16.0
Evergreen Forest	283	0.4
Mixed Forest	1	0.0
Shrub/Scrub	18	0.0
Woody Wetlands	51	0.0
Emergent Herbaceous Wetlands	58	0.0
Hay/Pasture	4,576	6.7
Herbaceous	409	0.6
Open Water	1,201	1.8
Cultivated Crops	24,909	36.6
Developed	25,546	37.5
Barren Land	97	0.1

Sources: USDOT, 2013, "National Transportation Atlas Database: Railway Network," Research and Innovative Technology Administration, Bureau of Transportation Statistics, accessed March 19, 2014, [http://www.rita.dot.gov/bts/sites/rita.dot.gov/bts/files/publications/national\\_transportation\\_atlas\\_database/2013/polyline.html](http://www.rita.dot.gov/bts/sites/rita.dot.gov/bts/files/publications/national_transportation_atlas_database/2013/polyline.html).

USGS, 2014a, "National Land Cover Database 2011 (NLCD 2011)," Multi-Resolution Land Characteristics Consortium (MRLC), April 4, accessed April 25, 2014, <http://www.mrlc.gov/nlcd2011.php>.

Notes:

<sup>a</sup> Land cover designations are from the 2011 National Land Cover Database.

<sup>b</sup> The total area is the length of the rail line plus the area within 0.5 mile of the centerline of the rail line.

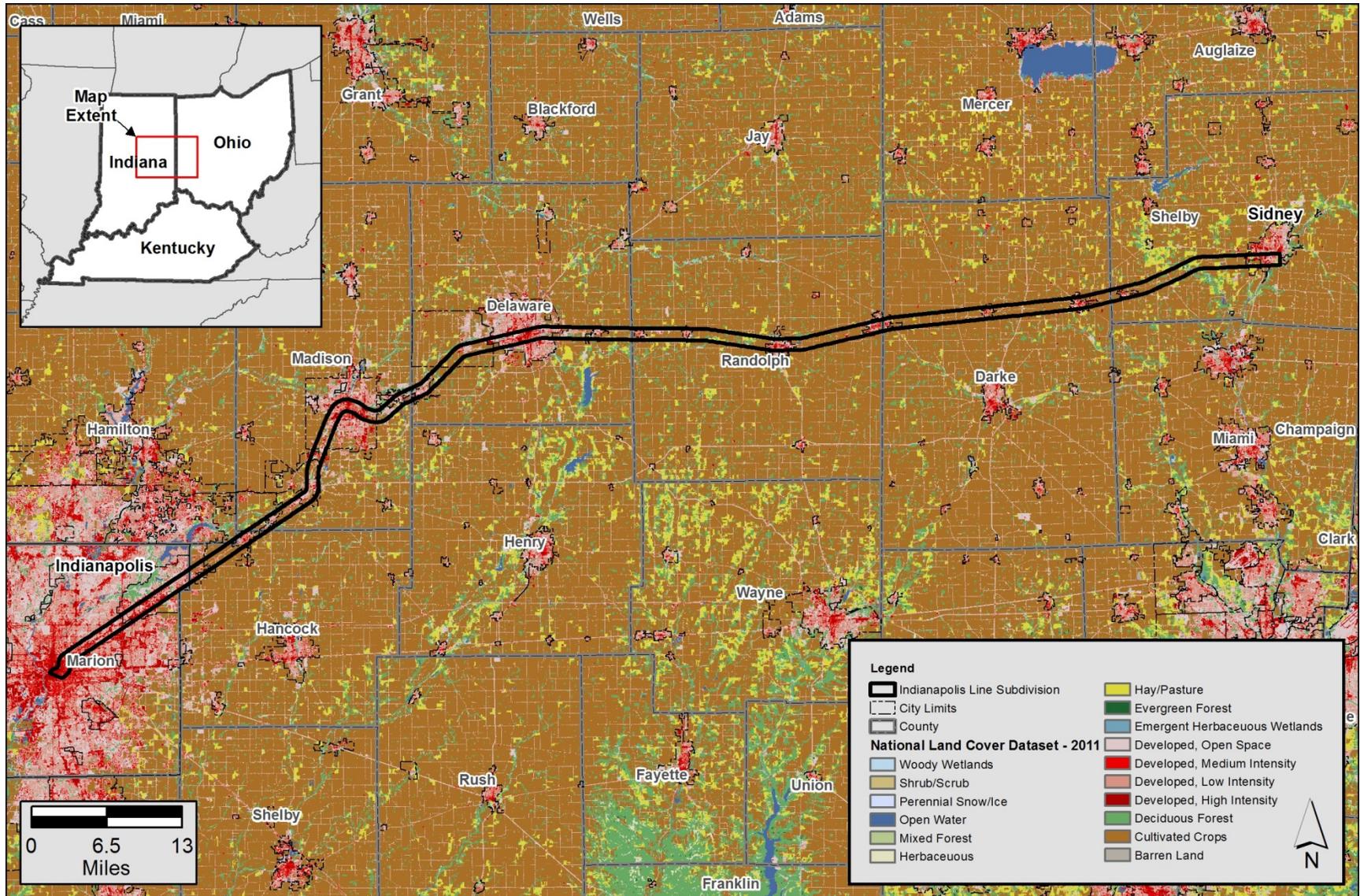


Figure E.3-1. Land Cover along the Indianapolis Line Subdivision

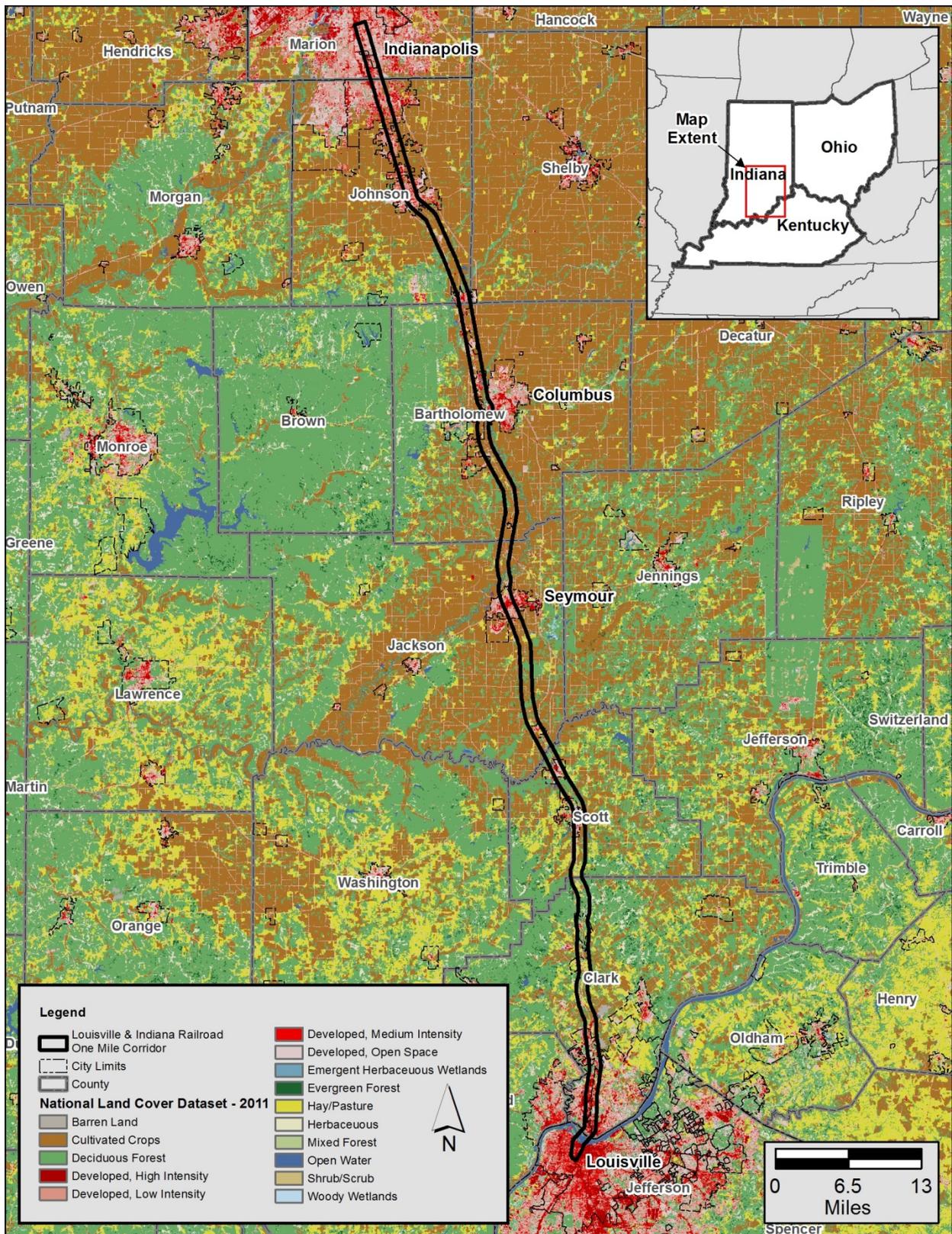


Figure E.3-2. Land Cover along the L&I Line

#### E.4 FEDERALLY LISTED SPECIES

The list of federally listed species that have potential to occur along or near the Indianapolis Line Subdivision, the L&I Line, or both (that is, two of the rail lines that would experience an increase in traffic), was obtained from the U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Conservation (IPaC) system website (USFWS 2014a); this list updates the species list presented in the Draft EA. In addition, one species was added to this list based on USFWS comments on the Draft EA<sup>2</sup> (USFWS 2013a) and subsequent communication with USFWS staff in Indiana (USFWS 2014b). The species that could occur along the Indianapolis Line Subdivision and L&I Line are listed in Table E.4-1.

**Table E.4-1. Federally Listed Species with Potential to Occur Along Indianapolis Line Subdivision and L&I Line**

Common Name	Scientific Name	Status	Rail Line(s)
<b>Birds</b>			
Least tern	<i>Sterna antillarum</i>	Endangered	L&I Line
<b>Mussels</b>			
Clubshell	<i>Pleurobema clava</i>	Endangered	L&I Line
Fanshell	<i>Cyprogenia stegaria</i>	Endangered	L&I Line
Fat pocketbook	<i>Potamilus capax</i>	Endangered	L&I Line
Orangefoot pimpleback	<i>Plethobasus cooperianus</i>	Endangered	L&I Line
Pink mucket	<i>Lampsilis abrupta</i>	Endangered	L&I Line
Rabbitsfoot mussel <sup>a</sup>	<i>Quadrula cylindrica</i>	Threatened	L&I Line
Rayed bean	<i>Villosa fabailis</i>	Endangered	Indianapolis Line Subdivision, L&I Line
Ring pink	<i>Obavaria retusa</i>	Endangered	L&I Line
Sheepnose mussel	<i>Plethobasus cyphus</i>	Endangered	L&I Line
Snuffbox mussel	<i>Epioblasma triquetra</i>	Endangered	Indianapolis Line Subdivision, L&I Line
<b>Plants</b>			
Running buffalo clover	<i>Trifolium stoloniferum</i>	Endangered	L&I Line
<b>Insects</b>			
Louisville cave beetle	<i>Pseudanophtalmus troglodytes</i>	Candidate	L&I Line
<b>Mammals</b>			
Gray bat	<i>Myotis grisescens</i>	Endangered	L&I Line
Indiana bat	<i>Myotis sodalis</i>	Endangered	Indianapolis Line Subdivision, L&I Line
Northern long-eared bat	<i>Myotis septentrionalis</i>	Proposed Endangered	Indianapolis Line Subdivision, L&I Line

<sup>2</sup> This USFWS letter from the Bloomington Field Office in Indiana serves to update early coordination comments provided in a joint comment letter from the USFWS Indiana and Kentucky field offices dated July 28, 2011.

Sources: USFWS, 2013a, Letter from Scott Pruitt, Field Supervisor, USFWS, to Dave Navecky, Surface Transportation Board, September 30.

USFWS, 2014a, "The Information, Planning and Conservation System." Accessed April 22, 2014, <http://www.fws.gov/ipac/index.html>.

USFWS, 2014b, personal communication (email message) from Robin McWilliams Munson, to Meagan Schnoor, HDR, regarding the rabbitsfoot mussel, May 7.

Note:

<sup>a</sup> Rabbitsfoot was included in this list as requested by the USFWS Bloomington Field Office (USFWS 2013a; USFWS 2014b).

#### **E.4.1 Effect of Increased Rail Traffic**

The federally listed or proposed species that have the potential to be affected by an increase in rail traffic are the least tern (*Sterna antillarum*), gray bat (*Myotis grisescens*), Indiana bat (*Myotis sodalis*), and northern long-eared bat (*Myotis septentrionalis*); these species are discussed in detail below. The remaining species, including ten aquatic mussels, one plant, and one insect, are not vulnerable to being harmed by train operations.

##### **E.4.1.1 Least Tern**

The least tern could occur along or near the L&I Line. The least tern nests on barren to sparsely vegetated sandbars along rivers, sand and gravel pits, and lake and reservoir shorelines. Terns breed in colonies from April to August. Their nests are shallow depressions scraped in open sandy areas, gravelly patches, or exposed flats (USFWS 2014c).

In Indiana, a colony of least terns nests at Duke Energy's (formerly Cinergy Corporation's) Gibson Generating Station in a dike at Gibson Lake adjacent to the Wabash River in Gibson County (Pruitt 2012). The adjacent Cane Ridge Wildlife Management Area (WMA) was developed by Duke Energy in the early 2000s to attract least terns and now fledges approximately 42 chicks per year (Duke Energy n.d.). In 2003, Tern Bar Slough was developed adjacent to Gibson Lake and Cane Ridge WMA, but no nesting occurs there (Indiana Department of Natural Resources [DNR] 2010). The L&I Line is approximately 96 miles from the Gibson Generating Station. According to the USFWS Environmental Conservation Online System database, the least tern is found only in Gibson and Spencer counties in Indiana (USFWS 2014d).

Aerial photography in Google Earth was overlain with named waterways and perennial waterways in the National Hydrography Dataset (USGS 2014b) to evaluate whether least tern habitat occurs within any waterways crossed by the L&I Line. There are sandy shorelines along the Flatrock River and the East Fork White River near the crossings of the rail line; however, those shorelines are limited in scale. Most of the length of these rivers have tree-lined banks that decrease sight-lines for the birds and could attract predators, so the habitat is marginal at best. Further, there are no reports that these areas have been occupied by least terns in the past.

It is unlikely that least terns would be affected by an increase in rail traffic because the L&I Line is distant from the only known breeding colony in Indiana, this species is uncommon in the region, and nesting habitat does not occur or is uncommon along the rail line.

#### **E.4.1.2 Gray Bat, Indiana Bat, and Northern Long-Eared Bat**

According to USFWS, the gray bat is likely to occur along only the L&I Line (USFWS 2014a). The gray bat primarily roosts in caves year-round. During the winter, gray bats hibernate in deep, vertical caves. In the summer, they roost in caves in limestone karst areas scattered along rivers. The gray bat is found in southern Indiana but is more common in Kentucky (USFWS 1997). Large gray bat roosting sites are found in Indiana in a quarry near Sellersburg in Clark County, and in Kentucky in Coach Cave and Jesse James Cave in Edmonson County, which is southwest of Jefferson County. In Indiana, a total of eight gray bats (two adult males and six lactating females) were netted in 1978 at Muddy Fork Creek (which is crossed by the L&I Line) in Clark County. In 1982, a colony of gray bats was found in an abandoned quarry near Sellersburg in Clark County, about 3 miles south of Muddy Fork Creek. The quarry was in a bluff at the edge of a lake, which extended into and throughout the quarry (Whitaker, Pruitt, and Pruitt 2001). The L&I Line is adjacent to the quarry site in Clark County.

The Indiana bat could occur along the Indianapolis Line Subdivision and the L&I Line. The Indiana bat roosts in trees in the summer and hibernates in caves in the winter (USFWS 2006). Critical habitat designated for the Indiana bat includes the following four caves in Indiana and Kentucky: Big Wyandotte Cave in Crawford County, Indiana; Ray's Cave in Green County, Indiana; Bat Cave in Carter County, Kentucky; and Coach Cave in Edmonson County, Kentucky (41 Federal Register [FR] 41914–41916; USFWS 2007a). No caves designated as critical habitat occur in Ohio. All four caves are located more than 50 miles from the L&I Line and the Indianapolis Line Subdivision.

The northern long-eared bat could occur along the Indianapolis Line Subdivision and the L&I Line. The northern long-eared bat has been proposed to be federally listed as an endangered species due to reductions in bat populations from white-nose syndrome, habitat loss, and wind farm operations (78 FR 61046–61080). Like the Indiana bat, northern long-eared bats roost in trees in the summer and hibernate in caves in the winter (USFWS 2013b). There is no critical habitat being proposed at this time.

The amount of forested areas (that is, a combination of deciduous forest, evergreen forest, mixed forest, scrub/shrub, and woody wetlands) along the Indianapolis Line Subdivision and L&I Line was quantified to evaluate the availability of potential foraging and roosting habitat there, as discussed in Section E.3 and shown in Table E.3-1 and Figures E.3-1 and E.3-2. The forested areas are potential summer roosting habitat of the Indiana bat and the northern long-eared bat. As for summer and winter habitat for the gray bat, and winter habitat for the Indiana bat and northern long-eared bat, there are no known caves along the Indianapolis Line Subdivision and L&I Line, and only a single quarry in Clark County, Indiana, which is known to have been occupied by gray bats.

As shown in Table E.3-1, forested areas cover approximately 5.2 percent (4,025 acres) of land adjacent to the Indianapolis Line Subdivision and approximately 16.6 percent (11,266 acres) of land adjacent to the L&I Line. Those forested areas, and nearby waterways, could be used by bats for foraging, and trees within those forested areas could be used by Indiana bats and northern long-eared bats for summer roosting. None of this potential foraging and roosting habitat would be disturbed by an increase in train traffic. There is no known information about the vulnerability of bats to being struck or otherwise harmed by passing trains, or about the effects of increased train traffic on bats. Further detail on potential wildlife strikes is provided in

Appendix F. In summary, no potential foraging or roosting habitat for the gray bat, Indiana bat, and northern long-eared bat along the rail line would be modified during train operations. Because of the minimal presence of forested areas along the Indianapolis Line Subdivision and L&I Line and the relatively small increase in nighttime train traffic (assuming half of the proposed increases in train numbers occurs at night), the possibility that individuals of these species could be struck by Transaction-related passing trains is small.

As discussed in the Draft EA and by USFWS (2013a), operation of trains would result in an increase in sound levels in the area of the quarry near Sellersburg in Clark County. Because gray bats there are already exposed to, and thus likely acclimated to, daily noise from trains, and because the increase in sound levels would be moderate, the effects of noise on gray bats at the quarry would likely be insignificant and discountable.

#### **E.4.2 Effect of the Potential Siding Extensions**

The Indiana bat and northern long-eared bat are the only federally listed or federally proposed species that could be affected by potential construction of the Elvin and Brook siding extensions in Johnson and Bartholomew counties, respectively. However, the potential construction of the siding extensions would not require tree removal, so impacts on the Indiana bat and northern long-eared bat are not anticipated.

The potential siding extensions would not impact caves, so impacts on the gray bat are not anticipated.

In Indiana, the running buffalo clover (*Trifolium stoloniferum*), an endangered plant, is known to occur only in the southeastern corner of the state (USFWS 2007b), and it is unlikely to occur within the rail line ROW.

#### **E.4.3 Effect of the Proposed Flatrock River Bridge Replacement**

Trees are present near the site of the proposed bridge replacement in Bartholomew County, where there is potential for the Indiana bat and northern long-eared bat to occur. At this location, CSX Transportation, Inc. (CSXT) has committed to remove trees, if any, outside of the summer roosting period of the Indiana bat and northern long-eared bat (that is, from April 1 to September 30). This commitment should prevent bats from being harmed during proposed replacement of the Flatrock River Bridge if any tree removal would be deemed necessary.

Proposed replacement of the Flatrock River Bridge could affect the rabbitsfoot mussel (*Quadrula cylindrica*), which is federally listed as threatened and occurs near or downstream of the project site. The rabbitsfoot mussel is a species of freshwater mussel found in river systems in the eastern United States. They generally live embedded in the bottom of rivers, streams, and other bodies of water. Larvae attach to fish gills, fins, or skin. Mussels are typically greatest in areas of the stream where the sediment is generally stable (77 FR 63440–63536). The clubshell (*Pleurobema clava*) (USFWS 2014e), fanshell (*Cyprogenia stegaria*) (USFWS 2014f), fat pocketbook (*Potamilus capax*) (USFWS 2014g), orangefoot pimpleback (*Plethobasus cooperianus*) (USFWS 2014h), pink mucket (*Lampsilis abrupta*) (USFWS 2014i), rayed bean (*Villosa fabailis*) (USFWS 2014j), ring pink (*Obavaria retusa*) (USFWS April 30, 2014k), sheepnose (*Plethobasus cyphus*) (USFWS 2014l), and snuffbox (*Epioblasma triquetra*) (USFWS April 30, 2014m) mussels are not known to occur in Bartholomew County. According to USFWS (2013a), the rabbitsfoot mussel has been found in the Flatrock River approximately

15 miles upstream of the L&I Line crossing. USFWS may require a mussel survey prior to bridge construction to assess if suitable habitat is present and/or if the mussel is found in the area of the proposed bridge replacement. The Flatrock River is not proposed critical habitat for the rabbitsfoot mussel (77 FR 63440-63536; USFWS 2014n). No other federally listed species are expected to be impacted by the proposed replacement of the Flatrock River Bridge.

## **E.5 STATE-LISTED SPECIES**

Lists of state-listed species that have potential to occur along or near the Indianapolis Line Subdivision and L&I Line were obtained from the Indiana DNR (2014), the Ohio Department of Natural Resources (ODNR) (2012a and 2012b), and the Kentucky State Nature Preserves Commission (KSNPC) (2013). The list of species by county that have the potential to occur along the Indianapolis Line Subdivision is provided in Attachment E-1. The list of species by county that have the potential to occur along the L&I Line is provided in Attachment E-2.

### **E.5.1 Effect of Increased Rail Traffic**

The state-listed species that have the potential to be affected by an increase in rail traffic are the birds, reptiles, and mammals listed in Table E.5-1. The analysis of the effect of increased rail traffic on wildlife strike potential is discussed in Appendix F.

These species could also be affected by increased noise and vibrations. Radle (2007) recognizes that the research on the effect of noise on wildlife has conflicting results because of the variety of factors that can affect and/or interfere with the determination of the response of wildlife to human-produced noise. In general, physiological and behavioral responses to noise include increased heart rate, panic, and escape behavior. While there would be increased rail traffic along the Indianapolis Line Subdivision and the L&I Line, the rail line is existing and the passing of the trains would take between 2.0 and 8.7 minutes on the Indianapolis Line Subdivision and between 1.46 and 3.09 minutes on the L&I Line. As further described in the Supplemental EA, Section 3.8, the Indianapolis Line Subdivision would experience a noise increase of only 1.7 A-weighted decibels (dBA) in the day-night noise level ( $L_{dn}$ ). The effect of increased noise on wildlife along the L&I Line was analyzed in the Draft EA and is incorporated by reference in accordance with 40 Code of Federal Regulations § 1502.21. Vibration effects described in the Supplemental EA, Section 3.8, were not analyzed along the Indianapolis Line Subdivision. The Draft EA found that the Proposed Transaction would not result in significant vibration impacts along the L&I Line. There is potential for there to be localized effects on state-listed species from increased noise and vibration.

**Table E.5-1. State-Listed Threatened or Endangered Species with Potential to be Affected along Rail Lines with Increased Traffic and Speeds**

Common Name	Scientific Name	Status	Rail Line(s)	County(ies) and State(s)
<b>Birds</b>				
American bittern	<i>Botaurus lentiginosus</i>	Endangered	Indianapolis Line Subdivision	Marion and Delaware, IN
			L&I Line	Marion, IN
Bachman's sparrow	<i>Aimophila aestivalis</i>	Endangered	L&I Line	Jefferson, KY
Bald eagle	<i>Haliaeetus leucocephalus</i>	Threatened	L&I Line	Jefferson, KY
Barn owl	<i>Tyto alba</i>	Endangered	Indianapolis Line Subdivision	Randolph, IN; Shelby, OH
			L&I Line	Johnson, Bartholomew, Jackson, and Clark, IN
Black-crowned night-heron	<i>Nycticorax nycticorax</i>	Threatened	Indianapolis Line Subdivision	Marion, Hancock, Madison, and Delaware, IN
			L&I Line	Marion, Johnson, Bartholomew, and Clark, IN; Jefferson, KY
Blue-winged teal	<i>Anas discors</i>	Threatened	L&I Line	Jefferson, KY
Cerulean warbler	<i>Dendroica cerulean</i>	Endangered	Indianapolis Line Subdivision	Marion and Hancock, IN
			L&I Line	Marion, Johnson, Jackson, and Clark, IN
Double-crested cormorant	<i>Phalacrocorax auritus</i>	Threatened	L&I Line	Jefferson, KY
Great egret	<i>Ardea alba</i>	Threatened	L&I Line	Jefferson, KY
Henslow's sparrow	<i>Ammodramus henslowii</i>	Endangered	L&I Line	Johnson, Bartholomew, Jackson, Scott, and Clark, IN
Hooded merganser	<i>Lophodytes cucullatus</i>	Threatened	L&I Line	Jefferson, KY

Common Name	Scientific Name	Status	Rail Line(s)	County(ies) and State(s)
King rail	<i>Rallus elegans</i>	Endangered	Indianapolis Line Subdivision	Marion, Madison, and Delaware, IN
			L&I Line	Marion and Johnson, IN; Jefferson, KY
Lark sparrow	<i>Chondestes grammacus</i>	Threatened	L&I Line	Jefferson, KY
Least bittern	<i>Ixobrychus exilis</i>	Threatened	Indianapolis Line Subdivision	Marion, IN
			L&I Line	Marion, Jackson, and Johnson, IN; Jefferson, KY
Little blue heron	<i>Egretta caerulea</i>	Endangered	L&I Line	Jefferson, KY
Loggerhead shrike	<i>Lanius ludovicianus</i>	Endangered	Indianapolis Line Subdivision	Marion, Hancock, Madison, Delaware, and Randolph, IN
			L&I Line	Marion and Clark, IN
Marsh wren	<i>Cistothorus palustris</i>	Endangered	L&I Line	Jackson, IN
Northern harrier	<i>Circus cyaneus</i>	Endangered	L&I Line	Johnson, IN
Osprey	<i>Pandion haliaetus</i>	Endangered	Indianapolis Line Subdivision	Marion, IN
			L&I Line	Marion and Jackson, IN
Peregrine falcon	<i>Falco peregrinus</i>	Endangered	Indianapolis Line Subdivision	Marion, IN
			L&I Line	Marion and Bartholomew, IN; Jefferson, KY
Pied-billed grebe	<i>Podilymbus podiceps</i>	Endangered	L&I Line	Jefferson, KY
Sedge wren	<i>Cistothorus platensis</i>	Endangered	Indianapolis Line Subdivision	Randolph, IN
			L&I Line	Johnson, Bartholomew, and Jackson, IN

Common Name	Scientific Name	Status	Rail Line(s)	County(ies) and State(s)
Spotted sandpiper	<i>Actitis macularus</i>	Endangered	L&I Line	Jefferson, KY
Upland sandpiper	<i>Bartramia longicauda</i>	Endangered	Indianapolis Line Subdivision	Hancock, IN
			L&I Line	Marion, Johnson, and Jackson, IN
Virginia rail	<i>Rallus elegans</i>	Endangered	L&I Line	Johnson, IN
Yellow-crowned night-heron	<i>Nyctanassa violacea</i>	Threatened	Indianapolis Line Subdivision	Delaware, IN
			L&I Line	Jackson, IN; Jefferson, KY
<b>Reptiles</b>				
Blanding's turtle	<i>Emydoidea blandingii</i>	Endangered	Indianapolis Line Subdivision	Marion and Delaware, IN
			L&I Line	Marion, IN
Butler's garter snake	<i>Thamnophis butleri</i>	Endangered	Indianapolis Line Subdivision	Marion and Delaware, IN
			L&I Line	Marion, IN
Copperbelly water snake	<i>Nerodia erythrogaster</i>	Endangered	L&I Line	Jackson and Scott, IN
Eastern massasauga	<i>Sistrurus catenatus</i>	Endangered	Indianapolis Line Subdivision	Delaware, IN
Eastern mud turtle	<i>Kinostemon subrubrum</i>	Endangered	L&I Line	Jackson, IN
Eastern slender glass lizard	<i>Ophisaurus attenuatus</i>	Threatened	L&I Line	Jefferson, KY
Kirtland's snake	<i>Clonophis kirtlandii</i>	Threatened	Indianapolis Line Subdivision	Marion, Delaware, and Randolph, IN
			L&I Line	Johnson, Bartholomew, Jackson, and Clark, IN; Jefferson, KY
Southeastern crowned snake	<i>Tantilla coronata</i>	Endangered	L&I Line	Clark, IN
Spotted turtle	<i>Clemmys guttata</i>	Endangered	Indianapolis Line Subdivision	Marion and Delaware, IN
			L&I Line	Marion, IN
Timber rattlesnake	<i>Crotalus horridus</i>	Endangered	L&I Line	Jackson and Clark, IN

Common Name	Scientific Name	Status	Rail Line(s)	County(ies) and State(s)
<b>Mammals</b>				
Evening bat	<i>Nycticeilus humeralis</i>	Endangered	L&I Line	Johnson, Bartholomew, and Jackson, IN

Sources: Indiana DNR, 2014, "List of Endangered, Threatened, & Rare Species by County," accessed April 16, 2014, <https://secure.in.gov/dnr/naturepreserve/4666.htm>.

ODNR, 2012a, "Ohio Division of Wildlife, Natural Heritage Database, State-listed Species for Darke Co. As of 11/8/2012," available online at <http://wildlife.ohiodnr.gov/portals/wildlife/pdfs/species%20and%20habitats/state-listed%20species/darke.pdf>.

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KSNPC, 2013, *County Report of Endangered, Threatened, and Special Concern Plants, Animals, and Natural Communities of Kentucky, April*, available online at [http://naturepreserves.ky.gov/pubs/publications/KSNPC\\_countylisthabitat.pdf](http://naturepreserves.ky.gov/pubs/publications/KSNPC_countylisthabitat.pdf).

The land cover analysis presented in Table E.3-1, above, shows that cultivated crops occur on a substantial portion of the land adjacent to the rail lines: 48.3 percent of the Indianapolis Line Subdivision and 36.6 percent of the L&I Line. For rail traffic increases that occur along the Indianapolis Line Subdivision and L&I Line, species that occur in or near cultivated lands, such as barn owls (*Tyto alba*) and northern harriers (*Circus cyaneus*), would be most vulnerable to being adversely affected by noise and other indirect effects resulting from an increase in train traffic. Impacts on most of the species listed in Table E.5-1 would primarily be limited to the smaller areas of forested and wetland habitat crossed by the rail lines.

There is low occurrence of emergent wetlands, woody wetlands, and open water along the Indianapolis Line Subdivision and L&I Line, so state-listed species that use that habitat, such as the following, would be uncommon along those rail lines: Kirtland's snake (*Clonophis kirtlandii*), Eastern slender glass lizard (*Ophisaurus attenuates*), copperbelly water snake (*Nerodia erythrogaster*), Eastern mud turtle (*Kinostemon subrubrum*), spotted turtle (*Clemmys guttata*), Blanding's turtle (*Thamnophis butleri*), and Eastern massasauga (*Sistrurus catenatus*). Timber rattlesnakes (*Crotalus horridus*) and southeastern crowned snakes (*Tantilla coronata*) are found primarily in forested areas. There is a potential for noise and vibration from Transaction-related passing trains to affect all of these species, but the impact would be limited and short-term.

### E.5.2 Effect of the Potential Siding Extensions

The evening bat would be adversely affected only if trees must be removed during construction. However, the potential construction of the siding extensions would not require tree removal, so impacts on the evening bat are not anticipated.

Land adjacent to the potential Elvin siding extension in Johnson County is entirely agricultural or developed. A majority of the potential Brook siding extension in Bartholomew County is adjacent to agriculture and developed lands. At the southern end of the potential Brook siding extension, near the Flatrock River Bridge, forested wetlands, emergent wetlands, and forested upland are adjacent to the rail line. Straw sedge (*Carex straminea*), Illinois hawthorne (*Crataegus prona*), cattail gay-feather (*Liatris pycnostachya*), Smith's bulrush (*Penstemon canescens*), branching bur-reed (*Sparganium angrocladum*), and yellow nodding ladies'-tresses (*Spiranthes ochroleuca*) have the potential to occur in these habitats (see Attachment E-2 for the state-listed plant species that may occur along the L&I Line). None of the state-listed plant species are likely to exist adjacent to the potential siding extensions. Indiana DNR may require plant surveys prior to construction if construction were to extend beyond the ROW. Applicants have offered a voluntary mitigation (VM) measure that before beginning any Transaction-related construction activity, Applicants will survey all suitable habitats potentially impacted by the construction activity for state-listed threatened or endangered plant species. If any listed plant species are located, Applicants will implement a mitigation plan in consultation with the appropriate federal and state agencies (see Chapter 4.0, VM 10).

CSXT would comply with the requirements of the Migratory Bird Treaty Act and has committed to tree removal, if any, outside of the period from April 1 to September 30. This commitment would eliminate the potential for harm to nesting migratory birds in trees. However, OEA notes that this commitment applies to trees only and does not address ground- and shrub-nesting bird species. The potential impacts on migratory birds, in the absence of mitigation, would be minor because of the limited clearing that would be needed. Nevertheless, OEA preliminarily recommends a mitigation measure (MM) to address potential impacts on migratory birds (see Chapter 4.0, MM 10).

### **E.5.3 Effect of the Proposed Flatrock River Bridge Replacement**

Trees are present near the site of the proposed bridge replacement in Bartholomew County, where there is potential for the evening bat to occur. At this location, CSXT has committed to remove trees, if any, outside of the Indiana bat's roosting period (that is, from April 1 to September 30) (see Chapter 4.0, VM 11), and this commitment is expected to apply to the evening bat's roosting period as well.

As described in Section E.2.3 for federally listed mussel species, the state-listed clubshell, fanshell, and snuffbox mussels are not known to occur in Bartholomew County. The northern riffleshell (*Epioblasma torulosa*) is also not found in Bartholomew County (USFWS 2014o). The pyramid pigtoe (or pink pigtoe) (*Pleurobema rubrum*) is found widespread, but rarely in the Ohio River drainage, in medium to large rivers in sand or gravel in areas with a good current (Illinois Natural History Survey 2014) (see Attachment E-2 for the state-listed mussel species that may occur along the L&I Line). The Flatrock River is part of the Ohio River drainage, so the pyramid pigtoe could potentially occur in the Flatrock River. State-listed mussel species that could be affected by the proposed replacement of the Flatrock River Bridge include the rabbitsfoot and pyramid pigtoe. Indiana DNR may require a mussel survey prior to bridge construction to assess if suitable habitat is present, if the mussels are found in the area of the proposed bridge replacement, or both. No other state-listed species are anticipated to be affected by the proposed replacement of the Flatrock River Bridge.

As stated above, the commitment to remove trees outside of the period from April 1 to September 30 only eliminates the potential to harm tree nesting migratory birds. OEA proposes MM 10 in Chapter 4.0 to address potential impacts on migratory birds from ground vegetation and shrub removal.

## E.6 REFERENCES

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**STATE-LISTED SPECIES ALONG THE INDIANAPOLIS LINE SUBDIVISION**

Indiana County Endangered, Threatened and Rare Species List

County: Marion

Species Name	Common Name	FED	STATE	GRANK	SRANK
<b>Mollusk: Bivalvia (Mussels)</b>					
Epioblasma torulosa rangiana	Northern Riffleshell	LE	SE	G2T2	SX
Epioblasma triquetra	Snuffbox	LE	SE	G3	S1
Lampsilis fasciola	Wavyrayed Lampmussel		SSC	G5	S3
Obovaria subrotunda	Round Hickorynut		SSC	G4	S1
Plethobasus cyphus	Sheepnose	LE	SE	G3	S1
Pleurobema clava	Clubshell	LE	SE	G2	S1
Pleurobema plenum	Rough Pigtoe	LE	SE	G1	S1
Ptychobranhus fasciolaris	Kidneyshell		SSC	G4G5	S2
Quadrula cylindrica cylindrica	Rabbitsfoot	C	SE	G3G4T3	S1
Toxolasma lividus	Purple Lilliput		SSC	G3	S2
Venustaconcha ellipsiformis	Ellipse		SSC	G4	S2
Villosa lienosa	Little Spectaclecase		SSC	G5	S3
<b>Insect: Lepidoptera (Butterflies &amp; Moths)</b>					
Hyperaeschra georgica	A Prominent Moth			G5	S2
<b>Insect: Neuroptera</b>					
Sisyra sp. 1	Indiana Spongilla Fly		ST	GNR	S2
<b>Fish</b>					
Percina evides	Gilt Darter		SE	G4	S1
<b>Amphibian</b>					
Rana pipiens	Northern Leopard Frog		SSC	G5	S2
<b>Reptile</b>					
Clemmys guttata	Spotted Turtle		SE	G5	S2
Clonophis kirtlandii	Kirtland's Snake		SE	G2	S2
Emydoidea blandingii	Blanding's Turtle		SE	G4	S2
Thamnophis butleri	Butler's Garter Snake		SE	G4	S1
<b>Bird</b>					
Aimophila aestivalis	Bachman's Sparrow			G3	SXB
Ardea alba	Great Egret		SSC	G5	S1B
Ardea herodias	Great Blue Heron			G5	S4B
Bartramia longicauda	Upland Sandpiper		SE	G5	S3B
Botaurus lentiginosus	American Bittern		SE	G4	S2B
Buteo lineatus	Red-shouldered Hawk		SSC	G5	S3
Buteo platypterus	Broad-winged Hawk	No Status	SSC	G5	S3B
Certhia americana	Brown Creeper			G5	S2B
Chordeiles minor	Common Nighthawk		SSC	G5	S4B
Dendroica cerulea	Cerulean Warbler		SE	G4	S3B
Falco peregrinus	Peregrine Falcon	No Status	SE	G4	S2B
Haliaeetus leucocephalus	Bald Eagle	LT,PDL	SSC	G5	S2

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State: SE = state endangered; ST = state threatened; SR = state rare; SSC = state species of special concern; SX = state extirpated; SG = state significant; WL = watch list  
GRANK: Global Heritage Rank: G1 = critically imperiled globally; G2 = imperiled globally; G3 = rare or uncommon globally; G4 = widespread and abundant globally but with long term concerns; G5 = widespread and abundant globally; G? = unranked; GX = extinct; Q = uncertain rank; T = taxonomic subunit rank  
SRANK: State Heritage Rank: S1 = critically imperiled in state; S2 = imperiled in state; S3 = rare or uncommon in state; G4 = widespread and abundant in state but with long term concern; SG = state significant; SH = historical in state; SX = state extirpated; B = breeding status; S? = unranked; SNR = unranked; SNA = nonbreeding status unranked

**Indiana County Endangered, Threatened and Rare Species List**

**County: Marion**

Species Name	Common Name	FED	STATE	GRANK	SRANK
Helmitheros vermivorus	Worm-eating Warbler		SSC	G5	S3B
Ixobrychus exilis	Least Bittern		SE	G5	S3B
Lanius ludovicianus	Loggerhead Shrike	No Status	SE	G4	S3B
Mniotilta varia	Black-and-white Warbler		SSC	G5	S1S2B
Nycticorax nycticorax	Black-crowned Night-heron		SE	G5	S1B
Pandion haliaetus	Osprey		SE	G5	S1B
Rallus elegans	King Rail		SE	G4	S1B
Sitta canadensis	Red-breasted Nuthatch			G5	S1B
Wilsonia citrina	Hooded Warbler		SSC	G5	S3B
<b>Mammal</b>					
Lasiurus borealis	Eastern Red Bat		SSC	G5	S4
Myotis lucifugus	Little Brown Bat		SSC	G5	S4
Myotis septentrionalis	Northern Myotis		SSC	G4	S3
Myotis sodalis	Indiana Bat or Social Myotis	LE	SE	G2	S1
Taxidea taxus	American Badger		SSC	G5	S2
<b>Vascular Plant</b>					
Chelone obliqua var. speciosa	Rose Turtlehead		WL	G4T3	S3
Deschampsia cespitosa	Tufted Hairgrass		SR	G5	S2
Hydrastis canadensis	Golden Seal		WL	G4	S3
Juglans cinerea	Butternut		WL	G4	S3
Melanthium virginicum	Virginia Bunchflower		SE	G5	S1
Panax quinquefolius	American Ginseng		WL	G3G4	S3
Poa wolfii	Wolf Bluegrass		SR	G4	S2
Rubus odoratus	Purple Flowering Raspberry		ST	G5	S2
Trifolium stoloniferum	Running Buffalo Clover	LE	SE	G3	S1
<b>High Quality Natural Community</b>					
Forest - flatwoods central till plain	Central Till Plain Flatwoods		SG	G3	S2
Forest - floodplain mesic	Mesic Floodplain Forest		SG	G3?	S1
Forest - floodplain wet	Wet Floodplain Forest		SG	G3?	S3
Forest - floodplain wet-mesic	Wet-mesic Floodplain Forest		SG	G3?	S3
Forest - upland dry-mesic	Dry-mesic Upland Forest		SG	G4	S4
Forest - upland mesic	Mesic Upland Forest		SG	G3?	S3
Wetland - fen	Fen		SG	G3	S3
Wetland - marsh	Marsh		SG	GU	S4

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## Indiana County Endangered, Threatened and Rare Species List

### County: Hancock

Species Name	Common Name	FED	STATE	GRANK	SRANK
<b>Mollusk: Bivalvia (Mussels)</b>					
<i>Epioblasma triquetra</i>	Snuffbox	LE	SE	G3	S1
<i>Lampsilis fasciola</i>	Wavyrayed Lampmussel		SSC	G5	S3
<i>Pleurobema clava</i>	Clubshell	LE	SE	G2	S1
<i>Ptychobranthus fasciolaris</i>	Kidneyshell		SSC	G4G5	S2
<i>Toxolasma lividus</i>	Purple Lilliput		SSC	G3	S2
<i>Villosa lienosa</i>	Little Spectaclecase		SSC	G5	S3
<b>Bird</b>					
<i>Ardea herodias</i>	Great Blue Heron			G5	S4B
<i>Bartramia longicauda</i>	Upland Sandpiper		SE	G5	S3B
<i>Dendroica cerulea</i>	Cerulean Warbler		SE	G4	S3B
<i>Lanius ludovicianus</i>	Loggerhead Shrike	No Status	SE	G4	S3B
<i>Nycticorax nycticorax</i>	Black-crowned Night-heron		SE	G5	S1B
<b>Mammal</b>					
<i>Mustela nivalis</i>	Least Weasel		SSC	G5	S2?
<i>Myotis sodalis</i>	Indiana Bat or Social Myotis	LE	SE	G2	S1
<i>Taxidea taxus</i>	American Badger		SSC	G5	S2
<b>Vascular Plant</b>					
<i>Magnolia acuminata</i>	Cucumber Magnolia		SE	G5	S1
<i>Sanguisorba canadensis</i>	Canada Burnet		SE	G5	S1
<i>Valerianella chenopodiifolia</i>	Goose-foot Corn-salad		SE	G5	S1

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 SRANK: State Heritage Rank: S1 = critically imperiled in state; S2 = imperiled in state; S3 = rare or uncommon in state; G4 = widespread and abundant in state but with long term concern; SG = state significant; SH = historical in state; SX = state extirpated; B = breeding status; S? = unranked; SNR = unranked; SNA = nonbreeding status unranked

**Indiana County Endangered, Threatened and Rare Species List**

**County: Madison**

Species Name	Common Name	FED	STATE	GRANK	SRANK
<b>Mollusk: Bivalvia (Mussels)</b>					
Epioblasma torulosa rangiana	Northern Riffleshell	LE	SE	G2T2	SX
Lampsilis fasciola	Wavyrayed Lampmussel		SSC	G5	S3
Plethobasus cyphus	Sheepnose	LE	SE	G3	S1
Pleurobema clava	Clubshell	LE	SE	G2	S1
Ptychobranthus fasciolaris	Kidneyshell		SSC	G4G5	S2
Quadrula cylindrica cylindrica	Rabbitsfoot	C	SE	G3G4T3	S1
Toxolasma lividus	Purple Lilliput		SSC	G3	S2
Villosa lienosa	Little Spectaclecase		SSC	G5	S3
<b>Insect: Odonata (Dragonflies &amp; Damselflies)</b>					
Cordulegaster bilineata	Brown Spiketail		SE	G5	S1
Somatochlora tenebrosa	Clamp-tipped Emerald		SR	G5	S2S3
Tachopteryx thoreyi	Gray Petaltail		SR	G4	S2S3
<b>Bird</b>					
Ardea herodias	Great Blue Heron			G5	S4B
Lanius ludovicianus	Loggerhead Shrike	No Status	SE	G4	S3B
Nycticorax nycticorax	Black-crowned Night-heron		SE	G5	S1B
Rallus elegans	King Rail		SE	G4	S1B
<b>Mammal</b>					
Taxidea taxus	American Badger		SSC	G5	S2
<b>Vascular Plant</b>					
Deschampsia cespitosa	Tufted Hairgrass		SR	G5	S2
Hypericum pyramidatum	Great St. John's-wort		ST	G4	S1
Juglans cinerea	Butternut		WL	G4	S3
Onosmodium hispidissimum	Shaggy False-gromwell		SE	G4	S1
Poa paludigena	Bog Bluegrass		WL	G3	S3
Selaginella apoda	Meadow Spike-moss		WL	G5	S1
Spiranthes lucida	Shining Ladies'-tresses		SR	G5	S2
Valerianella chenopodiifolia	Goose-foot Corn-salad		SE	G5	S1
<b>High Quality Natural Community</b>					
Forest - upland mesic	Mesic Upland Forest		SG	G3?	S3
Wetland - fen	Fen		SG	G3	S3
Wetland - marsh	Marsh		SG	GU	S4
<b>Other Significant Feature</b>					
Geomorphic - Nonglacial Erosional Feature - Water Fall and Cascade	Water Fall and Cascade			GNR	SNR

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**Indiana County Endangered, Threatened and Rare Species List**

**County: Delaware**

Species Name	Common Name	FED	STATE	GRANK	SRANK
<b>Mollusk: Bivalvia (Mussels)</b>					
Epioblasma torulosa rangiana	Northern Riffleshell	LE	SE	G2T2	SX
Lampsilis fasciola	Wavyrayed Lampmussel		SSC	G5	S3
Pleurobema clava	Clubshell	LE	SE	G2	S1
Pleurobema cordatum	Ohio Pigtoe		SSC	G4	S2
Ptychobranchus fasciolaris	Kidneyshell		SSC	G4G5	S2
Toxolasma lividus	Purple Lilliput		SSC	G3	S2
Villosa fabalis	Rayed Bean	LE	SSC	G2	S1
<b>Reptile</b>					
Clemmys guttata	Spotted Turtle		SE	G5	S2
Clonophis kirtlandii	Kirtland's Snake		SE	G2	S2
Emydoidea blandingii	Blanding's Turtle		SE	G4	S2
Sistrurus catenatus catenatus	Eastern Massasauga	C	SE	G3G4T3T4Q	S2
Thamnophis butleri	Butler's Garter Snake		SE	G4	S1
<b>Bird</b>					
Ardea herodias	Great Blue Heron			G5	S4B
Botaurus lentiginosus	American Bittern		SE	G4	S2B
Lanius ludovicianus	Loggerhead Shrike	No Status	SE	G4	S3B
Nyctanassa violacea	Yellow-crowned Night-heron		SE	G5	S2B
Nycticorax nycticorax	Black-crowned Night-heron		SE	G5	S1B
Rallus elegans	King Rail		SE	G4	S1B
<b>Mammal</b>					
Myotis sodalis	Indiana Bat or Social Myotis	LE	SE	G2	S1
Taxidea taxus	American Badger		SSC	G5	S2
<b>Vascular Plant</b>					
Carex alopecoidea	Foxtail Sedge		SE	G5	S1
Glyceria borealis	Small Floating Manna-grass		SE	G5	S1
Matteuccia struthiopteris	Ostrich Fern		SR	G5	S2
Silene regia	Royal Catchfly		ST	G3	S2
Trichostema dichotomum	Forked Bluecurl		SR	G5	S2
Trifolium stoloniferum	Running Buffalo Clover	LE	SE	G3	S1
Valerianella chenopodiifolia	Goose-foot Corn-salad		SE	G5	S1
Wisteria macrostachya	Kentucky Wisteria		SR	G5	S2
<b>High Quality Natural Community</b>					
Forest - flatwoods central till plain	Central Till Plain Flatwoods		SG	G3	S2

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## Indiana County Endangered, Threatened and Rare Species List

### County: Randolph

Species Name	Common Name	FED	STATE	GRANK	SRANK
<b>Mollusk: Bivalvia (Mussels)</b>					
Epioblasma torulosa rangiana	Northern Riffleshell	LE	SE	G2T2	SX
Lampsilis fasciola	Wavyrayed Lampmussel		SSC	G5	S3
Pleurobema clava	Clubshell	LE	SE	G2	S1
Ptychobranthus fasciolaris	Kidneyshell		SSC	G4G5	S2
Toxolasma lividus	Purple Lilliput		SSC	G3	S2
Villosa fabalis	Rayed Bean	LE	SSC	G2	S1
Villosa lienosa	Little Spectaclecase		SSC	G5	S3
<b>Insect: Odonata (Dragonflies &amp; Damselflies)</b>					
Enallagma divagans	Turquoise Bluet		SR	G5	S3
<b>Reptile</b>					
Clonophis kirtlandii	Kirtland's Snake		SE	G2	S2
<b>Bird</b>					
Ardea herodias	Great Blue Heron			G5	S4B
Cistothorus platensis	Sedge Wren		SE	G5	S3B
Lanius ludovicianus	Loggerhead Shrike	No Status	SE	G4	S3B
Tyto alba	Barn Owl		SE	G5	S2
<b>Mammal</b>					
Myotis septentrionalis	Northern Myotis		SSC	G4	S3
Myotis sodalis	Indiana Bat or Social Myotis	LE	SE	G2	S1
Taxidea taxus	American Badger		SSC	G5	S2
<b>Vascular Plant</b>					
Carex gravida	Heavy Sedge		SE	G5	S1
Crataegus arborea	A Hawthorn		SE	G4G5	S1
Cypripedium calceolus var. parviflorum	Small Yellow Lady's-slipper		SR	G5	S2
Cypripedium candidum	Small White Lady's-slipper		WL	G4	S2
Melanthium virginicum	Virginia Bunchflower		SE	G5	S1
Melica nitens	Three-flower Melic Grass		ST	G5	S2
Panax quinquefolius	American Ginseng		WL	G3G4	S3
Rudbeckia fulgida var. fulgida	Orange Coneflower		WL	G5T4?	S2
Tofieldia glutinosa	False Asphodel		SR	G4G5	S2
Triglochin palustris	Marsh Arrow-grass		SR	G5	S2
Viburnum molle	Softleaf Arrow-wood		SR	G5	S2
<b>High Quality Natural Community</b>					
Forest - flatwoods central till plain	Central Till Plain Flatwoods		SG	G3	S2
Wetland - fen	Fen		SG	G3	S3

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Ohio Division of Wildlife  
 Natural Heritage Database  
 State-listed Species for Darke Co.  
 As of 11/8/2012

<u>Last Recorded</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>State Status</u>	<u>Federal Status</u>
<b>PLANTS</b>				
2002	<i>Agalinis gattingeri</i>	Gattinger's-foxglove	T	
1955	<i>Carex atherodes</i>	Wheat Sedge	P	
1985	<i>Cuscuta coryli</i>	Hazel Dodder	X	
1955	<i>Iris brevicaulis</i>	Leafy Blue Flag	T	
2005	<i>Liatris squarrosa</i>	Scaly Blazing-star	P	
1991	<i>Melanthium woodii</i>	Wood's-hellebore	T	
1986	<i>Moehringia lateriflora</i>	Grove Sandwort	P	
2006	<i>Rosa blanda</i>	Smooth Rose	P	
<b>ANIMALS</b>				
2005	<i>Etheostoma microperca</i>	Least Darter	SC	
1990	<i>Gomphus externus</i>	Plains Clubtail	E	
1987	<i>Lampsilis fasciola</i>	Wavy-rayed Lampmussel	SC	
1999	<i>Lasmigona compressa</i>	Creek Heelsplitter	SC	
2005	<i>Orconectes sloanii</i>	Sloan's Crayfish	T	

Ohio Division of Wildlife  
 Natural Heritage Database  
 State-listed Species for Shelby Co.  
 As of 11/8/2012

<u>Last Recorded</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>State Status</u>	<u>Federal Status</u>
<b>PLANTS</b>				
2011	<i>Cypripedium reginae</i>	Showy Lady's-slipper	T	
1978	<i>Melanthium woodii</i>	Wood's-hellebore	T	
2006	<i>Triphora trianthophora</i>	Three-birds Orchid	P	
<b>ANIMALS</b>				
1987	<i>Accipiter striatus</i>	Sharp-shinned Hawk	SC	
1984	<i>Cyclonaias tuberculata</i>	Purple Wartyback	SC	
2008	<i>Etheostoma microperca</i>	Least Darter	SC	
1987	<i>Tyto alba</i>	Barn Owl	T	

**STATE-LISTED SPECIES ALONG THE L&I LINE**

Indiana County Endangered, Threatened and Rare Species List

County: Marion

Species Name	Common Name	FED	STATE	GRANK	SRANK
<b>Mollusk: Bivalvia (Mussels)</b>					
Epioblasma torulosa rangiana	Northern Riffleshell	LE	SE	G2T2	SX
Epioblasma triquetra	Snuffbox	LE	SE	G3	S1
Lampsilis fasciola	Wavyrayed Lampmussel		SSC	G5	S3
Obovaria subrotunda	Round Hickorynut		SSC	G4	S1
Plethobasus cyphus	Sheepnose	LE	SE	G3	S1
Pleurobema clava	Clubshell	LE	SE	G2	S1
Pleurobema plenum	Rough Pigtoe	LE	SE	G1	S1
Ptychobranhus fasciolaris	Kidneyshell		SSC	G4G5	S2
Quadrula cylindrica cylindrica	Rabbitsfoot	C	SE	G3G4T3	S1
Toxolasma lividus	Purple Lilliput		SSC	G3	S2
Venustaconcha ellipsiformis	Ellipse		SSC	G4	S2
Villosa lienosa	Little Spectaclecase		SSC	G5	S3
<b>Insect: Lepidoptera (Butterflies &amp; Moths)</b>					
Hyperaeschra georgica	A Prominent Moth			G5	S2
<b>Insect: Neuroptera</b>					
Sisyra sp. 1	Indiana Spongilla Fly		ST	GNR	S2
<b>Fish</b>					
Percina evides	Gilt Darter		SE	G4	S1
<b>Amphibian</b>					
Rana pipiens	Northern Leopard Frog		SSC	G5	S2
<b>Reptile</b>					
Clemmys guttata	Spotted Turtle		SE	G5	S2
Clonophis kirtlandii	Kirtland's Snake		SE	G2	S2
Emydoidea blandingii	Blanding's Turtle		SE	G4	S2
Thamnophis butleri	Butler's Garter Snake		SE	G4	S1
<b>Bird</b>					
Aimophila aestivalis	Bachman's Sparrow			G3	SXB
Ardea alba	Great Egret		SSC	G5	S1B
Ardea herodias	Great Blue Heron			G5	S4B
Bartramia longicauda	Upland Sandpiper		SE	G5	S3B
Botaurus lentiginosus	American Bittern		SE	G4	S2B
Buteo lineatus	Red-shouldered Hawk		SSC	G5	S3
Buteo platypterus	Broad-winged Hawk	No Status	SSC	G5	S3B
Certhia americana	Brown Creeper			G5	S2B
Chordeiles minor	Common Nighthawk		SSC	G5	S4B
Dendroica cerulea	Cerulean Warbler		SE	G4	S3B
Falco peregrinus	Peregrine Falcon	No Status	SE	G4	S2B
Haliaeetus leucocephalus	Bald Eagle	LT,PDL	SSC	G5	S2

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**Indiana County Endangered, Threatened and Rare Species List**

**County: Marion**

Species Name	Common Name	FED	STATE	GRANK	SRANK
<i>Helmitheros vermivorus</i>	Worm-eating Warbler		SSC	G5	S3B
<i>Ixobrychus exilis</i>	Least Bittern		SE	G5	S3B
<i>Lanius ludovicianus</i>	Loggerhead Shrike	No Status	SE	G4	S3B
<i>Mniotilta varia</i>	Black-and-white Warbler		SSC	G5	S1S2B
<i>Nycticorax nycticorax</i>	Black-crowned Night-heron		SE	G5	S1B
<i>Pandion haliaetus</i>	Osprey		SE	G5	S1B
<i>Rallus elegans</i>	King Rail		SE	G4	S1B
<i>Sitta canadensis</i>	Red-breasted Nuthatch			G5	S1B
<i>Wilsonia citrina</i>	Hooded Warbler		SSC	G5	S3B
<b>Mammal</b>					
<i>Lasiurus borealis</i>	Eastern Red Bat		SSC	G5	S4
<i>Myotis lucifugus</i>	Little Brown Bat		SSC	G5	S4
<i>Myotis septentrionalis</i>	Northern Myotis		SSC	G4	S3
<i>Myotis sodalis</i>	Indiana Bat or Social Myotis	LE	SE	G2	S1
<i>Taxidea taxus</i>	American Badger		SSC	G5	S2
<b>Vascular Plant</b>					
<i>Chelone obliqua</i> var. <i>speciosa</i>	Rose Turtlehead		WL	G4T3	S3
<i>Deschampsia cespitosa</i>	Tufted Hairgrass		SR	G5	S2
<i>Hydrastis canadensis</i>	Golden Seal		WL	G4	S3
<i>Juglans cinerea</i>	Butternut		WL	G4	S3
<i>Melanthium virginicum</i>	Virginia Bunchflower		SE	G5	S1
<i>Panax quinquefolius</i>	American Ginseng		WL	G3G4	S3
<i>Poa wolfii</i>	Wolf Bluegrass		SR	G4	S2
<i>Rubus odoratus</i>	Purple Flowering Raspberry		ST	G5	S2
<i>Trifolium stoloniferum</i>	Running Buffalo Clover	LE	SE	G3	S1
<b>High Quality Natural Community</b>					
Forest - flatwoods central till plain	Central Till Plain Flatwoods		SG	G3	S2
Forest - floodplain mesic	Mesic Floodplain Forest		SG	G3?	S1
Forest - floodplain wet	Wet Floodplain Forest		SG	G3?	S3
Forest - floodplain wet-mesic	Wet-mesic Floodplain Forest		SG	G3?	S3
Forest - upland dry-mesic	Dry-mesic Upland Forest		SG	G4	S4
Forest - upland mesic	Mesic Upland Forest		SG	G3?	S3
Wetland - fen	Fen		SG	G3	S3
Wetland - marsh	Marsh		SG	GU	S4

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**Indiana County Endangered, Threatened and Rare Species List**

**County: Johnson**

Species Name	Common Name	FED	STATE	GRANK	SRANK
<b>Mollusk: Bivalvia (Mussels)</b>					
Epioblasma torulosa rangiana	Northern Riffleshell	LE	SE	G2T2	SX
Epioblasma triquetra	Snuffbox	LE	SE	G3	S1
Lampsilis fasciola	Wavyrayed Lampmussel		SSC	G5	S3
Obovaria subrotunda	Round Hickorynut		SSC	G4	S1
Pleurobema clava	Clubshell	LE	SE	G2	S1
Ptychobranchus fasciolaris	Kidneyshell		SSC	G4G5	S2
Quadrula cylindrica cylindrica	Rabbitsfoot	C	SE	G3G4T3	S1
Simpsonaias ambigua	Salamander Mussel		SSC	G3	S2
Villosa fabalis	Rayed Bean	LE	SSC	G2	S1
Villosa lienosa	Little Spectaclecase		SSC	G5	S3
<b>Insect: Odonata (Dragonflies &amp; Damselflies)</b>					
Cordulegaster bilineata	Brown Spiketail		SE	G5	S1
Enallagma divagans	Turquoise Bluet		SR	G5	S3
Sympetrum semicinctum	Band-winged Meadowhawk		SR	G5	S2S3
<b>Reptile</b>					
Clonophis kirtlandii	Kirtland's Snake		SE	G2	S2
Terrapene carolina carolina	Eastern Box Turtle		SSC	G5T5	S3
<b>Bird</b>					
Aimophila aestivalis	Bachman's Sparrow			G3	SXB
Ammodramus henslowii	Henslow's Sparrow		SE	G4	S3B
Ardea herodias	Great Blue Heron			G5	S4B
Bartramia longicauda	Upland Sandpiper		SE	G5	S3B
Circus cyaneus	Northern Harrier		SE	G5	S2
Cistothorus platensis	Sedge Wren		SE	G5	S3B
Dendroica cerulea	Cerulean Warbler		SE	G4	S3B
Haliaeetus leucocephalus	Bald Eagle	LT,PDL	SSC	G5	S2
Helmitheros vermivorus	Worm-eating Warbler		SSC	G5	S3B
Ixobrychus exilis	Least Bittern		SE	G5	S3B
Nycticorax nycticorax	Black-crowned Night-heron		SE	G5	S1B
Rallus elegans	King Rail		SE	G4	S1B
Rallus limicola	Virginia Rail		SE	G5	S3B
Tyto alba	Barn Owl		SE	G5	S2
Wilsonia citrina	Hooded Warbler		SSC	G5	S3B
<b>Mammal</b>					
Lasiurus borealis	Eastern Red Bat		SSC	G5	S4
Mustela nivalis	Least Weasel		SSC	G5	S2?
Myotis lucifugus	Little Brown Bat		SSC	G5	S4
Myotis septentrionalis	Northern Myotis		SSC	G4	S3
Myotis sodalis	Indiana Bat or Social Myotis	LE	SE	G2	S1

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**Indiana County Endangered, Threatened and Rare Species List**

**County: Johnson**

Species Name	Common Name	FED	STATE	GRANK	SRANK
Nycticeius humeralis	Evening Bat		SE	G5	S1
Pipistrellus subflavus	Eastern Pipistrelle		SSC	G5	S4
Taxidea taxus	American Badger		SSC	G5	S2
<b>Vascular Plant</b>					
Azolla caroliniana	Carolina Mosquito-fern		ST	G5	S2
Chelone obliqua var. speciosa	Rose Turtlehead		WL	G4T3	S3
Juglans cinerea	Butternut		WL	G4	S3
Zannichellia palustris	Horned Pondweed		SR	G5	S2
<b>High Quality Natural Community</b>					
Forest - floodplain wet-mesic	Wet-mesic Floodplain Forest		SG	G3?	S3
Wetland - seep circumneutral	Circumneutral Seep		SG	GU	S1

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**Indiana County Endangered, Threatened and Rare Species List**

**County: Bartholomew**

Species Name	Common Name	FED	STATE	GRANK	SRANK
<b>Mollusk: Bivalvia (Mussels)</b>					
Cyprogenia stegaria	Eastern Fanshell Pearlymussel	LE	SE	G1Q	S1
Epioblasma torulosa rangiana	Northern Riffleshell	LE	SE	G2T2	SX
Epioblasma triquetra	Snuffbox	LE	SE	G3	S1
Lampsilis fasciola	Wavyrayed Lampmussel		SSC	G5	S3
Obovaria subrotunda	Round Hickorynut		SSC	G4	S1
Pleurobema clava	Clubshell	LE	SE	G2	S1
Pleurobema rubrum	Pyramid Pigtoe		SE	G2G3	SX
Ptychobranhus fasciolaris	Kidneyshell		SSC	G4G5	S2
Quadrula cylindrica cylindrica	Rabbitsfoot	C	SE	G3G4T3	S1
Toxolasma lividus	Purple Lilliput		SSC	G3	S2
Villosa fabalis	Rayed Bean	LE	SSC	G2	S1
Villosa lienosa	Little Spectaclecase		SSC	G5	S3
<b>Reptile</b>					
Clonophis kirtlandii	Kirtland's Snake		SE	G2	S2
<b>Bird</b>					
Aimophila aestivalis	Bachman's Sparrow			G3	SXB
Ammodramus henslowii	Henslow's Sparrow		SE	G4	S3B
Ardea herodias	Great Blue Heron			G5	S4B
Buteo lineatus	Red-shouldered Hawk		SSC	G5	S3
Cistothorus platensis	Sedge Wren		SE	G5	S3B
Falco peregrinus	Peregrine Falcon	No Status	SE	G4	S2B
Haliaeetus leucocephalus	Bald Eagle	LT,PDL	SSC	G5	S2
Helmitheros vermivorus	Worm-eating Warbler		SSC	G5	S3B
Mniotilta varia	Black-and-white Warbler		SSC	G5	S1S2B
Nycticorax nycticorax	Black-crowned Night-heron		SE	G5	S1B
Tyto alba	Barn Owl		SE	G5	S2
Wilsonia citrina	Hooded Warbler		SSC	G5	S3B
<b>Mammal</b>					
Lasiurus borealis	Eastern Red Bat		SSC	G5	S4
Lasiurus cinereus	Hoary Bat	No Status	SSC	G5	S4
Mustela nivalis	Least Weasel		SSC	G5	S2?
Myotis lucifugus	Little Brown Bat		SSC	G5	S4
Myotis septentrionalis	Northern Myotis		SSC	G4	S3
Myotis sodalis	Indiana Bat or Social Myotis	LE	SE	G2	S1
Nycticeius humeralis	Evening Bat		SE	G5	S1
Pipistrellus subflavus	Eastern Pipistrelle		SSC	G5	S4
Taxidea taxus	American Badger		SSC	G5	S2
<b>Vascular Plant</b>					
Arabis patens	Spreading Rockcress		SE	G3	S1

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**Indiana County Endangered, Threatened and Rare Species List**

**County: Bartholomew**

Species Name	Common Name	FED	STATE	GRANK	SRANK
Carex straminea	Straw Sedge		ST	G5	S2
Crataegus prona	Illinois Hawthorn		SE	G4G5	S1
Juglans cinerea	Butternut		WL	G4	S3
Liatris pycnostachya	Cattail Gay-feather		ST	G5	S2
Oenothera perennis	Small Sundrops		SR	G5	S2
Panax quinquefolius	American Ginseng		WL	G3G4	S3
Panicum bicknellii	A Panic-grass		SE	G4?Q	S1
Penstemon canescens	Gray Beardtongue		SE	G4	S2
Schoenoplectus smithii	Smith's Bulrush		SE	G5?	S1
Sparganium angrocladum	Branching Bur-reed		ST	G4G5	S2
Spiranthes ochroleuca	Yellow Nodding Ladies'-tresses		ST	G4	S2
<b>High Quality Natural Community</b>					
Forest - flatwoods bluegrass till plain	Bluegrass Till Plain Flatwoods		SG	G3	S2
Forest - upland dry	Dry Upland Forest		SG	G4	S4
Forest - upland dry-mesic	Dry-mesic Upland Forest		SG	G4	S4
Forest - upland mesic	Mesic Upland Forest		SG	G3?	S3
<b>Other</b>					
Geomorphic - Nonglacial Erosional Feature - Water Fall and Cascade	Water Fall and Cascade			GNR	SNR

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Indiana County Endangered, Threatened and Rare Species List

County: Jackson

Species Name	Common Name	FED	STATE	GRANK	SRANK
<b>Mollusk: Bivalvia (Mussels)</b>					
Cyprogenia stegaria	Eastern Fanshell Pearlymussel	LE	SE	G1Q	S1
Epioblasma torulosa torulosa	Tubercled Blossom	LE	SE	G2TX	SX
Lampsilis fasciola	Wavyrayed Lampmussel		SSC	G5	S3
Obovaria subrotunda	Round Hickorynut		SSC	G4	S1
Pleurobema clava	Clubshell	LE	SE	G2	S1
Pleurobema cordatum	Ohio Pigtoe		SSC	G4	S2
Pleurobema plenum	Rough Pigtoe	LE	SE	G1	S1
Pleurobema rubrum	Pyramid Pigtoe		SE	G2G3	SX
Ptychobranhus fasciolaris	Kidneyshell		SSC	G4G5	S2
Quadrula cylindrica cylindrica	Rabbitsfoot	C	SE	G3G4T3	S1
Villosa lienosa	Little Spectaclecase		SSC	G5	S3
<b>Insect: Odonata (Dragonflies &amp; Damselflies)</b>					
Epiheca canis	Beaverpond Baskettail		SE	G5	S1
<b>Fish</b>					
Notropis ariommus	Popeye Shiner		SX	G3	SX
<b>Amphibian</b>					
Hemidactylium scutatum	Four-toed Salamander		SSC	G5	S2
Rana pipiens	Northern Leopard Frog		SSC	G5	S2
<b>Reptile</b>					
Clonophis kirtlandii	Kirtland's Snake		SE	G2	S2
Crotalus horridus	Timber Rattlesnake		SE	G4	S2
Kinosternon subrubrum subrubrum	Eastern Mud Turtle		SE	G5T5	S2
Nerodia erythrogaster neglecta	Copperbelly Water Snake	PS:LT	SE	G5T3	S2
Opheodrys aestivus	Rough Green Snake		SSC	G5	S3
Terrapene carolina carolina	Eastern Box Turtle		SSC	G5T5	S3
<b>Bird</b>					
Accipiter striatus	Sharp-shinned Hawk	No Status	SSC	G5	S2B
Aimophila aestivalis	Bachman's Sparrow			G3	SXB
Ammodramus henslowii	Henslow's Sparrow		SE	G4	S3B
Ardea alba	Great Egret		SSC	G5	S1B
Ardea herodias	Great Blue Heron			G5	S4B
Bartramia longicauda	Upland Sandpiper		SE	G5	S3B
Buteo lineatus	Red-shouldered Hawk		SSC	G5	S3
Buteo platypterus	Broad-winged Hawk	No Status	SSC	G5	S3B
Certhia americana	Brown Creeper			G5	S2B
Cistothorus palustris	Marsh Wren		SE	G5	S3B
Cistothorus platensis	Sedge Wren		SE	G5	S3B
Coragyps atratus	Black Vulture			G5	S1N,S2B
Dendroica cerulea	Cerulean Warbler		SE	G4	S3B

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Indiana County Endangered, Threatened and Rare Species List

County: Jackson

Species Name	Common Name	FED	STATE	GRANK	SRANK
<i>Haliaeetus leucocephalus</i>	Bald Eagle	LT,PDL	SSC	G5	S2
<i>Helmitheros vermivorus</i>	Worm-eating Warbler		SSC	G5	S3B
<i>Ixobrychus exilis</i>	Least Bittern		SE	G5	S3B
<i>Lanius ludovicianus</i>	Loggerhead Shrike	No Status	SE	G4	S3B
<i>Mniotilta varia</i>	Black-and-white Warbler		SSC	G5	S1S2B
<i>Nyctanassa violacea</i>	Yellow-crowned Night-heron		SE	G5	S2B
<i>Pandion haliaetus</i>	Osprey		SE	G5	S1B
<i>Rallus elegans</i>	King Rail		SE	G4	S1B
<i>Tyto alba</i>	Barn Owl		SE	G5	S2
<i>Wilsonia citrina</i>	Hooded Warbler		SSC	G5	S3B
<b>Mammal</b>					
<i>Myotis sodalis</i>	Indiana Bat or Social Myotis	LE	SE	G2	S1
<i>Nycticeius humeralis</i>	Evening Bat		SE	G5	S1
<i>Taxidea taxus</i>	American Badger		SSC	G5	S2
<b>Vascular Plant</b>					
<i>Acalypha deamii</i>	Mercury		SR	G4?	S2
<i>Cabomba caroliniana</i>	Carolina Fanwort		SX	G3G5	SX
<i>Carex atlantica</i> ssp. <i>atlantica</i>	Atlantic Sedge		ST	G5T4	S2
<i>Carex seorsa</i>	Weak Stellate Sedge		SR	G4	S2
<i>Epilobium ciliatum</i>	Hairy Willow-herb		SX	G5	SX
<i>Hydrastis canadensis</i>	Golden Seal		WL	G4	S3
<i>Juglans cinerea</i>	Butternut		WL	G4	S3
<i>Magnolia acuminata</i>	Cucumber Magnolia		SE	G5	S1
<i>Mikania scandens</i>	Climbing Hempweed		SE	G5	S1
<i>Najas gracillima</i>	Thread-like Naiad		ST	G5?	S1
<i>Panax quinquefolius</i>	American Ginseng		WL	G3G4	S3
<i>Panicum bicknellii</i>	A Panic-grass		SE	G4?Q	S1
<i>Platanthera flava</i> var. <i>flava</i>	Southern Rein Orchid		SE	G4?T4?Q	S1
<i>Poa paludigena</i>	Bog Bluegrass		WL	G3	S3
<i>Rubus alumnus</i>	A Bramble		SX	G5	SX
<i>Rubus centralis</i>	Illinois Blackberry		SE	G2?Q	S1
<i>Rubus odoratus</i>	Purple Flowering Raspberry		ST	G5	S2
<b>High Quality Natural Community</b>					
Barrens - bedrock siltstone	Siltstone Glade		SG	G2	S2
Forest - floodplain mesic	Mesic Floodplain Forest		SG	G3?	S1
Forest - floodplain wet	Wet Floodplain Forest		SG	G3?	S3
Forest - floodplain wet-mesic	Wet-mesic Floodplain Forest		SG	G3?	S3
Forest - upland dry-mesic	Dry-mesic Upland Forest		SG	G4	S4
Forest - upland mesic	Mesic Upland Forest		SG	G3?	S3
Wetland - seep acid	Acid Seep		SG	GU	S1

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## Indiana County Endangered, Threatened and Rare Species List

**County: Jackson**

Species Name	Common Name	FED	STATE	GRANK	SRANK
<b>Other Significant Feature</b>					
Geomorphic - Nonglacial Erosional Feature - Water Fall and Cascade	Water Fall and Cascade			GNR	SNR

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**Indiana County Endangered, Threatened and Rare Species List**

**County: Scott**

Species Name	Common Name	FED	STATE	GRANK	SRANK
<b>Mollusk: Bivalvia (Mussels)</b>					
Villosa lienosa	Little Spectaclecase		SSC	G5	S3
<b>Insect: Lepidoptera (Butterflies &amp; Moths)</b>					
Artogeia virginiensis	West Virginia White		SR	G3G4	S3
<b>Amphibian</b>					
Ambystoma barbouri	Streamside Salamander			G4	S3
<b>Reptile</b>					
Nerodia erythrogaster neglecta	Copperbelly Water Snake	PS:LT	SE	G5T3	S2
Ophedrys aestivus	Rough Green Snake		SSC	G5	S3
<b>Bird</b>					
Ammodramus henslowii	Henslow's Sparrow		SE	G4	S3B
Buteo lineatus	Red-shouldered Hawk		SSC	G5	S3
Haliaeetus leucocephalus	Bald Eagle	LT,PDL	SSC	G5	S2
Helmitheros vermivorus	Worm-eating Warbler		SSC	G5	S3B
<b>Mammal</b>					
Myotis sodalis	Indiana Bat or Social Myotis	LE	SE	G2	S1
<b>Vascular Plant</b>					
Calamagrostis porteri ssp. insperata	Reed Bent Grass		ST	G4T3	S1
Carex straminea	Straw Sedge		ST	G5	S2
Dentaria multifida	Divided Toothwort		SE	G4?	S1
Euphorbia obtusata	Bluntleaf Spurge		SE	G5	S1
Hottonia inflata	Featherfoil		ST	G4	S2
Najas gracillima	Thread-like Naiad		ST	G5?	S1
Penstemon deamii	Deam Beardtongue		SR	G1	S1
Platanthera flava var. flava	Southern Rein Orchid		SE	G4?T4?Q	S1
Platanthera lacera	Green-fringe Orchis		WL	G5	S3
Scirpus purshianus	Weakstalk Bulrush		SR	G4G5	S1
Solidago squarrosa	Stout-ragged Goldenrod		SE	G4?	S1
Spiranthes vernalis	Grassleaf Ladies'-tresses		WL	G5	S2
<b>High Quality Natural Community</b>					
Forest - upland dry	Dry Upland Forest		SG	G4	S4
Forest - upland dry-mesic	Dry-mesic Upland Forest		SG	G4	S4
Forest - upland mesic	Mesic Upland Forest		SG	G3?	S3

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Indiana County Endangered, Threatened and Rare Species List

County: Clark

Species Name	Common Name	FED	STATE	GRANK	SRANK
<b>Platyhelminthes (Flatworms)</b>					
Sphalloplana weingartneri	Weingartner's Cave Flatworm		WL	G4	S4
<b>Diplopoda</b>					
Pseudotremia nefanda	Clark Cave Millepede		SE	G3G4	S2
<b>Dipluran</b>					
Campodea plusiochaeta	A Dipluran		SE	GNR	S1
<b>Crustacean: Malacostraca</b>					
Crangonyx packardi	Packard's Cave Amphipod		WL	G4	S4
Gammarus bousfieldi	Bousfield's spring amphipod		SE	G1	S1
Stygobromus mackini	Mackin's cave amphipod		SE	G5	S1
Synurella dentata	Dentate amphipod		WL	GNR	S4
<b>Mollusk: Bivalvia (Mussels)</b>					
Fusconaia subrotunda	Longsolid		SE	G3	SX
Lampsilis fasciola	Wavyrayed Lampmussel		SSC	G5	S3
Potamilus capax	Fat Pocketbook	LE	SE	G1G2	S1
Villosa lienosa	Little Spectaclecase		SSC	G5	S3
<b>Mollusk: Gastropoda</b>					
Fontigens cryptica	Hidden Springs Snail		SE	G1	S1
<b>Ellipluran: Collembola</b>					
Pseudosinella fonsa	Fountain Cave Springtail		ST	G3G4	S2
Sinella alata	Springtail		WL	G5	S4
Sinella cavernarum	A Springtail		WL	G5	S4
<b>Insect: Coleoptera (Beetles)</b>					
Aleochara lucifuga	Rove beetle		WL	GNR	S4
Atheta annexa	Rove beetle		WL	G4	S4
Batrisodes krekeri	Krekeler's cave ant beetle		SE	G1	S1
Dryobius sexnotatus	Six-banded Longhorn Beetle		ST	GNR	SNR
Pseudanophthalmus barri	Cave Beetle		SE	G1G2	S1
<b>Insect: Lepidoptera (Butterflies &amp; Moths)</b>					
Artogeia virginienensis	West Virginia White		SR	G3G4	S3
Celastrina nigra	Sooty Azure		ST	G4	S2
<b>Arachnida</b>					
Dolomedes scriptus	Lined Nursery Web Spider			GNR	S1?
Dolomedes vittatus	Nursery Web Spider			GNR	S1
<b>Fish</b>					
Acipenser fulvescens	Lake Sturgeon		SE	G3G4	S1
Etheostoma variatum	Variagate Darter		SE	G5	S1
<b>Amphibian</b>					
Acris crepitans blanchardi	Northern Cricket Frog		SSC	G5	S4

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Indiana County Endangered, Threatened and Rare Species List

County: Clark

Species Name	Common Name	FED	STATE	GRANK	SRANK
<i>Cryptobranchus alleganiensis alleganiensis</i>	Eastern Hellbender		SE	G3G4T3T4	S1
<b>Reptile</b>					
<i>Clonophis kirtlandii</i>	Kirtland's Snake		SE	G2	S2
<i>Crotalus horridus</i>	Timber Rattlesnake		SE	G4	S2
<i>Opheodrys aestivus</i>	Rough Green Snake		SSC	G5	S3
<i>Tantilla coronata</i>	Southeastern Crowned Snake		SE	G5	S1
<i>Terrapene carolina carolina</i>	Eastern Box Turtle		SSC	G5T5	S3
<b>Bird</b>					
<i>Aimophila aestivalis</i>	Bachman's Sparrow			G3	SXB
<i>Ammodramus henslowii</i>	Henslow's Sparrow		SE	G4	S3B
<i>Coragyps atratus</i>	Black Vulture			G5	S1N,S2B
<i>Dendroica cerulea</i>	Cerulean Warbler		SE	G4	S3B
<i>Helmitheros vermivorus</i>	Worm-eating Warbler		SSC	G5	S3B
<i>Lanius ludovicianus</i>	Loggerhead Shrike	No Status	SE	G4	S3B
<i>Nycticorax nycticorax</i>	Black-crowned Night-heron		SE	G5	S1B
<i>Tyto alba</i>	Barn Owl		SE	G5	S2
<b>Mammal</b>					
<i>Mustela nivalis</i>	Least Weasel			SSC G5	S2?
<i>Myotis grisescens</i>	Gray Bat	LE	SE	G3	S1
<i>Myotis sodalis</i>	Indiana Bat or Social Myotis	LE	SE	G2	S1
<i>Taxidea taxus</i>	American Badger			SSC G5	S2
<b>Vascular Plant</b>					
<i>Acalypha deamii</i>	Mercury		SR	G4?	S2
<i>Asclepias viridis</i>	Green Milkweed		SE	G4G5	S1
<i>Asplenium resiliens</i>	Black-stem Spleenwort		SE	G5	S1
<i>Asplenium ruta-muraria</i>	Wallrue Spleenwort		SR	G5	S2
<i>Aster schreberi</i>	Schreber Aster		SE	G4	S1
<i>Azolla caroliniana</i>	Carolina Mosquito-fern		ST	G5	S2
<i>Calamagrostis porteri ssp. insperata</i>	Reed Bent Grass		ST	G4T3	S1
<i>Carex eburnea</i>	Ebony Sedge		SR	G5	S2
<i>Carex straminea</i>	Straw Sedge		ST	G5	S2
<i>Chaerophyllum procumbens var. shortii</i>	Wild Chervil		ST	G5T3T4Q	S1
<i>Cirsium carolinianum</i>	Carolina Thistle		SR	G5	S2
<i>Cuscuta indecora</i>	Pretty Dodder		SE	G5	S1
<i>Eleocharis bifida</i>	Glades spikerush		SE	G3G4	S1
<i>Euphorbia obtusata</i>	Bluntleaf Spurge		SE	G5	S1
<i>Gonolobus obliquus</i>	Angle Pod		SR	G4?	S2
<i>Heliotropium tenellum</i>	Slender Heliotrope		ST	G5	S2
<i>Hexalectris spicata</i>	Crested Coralroot		SR	G5	S2
<i>Hottonia inflata</i>	Featherfoil		ST	G4	S2

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Indiana County Endangered, Threatened and Rare Species List

County: Clark

Species Name	Common Name	FED	STATE	GRANK	SRANK
Iresine rhizomatosa	Eastern Bloodleaf		SR	G5	S2
Isoetes engelmannii	Appalachian Quillwort		SE	G4	S1
Lathyrus venosus	Smooth Veiny Pea		ST	G5	S2
Leavenworthia uniflora	Michaux Leavenworthia		SE	G4	S1
Lechea racemulosa	Illinois Pinweed		SE	G5	S1
Linum sulcatum	Grooved Yellow Flax		SR	G5	S2
Ludwigia decurrens	Primrose Willow		WL	G5	S2
Magnolia acuminata	Cucumber Magnolia		SE	G5	S1
Melica nitens	Three-flower Melic Grass		ST	G5	S2
Melothria pendula	Creeping Cucumber		SE	G5?	S1
Ophioglossum engelmannii	Limestone Adder's-tongue		SR	G5	S2
Oxalis illinoensis	Illinois Woodsorrel		WL	G4Q	S2
Panicum bicknellii	A Panic-grass		SE	G4?Q	S1
Passiflora incarnata	Purple Passion-flower		SR	G5	S2
Penstemon deamii	Deam Beardtongue		SR	G1	S1
Phlox amplifolia	Large-leaved Phlox		SR	G3G5	S2
Polypodium polypodioides	Resurrection Fern		SR	G5	S2
Rhexia mariana var. mariana	Maryland Meadow Beauty		ST	G5T5	S1
Rubus centralis	Illinois Blackberry		SE	G2?Q	S1
Satureja glabella var. angustifolia	Calamint		SE	G5	S1
Scutellaria parvula var. australis	Southern Skullcap		WL	G4T4?	S2
Sedum telephioides	Allegheny Stonecrop		SR	G4	S2
Solidago squarrosa	Stout-ragged Goldenrod		SE	G4?	S1
Spiranthes magnicamporum	Great Plains Ladies'-tresses		SE	G4	S1
Stachys clingmanii	Clingman Hedge-nettle		SE	G2	S1
Strophostyles leiosperma	Slick-seed Wild-bean		ST	G5	S2
Sullivantia sullivantii	Sullivantia		ST	G4	S2
Thalictrum pubescens	Tall Meadowrue		ST	G5	S2
Tragia cordata	Heart-leaved Noseburn		WL	G4	S2
Trifolium reflexum var. glabrum	Buffalo Clover		SE	G5T2T4Q	S1
Trifolium stoloniferum	Running Buffalo Clover	LE	SE	G3	S1
Valerianella chenopodiifolia	Goose-foot Corn-salad		SE	G5	S1
Viburnum molle	Softleaf Arrow-wood		SR	G5	S2
Viola hirsutula	Southern Wood Violet		SX	G4	SX
<b>High Quality Natural Community</b>					
Barrens - bedrock limestone	Limestone Glade		SG	G4	S2S3
Barrens - bedrock siltstone	Siltstone Glade		SG	G2	S2
Forest - upland dry	Dry Upland Forest		SG	G4	S4
Forest - upland dry-mesic	Dry-mesic Upland Forest		SG	G4	S4
Forest - upland mesic	Mesic Upland Forest		SG	G3?	S3

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## Indiana County Endangered, Threatened and Rare Species List

**County: Clark**

Species Name	Common Name	FED	STATE	GRANK	SRANK
<b>Other</b>					
Geomorphic - Nonglacial Erosional Feature - Water Fall and Cascade	Water Fall and Cascade			GNR	SNR

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						Habitat	E	H	F	X
Jackson	Mammals	<i>Corynorhinus rafinesquii</i>	Rafinesque's Big-eared Bat	S / SOMC	G3G4 / S3	29	1	2	0	0
		<del>This bat uses a variety of sites for roosting including caves, protected sites along clifflines, large, hollow trees, old mine portals, abandoned tunnels, cisterns, old or seldom used buildings, etc.</del>								
Jackson	Mammals	<i>Corynorhinus townsendii virginianus</i>	Virginia Big-eared Bat	E / LE	G4T2 / S1	14	0	0	0	0
		<del>This bat is a cave dwelling species that has been seldom reported anywhere but in a cave or rock shelter. The species also uses small rockhouses and other protected sites along clifflines, especially for summer roosting and maternity sites.</del>								
Jackson	Mammals	<i>Myotis leibii</i>	Eastern Small-footed Myotis	T / SOMC	G1G3 / S2	9	0	0	0	0
		<del>These bats use a wide variety of habitats for roosting. They occur in caves, mines, protected sites along clifflines, abandoned buildings, and are occasionally found roosting under rocks on the ground or on the floors of caves. Summer habitat is currently unknown, but may be similar sites.</del>								
Jackson	Mammals	<i>Myotis sodalis</i>	Indiana Bat	E / LE	G2 / S1S2	15	0	3	0	0
		<del>Primarily use caves for hibernacula, although they are occasionally found in old mine portals. During summer, colonies are found behind slabs of exfoliating bark of dead trees, often in bottomland or floodplain habitats, but also in upland situations.</del>								
Jackson	Communities	<i>Appalachian mesophytic forest</i>		N /	GNR / S4S5	6	0	0	0	1
Jackson	Communities	<i>Appalachian pine-oak forest</i>		N /	GNR / S5	1	0	0	0	0
Jackson	Communities	<i>Appalachian seep/bog</i>		T /	GNR / S1S2	7	0	0	0	0
Jackson	Communities	<i>Appalachian sub-xeric forest</i>		N /	GNR / S5	1	0	0	0	0
Jackson	Communities	<i>Cumberland Plateau gravel/cobble bar</i>		E /	GNR / S1S2	4	0	0	0	0
Jackson	Communities	<i>Cumberland Plateau sandstone glade</i>		E /	GNR / S1	3	0	0	0	0
Jackson	Communities	<i>Hemlock mixed forest</i>		N /	GNR / S4S5	4	0	0	0	0
Jackson	Communities	<i>Xeric Virginia pine forest/woodland</i>		N /	GNR / S5	1	0	0	0	0
Jefferson	Vascular Plants	<i>Aristida ramosissima</i>	Branched Three-awn Grass	H /	G5 / SH	0	1	0	0	0
		Dry prairies, glades, sterile or open clayey soil.								
Jefferson	Vascular Plants	<i>Cabomba caroliniana</i>	Carolina Fanwort	T /	G3G5 / S2	0	1	0	1	0
		Swamps, ponds and quiet streams.								
Jefferson	Vascular Plants	<i>Castanea pumila</i>	Allegheny Chinkapin	T /	G5 / S2	0	1	0	0	0
		Xeric forests and woodlands, generally in fire-maintained habitats (Weakley 1998); dry or moist acid soil (Gleason & Cronquist 1991).								
Jefferson	Vascular Plants	<i>Dryopteris carthusiana</i>	Spinulose Wood Fern	S /	G5 / S3	0	0	1	0	0
		Acidic, organic-rich bogs, swamps, less frequently in moist rocky ravines and rich forests WEAKLEY 1998).								
Jefferson	Vascular Plants	<i>Heteranthera dubia</i>	Grassleaf Mud-plantain	S /	G5 / S3	0	1	0	0	0
		Quiet waters of ponds and lakes, or streams.								
Jefferson	Vascular Plants	<i>Leavenworthia exigua var. laciniata</i>	Kentucky Gladecress	E / C	G4T1T2 / S1S2	11	0	2	0	0
		In full sun on flat-bedded outcrops of Silurian limestone or dolomite in shallow soils of glades, rock outcrops, pastures and lawns.								
Jefferson	Vascular Plants	<i>Podostemum ceratophyllum</i>	Threadfoot	S /	G5 / S3	0	1	0	0	0
		Swiftly flowing water, associated with good water quality.								
Jefferson	Vascular Plants	<i>Pontederia cordata</i>	Pickereel-weed	T /	G5 / S1S2	0	1	0	0	0
		Marshes and shallow water, sloughs, open swamps, and oxbow lakes.								

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						Habitat	E	H	F	X
Jefferson	Vascular Plants	<i>Potamogeton illinoensis</i>	Illinois Pondweed	S /	G5 / S2	0	1	0	0	0
		Calcareous waters of lower gradient streams, lakes, and ponds.								
Jefferson	Vascular Plants	<i>Sagittaria graminea</i>	Grassleaf Arrowhead	T /	G5 / S1S2	0	2	0	0	0
		Swamps, mud, or shallow water of lakeshores, ponds & sloughs.								
Jefferson	Vascular Plants	<i>Solidago shortii</i>	Short's Goldenrod	E / LE	G1 / S1	0	0	0	1	0
		Glades, wood edges, along old bison trace, old fields, and rock cuts along roads.								
Jefferson	Vascular Plants	<i>Stellaria longifolia</i>	Longleaf Stitchwort	S /	G5 / S2S3	1	0	0	0	0
		Wet woods and meadows.								
Jefferson	Vascular Plants	<i>Trichostema setaceum</i>	Narrowleaved Bluecurls	E /	G5 / S1	1	0	0	0	0
		Dry upland woods (oak-hickory), dry-moist old fields, and disturbed areas; also thin soils around rock outcrops and dry sandy soils of the coastal plain (Weakley 1998).								
Jefferson	Vascular Plants	<i>Trifolium stoloniferum</i>	Running Buffalo Clover	T / LE	G3 / S2S3	2	0	0	1	0
		Old trails, traces, and roads; grazed bottomlands, streambanks, lawns, shoals, and cemeteries with native vegetation, prairies, well-drained and mesic soils, and filtered to partial light.								
Jefferson	Vascular Plants	<i>Vallisneria americana</i>	Eelgrass	S /	G5 / S2S3	2	1	0	0	0
		Shallow quiet waters and shores.								
Jefferson	Vascular Plants	<i>Veratrum woodii</i>	Wood's Bunchflower	T /	G5 / S2	0	1	0	0	0
		Rich dry or mesic woods.								
Jefferson	Vascular Plants	<i>Viola septemloba var. egglestonii</i>	Eggleston's Violet	S /	G4 / S3	5	0	0	0	0
		Calcareous barrens, glades and dry prairies associated with silurean and Mississippian limestones.								
Jefferson	Vascular Plants	<i>Vitis labrusca</i>	Northern Fox Grape	T /	G5 / S2S3	0	1	0	0	0
		Mesic to wet woodland borders.								
Jefferson	Aquatic Snails	<i>Leptoxis praerosa</i>	Onyx Rocksnail	S / SOMC	G5 / S3S4	0	1	0	0	0
		Call (1895) indicated that in the Ohio River at the falls it occurred in the greatest profusion where the bottom is clean rock or rock with abundant "confervoid" vegetation.								
Jefferson	Aquatic Snails	<i>Lithasia verrucosa</i>	Varicose Rocksnail	S / SOMC	G4Q / S3S4	1	0	0	0	0
		Observations on the habitat include specimens taken from recently exposed bars and pools with sand, gravel, and rock substrates (Haag and Palmer-Ball, pers comm).								
Jefferson	Terrestrial Snails	<i>Webbhelix multilineata</i>	Striped Whitelip	T /	G5 / S1S2	1	0	0	0	0
		Low, wet places, in marshes, floodplains, meadows, and margins of lakes and ponds, under litter and drift (Hubricht 1985). In Kentucky, apparently it is now confined to the floodplains of the Ohio and Mississippi rivers.								
Jefferson	Freshwater Mussels	<i>Alasmidonta marginata</i>	Elktoe	T / SOMC	G4 / S2	0	0	0	1	0
		Occurs in large to medium size streams but more typical of smaller streams (Buchanan 1980, Goodrich and Van Der Schalie 1944, Oesch 1984, Parmalee 1967, Wilson and Clark 1914). Sometimes found in lakes connected to rivers. Parmalee (1967) reported the preferred habitat to be small streams with good current sand or gravel bottoms, and depth of								
Jefferson	Freshwater Mussels	<i>Cumberlandia monodonta</i>	Spectaclecase	E / LE	G3 / S1	0	0	0	1	0
		Usually found in medium to large rivers where it inhabits substrate ranging from silt to rubble and boulders in slow to swift currents of shallow to deep water (Ahlstedt 1984, Bogan and Parmalee 1983, Buchanan 1980, Nelson and Freitag 1980, Parmalee 1967). Sometimes found in or near vegetation beds, and in mud between boulders adjacent to swift water								
Jefferson	Freshwater Mussels	<i>Cyprogenia stegaria</i>	Fanshell	E / LE	G1Q / S1	0	0	0	1	0
		Medium to large streams and rivers with moderate to strong current in coarse sand and gravel and depth ranging from shallow to deep (Goodrich and Van Der Schalie 1944, Neel and Allen 1964, Parmalee 1967, Johnson 1980, Gordon and Layzer 1989).								

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Jefferson	Freshwater Mussels	<i>Epioblasma triquetra</i>	Snuffbox	E / LE	G3 / S1	0	0	0	1	0
		Occurs in medium-sized streams to large rivers generally on mud, rocky, gravel, or sand substrates in flowing water (Baker 1928, Buchanan 1980, Johnson 1978, Murraray and Leonard 1962, Parmalee 1967). Often deeply buried in substrate and overlooked by collectors.								
Jefferson	Freshwater Mussels	<i>Hemistena lata</i>	Cracking Pearlymussel	X / LE	G1 / SX	0	0	0	1	0
		Occurs in medium to large rivers in and on gravel shoals with swift current. Burrows deeply into mud, sand, and gravel substrates making this species difficult to collect (Ahlstedt 1984, Bogan and Parmalee 1983, Neel and Allen 1964, Wilson and Clark 1914).								
Jefferson	Freshwater Mussels	<i>Lampsilis abrupta</i>	Pink Mucket	E / LE	G2 / S1	0	1	0	0	0
		Large rivers in habitats ranging from silt to boulders, but apparently more commonly from gravel and cobble. Collected from shallow and deep water with current velocity ranging from zero to swift (Ahlstedt 1983, Bogan and Parmalee 1983, Buchanan 1980), but never standing pools of water (Lauritsen 1987).								
Jefferson	Freshwater Mussels	<i>Obovaria retusa</i>	Ring Pink	E / LE	G1 / S1	0	0	0	1	0
		Large river species that inhabits gravel and sand bars (Bogan and Parmalee 1983, Goodrich and Van Der Schalie 1944, Neel and Allen 1964, Stansbery 1976).								
Jefferson	Freshwater Mussels	<i>Plethobasus cooperianus</i>	Orangefoot Pimpleback	E / LE	G1 / S1	0	0	0	1	0
		Usually found in large rivers in sand and gravel substrates (Ahlstedt 1983, Bogan and Parmalee 1983, Miller, A.C. et al. 1986).								
Jefferson	Freshwater Mussels	<i>Plethobasus cyphus</i>	Sheepnose	E / LE	G3 / S1	1	1	0	0	0
		Usually found in large rivers in current on mud, sand, or gravel bottoms at depth of 1-2 meters or more (Baker 1928, Parmalee 1967, Gordon and Layzer 1989).								
Jefferson	Freshwater Mussels	<i>Pleurobema clava</i>	Clubshell	E / LE	G1G2 / S1	0	2	0	0	0
		This species is an inhabitant of small streams and rivers (Goodrich and Van Der Schalie 1944; Ortmann 1919,1925), although in Kentucky it is known from moderately large rivers. Often deeply buried in the substrate and consequently difficult to find (Watters 1987).								
Jefferson	Freshwater Mussels	<i>Pleurobema rubrum</i>	Pyramid Pigtoe	E / SOMC	G2G3 / S1	0	0	0	1	0
		Inhabits medium to large rivers and usually occurs in sand or gravel bottoms in deep waters (Ahlstedt 1984, Murray and Leonard 1962, Parmalee et al. 1982).								
Jefferson	Freshwater Mussels	<i>Potamilus capax</i>	Fat Pocketbook	E / LE	G2 / S1	0	1	0	0	0
		Occurs in medium to large-sized rivers often around island and back channels, and sometimes in ditches, in mud (ooze); mixed sand, mud, and clay; or fine silt and mud in flowing water at depths of a few inches up to eight feet (Parmalee 1967, Ahlstedt and Jenkinson 1987, Cummings and Mayer 1993, Cummings et al. 1990).								
Jefferson	Freshwater Mussels	<i>Quadrula cylindrica cylindrica</i>	Rabbitsfoot	T / PT	G3G4T3 / S2	0	0	0	1	0
		Small to large rivers with sand, gravel, and cobble and moderate to swift current, sometimes in deep water (Parmalee 1967, Bogan and Parmalee 1983).								
Jefferson	Freshwater Mussels	<i>Simpsonaias ambigua</i>	Salamander Mussel	T / SOMC	G3 / S2S3	1	1	0	0	0
		Often found buried in substrate such as soft mud and/or gravel, and/or under flat stones in shallow water in small streams where the current may be swift (Baker 1928, Buchanan 1980, Goodrich and Van Der Schalie 1944).								
Jefferson	Freshwater Mussels	<i>Villosa lienosa</i>	Little Spectaclecase	S /	G5 / S3S4	0	1	0	0	0
		Inhabits small to medium-sized rivers, usually in shallow water on a sand/mud/detritus bottom (Parmalee 1967, Gordon and Layzer 1989).								
Jefferson	Crustaceans	<i>Gammarus bousfieldi</i>	Bousfield's Amphipod	E / SOMC	G1 / S1	0	1	0	0	0
		Pools or areas with little current, deep mud-detritus bottoms, and beds of emergent vegetation (Cole and Minckley 1961).								
Jefferson	Crustaceans	<i>Orconectes jeffersoni</i>	Louisville Crayfish	E / SOMC	G1 / S1	12	9	0	0	0
		Flat cobble and boulder strewn streams; in bedrock streams it is dependent on fissures and cracks. In pools, large substrates are needed. It also uses trash and manmade retaining wall (Couch, personal communication, 2009). One of the overall limiting factors appears to be substrate availability (Z. Couch, personal communication, 2009).								
Jefferson	Insects	<i>Calephelis borealis</i>	Northern Metalmark	T /	G3G4 / S2	0	2	0	0	0
		Habitats are openings within forested or wooded areas. Such openings may be natural outcrops, shale or limestone barrens, glades or powerline right of ways. It is suspected but not known that females also move through the forest. Critical factors are lots of the larval foodplant (SENECIO OBOVATUS only so far as known) and nectar (such as orange milkweed,								

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Jefferson	Insects	<i>Nicrophorus americanus</i>	American Burying Beetle	X / LE	G2G3 / SX	0	0	0	1	0
		American burying beetles have been found in a variety of habitats, but the preferred habitat may be mature forests. Carrion availability, especially the appropriate physical size of carrion, in a given area is suspected to be more important than vegetational structure and soil types (Raithel 1991), but the soil must be conducive to burying carrion.								
Jefferson	Insects	<i>Pseudanophthalmus troglodytes</i>	Louisville Cave Beetle	T / C	G1 / S1	1	1	0	0	0
		Cave obligate. Wet wood and damp mud banks (Barr 1995).								
Jefferson	Insects	<i>Satyrium favonius ontario</i>	Northern Oak Hairstreak	S /	G4T4 / S2	0	0	1	0	0
		This species is found in woods or edges with evergreen or deciduous oaks (Opler and Malikul 1992). Main habitat requirements are black jack oak ( <i>Quercus marilandica</i> ) and a nectar source such as farkleberry ( <i>Vaccinium arboretum</i> ) or dogbane ( <i>Apocynum cannabinum</i> ) (L.D. Gibson pers comm).								
Jefferson	Insects	<i>Speyeria idalia</i>	Regal Fritillary	H / SOMC	G3 / SH	0	0	0	1	0
		Tall-grass prairie in midwest, but is found in other open grassy situations elsewhere. Damp meadows or pastures with boggy or marshy areas in the east, but dry mountain pastures are also selected in some areas. It is restricted to the Upper Austral and Transition life zones (Opler and Krizek 1984).								
Jefferson	Fishes	<i>Acipenser fulvescens</i>	Lake Sturgeon	E / SOMC	G3G4 / S1	0	1	0	0	0
		Lakes and large rivers with a firm sand/gravel bottom (Burr and Warren 1986, Etnier and Starnes 1993).								
Jefferson	Fishes	<i>Alosa alabamae</i>	Alabama Shad	E / SOMC	G3 / S1	0	1	0	0	0
		Anadromous species that ascends large rivers and tributaries to spawn over coarse sand and gravel swept by moderate current (Pflieger 1975, Smith 1979, Burr and Warren 1986, Barkuloo et al. 1993, Etnier and Starnes 1993).								
Jefferson	Fishes	<i>Atractosteus spatula</i>	Alligator Gar	E / SOMC	G3G4 / S1	0	1	0	0	0
		Sluggish pools and backwaters of large rivers, backwaters, and oxbow lakes (Burr and Warren 1986, Page and Burr 1991, Etnier and Starnes 1993).								
Jefferson	Fishes	<i>Ictiobus niger</i>	Black Buffalo	S /	G5 / S3	0	1	0	0	0
		Reservoirs and medium to large rivers with moderate to low gradient and sometime swift current (Becker 1983, Pflieger 1975, Smith 1979, Trautman 1981, and Burr and Warren 1986).								
Jefferson	Fishes	<i>Lota lota</i>	Burbot	S /	G5 / S2	1	1	0	0	0
		Kentucky specimens generally come from medium to large-size rivers. In the north, they inhabit cool, large and deep rivers and lakes (Becker 1983, Pflieger 1975, Scott and Crossman 1973, Smith 1979, Trautman 1981).								
Jefferson	Fishes	<i>Noturus stigmosus</i>	Northern Madtom	S / SOMC	G3 / S2S3	1	0	0	0	0
		Large streams and rivers in moderate to swift current over gravel and sand, and sometimes debris or pondweed for cover (Burr and Warren 1986, Etnier and Starnes 1993).								
Jefferson	Fishes	<i>Percopsis omiscomaycus</i>	Trout-perch	S / SOMC	G5 / S3	0	5	0	0	0
		Lives in clear, small to moderate-size streams in pools or raceways over clean sand or mixed sand and gravel bottoms.								
Jefferson	Reptiles	<i>Apalone mutica mutica</i>	Midland Smooth Softshell	S /	G5T5 / S3	1	0	0	0	0
		Open water habitats; Most numerous in open river situations with gravel or sand substrates, but also present in slower rivers and impoundments.								
Jefferson	Reptiles	<i>Clonophis kirtlandii</i>	Kirtland's Snake	T / SOMC	G2 / S2	19	5	0	0	1
		Moist meadows, edges, and open woods; Probably occurred formerly in prairie situations. Spends much of the year underground, using crayfish burrows. Can be found under logs, debris. Many recent records have been made in marginal habitat of suburban and urban areas where populations apparently persist in small tracts and corridors of grassy habitat, many								
Jefferson	Reptiles	<i>Nerodia erythrogaster neglecta</i>	Copperbelly Water Snake	S / SOMC	G5T3 / S3	0	1	0	0	0
		Floodplain sloughs, swamps, hardwood forest and adjacent uplands. Seems to do well in moist soils management units and other shallow water habitats. Seems to avoid wetlands impacted by acid mine drainage (Fide H. Bryan).								
Jefferson	Reptiles	<i>Ophisaurus attenuatus longicaudus</i>	Eastern Slender Glass Lizard	T /	G5T5 / S2	0	1	0	0	0
		This terrestrial lizard inhabits grassy fields, brushy areas, open woodlands, and seems to prefer drier, upland sites. Likely occurred in native grasslands, and remains most common in barrens type vegetation.								

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County	Taxonomic Group	Scientific name	Common name	Statuses	Ranks	# of Occurrences				
						Habitat	E	H	F	X
Jefferson	Breeding Birds	<i>Accipiter striatus</i>	Sharp-shinned Hawk	S /	G5 / S3B,S4N	1	0	0	0	0
		Forest and open woodland, coniferous, mixed, or deciduous, primarily in conif. In more northern and mountainous portion of range (B83COM01NA). Migrates through various habitats, mainly along ridges, lakeshores, & coastlines (B83NAT01NA).								
Jefferson	Breeding Birds	<i>Actitis macularia</i>	Spotted Sandpiper	E /	G5 / S1B	1	0	0	0	0
		Seacoasts and shores of lakes, ponds, and streams, sometimes in marshes; prefers shores with rocks, wood, or debris; also mangrove edges in Caribbean.								
Jefferson	Breeding Birds	<i>Aimophila aestivalis</i>	Bachman's Sparrow	E / SOMC	G3 / S1B	0	0	0	3	0
		Early successional areas with scattered saplings (often pines), bushes, or understory, brushy or overgrown hillsides, overgrown fields with thickets and brambles.								
Jefferson	Breeding Birds	<i>Ammodramus henslowii</i>	Henslow's Sparrow	S / SOMC	G4 / S3B	2	0	0	0	0
		Open fields & meadows with relatively thick/dense grass interspersed with weeds or shrubby vegetation.								
Jefferson	Breeding Birds	<i>Anas discors</i>	Blue-winged Teal	T /	G5 / S1S2B	0	1	0	1	0
		Marshes, ponds, sloughs, lakes and sluggish streams. In migration and when not breeding, in both freshwater and brackish situations (B83COM01NA).								
Jefferson	Breeding Birds	<i>Ardea alba</i>	Great Egret	T /	G5 / S2B	1	0	0	0	0
		Marshes, swampy woods, tidal estuaries, lagoons, mangroves, along streams, lakes, and ponds.								
Jefferson	Breeding Birds	<i>Botaurus lentiginosus</i>	American Bittern	H /	G4 / SHB	0	0	0	1	0
		Fresh water bogs, swamps, wet fields, cattail and bulrush marshes, brackish and saltwater marshes and meadows. May be area-dependent; in IA, not observed in marshes <11 HA (A86BRO01NA).								
Jefferson	Breeding Birds	<i>Bubulcus ibis</i>	Cattle Egret	S /	G5 / S1S2B	0	0	0	1	0
		Wet pastureland and marshes, fresh water and brackish situations, dry fields, garbage dumps. In W. Indies, roosts at night in mangrove swamps or on mangrove islands (B83RAF01NA).								
Jefferson	Breeding Birds	<i>Chondestes grammacus</i>	Lark Sparrow	T /	G5 / S2S3B	0	1	0	0	0
		Open situations with scattered bushes and trees, prairie, forest edge, cultivated areas, orchards, fields with bushy borders, and savanna (B83COM01NA).								
Jefferson	Breeding Birds	<i>Cistothorus platensis</i>	Sedge Wren	S /	G5 / S3B	1	0	0	0	0
		Grasslands and savanna, especially where wet or boggy, sedge marshes, locally in dry cultivated grainfields. In migration and winter also in brushy grasslands. (B83COM01NA)								
Jefferson	Breeding Birds	<i>Egretta caerulea</i>	Little Blue Heron	E /	G5 / S1B	0	0	0	1	0
		Marshes, ponds, lakes, meadows, streams, mangrove lagoons, and other bodies of calm shallow water; primarily in freshwater habitats.								
Jefferson	Breeding Birds	<i>Falco peregrinus</i>	Peregrine Falcon	E / SOMC	G4 / S1B	3	0	0	0	0
		Formerly restricted to cliffines for nest sites; now primarily found on large man-made structures, including power plants, industrial buildings, tall buildings, and bridges.								
Jefferson	Breeding Birds	<i>Haliaeetus leucocephalus</i>	Bald Eagle	T / Delisted	G5 / S2B,S2S3N	1	0	0	0	0
		Primarily associated with larger rivers and lakes although also occurs along medium sized stream floodplains. In winter, may associate with waterfowl concentrations or congregate in areas with abundant dead fish.								
Jefferson	Breeding Birds	<i>Ixobrychus exilis</i>	Least Bittern	T /	G5 / S1S2B	0	0	0	1	0
		Tall vegetation in marshes, primarily freshwater, less commonly in coastal brackish marshes and mangrove swamps. Preference for marshes with scattered bushes or other woody growth. Infrequently in marshes <5 ha in IA (A86BRO02NA).								
Jefferson	Breeding Birds	<i>Lophodytes cucullatus</i>	Hooded Merganser	T /	G5 / S1S2B,S3S4N	1	0	0	0	0
		Streams, lakes, swamps, marshes, and estuaries; winters mostly in freshwater but also regularly in estuaries and sheltered bays (B83COM01NA).								
Jefferson	Breeding Birds	<i>Nyctanassa violacea</i>	Yellow-crowned Night-heron	T /	G5 / S2B	2	0	0	3	0
		Marshes, swamps, lakes, lagoons, and mangroves.								

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						Habitat	E	H	F	X
Jefferson	Breeding Birds	<i>Nycticorax nycticorax</i>	Black-crowned Night-heron	T /	G5 / S1S2B	1	0	0	4	0
		Marshes, swamps, wooded streams, mangroves, shores of lakes, ponds, lagoons; salt water, brackish, and freshwater situations.								
Jefferson	Breeding Birds	<i>Pandion haliaetus</i>	Osprey	S /	G5 / S2S3B	1	0	0	0	0
		Primarily along rivers, lakes, and seacoasts, occurring widely in migration, often crossing land between bodies of water (B83COM01NA).								
Jefferson	Breeding Birds	<i>Passerculus sandwichensis</i>	Savannah Sparrow	S /	G5 / S2S3B,S2S3N	1	1	0	0	0
		Open areas, especially grasslands, tundra, meadows, bogs, farmlands, grassy areas with scattered bushes, and marshes, including salt marshes in the Beldingi and Rostratus Groups (subtropical and temperate zones) (B83COM01NA).								
Jefferson	Breeding Birds	<i>Phalacrocorax auritus</i>	Double-crested Cormorant	T /	G5 / S2B	1	0	0	0	0
		Lakes, rivers, swamps, and seacoasts.								
Jefferson	Breeding Birds	<i>Podilymbus podiceps</i>	Pied-billed Grebe	E /	G5 / S1B,S4N	0	0	0	1	0
		Lakes, ponds, sluggish streams, and marshes; also in brackish bays and estuaries in migration and when not breeding.								
Jefferson	Breeding Birds	<i>Rallus elegans</i>	King Rail	E /	G4 / S1B	0	1	0	1	0
		Freshwater marshes and swamps, locally in brackish marshes.								
Jefferson	Breeding Birds	<i>Riparia riparia</i>	Bank Swallow	S /	G5 / S3B	0	0	0	1	0
		Open and partly open situations, frequently near flowing water (B83COM01NA).								
Jefferson	Breeding Birds	<i>Sternula antillarum athalassos</i>	Interior Least Tern	T / LE	G4T2Q / S2B	0	1	0	0	0
		Bare or nearly bare alluvial islands or sand bars; will also use bare flats along the margin of industrial ponds.								
Jefferson	Breeding Birds	<i>Thryomanes bewickii</i>	Bewick's Wren	S / SOMC	G5 / S3B	0	2	0	0	0
		Brushy areas, thickets and scrub in open country, open and riparian woodland. Found in rural towns and farmsteads.								
Jefferson	Breeding Birds	<i>Tyto alba</i>	Barn Owl	S /	G5 / S3	2	1	0	0	0
		Open and partly open country in a wide variety of situations, often around human habitation (B83COM01NA). In northern winter often roosts in dense conifers; also roosts in nest boxes if available (A85MAR01NA).								
Jefferson	Mammals	<i>Myotis grisescens</i>	Gray Myotis	T / LE	G3 / S2	2	0	0	0	0
		Primarily use caves throughout the year, although they move from one cave to another seasonally. Males and young of the year use different caves in summer than females. Smaller colonies also occasionally roost under bridge structures.								
Jefferson	Mammals	<i>Myotis sodalis</i>	Indiana Bat	E / LE	G2 / S1S2	3	0	0	0	0
		Primarily use caves for hibernacula, although they are occasionally found in old mine portals. During summer, colonies are found behind slabs of exfoliating bark of dead trees, often in bottomland or floodplain habitats, but also in upland situations.								
Jefferson	Mammals	<i>Nycticeius humeralis</i>	Evening Bat	S /	G5 / S3	1	0	0	0	0
		The evening bat is a colonial species that roosts in trees and houses. It apparently migrates southward in winter.								
Jefferson	Communities	<i>Deep soil mesophytic forest</i>		N /	GNR / S3S4	1	0	0	0	0
Jessamine	<del>Vascular Plants</del>	<del><i>Deschampsia cespitosa</i></del>	<del>Tufted Hairgrass</del>	<del>E /</del>	<del>G5 / S1S2</del>	<del>2</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>
		<del>Rocky ledges on bluffs.</del>								
Jessamine	<del>Vascular Plants</del>	<del><i>Elymus svensonii</i></del>	<del>Svenson's Wildrye</del>	<del>T / SOMC</del>	<del>G3 / S2S3</del>	<del>7</del>	<del>0</del>	<del>0</del>	<del>0</del>	<del>0</del>
		<del>Limestone bluffs with shallow rocky soils, especially on rocky slopes and ledges; often found along stream and river corridors.</del>								