

Wetland, Habitat and Trophic Response Guilds for Mammals, Birds, Reptiles, Amphibians, and Fishes in Indiana

Wetland, habitat and trophic response guilds were developed for all reasonable resident and migrant species occurring in Indiana based on a literature review and field experience. Rankings were coded so as to emphasize wildlife species and their sensitivity or tolerance to anthropogenic (man-made) disturbances in aquatic and terrestrial habitats. This database provides valuable information about the habitat, feeding, movement, status and sensitivity for adaptability of each species.

The categories used are shown in Table 1. They are: 1) wetland or aquatic dependency; 2) habitat specificity; 3) trophic level, 4) seasonality (birds only), and 5) species status. In addition, birds sensitive to forest and grassland (prairie) fragmentation, and tolerance levels for fishes are included for reference. Ranking of species in standardized guilds provides a way to compare structural and functional changes in wildlife communities affected by various types of environmental impacts.

This database of mammals, birds, reptiles, amphibians, and fishes occurring in Indiana includes a sample size of 606 species based on guild rankings (Tables 2-6). Results show about 47% of 57 mammals, 62% of 282 birds, 43 % of 53 reptiles, 100 % of 38 amphibians, and 100 % of 176 fishes could be categorized as being partially or fully dependent upon wetlands and/or associated aquatic habitats.

Of these 606 vertebrates, approximately 73% are fully or partially wetland dependent. In addition, 93 of 120 (78%) of the TES (including watch list species) are wetland dependent. Wetlands make up only 4-5% of the surface area of Indiana and such high occurrences of TES species for wetlands shows the value and importance of wetland habitats to Indiana's biota. The remaining 27 TES species may be categorized as grassland species (14), forest species (10), cave species (2), or reintroduced (1).

Reference: Brooks, R. P., and M. J. Croonquist. 1990. Wetland, habitat, and trophic response guilds for wildlife species in Pennsylvania. *J. Pa. Acad. Sci.* 64: 93-102.

Table 1. Ranking scores for response guilds of wildlife communities.

	Code
1. WETLAND DEPENDENCY	
obligate species (found >99% in wetlands)	5
facultative wet (57-99%, generally found in or near wetlands)	3
facultative (34-66%, occurs frequently, but not essential)	1
facultative dry (1-33%, occasional or no use)	0
upland (>99% in uplands)	0
2. HABITAT SPECIFICITY	
alpha species -- stenotypic, specialist (e.g., large tree cavity nester, clear water)	5
gamma species -- landscape dependent (e.g., undisturbed forest in Indiana, affected by changes in land use, wide-ranging)	3
beta species -- generalist, edge, disturbance	1
3. TROPHIC LEVEL	
carnivore, specialist (restricted diet)	5
carnivore, generalist	4
herbivore, specialist (e.g., nuts, nectar)	3
herbivore, generalist	2
omnivore (exists on either plants or animals)	1
4. SEASONALITY (birds only)	
breeding season resident/neotropical migrant	5
short-distance migrant	4
year round resident	3
non-breeding season resident only	2
migratory transient	1
occasional	0
5. SPECIES STATUS	
endangered, threatened, special concern, watch list, and endemic	5
commercial, recreational value	3
other native species	1
exotics	0

Table 2. Response guilds of Indiana mammals.

Species	Wet-dep ^a	Hab-spec ^b	Trophic ^c	Status
<i>Didelphis virginiana</i> Kerr, opossum	1	1	1	3
<i>Blarina brevicauda</i> (Say), short-tailed shrew	1	3	4	1
<i>Cryptotis parva</i> (Say), least shrew	1	3	4	1
<i>Sorex cinereus</i> Kerr, masked shrew	1	1	4	1
<i>S. fumeus</i> Miller, smoky shrew	1	3	4	5
<i>S. hoyi</i> Baird, pygmy shrew	1	3	4	5
<i>S. longirostris</i> Bachman, southeastern shrew	1	1	4	1
<i>Condylura cristata</i> (Rafinesque), star-nosed mole	5	5	4	5
<i>Scalopus aquaticus</i> (Linnaeus), eastern mole	0	1	4	1
<i>Eptesicus fuscus</i> (Beauvois), big brown bat	1	3	5	1
<i>Lasionycteris noctivagans</i> (Le Conte), silver-haired bat	1	3	5	1
<i>Lasiurus borealis</i> (Muller), red bat	1	3	5	1
<i>L. cinereus</i> (Beauvois), hoary bat	1	3	5	1
<i>Myotis austroriparius</i> (Rhoads), southeastern bat	1	3	5	5
<i>M. grisescens</i> (Howell), gray myotis	3	5	5	5
<i>M. lucifugus</i> (Le Conte), little brown myotis	1	3	5	1
<i>M. septentrionalis</i> Trouessart, Northern myotis	1	5	5	1
<i>M. sodalis</i> Miller and Allen, Indiana myotis	1	5	5	5
<i>Nycticeius humeralis</i> (Rafinesque), evening bat	1	5	5	5
<i>Pipistrellus subflavus</i> (Cuvier), eastern pipistrelle	1	3	5	1
<i>Corynorhinus rafinesquii</i> (Lesson), Rafinesque's big-eared bat	0	3	5	5
<i>Sylvilagus aquaticus</i> (Bachman), swamp rabbit	3	3	2	5
<i>S. floridanus</i> (Allen), cottontail rabbit	0	1	2	3
<i>Glaucomys volans</i> (Linnaeus), southern flying squirrel	0	5	3	1
<i>Marmota monax</i> (Linnaeus), woodchuck	0	3	3	3

Species	Wet-dep ^a	Hab-spec ^b	Trophic ^c	Status
<i>Sciurus carolinensis</i> Gmelin, gray squirrel	0	5	3	3
<i>S. niger</i> Linnaeus, fox squirrel	0	5	3	3
<i>Spermophilus franklinii</i> (Sabine), Franklin's ground squirrel	0	5	1	5
<i>S. tridecemlineatus</i> (Mitchill), thirteen-lined ground squirrel	0	3	1	1
<i>Tamias striatus</i> (Linnaeus), eastern chipmunk	0	1	1	1
<i>Tamiasciurus hudsonicus</i> (Erxleben), red squirrel	0	5	3	1
<i>Geomys bursarius</i> (Shaw), plains pocket gopher	0	3	3 (Grass)	1
<i>Castor canadensis</i> Kuhl, beaver	5	5	3	3
<i>Neotoma magister</i> (Baird), Allegheny woodrat	0	5	2	5
<i>Peromyscus leucopus</i> (Rafinesque), white-footed mouse	0	1	1	1
<i>P. maniculatus</i> (Wagner), deer mouse	0	3	1	1
<i>Reithrodontomys megalotis</i> (Baird), western harvest mouse	0	3	1	5
<i>Microtus ochrogaster</i> (Wagner), prairie vole	0	3	2	1
<i>M. pennsylvanicus</i> (Ord), meadow vole	1	3	2	1
<i>M. pinetorum</i> (Le Conte), woodland vole	0	1	2	1
<i>Ondatra zibethicus</i> (Linnaeus), muskrat	5	3	2	3
<i>Synaptomys cooperi</i> Baird, southern bog lemming	0	3	2	1
<i>Mus musculus</i> Linnaeus, house mouse	0	3	1	0
<i>Rattus norvegicus</i> (Berkenhout), Norway rat	0	1	1	0
<i>Zapus hudsonius</i> (Zimmermann), meadow jumping mouse	1	1	1	1
<i>Canis latrans</i> Say, coyote	0	1	1	3
<i>Urocyon cinereoargenteus</i> (Schreber), gray fox	0	3	1	3
<i>Vulpes vulpes</i> (Linnaeus), red fox	0	1	1	3
<i>Procyon lotor</i> (Linnaeus), raccoon	3	1	1	3
<i>Lutra canadensis</i> (Schreber), river otter	5	5	5	5
<i>Mustela frenata</i> Lichtenstein, long-tailed weasel	0	1	4	3
<i>M. nivalis</i> (Linnaeus), least weasel	0	3	4	5

Species	Wet-dep ^a	Hab-spec ^b	Trophic ^c	Status
<i>M. vison</i> Schreber, mink	5	3	4	3
<i>Taxidea taxus</i> (Schreber), badger	0	3	4	5
<i>Mephitis mephitis</i> (Schreber), striped skunk	0	1	1	3
<i>Lynx rufus</i> (Schreber), bobcat	0	3	4	5
<i>Odocoileus virginianus</i> (Zimmermann), white-tailed deer	0	1	2	3

^aWet-dep = Wetland dependence

^bHab-spec = Habitat specificity

^cTrophic = Trophic level

Reference: Mumford, Russell E. and John O. Whitaker, Jr. 1982. Mammals of Indiana. Indiana University Press, Bloomington, IN. 537 pp.

Table 3. Response guilds of Indiana birds.

Species	Wet-dep ^a	Hab-spec ^b	Trophic ^c	Season ^d	Status
<i>Gavia immer</i> (Brunnich), common loon	5	5	5	1	1
<i>G. stellata</i> (Pontoppidan), red-throated loon	5	3	5	1	1
<i>Podiceps auritus</i> (Linnaeus), horned grebe	5	1	4	1	1
<i>P. grisegena</i> (Boddaert), red-necked grebe	5	1	5	1	1
<i>Podilymbus podiceps</i> (Linnaeus), pied-billed grebe	5	1	4	4	1
<i>Pelecanus erythrorhynchos</i> Gmelin, American white pelican	5	3	4	1	1
<i>Phalacrocorax auritus</i> (Lesson), double-crested cormorant	5	1	5	4	1
<i>Ardea herodias</i> Linnaeus, great blue heron	5	5	4	3	5
<i>Botaurus lentiginosus</i> (Rackett), American bittern	5	3	4	5	5
<i>Bubulcus ibis</i> (Linnaeus), cattle egret	5	1	4	1	0
<i>Butorides virescens</i> (Linnaeus), green heron	5	3	4	4	1
<i>Ardea alba</i> (Linnaeus), great egret	5	5	4	4	5
<i>Egretta caerulea</i> (Linnaeus), little blue heron	5	3	4	1	5
<i>E. thula</i> (Molina), snowy egret	5	3	4	0	1
<i>E. tricolor</i> (Müller), tricolored heron	5	3	4	1	1
<i>Ixobrychus exilis</i> (Gmelin), least bittern	5	3	4	4	5
<i>Nyctanassa violacea</i> (Linnaeus), yellow-crowned night-heron	5	5	4	4	5
<i>Nycticorax nycticorax</i> (Linnaeus), black-crowned night-heron	5	5	4	4	5
<i>Eudocimus albus</i> (Linnaeus), white ibis	5	3	4	0	1
<i>P. falcinellus</i> (Linnaeus), glossy ibis	5	5	4	0	1
<i>Cathartes aura</i> (Linnaeus), turkey vulture	0	1	4	3	1
<i>Coragyps atratus</i> (Bechstein), black vulture	0	1	4	5	1
<i>Anser albifrons</i> (Scopoli), greater white-fronted goose	5	3	2	2	3
<i>Branta bernicla</i> (Linnaeus), brant	5	5	3	1	3
<i>B. canadensis</i> (Linnaeus), Canada goose	5	1	2	3	3
<i>Chen caerulescens</i> (Linnaeus), snow goose	5	3	2	2	3
<i>C. rossii</i> (Cassin), Ross's goose	5	3	2	2	3

Species	Wet-dep ^a	Hab-spec ^b	Trophic ^c	Season ^d	Status
<i>C. columbianus</i> (Ord), tundra swan	5	3	2	2	3
<i>C. olor</i> (Gmelin), mute swan	5	1	2	3	0
<i>Aix sponsa</i> (Linnaeus), wood duck	5	5	3	3	3
<i>Anas acuta</i> Linnaeus, northern pintail	5	1	2	2	3
<i>A. americana</i> Gmelin, American wigeon	5	3	1	2	3
<i>A. clypeata</i> Linnaeus, northern shoveler	5	1	1	1	3
<i>A. crecca</i> (Linnaeus), green-winged teal	5	3	2	2	3
<i>A. discors</i> Linnaeus, blue-winged teal**	5	3	1	5	3
<i>A. platyrhynchos</i> Linnaeus, mallard**	5	1	1	3	3
<i>A. rubripes</i> Brewster, American black duck	5	3	1	2	3
<i>A. strepera</i> Linnaeus, gadwall	5	3	1	2	3
<i>Aythya affinis</i> (Eyton), lesser scaup	5	3	4	2	3
<i>A. americana</i> (Eyton), redhead	5	3	2	1	3
<i>A. collaris</i> (Donovan), ring-necked duck	5	3	1	2	3
<i>A. marila</i> (Linnaeus), greater scaup	5	3	4	2	3
<i>A. valisineria</i> (Wilson), canvasback	5	5	3	1	3
<i>Bucephala albeola</i> (Linnaeus), bufflehead	5	3	4	2	3
<i>B. clangula</i> (Linnaeus), common goldeneye	5	5	1	2	3
<i>Clangula hyemalis</i> (Linnaeus), long-tailed duck	5	3	4	2	3
<i>Lophodytes cucullatus</i> (Linnaeus), hooded merganser	5	5	4	3	3
<i>Melanitta fusca</i> (Linnaeus), white-winged scoter	5	3	4	1	3
<i>M. nigra</i> (Linnaeus), black scoter	5	3	4	1	3
<i>M. perspicillata</i> (Linnaeus), surf scoter	5	3	4	1	3
<i>Mergus merganser</i> Linnaeus, common merganser	5	5	4	2	3
<i>Oxyura jamaicensis</i> (Gmelin), ruddy duck	5	3	2	2	3
<i>Pandion haliaetus</i> (Linnaeus), osprey	5	5	5	5	5
<i>Accipiter cooperii</i> (Bonaparte), Cooper's hawk	0	3	4	3	5
<i>A. gentilis</i> (Linnaeus), northern goshawk	0	3	4	1	1
<i>A. striatus</i> Vieillot, sharp-shinned hawk	0	3	4	2	5
<i>Buteo jamaicensis</i> (Gmelin), red-tailed hawk	0	1	4	3	1
<i>B. lagopus</i> (Pontoppidan), rough-legged hawk	0	3	4	2	1

Species	Wet-dep ^a	Hab-spec ^b	Trophic ^c	Season ^d	Status
<i>B. lineatus</i> (Gmelin), red-shouldered hawk	1	3	4	3	5
<i>B. playpterus</i> (Vieillot), broad-winged hawk*	0	3	4	5	5
<i>Circus cyaneus</i> (Linnaeus), northern harrier**	3	3	4	3	5
<i>Haliaeetus leucocephalus</i> (Linnaeus), bald eagle	5	5	4	3	5
<i>Falco columbarius</i> Linnaeus, merlin	0	3	4	1	1
<i>F. peregrinus</i> Tunstall, peregrine falcon	0	5	4	3	5
<i>F. sparverius</i> Linnaeus, American kestrel	0	5	4	3	1
<i>Phasianus colchicus</i> Linn., ring-necked pheasant**	0	1	1	3	0
<i>Bonasa umbellus</i> (Linnaeus), ruffed grouse	0	3	1	3	3
<i>Meleagris gallopavo</i> Linnaeus, wild turkey	0	3	1	3	3
<i>Colinus virginianus</i> (Linnaeus), northern bobwhite**	0	1	1	3	3
<i>Coturnicops noveboracensis</i> (Gmelin), yellow rail	5	3	1	1	1
<i>Fulica americana</i> (Gmelin), American coot	5	1	1	3	1
<i>Gallinula chloropus</i> (Linnaeus), common moorhen	5	1	1	4	1
<i>Laterallus jamaicensis</i> (Gmelin), black rail	5	5	1	1	1
<i>Porzana carolina</i> (Linnaeus), sora	5	3	1	5	3
<i>Rallus elegans</i> Audubon, king rail	5	5	1	4	5
<i>R. limicola</i> Vieillot, Virginia rail	5	3	1	5	5
<i>Grus canadensis</i> (Linnaeus), sandhill crane	5	3	1	1	5
<i>Charadrius melodus</i> Ord, piping plover	5	5	4	1	5
<i>C. semipalmatus</i> Bonaparte, semipalmated plover	5	3	4	1	1
<i>C. vociferus</i> Linnaeus, killdeer**	0	1	4	3	4
<i>Pluvialis dominica</i> (Müller), American golden-plover	5	3	4	1	1
<i>P. squatarola</i> (Linnaeus), black-bellied plover	5	3	4	1	1
<i>Recurvirostra americana</i> Gmelin, American avocet	5	3	4	1	1
<i>Actitis macularia</i> (Linnaeus), spotted sandpiper	5	3	4	5	1
<i>Arenaria interpres</i> (Linnaeus), ruddy turnstone	5	3	4	1	1
<i>Bartramia longicauda</i> (Bechstein), upland sandpiper**	3	3	1	5	5
<i>C. alba</i> (Pallas), sanderling	5	3	4	1	1
<i>C. alpina</i> (Linnaeus), dunlin	5	3	4	1	1
<i>C. bairdii</i> (Coues), Baird's sandpiper	5	3	4	1	1

Species	Wet-dep ^a	Hab-spec ^b	Trophic ^c	Season ^d	Status
<i>C. canutus</i> (Linnaeus), red knot	5	3	4	1	1
<i>C. fuscicollis</i> (Vieillot), white-rumped sandpiper	5	3	4	1	1
<i>C. himantopus</i> (Bonaparte), stilt sandpiper	5	3	4	1	1
<i>C. maritima</i> (Brünnich), purple sandpiper	5	3	4	0	1
<i>C. mauri</i> (Cabanis), western sandpiper	5	3	4	1	1
<i>C. melanotos</i> (Vieillot), pectoral sandpiper	5	3	4	1	1
<i>C. minutilla</i> (Vieillot), least sandpiper	5	3	4	1	1
<i>C. pusilla</i> (Linnaeus), semipalmated sandpiper	5	3	4	1	1
<i>Gallinago gallinago</i> (Linnaeus), common snipe	5	3	4	2	3
<i>Limnodromus griseus</i> (Gmelin), short-billed dowitcher	5	3	4	1	1
<i>L. scolopaceus</i> (Say), long-billed dowitcher	5	3	4	5	1
<i>Limosa fedoa</i> (Linnaeus), marbled godwit	5	3	4	1	1
<i>L. haemastica</i> (Linnaeus), Hudsonian godwit	5	3	4	1	1
<i>Scolopax minor</i> Gmelin, American woodcock	5	3	5	4	3
<i>Tringa flavipes</i> (Gmelin), lesser yellowlegs	5	3	4	1	1
<i>T. melanoleuca</i> (Gmelin), greater yellowlegs	5	3	4	1	1
<i>T. solitaria</i> Wilson, solitary sandpiper	5	3	4	1	1
<i>Tryngites subruficollis</i> (Vieillot), buff-breasted sandpiper	5	3	4	1	1
<i>Phalaropus fulicaria</i> (Linnaeus), red phalarope	5	3	4	1	1
<i>P. lobatus</i> (Linnaeus), red-necked phalarope	5	3	4	1	1
<i>P. tricolor</i> (Vieillot), Wilson's phalarope	5	3	4	1	1
<i>Larus argentatus</i> Pontoppidan, herring gull	5	1	1	3	1
<i>L. atricilla</i> Linnaeus, laughing gull	5	1	4	1	1
<i>L. delawarensis</i> Ord, ring-billed gull	5	1	1	3	1
<i>L. hyperboreus</i> Gunnerus, glaucous gull	5	1	1	1	1
<i>L. marinus</i> Linnaeus, great black-backed gull	5	1	1	1	1
<i>L. minutus</i> Pallas, little gull	5	1	4	0	1
<i>L. philadelphia</i> (Ord), Bonaparte's gull	5	1	4	2	1
<i>L. pipixcan</i> Wagler, Franklin's gull	5	1	4	1	1
<i>Rissa tridactyla</i> (Linnaeus), black-legged kittiwake	5	1	4	0	1

Species	Wet-dep ^a	Hab-spec ^b	Trophic ^c	Season ^d	Status
<i>Chlidonias niger</i> (Linnaeus), black tern	5	3	4	5	5
<i>Sterna antillarum</i> (Lesson), least tern	5	3	4	1	5
<i>S. caspia</i> Pallas, Caspian tern	5	3	4	1	1
<i>S. forsteri</i> Nuttall, Forster's tern	5	3	1	1	1
<i>S. hirundo</i> Linnaeus, common tern	5	3	4	5	1
<i>C. livia</i> Gmelin, rock dove	0	1	2	3	0
<i>Streptopelia decaocto</i> (Frisvaldszky), Eurasian collared-dove	0	1	3	3	0
<i>Zenaidura macroura</i> (Linnaeus), mourning dove**	0	1	2	3	0
<i>Coccyzus americanus</i> (Linnaeus), yellow-billed cuckoo*	0	1	1	5	1
<i>C. erythrophthalmus</i> (Wilson), black-billed cuckoo*	0	1	1	5	1
<i>Tyto alba</i> (Scopoli), barn owl	0	3	4	3	5
<i>Aegolius acadicus</i> (Gmelin), northern saw-whet owl	0	5	4	3	1
<i>Asio flammeus</i> (Pontoppidan), short-eared owl**	1	3	4	3	5
<i>A. otus</i> (Linnaeus), long-eared owl	0	3	4	3	5
<i>Bubo virginianus</i> (Gmelin), great horned owl	0	1	4	3	1
<i>Nyctea scandiaca</i> (Linnaeus), snowy owl	0	3	4	1	1
<i>Otus asio</i> (Linnaeus), eastern screech-owl	0	5	4	3	1
<i>Strix varia</i> Barton, barred owl	3	5	4	3	1
<i>Caprimulgus carolinensis</i> Gmelin, chuck-will's-widow	0	3	4	5	1
<i>C. vociferus</i> Wilson, whip-poor-will	0	3	4	5	1
<i>Chordeiles minor</i> (Forster), common nighthawk**	0	1	4	5	1
<i>Chaetura pelagica</i> (Linnaeus), chimney swift	0	1	4	5	1
<i>Archilochus colubris</i> (Linnaeus), ruby-throated hummingbird	1	1	3	5	1
<i>Ceryle alcyon</i> (Linnaeus), belted kingfisher	5	5	5	3	1
<i>Colaptes auratus</i> (Linnaeus), northern flicker	0	3	1	3	1
<i>Dryocopus pileatus</i> (Linnaeus), pileated woodpecker*	0	5	4	3	1
<i>Melanerpes carolinus</i> (Linnaeus), red-bellied woodpecker	1	3	1	3	1

Species	Wet-dep ^a	Hab-spec ^b	Trophic ^c	Season ^d	Status
<i>M. erythrocephalus</i> (Linnaeus), red-headed woodpecker	1	3	1	3	1
<i>Picoides arcticus</i> (Swainson), black-backed woodpecker	0	5	4	0	1
<i>P. pubescens</i> (Linnaeus), downy woodpecker	0	1	4	3	1
<i>P. villosus</i> (Linnaeus), hairy woodpecker*	0	3	4	3	1
<i>Sphyrapicus varius</i> (Linnaeus), yellow-bellied sapsucker	0	5	1	5	1
<i>Contopus cooperi</i> (Nuttall), olive-sided flycatcher	1	3	4	5	1
<i>C. virens</i> (Linnaeus), eastern wood-pewee	0	1	4	5	1
<i>Empidonax alnorum</i> Brewster, alder flycatcher	3	3	4	5	1
<i>E. flaviventris</i> (Baird and Baird), yellow-bellied flycatcher	3	3	4	5	1
<i>E. minimus</i> (Baird and Baird), least flycatcher*	0	1	4	5	5
<i>E. traillii</i> (Audubon), willow flycatcher	3	1	4	5	1
<i>E. virescens</i> (Vieillot), Acadian flycatcher*	3	3	4	5	1
<i>Myiarchus crinitus</i> (Linnaeus), great crested flycatcher	0	3	4	5	1
<i>Sayornis phoebe</i> (Latham), eastern phoebe	3	1	4	4	1
<i>T. tyrannus</i> (Linnaeus), eastern kingbird	0	1	1	5	1
<i>T. verticalis</i> Say, western kingbird	0	1	1	2	1
<i>Lanius excubitor</i> Linnaeus, northern shrike	0	1	4	1	1
<i>L. ludovicianus</i> Linnaeus, loggerhead shrike**	0	1	4	1	5
<i>Vireo bellii</i> Audubon, Bell's vireo	0	3	4	5	1
<i>V. flavifrons</i> (Vieillot), yellow-throated vireo*	0	3	4	5	1
<i>V. gilvus</i> (Vieillot), warbling vireo	0	1	4	5	1
<i>V. griseus</i> (Boddaert), white-eyed vireo	1	1	4	5	1
<i>V. olivaceus</i> (Linnaeus), red-eyed vireo*	0	1	4	5	1
<i>V. philadelphicus</i> (Cassin), Philadelphia vireo	0	1	4	1	1
<i>V. solitarius</i> (Wilson), blue-headed vireo	0	3	4	5	1
<i>Corvus brachyrhynchos</i> Brehm, American crow	0	1	1	3	1
<i>C. corax</i> , common raven	1	3	1	3	1

Species	Wet-dep ^a	Hab-spec ^b	Trophic ^c	Season ^d	Status
<i>C. ossifragus</i> Wilson, fish crow	3	1	1	3	1
<i>Cyanocitta cristata</i> (Linnaeus), blue jay	0	1	2	3	1
<i>Eremophila alpestris</i> (Linnaeus), horned lark**	0	1	1	3	1
<i>Hirundo rustica</i> Linnaeus, barn swallow	0	1	4	5	1
<i>Petrochelidon pyrrhonota</i> Vieillot, cliff swallow	1	1	4	5	1
<i>Progne subis</i> (Linnaeus), purple martin	1	5	4	5	1
<i>Riparia riparia</i> (Linnaeus), bank swallow	1	5	4	5	1
<i>Stelgidopteryx serripennis</i> (Audubon), northern rough-winged swallow	3	5	4	4	1
<i>Tachycineta bicolor</i> (Vieillot), tree swallow	1	5	4	5	1
<i>Baeolophus bicolor</i> Linnaeus, tufted titmouse*	1	3	1	3	1
<i>Poecile atricapillus</i> Linnaeus, black-capped chickadee	0	1	1	3	1
<i>P. carolinensis</i> Audubon, Carolina chickadee	0	1	1	3	1
<i>Sitta canadensis</i> Linnaeus, red-breasted nuthatch	0	5	1	3	1
<i>S. carolinensis</i> Latham, white-breasted nuthatch*	0	5	1	3	1
<i>Certhia americana</i> Bonaparte, brown creeper*	1	5	4	3	5
<i>Cistothorus palustris</i> (Wilson), marsh wren	5	3	4	4	5
<i>C. platensis</i> (Latham), sedge wren**	3	5	4	4	5
<i>Thryomanes bewickii</i> (Audubon), Bewick's wren	0	1	4	0	5
<i>Thryothorus ludovicianus</i> (Latham), Carolina wren	0	1	4	3	1
<i>Troglodytes aedon</i> Vieillot, house wren	0	1	4	4	1
<i>T. troglodytes</i> (Linnaeus), winter wren	3	3	4	3	1
<i>Regulus calendula</i> (Linnaeus), ruby-crowned kinglet	1	3	1	2	1
<i>R. satrapa</i> Lichtenstein, golden-crowned kinglet	1	3	4	3	1
<i>Poliophtila caerulea</i> (Linnaeus), bluegray gnatcatcher*	1	3	4	5	1
<i>Catharus fuscescens</i> (Stephens), veery*	3	3	1	5	1
<i>C. guttatus</i> (Pallas), hermit thrush	1	3	1	3	1
<i>C. minimus</i> (Lafresnaye), gray-cheeked thrush	1	3	1	2	1
<i>C. ustulatus</i> (Nuttall), Swainson's thrush	1	3	1	5	1
<i>Hylocichla mustelina</i> (Gmelin), wood thrush*	0	3	1	5	1
<i>S. sialis</i> (Linnaeus), eastern bluebird	0	5	1	3	1

Species	Wet-dep ^a	Hab-spec ^b	Trophic ^c	Season ^d	Status
<i>Turdus migratorius</i> Linnaeus, American robin	0	1	1	3	1
<i>Dumetella carolinensis</i> (Linnaeus), gray catbird	1	1	1	3	1
<i>Mimus polyglottos</i> (Linnaeus), northern mockingbird	0	1	1	3	1
<i>Toxostoma rufum</i> (Linnaeus), brown thrasher	0	1	1	3	1
<i>Sturnus vulgaris</i> Linnaeus, European starling	0	3	1	3	0
<i>Anthus rubescens</i> (Tunstall), American pipit	3	1	4	1	1
<i>Bombycilla cedrorum</i> Vieillot, cedar waxwing	0	1	3	3	1
<i>Dendroica caerulescens</i> (Gmelin), black-throated blue warbler	1	3	4	5	1
<i>D. castanea</i> (Wilson), bay-breasted warbler	1	3	4	1	1
<i>D. cerulea</i> (Wilson), cerulean warbler*	1	5	4	5	5
<i>D. coronata</i> (Linnaeus), yellow-rumped warbler	1	3	1	5	1
<i>D. discolor</i> (Vieillot), prairie warbler	0	1	4	5	1
<i>D. dominica</i> (Linnaeus), yellow-throated warbler*	1	3	4	5	1
<i>D. fusca</i> (Müller), blackburnian warbler	1	5	4	5	1
<i>D. magnolia</i> (Wilson), magnolia warbler	0	1	4	5	1
<i>D. palmarum</i> (Gmelin), palm warbler	3	3	4	1	1
<i>D. pensylvanica</i> (Linnaeus), chestnut-sided warbler*	0	1	4	5	1
<i>D. petechia</i> (Linnaeus), yellow warbler	3	1	4	5	1
<i>D. pinus</i> (Wilson), pine warbler	0	3	4	5	1
<i>D. striata</i> (Forster), blackpoll warbler	0	3	4	1	1
<i>D. tigrina</i> (Gmelin), Cape May warbler	0	5	4	1	1
<i>D. virens</i> (Gmelin), black-throated green warbler	0	3	4	5	1
<i>Geothlypis trichas</i> (Linn.), common yellowthroat**	3	1	4	4	1
<i>Helmitheros vermivorus</i> (Gmelin), worm-eating warbler*	1	3	4	5	5
<i>Icteria virens</i> (Linnaeus), yellow-breasted chat	1	3	1	5	1
<i>Mniotilta varia</i> (Linnaeus), black-and-white warbler*	0	3	4	5	5
<i>Oporornis agilis</i> (Wilson), Connecticut warbler	1	3	4	1	1
<i>O. formosus</i> (Wilson), Kentucky warbler*	1	3	4	5	1
<i>O. philadelphia</i> (Wilson), mourning warbler*	1	3	4	5	1

Species	Wet-dep ^a	Hab-spec ^b	Trophic ^c	Season ^d	Status
<i>Parula americana</i> (Linnaeus), northern parula*	1	5	4	5	1
<i>Protonotaria citrea</i> (Boddaert), prothonotary warbler	5	5	4	5	1
<i>Seiurus aurocapillus</i> (Linnaeus), ovenbird*	0	3	4	5	1
<i>S. motacilla</i> (Vieillot), Louisiana waterthrush*	5	3	4	5	1
<i>S. noveboracensis</i> (Gmelin), northern waterthrush	5	3	4	5	1
<i>Setophaga ruticilla</i> (Linnaeus), American redstart*	0	1	4	5	1
<i>Vermivora celata</i> (Say), orange-crowned warbler	0	1	4	1	1
<i>V. chrysoptera</i> (Linnaeus), golden-winged warbler	1	1	4	5	5
<i>V. peregrina</i> (Wilson), Tennessee warbler	0	1	4	1	1
<i>V. pinus</i> (Linnaeus), blue-winged warbler	0	1	4	5	1
<i>V. ruficapilla</i> (Wilson), Nashville warbler	1	1	4	5	1
<i>Wilsonia canadensis</i> (Linnaeus), Canada warbler	1	1	4	5	5
<i>W. citrina</i> (Boddaert), hooded warbler*	3	3	4	5	5
<i>W. pusilla</i> (Wilson), Wilson's warbler	3	3	4	1	1
<i>P. olivacea</i> (Gmelin), scarlet tanager*	0	1	1	5	1
<i>P. rubra</i> (Linnaeus), summer tanager*	0	3	1	5	1
<i>Ammodramus henslowii</i> (Audubon), Henslow's sparrow**	0	3	1	4	5
<i>A. leconteii</i> (Audubon), LeConte's sparrow	1	5	4	1	1
<i>A. nelsoni</i> (Allen), Nelson's sharp-tailed sparrow	3	5	4	1	1
<i>A. savannarum</i> (Gmelin), grasshopper sparrow**	0	1	1	4	1
<i>Calcarius lapponicus</i> (Linnaeus), Lapland longspur	0	1	2	2	1
<i>C. pictus</i> (Swainson), Smith's longspur	0	3	4	1	1
<i>Chondestes grammacus</i> (Say), lark sparrow**	0	5	4	4	1
<i>Junco hyemalis</i> (Linnaeus), dark-eyed junco	0	1	1	3	1
<i>Melospiza georgiana</i> (Latham), swamp sparrow**	3	3	1	3	1
<i>M. lincolnii</i> (Audubon), Lincoln's sparrow	1	3	1	1	1
<i>M. melodia</i> (Wilson), song sparrow**	1	1	1	3	1
<i>Passerculus sandwichensis</i> (Gmelin), savannah sparrow**	1	1	1	4	1
<i>Passerella iliaca</i> (Merrem), fox sparrow	0	1	1	1	1

Species	Wet-dep ^a	Hab-spec ^b	Trophic ^c	Season ^d	Status
<i>P. erythrophthalmus</i> (Linnaeus), eastern towhee	0	1	1	4	1
<i>Plectrophenax nivalis</i> (Linnaeus), snow bunting	0	1	2	2	1
<i>Poocetes gramineus</i> (Gmelin), vesper sparrow**	0	1	1	4	1
<i>Spizella arborea</i> (Wilson), American tree sparrow	0	1	2	2	1
<i>S. passerina</i> (Bechstein), chipping sparrow	0	1	1	4	1
<i>S. pusilla</i> (Wilson), field sparrow**	0	1	1	3	1
<i>Zonotrichia albicollis</i> (Gmelin), white-throated sparrow	0	1	1	3	1
<i>Z. leucophrys</i> (Forster), white-crowned sparrow	0	1	1	2	1
<i>Cardinalis cardinalis</i> (Linnaeus), northern cardinal	0	1	2	3	1
<i>Guiraca caerulea</i> (Linnaeus), blue grosbeak	0	1	1	5	1
<i>P. cyanea</i> (Linnaeus), indigo bunting	1	1	1	5	1
<i>Pheucticus ludovicianus</i> (Linnaeus), rose-breasted grosbeak	0	1	1	5	1
<i>Spiza americana</i> (Gmelin), dickcissel**	0	1	1	3	1
<i>Agelaius phoeniceus</i> (Linn.), red-winged blackbird**	3	1	1	3	1
<i>Dolichonyx oryzivorus</i> (Linnaeus), bobolink**	1	1	1	5	1
<i>Euphagus carolinus</i> (Müller), rusty blackbird	3	3	1	1	1
<i>E. cyanocephalus</i> (Wagler), Brewer's blackbird	0	1	1	1	5
<i>Icterus galbula</i> (Linnaeus), Baltimore oriole	0	1	1	5	1
<i>I. spurius</i> (Linnaeus), orchard oriole	0	1	4	5	1
<i>Molothrus ater</i> (Boddaert), brown-headed cowbird	0	1	1	3	1
<i>Q. quiscula</i> (Linnaeus), common grackle	0	1	1	3	1
<i>Sturnella magna</i> (Linnaeus), eastern meadowlark**	0	1	1	3	1
<i>Xanthocephalus xanthocephalus</i> (Bonaparte), yellow-headed blackbird	3	3	1	0	5
<i>Carduelis flammea</i> (Linnaeus), common redpoll	0	1	2	1	1
<i>C. hornemanni</i> (Holböll), hoary redpoll	0	1	2	0	1
<i>C. pinus</i> (Wilson), pine siskin	0	3	1	3	1
<i>C. tristis</i> (Linnaeus), American goldfinch**	0	1	2	3	1
<i>Carpodacus mexicanus</i> (Müller), house finch	0	1	2	3	0
<i>C. purpureus</i> (Gmelin), purple finch	0	1	2	2	1

Species	Wet-dep ^a	Hab-spec ^b	Trophic ^c	Season ^d	Status
<i>Coccothraustes vespertinus</i> (Cooper), evening grosbeak	0	3	2	2	1
<i>Loxia curvirostra</i> Linnaeus, red crossbill	0	3	3	2	1
<i>L. leucoptera</i> Gmelin, white-winged crossbill	0	3	3	1	1
<i>Pinicola enucleator</i> (Linnaeus), pine grosbeak	0	3	2	2	1
<i>Passer domesticus</i> (Linnaeus), house sparrow	0	1	1	3	0

^aWet-dep = Wetland dependence

^bHab-spec = Habitat specificity

^cTrophic = Trophic level

^dSeason = Seasonality

* Denotes Sensitive to Forest Fragmentation

** Denotes Sensitive to Prairie and Grassland Fragmentation

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Table 4. Response guilds of Indiana amphibians.

Species	Wet-dep ^a	Hab-spec ^b	Trophic ^c	Status
<i>Cryptobranchus alleganiensis</i> (Daudin), hellbender	5	5	4	5
<i>Necturus maculosus</i> (Rafinesque), mudpuppy	5	5	4	1
<i>Ambystoma barbouri</i> Kraus and Petranka, streamside salamander	3	3	4	5
<i>A. jeffersonianum</i> (Green), Jefferson's salamander	3	3	4	1
<i>A. laterale</i> Hallowell, blue-spotted salamander	3	3	4	5
<i>A. maculatum</i> (Shaw), spotted salamander	3	3	4	1
<i>A. opacum</i> (Gravenhorst), marbled salamander	3	3	4	1
<i>A. texanum</i> (Matthes), smallmouth salamander	3	3	4	1
<i>A. tigrinum</i> (Green), tiger salamander	5	3	4	1
<i>Notophthalmus viridescens</i> (Rafinesque), eastern newt	5	1	4	1
<i>Aneides aeneus</i> (Cope & Packard), green salamander	3	5	4	5
<i>Desmognathus fuscus</i> (Green), northern dusky salamander	3	3	4	1
<i>Eurycea cirrigera</i> (Green), two-lined salamander	3	3	4	1
<i>E. longicauda</i> (Green), longtail salamander	3	5	4	1
<i>E. lucifuga</i> Rafinesque, cave salamander	3	5	4	1
<i>Hemidactylium scutatum</i> (Schlegel), four-toed salamander	3	3	4	5
<i>Plethodon cinereus</i> (Green), redback salamander	1	3	4	1
<i>P. dorsalis</i> Cope, zigzag salamander	1	3	4	1
<i>P. glutinosus</i> (Green), slimy salamander	1	3	4	1
<i>P. richmondi</i> Netting and Mittleman, ravine salamander	1	3	4	5
<i>Pseudotriton ruber</i> (Sonnini), northern red salamander	3	3	4	5
<i>Siren intermedia</i> Le Conte, lesser siren	5	5	4	1
<i>Scaphiopus holbrookii</i> (Harlan), eastern spadefoot	1	3	4	5
<i>Bufo americanus</i> Holbrook, American toad	3	1	4	1
<i>B. fowleri</i> Hinkley, Fowler's toad	3	1	4	1

Species	Wet-dep ^a	Hab-spec ^b	Trophic ^c	Status
<i>Acris crepitans</i> Baird, cricket frog	3	1	4	1
<i>Hyla chrysoscelis</i> Cope, Cope's gray tree frog	3	1	4	1
<i>H. versicolor</i> Le Conte, eastern gray treefrog	3	1	4	1
<i>Pseudacris crucifer</i> Wied, spring peeper	3	1	4	1
<i>P. triseriata</i> (Wied), western chorus frog	3	1	4	1
<i>Rana areolata</i> Baird and Girard, crawfish frog	3	3	4	5
<i>R. blairi</i> Mecham et al., plains leopard frog	3	1	4	5
<i>R. clamitans</i> Latreille, green frog	5	3	4	1
<i>R. catesbeiana</i> Shaw, bullfrog	5	3	4	3
<i>R. pipiens</i> Schreber, northern leopard frog	3	1	4	5
<i>R. palustris</i> LeConte, pickerel frog	3	1	4	1
<i>R. utricularia</i> Harlan, southern leopard frog	3	1	4	1
<i>R. sylvatica</i> LeConte, wood frog	3	1	4	1

^aWet-dep = Wetland dependence

^bHab-spec = Habitat specificity

^cTrophic = Trophic level

Reference: Minton, S. A. 1972. Amphibians and Reptiles of Indiana. Proceedings of the Indiana Academy of Science, Monograph #3. 346 pp.

Table 5. Response guilds of Indiana reptiles.

Species	Wet-dep ^a	Hab-spec ^b	Trophic ^c	Status
<i>Chelydra serpentina</i> Linnaeus, common snapping turtle	5	1	1	1
<i>Macrolemys temminckii</i> (Troost), alligator snapping turtle	5	1	4	5
<i>Kinosternon subrubrum</i> (Lacepede), eastern mud turtle	5	3	1	5
<i>Sternotherus odoratus</i> (Latreille), common musk turtle	5	3	4	1
<i>Chrysemys picta</i> (Schneider), painted turtle	5	1	1	1
<i>Clemmys guttata</i> (Schneider), spotted turtle	5	3	1	5
<i>Emydoidea blandingii</i> (Holbrook), Blanding's turtle	5	5	4	5
<i>Graptemys geographica</i> (LeSueur), map turtle	5	3	1	1
<i>G. pseudogeographica</i> (Gray), false map turtle	5	3	1	1
<i>G. ouachitensis</i> Cagle, Ouachita map turtle	5	3	1	1
<i>Pseudemys concinna</i> (LeConte), river cooter	5	3	1	5
<i>Terrapene carolina</i> (Linnaeus), eastern box turtle	0	1	1	1
<i>T. ornata</i> (Agassiz), ornate box turtle	0	1	4	5
<i>Trachemys scripta</i> (Schoepff), red-eared turtle	5	3	1	1
<i>Apalone mutica</i> LeSueur, smooth softshell	5	5	4	5
<i>A. spinifera</i> (LeSueur), spiny softshell	5	5	4	1
<i>Sceloporus undulatus</i> Latreille, eastern fence lizard	0	1	4	1
<i>Ophisaurus attenuatus</i> Cope, slender glass lizard	0	1	4	1
<i>Cnemidophorus sexlineatus</i> (Linnaeus), six-lined racerunner	0	1	4	1
<i>Eumeces fasciatus</i> (Linnaeus), five-lined skink	0	1	4	1
<i>E. laticeps</i> (Schneider), broad-headed skink	0	1	4	1
<i>Scincella lateralis</i> (Say), ground skink	0	1	4	1
<i>Carphophis amoenus</i> (Say), worm snake	0	3	4	1
<i>Cemophora coccinea</i> (Blumenbach), scarlet snake	0	3	4	5
<i>Coluber constrictor</i> Linnaeus, black racer	0	1	4	1

Species	Wet-dep ^a	Hab-spec ^b	Trophic ^c	Status
<i>Clonophis kirtlandii</i> (Kennicott), Kirtland's snake	3	3	4	5
<i>Diadophis punctatus</i> (Linnaeus), northern ringneck snake	0	3	4	1
<i>Elaphe obsoleta</i> (Say), black rat snake	0	1	4	1
<i>E. vulpina</i> (Baird and Girard), western fox snake	0	1	4	1
<i>Heterodon platyrhinos</i> Latreille, eastern hognose snake	0	1	5	1
<i>Lampropeltis calligaster</i> (Harlan), prairie kingsnake	0	3	4	1
<i>L. getulus</i> (Linnaeus), common kingsnake	0	1	4	1
<i>L. triangulum</i> (Lacepede), eastern milksnake	0	1	4	1
<i>Nerodia erythrogaster</i> (Forster), northern copperbelly	5	3	4	5
<i>N. rhombifer</i> (Hallowell), diamondback water snake	5	3	4	1
<i>N. sipedon</i> (Linnaeus), banded water snake	5	1	4	1
<i>Opheodrys aestivus</i> (Linnaeus), rough green snake	0	3	4	5
<i>O. vernalis</i> (Harlan), smooth green snake	0	3	4	5
<i>Pituophis catenifer</i> (Blainville), bull snake	0	3	4	1
<i>Regina septemvittata</i> (Say), queen snake	5	3	4	1
<i>Storeria dekayi</i> (Holbrook), brown snake	0	1	4	1
<i>S. occipitomaculata</i> (Storer), red-bellied snake	0	3	4	1
<i>Tantilla coronata</i> (Baird and Girard), crowned snake	0	3	4	5
<i>Thamnophis butleri</i> (Cope), Butler's garter snake	0	3	4	5
<i>T. proximus</i> (Say), western ribbon snake	0	3	4	5
<i>T. radix</i> (Baird and Girard), plains garter snake	0	3	4	1
<i>T. sauritus</i> (Linnaeus), eastern ribbon snake	1	3	4	1
<i>T. sirtalis</i> (Linnaeus), common garter snake	1	1	4	1
<i>Virginia valeriae</i> Baird and Girard, western earth snake	0	1	4	1
<i>Agkistrodon contortrix</i> (Linnaeus), northern copperhead	0	3	4	1
<i>A. piscivorus</i> Lacepede, cottonmouth	5	5	5	5

<i>Crotalus horridus</i> Linnaeus, timber rattlesnake	0	3	4	5
Species	Wet-dep ^a	Hab-spec ^b	Trophic ^c	Status
<i>Sistrurus catenatus</i> (Rafinesque), eastern massasauga	5	5	4	5

^a Wet-dep = Wetland dependence

^b Hab-spec = Habitat specificity

^c Trophic = Trophic level

Reference: Minton, S. A. 1972. Amphibians and Reptiles of Indiana. Proceedings of the Indiana Academy of Science, Monograph #3. 346 pp.

Table 6. Response guilds of Indiana fishes.

Species	Native	Tolerance	Trophic ^c	Status
<i>Ichthyomyzon bdellium</i> (Jordan), Ohio lamprey	Yes	Intolerant	Piscivore	5
<i>I. castaneus</i> Girard, chestnut lamprey	Yes	-	Piscivore	1
<i>I. fossor</i> Reighard and Cummins, northern brook lamprey	Yes	Intolerant	Filter Feeder	1
<i>I. unicuspis</i> Hubbs and Trautman, silver lamprey	Yes	Intermediate	Piscivore	1
<i>Lampetra aepyptera</i> (Abbott), least brook lamprey	Yes	Intolerant	Filter Feeder	5
<i>L. appendix</i> (DeKay), American brook lamprey	Yes	Intolerant	Filter Feeder	1
<i>Acipenser fulvescens</i> Rafinesque, lake sturgeon	Yes	Intermediate	Invertivore	5
<i>Scaphirhynchus platyrhynchus</i> (Rafinesque), shovelnose sturgeon	Yes	Intermediate	Insectivore	1
<i>Polyodon spathula</i> (Walbaum), paddlefish	Yes	Intolerant	Filter Feeder	5
<i>Lepisosteus oculatus</i> Winchell, spotted gar	Yes	Intermediate	Piscivore	1
<i>L. osseus</i> Linnaeus, longnose gar	Yes	Intermediate	Piscivore	1
<i>L. platostomus</i> Rafinesque, shortnose gar	Yes	Intermediate	Piscivore	1
<i>Amia calva</i> Linnaeus, bowfin	Yes	Intermediate	Piscivore	3
<i>Hiodon alosoides</i> (Rafinesque), goldeye	Yes	Intolerant	Insectivore	1
<i>H. tergisus</i> Lesueur, mooneye	Yes	Intolerant	Insectivore	1
<i>A. chrysochloris</i> (Rafinesque), skipjack herring	Yes	Intermediate	Piscivore	1
<i>A. pseudoharengus</i> (Wilson), alewife	No	Intermediate	Invertivore	0
<i>Dorosoma cepedianum</i> (Lesueur), gizzard shad	Yes	Intermediate	Omnivore	1
<i>D. petenense</i> (Guenther), threadfin shad	Yes	Intermediate	Omnivore	1
<i>Campostoma anomatum</i> (Rafinesque), stoneroller	Yes	Stressed Habitats	Herbivore	1
<i>C. oligolepis</i> Hubbs and Greene, largescale stoneroller	Yes	Stressed Habitats	Herbivore	1
<i>Carassius auratus</i> (Linnaeus), goldfish	No	Tolerant	Omnivore	0
<i>Clinostomus elongatus</i> (Kirtland), redbreast dace	Yes	Intolerant	Insectivore	5
<i>Ctenopharyngodon idella</i> Valenciennes, grass carp	No	Intermediate	Herbivore	0
<i>Cyprinella lutrensis</i> (Baird and Girard), red shiner	Yes	Intermediate	Omnivore	1

Species	Native	Tolerance	Trophic ^c	Status
<i>Caspiloptera</i> Cope, spottin shiner	Yes	Intermediate	Insectivore	1
<i>C. whipplei</i> Girard, steelcolor shiner	Yes	Intolerant	Insectivore	1
<i>Cyprinus carpio</i> Linnaeus, carp	No	Tolerant	Omnivore	0
<i>Emycymba buccata</i> Cope, silverjaw minnow	Yes	Stressed Habitats	Omnivore	1
<i>Erimystax dissimilis</i> (Kirtland), streamline chub	Yes	Intolerant	Insectivore	1
<i>E. x-punctata</i> Hubbs and Crowe, gravel chub	Yes	Intolerant	Insectivore	1
<i>Extrarius aestivalis</i> (Girard), speckled chub	Yes	Intolerant	Insectivore	1
<i>Hybognathus hayi</i> Jordan, cypress minnow	Yes	Intolerant	Herbivore	5
<i>H. nuchalis</i> Agassiz, Mississippi silvery minnow	Yes	Intermediate	Herbivore	1
<i>Hybopsis amblops</i> (Rafinesque), bigeye chub	Yes	Intolerant	Insectivore	5
<i>H. amnis</i> (Hubbs and Greene), pallid shiner	Yes	Intolerant	-	5
<i>Luxilus chrysocephalus</i> Rafinesque, striped shiner	Yes	Intermediate	Omnivore	1
<i>L. cornutus</i> (Mitchill), common shiner	Yes	Intermediate	Omnivore	1
<i>Lythrurus ardens</i> (Cope), rosefin shiner	Yes	Intolerant	Insectivore	1
<i>L. fumeus</i> (Evermann), ribbon shiner	Yes	Tolerant	Insectivore	1
<i>L. umbratilis</i> (Girard), redfin shiner	Yes	Tolerant	Insectivore	1
<i>Macrhybopsis storeriana</i> (Kirtland), silver chub	Yes	Intermediate	Insectivore	1
<i>Nocomis biguttatus</i> (Kirtland), hornyhead chub	Yes	Intolerant	Insectivore	1
<i>N. micropogon</i> (Cope), river chub	Yes	Intolerant	Insectivore	1
<i>Notemigonus crysoleucas</i> (Mitchell), golden shiner	Yes	Tolerant	Omnivore	1
<i>Notropis anogenus</i> Forbes, pugnose shiner	Yes	Intolerant	-	5
<i>N. ariommus</i> (Cope), popeye shiner	Yes	Intolerant	Insectivore	5
<i>N. atherinoides</i> Rafinesque, emerald shiner	Yes	Intermediate	Insectivore	1
<i>N. blennioides</i> (Girard), river shiner	Yes	Intermediate	Insectivore	1
<i>N. boops</i> Gilbert, bigeye shiner	Yes	Intolerant	Insectivore	1
<i>N. buechanani</i> Meek, ghost shiner	Yes	Intolerant	Insectivore	1
<i>N. chalybaeus</i> (Cope), ironcolor shiner	Yes	Intolerant	Insectivore	1

Species	Native	Tolerance	Trophic ^c	Status
<i>N. dorsalis</i> (Agassiz), bigmouth shiner	Yes	-	Insectivore	5
<i>N. heterodon</i> (Cope), blackchin shiner	Yes	Intolerant	Insectivore	1
<i>N. heterolepis</i> Eigenmann and Eigenmann, blacknose shiner	Yes	Intolerant	-	5
<i>N. hudsonius</i> (Clinton), spottail shiner	Yes	Intolerant	Omnivore	1
<i>N. photogenis</i> (Cope), silver shiner	Yes	Intolerant	Insectivore	1
<i>N. rubellus</i> (Agassiz), rosyface shiner	Yes	Intolerant	Insectivore	1
<i>N. shumardi</i> (Girard), silverband shiner	Yes	Tolerant	Insectivore	1
<i>N. stramineus</i> Cope, sand shiner	Yes	Intolerant	Omnivore	1
<i>N. texanus</i> (Girard), weed shiner	Yes	Intolerant	-	5
<i>N. volucellus</i> (Cope), mimic shiner	Yes	Intolerant	Omnivore	1
<i>Opsopoeodus emiliae</i> Hay, pugnose minnow	Yes	Intolerant	Insectivore	5
<i>Phenacobius mirabilis</i> (Girard), suckermouth minnow	Yes	Intermediate	Insectivore	1
<i>Phoxinus erythrogaster</i> (Rafinesque), southern redbelly dace	Yes	Intolerant	Omnivore	1
<i>Pimephales notatus</i> (Rafinesque), bluntnose minnow	Yes	Tolerant Stressed Habitats	Omnivore	1
<i>P. promelas</i> Rafinesque, fathead minnow	Yes	Tolerant Stressed Habitats	Omnivore	1
<i>P. vigilax</i> (Baird and Girard), bullhead minnow	Yes	Intermediate	Omnivore	1
<i>Rhinichthys atratulus</i> (Hermann), blacknose dace	Yes	Tolerant	Omnivore	1
<i>R. cataractae</i> (Valenciennes), longnose dace	Yes	Intolerant	Insectivore	1
<i>Semotilus atromaculatus</i> (Mitchill), creek chub	Yes	Tolerant Stressed Habitats	Omnivore	1
<i>Carpionodes carpio</i> (Rafinesque), river carpsucker	Yes	Intermediate	Omnivore	1
<i>C. cyprinus</i> (Lesueur), quillback	Yes	Intermediate	Omnivore	1
<i>C. velifer</i> (Rafinesque), highfin carpsucker	Yes	Intolerant	Omnivore	1
<i>C. commersoni</i> (Lacepede), white sucker	Yes	Tolerant	Insectivore	1
<i>Cycleptus elongatus</i> (Lesueur), blue sucker	Yes	Intolerant	Insectivore	5

Species	Native	Tolerance	Trophic ^c	Status
<i>Erimyzon oblongus</i> (Mitchill), creek chubsucker	Yes	Intermediate Stressed Habitat	Omnivore	1
<i>E. sucetta</i> (Lacepede), lake chubsucker	Yes	Intermediate Stressed Habitat	Omnivore	1
<i>Hypentelium nigricans</i> (Lesueur), northern hogsucker	Yes	Intolerant	Insectivore	1
<i>Ictiobus bubalus</i> (Rafinesque), smallmouth buffalo	Yes	Intermediate	Omnivore	3
<i>I. cyprinellus</i> (Valenciennes), bigmouth buffalo	Yes	Intermediate	Omnivore	3
<i>I. niger</i> (Rafinesque), black buffalo	Yes	Intermediate	Omnivore	5
<i>Minytrema melanops</i> (Rafinesque), spotted sucker	Yes	Intolerant	Insectivore	1
<i>Moxostoma anisurum</i> (Rafinesque), silver redhorse	Yes	Intolerant	Insectivore	1
<i>M. carinatum</i> (Cope), river redhorse	Yes	Intolerant	Insectivore	5
<i>M. duquesnei</i> (Lesueur), black redhorse	Yes	Intolerant	Insectivore	1
<i>M. erythrurum</i> (Rafinesque), golden redhorse	Yes	Intolerant	Insectivore	1
<i>M. macrolepidotum</i> (Lesueur), shorthead redhorse	Yes	Intolerant	Insectivore	1
<i>M. valenciennesi</i> Jordan, greater redhorse	Yes	Intolerant	Insectivore	5
<i>Ameiurus catus</i> (Linnaeus), white catfish	No	Intermediate	Insectivore	0
<i>A. melas</i> (Rafinesque), black bullhead	Yes	Intermediate	Omnivore	3
<i>A. natalis</i> (Lesueur), yellow bullhead	Yes	Tolerant	Omnivore	3
<i>A. nebulosus</i> (Lesueur), brown bullhead	Yes	Tolerant	Insectivore	3
<i>Ictalurus furcatus</i> (Lesueur), blue catfish	Yes	Intermediate	Carnivore	3
<i>I. punctatus</i> (Rafinesque), channel catfish	Yes	Intermediate	Omnivore	3
<i>Noturus eleutherus</i> Jordan, mountain madtom	Yes	Intolerant	Insectivore	1
<i>N. exilis</i> Nelson, slender madtom	Yes	Intolerant	Insectivore	1
<i>N. flavus</i> Rafinesque, stonecat	Yes	Intolerant	Insectivore	1
<i>N. gyrinus</i> (Mitchill), tadpole madtom	Yes	Intolerant	Insectivore	1
<i>N. miurus</i> Jordan, brindled madtom	Yes	Intolerant	Insectivore	1
<i>N. nocturnus</i> Jordan and Gilbert, freckled madtom	Yes	Intolerant	Insectivore	5
Species	Native	Tolerance	Trophic ^c	Status

<i>N. stigmatosus</i> Taylor, northern madtom	Yes	Intolerant	Insectivore	5
<i>Pylodictis olivaris</i> (Rafinesque), flathead catfish	Yes	Intolerant	Piscivore	3
<i>Esox americanus</i> Gmelin, grass pickerel	Yes	Intermediate	Piscivore	1
<i>E. lucius</i> Linnaeus, northern pike	No	Intermediate	Piscivore	3
<i>E. masquinongy</i> Mitchill, muskellunge	Yes	Intermediate	Piscivore	3
<i>Umbra limi</i> (Kirtland), central mudminnow	Yes	Tolerant	Omnivore	1
<i>O. mykiss</i> (Walbaum), rainbow trout	No	Intolerant	Insectivore	3
<i>S. trutta</i> Linnaeus, brown trout	No	Intermediate	Insectivore	3
<i>Salvelinus fontinalis</i> (Mitchill), brook trout	No	Intermediate	Insectivore	3
<i>Aphredoderus sayanus</i> (Gilliams), pirate perch	Yes	Intermediate	Insectivore	1
<i>Amblyopsis spelaea</i> DeKay, northern cavefish	Yes	Intolerant	Invertivore	5
<i>Typhlichthys subterraneus</i> Girard, southern cavefish	Yes	Intolerant	Invertivore	5
<i>Percopsis omiscomaycus</i> (Walbaum), trout-perch	Yes	Intolerant	Insectivore	5
<i>Lota lota</i> (Linnaeus), burbot	Yes	Intermediate	Piscivore	1
<i>Fundulus catenatus</i> (Storer), northern studfish	Yes	Intolerant	Invertivore	5
<i>F. diaphanus</i> (Lesueur), banded killifish	Yes	Tolerant	Insectivore	1
<i>F. dispar</i> (Agassiz), northern starhead topminnow	Yes	Intolerant	Insectivore	1
<i>F. notatus</i> (Rafinesque), blackstripe topminnow	Yes	Intermediate	Insectivore	1
<i>F. olivaceus</i> (Storer), blackspotted topminnow	Yes	Intermediate	Invertivore	1
<i>Gambusia affinis</i> (Baird and Girard), mosquitofish	Yes	Intermediate	Insectivore	1
<i>Labidesthes sicculus</i> (Cope), brook silverside	Yes	Intolerant	Insectivore	1
<i>Cottus bairdi</i> Girard, mottled sculpin	Yes	Intolerant	Insectivore	1
<i>C. carolinae</i> (Gill), banded sculpin	Yes	Intolerant	Insectivore	1
<i>M. chrysops</i> (Rafinesque), white bass	Yes	Intermediate	Piscivore	1
<i>M. mississippiensis</i> Jordan and Eigenmann, yellow bass	Yes	Intermediate	Piscivore	1
<i>M. saxatilis</i> (Walbaum), striped bass	No	Intermediate	Piscivore	0
<i>Elassoma zonatum</i> Jordan, banded pygmy sunfish	Yes	Intolerant	Invertivore	1
Species	Native	Tolerance	Trophic ^c	Status

<i>Ambloplites rupestris</i> (Rafinesque), rock bass	Yes	Intolerant	Carnivore	3
<i>Centrarchus macropterus</i> (Lacepede), flier	Yes	-	Insectivore	1
<i>Lepomis cyanellus</i> Rafinesque, green sunfish	Yes	Tolerant Stressed Habitat	Insectivore	3
<i>L. gibbosus</i> (Linnaeus), pumpkinseed	Yes	Intermediate	Insectivore	3
<i>L. gulosus</i> (Cuvier), warmouth	Yes	Intermediate	Invertivore	1
<i>L. humilis</i> (Girard), orangespotted sunfish	Yes	Intermediate	Insectivore	1
<i>L. macrochirus</i> Rafinesque, bluegill	Yes	Intermediate	Insectivore	3
<i>L. megalotis</i> (Rafinesque), longear sunfish	Yes	Intolerant	Insectivore	3
<i>L. microlophus</i> (Günther), redear sunfish	Yes	Intermediate	Insectivore	3
<i>L. punctatus</i> (Valenciennes), spotted sunfish	Yes	Intolerant	Insectivore	1
<i>L. symmetricus</i> Forbes, bantam sunfish	Yes	Intolerant	Invertivore	5
<i>Micropterus dolomieu</i> Lacepede, smallmouth bass	Yes	Intolerant	Carnivore	3
<i>M. punctulatus</i> (Rafinesque), spotted bass	Yes	Intermediate	Carnivore	3
<i>M. salmoides</i> (Lacepede), largemouth bass	Yes	Intermediate	Carnivore	3
<i>Pomoxis annularis</i> Rafinesque, white crappie	Yes	Intermediate	Carnivore	3
<i>P. nigromaculatus</i> (Lesueur), black crappie	Yes	Intermediate	Carnivore	3
<i>Ammocrypta clara</i> Jordan and Meek, western sand darter	Yes	Intolerant	Insectivore	5
<i>A. pellucida</i> (Agassiz), eastern sand darter	Yes	Intolerant	Insectivore	5
<i>Etheostoma asprigene</i> (Forbes), mud darter	Yes	Tolerant	Insectivore	1
<i>E. blennioides</i> Rafinesque, greenside darter	Yes	Intolerant	Insectivore	1
<i>E. caeruleum</i> Storer, rainbow darter	Yes	Intolerant	Insectivore	1
<i>E. camurum</i> (Cope), bluebreast darter	Yes	Intolerant	Insectivore	5
<i>E. chlorosoma</i> (Hay), bluntnose darter	Yes	-	Insectivore	1
<i>E. exile</i> (Girard), Iowa darter	Yes	Intolerant	Insectivore	1
<i>E. flabellare</i> Rafinesque, fantail darter	Yes	Intermediate	Insectivore	1
<i>E. gracile</i> (Girard), slough darter	Yes	Intermediate	Insectivore	1
Species	Native	Tolerance	Trophic ^c	Status

<i>E. histrio</i> (Jordan and Gilbert), harlequin darter	Yes	Intolerant	Insectivore	5
<i>E. maculatum</i> Kirtland, spotted darter	Yes	Intolerant	Insectivore	5
<i>E. microperca</i> Jordan and Gilbert, least darter	Yes	Intolerant	Insectivore	1
<i>E. nigrum</i> Rafinesque, johnny darter	Yes	Intermediate Stressed habitat	Insectivore	1
<i>E. proeliare</i> (Hay), cypress darter	Yes	Intolerant	Invertivore	1
<i>E. spectabile</i> (Agassiz), orangethroat darter	Yes	Intermediate Stressed Habitat	Insectivore	1
<i>E. squamiceps</i> Jordan, spottail darter	Yes	Intolerant	Invertivore	5
<i>E. tippecanoe</i> Jordan and Evermann, Tippecanoe darter	Yes	Intolerant	Insectivore	5
<i>E. variatum</i> Kirtland, variegated darter	Yes	Intolerant	Insectivore	5
<i>E. zonale</i> (Cope), banded darter	Yes	Intolerant	Insectivore	1
<i>Perca flavescens</i> (Mitchill), yellow perch	Yes	Intermediate	Piscivore	1
<i>Percina caprodes</i> (Rafinesque), logperch	Yes	Intolerant	Insectivore	1
<i>P. copelandi</i> (Jordan), channel darter	Yes	Intolerant	Insectivore	5
<i>P. evides</i> (Jordan and Copeland), gilt darter	Yes	Intolerant	Insectivore	5
<i>P. maculata</i> (Girard), blackside darter	Yes	Intolerant	Insectivore	1
<i>P. phoxocephala</i> (Nelson), slenderhead darter	Yes	Intolerant	Insectivore	1
<i>P. sciera</i> (Swain), dusky darter	Yes	Intolerant	Insectivore	1
<i>P. shumardi</i> (Girard), river darter	Yes	Intermediate	Insectivore	1
<i>P. vigil</i> (Hoy), saddleback darter	Yes	Intolerant	Invertivore	1
<i>Stizostedion canadense</i> (Smith), sauger	Yes	Intermediate	Piscivore	3
<i>S. vitreum</i> (Mitchill), walleye	Yes	Intermediate	Piscivore	3
<i>Aplodinotus grunniens</i> Rafinesque, freshwater drum	Yes	Intermediate	Invertivore	3

° Trophic = Trophic level

Note: Shaded rows indicate the most common species found in the Wabash Lowland, Crawford Upland, and Mitchell Plain physiographic regions.

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