

2.6 Endangered and Threatened Species

The Indiana Natural Heritage Data Center, part of the Indiana DNR, maintains a database which provides information on the presence of endangered, threatened and rare species; high quality natural communities; and natural areas in Indiana. The database relies on observations from individuals rather than systematic field surveys. Due to this, not every occurrence is documented and it is not guaranteed that each listed species is present at this time or that the listed area is in pristine condition (JFNew, 2003).

The state of Indiana uses the following definitions to list species:

- *Endangered*: Any species whose prospects for survival or recruitment with the state are in immediate jeopardy and are in danger of disappearing from the state. This includes all species classified as endangered by the federal government which occur in Indiana. Plants currently known to occur on five or fewer sites in the state are considered endangered.
- *Threatened*: Any species likely to become endangered within the foreseeable future. This includes all species classified as threatened by the federal government which occur in Indiana. Plants currently known to occur on six to ten sites in the state are considered threatened.
- *Rare*: Plants and insects currently known to occur on from eleven to twenty sites.

On a state listing basis, 45 species which are listed in the Natural Heritage Database as state endangered have been observed within the watershed including:

- Mussels: Sheepnose
- Insects: Aethes patricia, Frosted Elfin, Cochyliis ringsi, and Ottoe Skipper
- Fish: Greater Redhorse
- Reptiles: Spotted Turtle, Blanding's Turtle, Eastern Mud Turtle, Smooth Green Snake, Eastern Massasauga, and Ornate Box Turtle
- Birds: Upland Sandpiper, Northern Harrier, Marsh Wren, Sedge Wren, Peregrine Falcon, Least Bittern, Loggerhead Shrike, Virginia Rail, and Golden-winged Warbler
- Mammals: Indiana Bat, Franklin's Ground Squirrel
- Vascular Plants: Bristly Sarsaparilla, Lake Cress, Hill's Thistle, Toothed Sedge, Small-fruited Spike-rush, Carolina Fimbry, Creeping St. John's-Wort, Brown-fruited Rush, Sand plain Flax, Globe-fruited False-loosestrife, Northern Bog Club moss, Sessile-leaved Bugleweed, Cutleaf Water-milfoil, Eastern Eulophus, Yellow-fringe Orchids, Prairie Parsley, Snail-seed Pondweed, Spotted Pondweed, Globe Beaked-rush, Torrey's Bulrush, Muhlenberg's Nutrush, Hidden-fruited Bladderwort, and Small Swollen Bladderwort.

Three amphibian species are listed as state species of special concern: Blue-spotted Salamander, Plains Leopard Frog, and Northern Leopard Frog. All three species have a G5 ranking, stating them to be widespread and abundant globally. The Plains Leopard Frog is ranked as S1 and to be critically imperiled in the state. The Blue-spotted Salamander and Northern Leopard Frog have an S2 ranking of being imperiled in the state.

Habitat preferences for the state listed species vary. Warm water temperatures, high turbidity, and loss of habitat can all impact fish and mussel diversity. Deforestation or forest fragmentation likely affect the peregrine falcon and Indiana bat species. These species require large hunting areas where dense forests are present and small stream corridors with well-developed riparian forests. The elimination of these habitats could result in the loss of roost and hunting habitat thus eliminating these species. Other listed species, including Franklin's ground squirrel (found within Newton County), eastern massasauga, smooth green snake, and several bird and vascular plant species rely on prairie habitat. Many live on the border between forested and prairie habitats hunting in one habitat and nesting in the other. The conversion of prairies and forests to agricultural and urban land uses could have resulted in the decline in these populations (WREC, 2010)

A 14 Year Study of Amphibian Populations and Metacommunities

A study of amphibian populations and metacommunities by Dr. Robert Brodman, of the Biology Department at Saint Joseph's College, Rensselaer, IN used data from 14 species of amphibian fauna in Jasper County to detect population and diversity trends. Hypotheses regarding the influence of landscape, climatic, and biotic factors on abundance, occupancy, and diversity were also tested. A total of 11,438 breeding populations were recorded in Jasper County from 1994-2007. An average of 339 sites with amphibian breeding activity and 817 populations were identified. A total of 630 wetland clusters and isolated wetlands were identified. Of these, 94.4% had at least one year with amphibian breeding activity and 81.3% had metacommunities with at least two coexisting species.

The 23 wetland clusters that exhibited the highest abundance were defined as megametacommunities. These megametacommunities are associated with several landscape variables with 78% including upland habitat identified by the IBI conservation tool as km² sections with greater than 50% cover by important native plants or core habitat for any of the six species designated for the region as umbrella wildlife species. This association with priority habitats is related to the stakeholder's concerns list, particularly in regards to protecting and creating healthy fish habitat. The megametacommunities are associated with all but two of the large areas in Jasper County that have large numbers of wetlands and important native plant or umbrella animal habitats. Figure 23 Amphibian Megametacommunities shows the location of the 23 megametacommunities. Wetland clusters and isolated wetlands are indicated by the blue, amphibian megametacommunities are indicated by the red circles, and IBI priority habitats are indicated by open squares. Yellow circles indicate areas with wetlands, and priority habitat, but no amphibian megametacommunities (Brodman, 2009).

Figure 23 Amphibian Megametacommunities

