Chapter Five

Conservation Challenges Facing Iowa's Wildlife and Habitats

Required Element #3: "Descriptions of problems which may adversely affect the state's wildlife species identified in required element #1 or their habitats…"

Assessing Threats to Iowa's Wildlife and Habitats

For the 2025 revision, the analysis of threats that had been conducted in 2015 was reviewed. We decided that it was still relevant and to keep it as the basis for this edition's threat assessment. We also added an analysis for the taxa groups that are new for this version, and made a few updates to the organization in order to capture changes that have been made to the Conservation Measures Partnership (CMP) Threats Classification System since 2015. During the 2015 revision process, DNR fisheries and wildlife biologists, along with Implementation Committee and Working Group members that had the appropriate expertise and experience, identified and evaluated the most important problems facing Iowa's wildlife today. Four threat impact levels - Low, Medium, High, or Very High - were used to evaluate the relative importance of each threat, taking into account both the scope and the severity of each threat (Table 5-1). Separate evaluations were made for each taxonomic class (Table 3-1) and each habitat class (Table 4-1 and Table 4-5). The results of these evaluations are summarized in Table 5-4 through Table 5-15.

Table 5-1. Definitions of Threat Impacts (after the International Union for Conservation of Nature [IUCN] Threat Classification System for calculating threat impact scores).

Threat Impact Calculation		**Scope**			
		Pervasive	Large	Restricted	Small
Severity	Extreme	Very High	High	Medium	Low
	Serious	High	High	Medium	Low
	Moderate	Medium	Medium	Low	Low
	Slight	Low	Low	Low	Low

The items on the list represent *potential* threats, which require interpretation based on the biology of the species or habitats being evaluated. The list of threats should not be interpreted as a list of things that are bad for wildlife. Rather, it is a framework from which to evaluate potential threats, stresses, or conservation challenges for wildlife for the purpose of identifying the most effective means of conserving healthy wildlife populations.

Defining Threats

In 2002, a coalition of global conservation practitioners joined together and formed the Conservation Measures Partnership (CMP). The Partnership's mission is to 'advance the practice of conservation by developing, testing, and promoting principles and tools to credibly assess and improve the effectiveness of conservation actions'. The partnership includes non-governmental conservation organizations such as National Audubon Society, The Nature Conservancy, Wildlife Conservation Society, and World Wildlife Fund, as well as governmental entities such as the U.S. Fish and Wildlife Service.

In 2004, CMP developed the first edition of the "Open Standards for the Practice of Conservation" which has since been updated in 2007, 2013, and 2024.

One outcome of this partnership is the development of a "standard lexicon" for conservation, including taxonomies, or hierarchies, for both threats and conservation actions (Salafsky et al. 2008, 2024). Adopting the use of the standard terminology allows conservationists operating at any spatial scale to share information and experiences, facilitating learning and improvement among conservation practitioners. The 2015 and 2025 editions of the IWAP make use of this standard lexicon for the classification of threats and actions in order to increase the ability of our threats and actions to be compared across state lines or other political boundaries. This helps make clear how the IWAP fits in as one piece of regional, national, or even global efforts to conserve wildlife. Aside from a small number of additions, the use of this

taxonomy does not substantially change the threats listed in the 2012 or 2006 versions of the IWAP; rather, it clarifies some of them and re-organizes them into a multilevel system. This terminology was updated in 2025 to reflect the 2024 version of the taxonomy changes. Before listing these threats, it will be helpful to review relevant definitions which describe the general elements of conservation projects. These definitions will be relevant to this chapter as well as the following chapter which addresses conservation actions.

Definitions

(adapted from Salafsky et al. 2008 & 2024)

- *Focal Conservation Target* or *Biodiversity Focal Value*: The biological entities (species, communities, or ecosystems) that are the focus of one or more conservation actions.
- *Biophysical factor*: Ecological or geophysical element of a natural system.
- *Stress:* A stress is not a threat in and of itself, but rather a degraded condition or "symptom" of the target that results from a direct threat.
- *Direct Threat:* Human action that is the cause of destruction, degradation, and/or impairment of focal conservation targets (e.g., unsustainable fishing or logging). Direct threat is synonymous with *source of stress*, *proximate pressure,* and *direct driver*.
- *Contributing Factors:* Element of a human socioeconomic system that leads to a direct threat. There is typically a chain of contributing factors behind any given direct threat. Synonymous with *driver* and *root cause*.
- *Conservation Actions:* Interventions undertaken by conservationists designed to achieve conservation goals (e.g., establishing an ecotourism business or setting up a protected area). Actions can be applied to contributing factors, direct threats, or directly to the targets themselves.
- *Project Teams:* The groups of people involved in designing, implementing, managing, and monitoring projects (e.g., a partnership between a local nongovernmental organization and a community or the staff of a national park).

Threats Taxonomy

For the full list and definitions of Level I and II Threats, as developed for the global conservation community, please visit the Conservation Measures Partnership webpage. Several of the threats included in the full list are, thankfully, not relevant or exceedingly improbable in Iowa within the next few decades (e.g. Geological Events such as Volcanoes or Avalanches). Table 5-3 lists these threats and provides examples and explanations relevant to Iowa.

For those threats that are negligible in Iowa (e.g. tsunamis and avalanches), The "Scope" portion of the assessments address the low likelihood or limited spatial distribution of these issues in Iowa. The "Severity" portion of the threat assessments take into account the *potential* impact that could occur. Thus, several items that appear clearly detrimental to wildlife will still be rated as "negligible" if they do not occur on at least 1% of Iowa's landscape currently and have a low likelihood of occurring over the next 10-20 years. Similarly, several low and moderate values may result in an overall ranking of high due to the fact that multiple threats may interact with each other resulting in a combined effect that is worse than any of the threats on its own (Table 5-2).

Table 5-2. Algorithm for assigning overall threat impact for a target across all threats (after the International Union for Conservation of Nature [IUCN] Threat Classification System for calculating threat impact scores).

Impact Values of Level 1 Threat Categories	Overall Threat Impact
≥1 Very High, OR ≥2 High, OR 1 High + ≥2 Medium	**Very High**
1 High, OR ≥3 Medium, OR 2 Medium + 2 Low, OR 1 Medium + ≥3 Low	**High**
1 Medium, OR ≥4 Low	**Medium**
1-3 Low	**Low**

Table 5-3. Threat taxonomy for Iowa's wildlife and habitats, adapted from Salafsky et al. 2008 & 2024.

Level I Threats	Iowa-specific explanations and examples
A. Use of Lands & Waters - Human uses of land and water areas that have a substantial spatial footprint. Includes effects from their construction (e.g. ecosystem conversion), ongoing use, and abandonment.	
1. Residential, Commercial, and Recreation Areas	Threats from human settlements, industrial areas or other non-agricultural land uses with a substantial footprint.
1.1 Residential Areas	• Conversion of natural vegetation to residential uses, resulting in less area for wildlife to occupy. • As the amount of impervious surfaces increases, the amount of land with infiltration capacity is reduced, causing stormwater runoff to end up in rivers and streams. • Changes to shorelines of waterbodies that may result in loss of vegetation and increased bank erosion.
1.2 Commercial & Industrial Areas	• Conversion of natural vegetation to industrial uses, resulting in less area for wildlife to occupy and reduction of infiltration capacity of land as impervious surfaces increase.
1.3 Recreation & Tourism Areas	• Degradation or destruction of habitat for the purpose of fulfilling recreational goals in an area and the increased risk of negative human-wildlife interactions associated with human use of an area. The threats associated with this vary in severity depending on recreational goals. For example, the landscape changes and land use practices associated with golf courses have a more significant impact on wildlife than hiking trails.
2. Agriculture & Aquaculture	Farming and ranching including agricultural expansion and intensification, including tree plantations, mariculture and aquaculture.
2.1 Annual & Perennial Non-Timber Crops	• Large fields lacking natural vegetation cover (exposing bare soil) for many months of the year, and supporting corn and soybeans during the growing season. • Fragmentation of large tracts of a given habitat type into smaller areas. • Loss of connectivity by the introduction of breaks into linear habitats that had previously connected areas of habitat to each other. • The removal of vegetation in or adjacent to bodies of water which may lead to increased flooding, siltation, and water temperatures. • Removal of wildlife species associated with negative impacts on agricultural productivity.
2.2 Wood & Pulp Plantations	• Stands of trees planted for wood or pulp industries. Assessments reflect the relatively small scope and *potential* severity of the wood and pulp industry, which is currently very limited in Iowa.
2.3 Terrestrial Animal Farming, Ranching, & Herding	• The use of grazing in such a way that it is detrimental to wildlife, for example, using too heavy of a stocking rate, grazing too early or late in the growing season resulting in habitat loss, including loss of residual winter cover for wildlife and alteration of the species composition of pastures and woodlands. • Physical damage to stream banks and riparian vegetation caused by livestock, which increases the risk of erosion in an area.
2.4 Marine & Freshwater Aquaculture	• Potential impacts of stocking predatory fishes on populations of other fishes, amphibians, and dragonflies and damselflies. • Removal of predators to fish such as otters.
3. Energy Production & Mining	Extraction of non-biological resources, often widely dispersed across the landscape.
3.1 Oil & Gas Exploration & Extraction	• Exploring for, developing, and producing oil or gas. Assessments reflect the relatively small scope and *potential* severity of the oil and gas drilling industry, which is currently very limited in Iowa
3.2 Mining & Quarrying	• Rock/gravel mines can open up suitable habitat for some species but destroy suitable habitat for others through forest clearing, earth removal, and water collection on site. • Frack sand mine development.
3.3 Renewable Energy	• Wind or solar energy development that reduces the suitability of habitat by altering how wildlife uses an area and causes direct mortalities through collisions (esp. birds and bats) of wildlife with wind turbines or solar panels. • Corn ethanol production (leading to increased acres in corn). Removal of corn stover from cropfields for biofuel production, use of non-native plants for biofuel development, harvest of native grasses for biofuel production.

Level I Threats	Iowa-specific explanations and examples
4. Transportation, Service, & Security Corridors	Linear infrastructure such as long, narrow service or transport corridors, including associated wildlife mortality.
4.1 Roads & Railroads	• Habitat loss, fragmentation, and the opening of blocks of habitat to detrimental intrusions. • Direct mortality of wildlife being struck by vehicles. • Increased risk to habitat of spills on roadways or railroads and restriction of potential for habitat restoration in an area.
4.2 Utility & Service Lines	• Fragmentation of habitat associated with opening up an area for erecting wires and constructing service roads. • Direct mortality through collisions of wildlife with wires (esp. birds).
4.3 Shipping Lanes	• Dredging to maintain shipping channels. Development of shipping lanes was the primary reason for channelization of the Missouri River and development of the lock and dam system in the Mississippi River, altering the natural processes of Iowa's border rivers.
4.4 Atmospheric & Space Activities	• Destruction and fragmentation of habitat that occurs when establishing an airport. • Removal of species that may attempt to use an airport facility for breeding or foraging. • Restriction of habitat restoration potential associated with an area near an airport due to efforts to prevent wildlife related accidents on site. • Collisions with airplanes.
4.5 Fencing & Walls	• Fencing and walls causing barriers to wildlife movement.
B. Use / Management of Species & Ecosystems - Human uses of biotic resources and disturbance from human presence or management actions in natural systems.	
5. Biological Resource Use & Control	Consumptive use of "wild" biological resources including both deliberate and unintentional harvesting effects as well as persecution of specific species.
5.1 Hunting / Collecting, & Controlling Terrestrial Animals	• Illegal taking of any species as well as illegal pet trade (especially pertaining to turtles).
5.2 Gathering, Harvesting, & Controlling Terrestrial Plants & Fungi	• Gathering plants from natural areas impacting the natural vegetation.
5.3 Logging, Harvesting & Controlling Trees	• Timber harvest is not a threat *per se*, but the method, extent, and timing of harvest may affect the habitat available for wildlife, particularly SGCN.
5.4 Fishing, Harvesting & Controlling Aquatic Resources	• Detrimental over-use of aquatic species for recreational or commercial purposes.
6. Human Intrusions & Disturbances	Human activities that alter, destroy and disturb ecosystems and species associated with non-consumptive uses of biological areas and resources.
6.1 Recreational Activities	• Detrimental over-use of natural areas that degrades wildlife habitat or deters wildlife from using an area. • Recreational activities conducted outside of designated areas that destroy sensitive habitat. • Direct wildlife mortality through collisions with motor-boats, snowmobiles, ATVs, etc.
6.2 Conflict, Civil Unrest & Security Activities	• Assessments reflect the relatively small scope and *potential* severity of war and military exercises, which is currently very limited in Iowa.
6.3 Other Human Disturbances	• People spending time in or traveling through natural environments. Includes legal activities such as research or holding events, or illegal, such as vandalism.
7. Natural System Management & Modifications	Human actions that modify ecosystem structures, composition, or regimes, either deliberately to improve human welfare / benefit certain species, or as a result of other activities. This category includes both construction of permanent or long-term structures and their operations as well as more transitory management practices.
7.1 Fire & Fire Management	• Excessive or untimely fire management that may kill individual animals, destroy habitats or alter habitats at critical life stages for SGCN. • The removal of fire as a natural succession resulting in the conversion of grasslands to woody habitat containing shrubs or trees.

Level I Threats	Iowa-specific explanations and examples
7.2 Dams & Water Management / Use	• Removal of surface water from lakes and wetlands (and associated alteration of water table and groundwater flows). • The inundation of terrestrial habitats caused by man-made dams and the alteration of natural seasonal occurrence of floods associated with these structures. • Structures on flowing rivers and streams that impound water, resulting in altered aquatic habitats, decreased flow rates and increased siltation above the structure as well as creating a barrier to fish movement. • 95% of pothole wetlands drained and converted to agriculture. • Channelization - The straightening of stream channels leading to decreased stream lengths, increased flow rates, and increased frequency of flooding. • Shoreline/bank erosion - siltation originating from the bank or shoreline of a body of water. • Loss of submerged/emergent plants - the loss of rooted plants in the water that may result in altered aquatic habitats. • Streambed degradation - the lowering of the bed of a flowing body of water due to increased scouring action resulting from increased flow rates and altered hydrology. • Levees and dikes disconnecting portions of the riparian area from the channel.
7.3 Earth & Sediment Management	• Sediment control measures that destroy habitat or restrict animal movement. • Rip-rap along shorelines of rivers and lakes. • Sand dune stabilization.
7.4 Weather & Climate Management	• Cloud seeding, frost prevention, carbon capture (except infrastructure)
7.5 Biological System Management	• Recreational mowing of roadside ditches and large lawns • Gating caves • Removal of snags from streams • Barriers to prevent fish passage • Using cattle to mimic natural grazing systems
7.6 Removing / Reducing Human Management	• Loss of management on Iowa's wetlands, grasslands, and forests leads to succession and invasive species encroachment. • Lack of fire, grazing, timber harvest, etc.
C. Additional Sources of Stress - Stressors in natural systems that have been altered by the effects of current or historical human actions.	
8. Invasive / Other Problematic Species, Genes & Pathogens	Threats from non-native and native plants, animals, pathogens/microbes, or genetic materials that have or are predicted to have harmful effects on biodiversity following their introduction, spread and/or increase in abundance or virulence.
8.1 Invasive Non-Native / Alien Species	• The proliferation of non-native species that outcompete or prey upon native species, or cause habitat degradation (e.g. feral hogs destroying habitat, household pets preying on wildlife, zebra mussels and other aquatic nuisance species outcompeting native aquatic species, exotic honeysuckle outcompeting native species, Emerald Ash Borer altering woodlands by killing ash trees, etc.).
8.2 Problematic Native Species	• The proliferation of native species that outcompete or prey upon other species, or cause habitat degradation (e.g. insect damage, encroachment of native woody species into grasslands, willows or cottonwood trees into wetlands, algal blooms, over-abundance of mesopredators impacting other species reproduction or survival, etc.).
8.3 Introduced Genetic Material	• Risk of pesticide resistance genes spreading to non-target species, genetic swamping of local populations through releases of lab-raised individuals (e.g. release of butterflies at special events), habitat restoration projects using non-local seed stock, genetically modified insects for biocontrol, genetically modified trees.
8.4 Pathogens	• Disease and pathogens that affect wildlife and their habitats (e.g. Chytrid fungus and ranavirus in amphibians, snake fungus disease in reptiles, white-nose syndrome decimating bat populations, highly pathogenic avian influenza in birds, chronic wasting disease in cervids, chronic wasting disease prions adhering to plants, oak wilt, bur oak blight, and Dutch elm disease)
9. Pollution	Introduction of exotic and/or excess materials or energy from point and nonpoint sources

Level I Threats	Iowa-specific explanations and examples
9.1 Water-Borne & Other Effluent Pollution	• Nutrient pollution - the excessive addition of nutrients into aquatic systems leading to accelerated eutrophication. • Chemical pollution - the introduction of harmful chemicals into aquatic ecosystems. Risk of oil-spills. • Deposition of silt and sediments in aquatic ecosystems. • Pesticides or herbicides applied to agricultural crops that eventually end up in aquatic ecosystems. These products can have direct impacts on animals (eg. Atrazine causing deformities in amphibians) or indirectly affect wildlife by harming the plants that comprise their habitat. • Tile drainage of agricultural fields leading to accelerated transport of surface water to rivers and lakes that decreases the ability of hydrological systems to tolerate large fluctuations in precipitation.
9.2 Garbage & Solid Waste	• Garbage and waste that is improperly disposed of and ends up in the natural environment posing a risk for wildlife and their habitats, (e.g. lead from ammunition, fishing tackle, or other sources being ingested by wildlife directly or by being taken up by plants in the environment, improperly discarded fishing line or other debris entangling wildlife). • Dumping garbage in natural areas.
9.3 Air-Borne Pollutants	• Aerial application of pesticides in agricultural or urban/suburban areas and associated spray drift that ends up in areas that were not intended to be treated or affects non-target species.
9.4 Energy Emissions	• Potential impacts of heated effluents discharged to Iowa's interior and border rivers, light pollution (e.g., attracting insects to unproductive areas such as gas stations), sound pollution from airports, highways, or other sources.
10. Natural Disasters	Potential catastrophic natural disturbances that conservation practitioners may still need to consider, particularly when managing small and / or remnant species populations or remnant ecosystems.
10.1 Geologic Events	• Assessments reflect the relatively negligible scope and *potential* severity of volcanic activity, which is currently improbable in Iowa (although even distant volcanic activity could impact Iowa). • Assessments reflect the relatively negligible scope and *potential* severity of earthquakes, which are currently infrequent and mild in Iowa. • Assessments reflect the relatively negligible scope and *potential* severity of avalanches, which are currently improbable in Iowa given the relative lack of topographic relief in the state.
10.2 Severe Weather Events	• Fluctuations or extremes in precipitation in a geographical area (e.g., thunderstorms, tornadoes, ice storms, blizzards, dust storms). Even a normal flood or drought can decimate a small population.
11. Climate Change	Change in climate patterns resulting from increased atmospheric greenhouse gases.
11.1 Changes in Physical and Chemical Regimes	• In the Midwest, summertime precipitation is increasingly variable, leading to more frequent periods of drought and more frequent intense rainfall events. • As ranges of plant species contract, expand or shift, the plant communities that wildlife inhabit will change, and could encroach upon adjacent systems.
11.2 Changes in Temperature Regimes	• Broad scale changes in temperature, fluctuations or extremes in temperatures in a geographical area. Even small increases in mean temperature are correlated with more frequent extreme temperature events. In Iowa, temperature increases have been more pronounced in winter and during nighttime.
11.3 Changes in Precipitation & Hydrological Regimes	• Broad scale changes in precipitation, fluctuations or extremes in precipitation in a geographical area. • Increases in mean precipitation have been most pronounced in the spring, and have been manifested through increasing frequency of intense precipitation events. In the Midwest, summertime precipitation has become more variable, leading to more frequent periods of drought and more frequent intense rainfall events. Intense precipitation events increase soil erosion and flood risk.
12. Unknown Threats	Threats that cannot be identified.

Table 5-4. Threats to Terrestrial Wildlife (including all habitat classes).

Impact level: **L** = Low, **M** = Medium, **H** = High, **VH** = Very High (Negligible threats demarked with a dash)

Level I Threats	Amphibians	Birds	Butterflies	Land Snails	Mammals	Reptiles
1. Residential, Commercial & Recreation Areas	H	H	M	M	M	H
2. Agriculture & Aquaculture	VH	VH	VH	M	VH	VH
3. Energy Production & Mining	L	H	L	L	M	M
4. Transportation, Service & Security Corridors	H	VH	M	M	H	VH
5. Biological Resource Use & Control	M	H	L	H	H-L	VH
6. Human Intrusions & Disturbances	VH	H	M	L	H	VH
7. Natural System Management & Modifications	VH	VH	VH	M	VH	VH
8. Invasive & Other Problematic Species, Genes and Pathogens	VH	VH	H	M	H	VH
9. Pollution	H	VH	H	L	VH	VH
10. Natural Disasters	-	-	-	-	-	-
11. Climate Change	VH	VH	VH	H	H	H

In the 2024 IUCN changes to the threats taxonomy, the Severe Weather category was moved from Climate Change to Natural Disasters. The Natural Disaster Category, as of 2024, is a combination of that criterion as well as the earlier Geologic Events criteria. It is possible that re-doing the assessments for each taxa would result in the Natural Disasters category moving from scores of "-" to another category, but the overall result of the impact matrix is not likely to change at the taxonomic scale. For example, flooding would move from "Climate Change" to "Natural Disasters" and floods can have a major impact on wood turtle (reptile) species nesting. This factor could result in Natural Disasters moving from "-" for reptiles to either "low" or "medium" depending on the experts opinions of how to weigh turtle impacts to the more terrestrial species of snakes and lizards. However, the impact of the change in timing of the flood (summer more likely now instead of early spring) would still be captured in the Climate Change category and, overall, it is unlikely that the threat assessment results have changed.

This revision does use, however, the new taxonomy to evaluate the threats for bumble bees and moths which are shown in Table 5-5.

Table 5-5. Threats to Bumble Bees & Moths (including all habitat classes).

Level I Threats	Bumble Bees	Moths
1. Residential, Commercial & Recreation Areas	VH	M
2. Agriculture & Aquaculture	VH	VH
3. Energy Production & Mining	L	L
4. Transportation, & Service & Security Corridors	M	M
5. Biological Resource Use	M	L
6. Human Intrusions & Disturbances	L	L
7. Natural System Management & Modifications	VH	VH
8. Invasive & Other Problematic Species, Genes & Pathogens	VH	Unknown
9. Pollution	VH	VH
10. Natural Disasters	H	M
11. Climate Change	VH	M

Table 5-6. Threats to Aquatic Wildlife (including all habitat classes)

Impact level: **L** = Low, **M** = Medium, **H** = High, **VH** = Very High (Negligible threats demarked with a dash)

Level I Threats	Crayfish	Dragonflies & Damselflies	Fish	Mussels
1. Residential, Commercial & Recreation Areas	M	H	H	M
2. Agriculture & Aquaculture	M	VH	H	VH
3. Energy Production & Mining	L	M	M	L
4. Transportation, Service, & Security Corridors	L	M	L	H
5. Biological Resource Use	L	L	L	M
6. Human Intrusions & Disturbances	-	L	-	M
7. Natural System Management & Modifications	VH	VH	VH	VH
8. Invasive & Other Problematic Species, Genes & Pathogens	H	M	H	M
9. Pollution	M	VH	M	H
10. Natural Disasters	-	-	-	-
11. Climate Change	H-M	VH	H	H

Table 5-7. Statewide Threats to Amphibians

Impact level: **L** = Low, **M** = Medium, **H** = High, **VH** = Very High (Negligible threats demarked with a dash)

Threats were assessed for habitat classes considered most relevant to amphibians.

Level I Threats	Grassland	Rowcrop	Wetland	Woodland
1. Residential, Commercial & Recreation Areas	M	L	M	H
2. Agriculture & Aquaculture	VH	NA	H	H
3. Energy Production & Mining	L	-	L	L
4. Transportation, Service, & Security Corridors	M	L	H	H
5. Biological Resource Use	L	-	M	M
6. Human Intrusions & Disturbance	L	VH	-	L
7. Natural System Management & Modifications	M	VH	H	H
8. Invasive & Other Problematic Species, Genes & Pathogens	L	Unknown	H	H
9. Pollution	L	M	H	M
10. Natural Disasters	-	-	-	-
11. Climate Change	H	H	H-M	L
Overall Threat	M	M	VH	VH

Table 5-8. Statewide Threats to Reptiles

Impact level: **L** = Low, **M** = Medium, **H** = High, **VH** = Very High (Negligible threats demarked with a dash)

Threats were assessed for habitat classes considered most relevant to reptiles.

Level I Threats	Grassland	River	Rowcrop	Wetland	Woodland
1. Residential, Commercial & Recreation Areas	M	L	L	M	M
2. Agriculture & Aquaculture	VH	H	NA	H	H
3. Energy Production & Mining	M	-	-	L	L
4. Transportation, Service, & Security Corridors	H	M	L	H	H
5. Biological Resource Use	H	VH	-	H	M-L
6. Human Intrusions & Disturbances	H	-	VH	L	M
7. Natural System Management & Modifications	VH	M	M	H	H

Level I Threats	Grassland	River	Rowcrop	Wetland	Woodland
8. Invasive & Other Problematic Species, Genes & Pathogens	H	H	Unknown	H-M	H
9. Pollution	M	H	L	H	L
10. Natural Disasters	-	-	-	-	-
11. Climate Change	M	H	M	H-M	M
Overall Threat	VH	VH	M	VH	H

Table 5-9. Statewide Threats to Birds

Impact level: **L** = Low, **M** = Medium, **H** = High, **VH** = Very High (Negligible threats demarked with a dash)

Threats were assessed for habitat classes considered most relevant to birds.

Level I Threats	Grassland	Shrubland	Rowcrop	Woodland	Wetland
1. Residential, Commercial & Recreation Areas	L	M	L	M	L
2. Agriculture & Aquaculture	VH	H	NA	H	H
3. Energy Production & Mining	M	-	M	L	M
4. Transportation, Service, & Security Corridors	M	M	M	H	H
5. Biological Resource Use	-	L	M	H-M	L
6. Human Intrusions & Disturbances	H	L	M	M	L
7. Natural System Management & Modifications	VH	H	VH	H	H
8. Invasive & Other Problematic Species, Genes & Pathogens	VH	H	Unknown	H	H
9. Pollution	H	M	M	H	M
10. Natural Disasters	-	-	-	-	-
11. Climate Change	H	M	H	M	H
Overall Threat	VH	VH	M	VH	VH

Table 5-10. Statewide Threats to Mammals

Impact level: **L** = Low, **M** = Medium, **H** = High, **VH** = Very High (Negligible threats demarked with a dash)

Threats were assessed for habitat classes considered most relevant to mammals.

Level I Threats	Grassland	Rivers	Rowcrop	Wetland	Woodland
1. Residential, Commercial & Recreation Areas	L	L	L	L	M
2. Agriculture & Aquaculture	VH	VH	NA	VH	H
3. Energy Production & Mining	L	-	L	L	L
4. Transportation, Service & Security Corridors	M	L	L	M	M
5. Biological Resource Use	L	-	-	-	H-L
6. Human Intrusions & Disturbances	M	-	M	-	M
7. Natural System Management & Modifications	H	H	L	VH	M
8. Invasive & Other Problematic Species, Genes & Pathogens	H	L	M	L	M
9. Pollution	L	H	L	H	L
10. Natural Disasters	-	-	-	-	-
11. Climate Change	M	H	L	H-M	Not a significant impact within next 10 years

Level I Threats	Grassland	Rivers	Rowcrop	Wetland	Woodland
Overall Threat	H	M	L	H	M

Table 5-11. Statewide Threats to Fish

Impact level: **L** = Low, **M** = Medium, **H** = High, **VH** = Very High (Negligible threats demarked with a dash)

Threats were assessed for all aquatic habitat classes together, which was considered most relevant to fish.

Level I Threat	All Aquatic Habitats
1. Residential, Commercial & Recreation Areas	H
2. Agriculture & Aquaculture	H
3. Energy Production & Mining	M
4. Transportation, Service & Security Corridors	L
5. Biological Resource Use	L
6. Human Intrusions & Disturbance	-
7. Natural System Management & Modifications	VH
8. Invasive & Other Problematic Species, Genes & Pathogens	H
9. Pollution	M
10. Natural Disasters	-
11. Climate Change	H
Overall Threat	VH

Table 5-12. Statewide Threats to Mussels

Impact level: **L** = Low, **M** = Medium, **H** = High, **VH** = Very High (Negligible threats demarked with a dash)

Threats were assessed for all aquatic habitat classes combined which is considered most relevant to mussels.

Level I Threats	All Aquatic Habitats
1. Residential, Commercial & Recreation Areas	M
2. Agriculture & Aquaculture	VH
3. Energy Production & Mining	L
4. Transportation, Service & Security Corridors	H
5. Biological Resource Use	M
6. Human Intrusions & Disturbances	M
7. Natural System Management & Modifications	VH
8. Invasive & Other Problematic Species, Genes & Pathogens	M
9. Pollution	H
10. Natural Disasters	-
11. Climate Change	H
Overall Threat	VH

Table 5-13. Driftless Area Threats to Terrestrial Snails

Impact level: **L** = Low, **M** = Medium, **H** = High, **VH** = Very High (Negligible threats demarked with a dash)

Threats were assessed for the woodland habitat class, which is the most relevant to terrestrial snails.

Level I Threats	Woodland
1. Residential, Commercial & Recreation Areas	M
2. Agriculture & Aquaculture	M
3. Energy Production & Mining	L
4. Transportation, Service & Security Corridors	M

Level I Threats	Woodland
5. Biological Resource Use	H
6. Human Intrusions & Disturbances	L
7. Natural System Management & Modifications	M
8. Invasive & Other Problematic Species, Genes & Pathogens	M
9. Pollution	L
10. Natural Disasters	-
11. Climate Change	H
Overall Threat	H

Table 5-14. Statewide Threats to Bumble Bees

Impact level: **L** = Low, **M** = Medium, **H** = High, **VH** = Very High (Negligible threats demarked with a dash)

Threats were assessed for habitat classes considered most relevant to bumble bees.

Level I Threats	Grassland	Rowcrop	Woodland
1. Residential, Commercial & Recreation Areas	H	H	L
2. Agriculture & Aquaculture	VH	VH	VH
3. Energy Production & Mining	M	M	M
4. Transportation, Service & Security Corridors	M	M	M
5. Biological Resource Use	L	L	L
6. Human Intrusions & Disturbances	L	L	L
7. Natural System Management & Modifications	VH	H	VH
8. Invasive & Other Problematic Species, Genes & Pathogens	H	H	H
9. Pollution	VH	VH	VH
10. Natural Disasters	H	M	M
11. Climate Change	VH	VH	VH
Overall Threat	VH	VH	VH

Table 5-15. Statewide Threats to Butterflies

Impact level: **L** = Low, **M** = Medium, **H** = High, **VH** = Very High (Negligible threats demarked with a dash)

Threats were assessed for habitat classes considered most relevant to butterflies.

Level I Threats	Grassland	Rowcrop	Wetland	Woodland
1. Residential, Commercial & Recreation Areas	L	L	L	L
2. Agriculture & Aquaculture	VH	NA	H	L
3. Energy Production & Mining	L	-	L	L
4. Transportation & Service Corridors	L	L	L	L
5. Biological Resource Use	L	-	-	L
6. Human Intrusions & Disturbance	M	M	L	-
7. Natural Systems Modification	H	L	H	M
8. Invasive & Other Problematic Species & Genes	M	Unknown	H	L
9. Pollution	H	M-L	M	L
10. Geological Events	-	-	-	-
11. Climate Change & Severe Weather	H-M	H	H	M
Overall Threat	VH	M	H	L

Table 5-16. Statewide Threats to Moths

Impact level: **L** = Low, **M** = Medium, **H** = High, **VH** = Very High (Negligible threats demarked with a dash)

Threats were assessed for habitat classes considered most relevant to moths.

Level I Threats	Grassland	Rowcrop	Wetland	Woodland
1. Residential, Commercial & Recreation Areas	M	L	L	M
2. Agriculture & Aquaculture	VH	VH	M	M
3. Energy Production & Mining	H	L	-	L
4. Transportation & Service Corridors	M	L	-	L
5. Biological Resource Use	L	L	L	L
6. Human Intrusions & Disturbance	L	-	L	L
7. Natural Systems Modification	VV	H	L	H
8. Invasive & Other Problematic Species & Genes	Unknown	Unknown	Unknown	Unknown
9. Pollution	H	H	M	M
10. Geological Events	M	L	L	M
11. Climate Change & Severe Weather	M	M	M	M
Overall Threat	VH	H	M	M

Table 5-17. Statewide Threats to Dragonflies & Damselflies

Impact level: **L** = Low, **M** = Medium, **H** = High, **VH** = Very High (Negligible threats demarked with a dash)

Threats were assessed for habitat classes considered most relevant to Dragonflies & Damselflies.

Level I Threats	Grassland	Rivers	Rowcrop	Wetland	Woodland
1. Residential, Commercial & Recreation Areas	M	L	-	L	L
2. Agriculture & Aquaculture	VH	L	NA	VH	H
3. Energy Production & Mining	L	L	-	L	L
4. Transportation, Service & Security Corridors	L	L	Not a Threat	M	-
5. Biological Resource Use	-	-	-	-	L
6. Human Intrusions & Disturbances	L	-	L	-	-
7. Natural System Management & Modifications	M	H	VH	VH	-
8. Invasive & Other Problematic Species, Genes & Pathogens	Unknown	Unknown	Unknown	M	Unknown
9. Pollution	L	VH	L	H	-
10. Natural Disasters	-	-	-	-	-
11. Climate Change	H	H	H	H	H
Overall Threat	H	VH	L	VH	H

Table 5- 18. Statewide Threats to Crayfish

Impact level: **L** = Low, **M** = Medium, **H** = High, **VH** = Very High (Negligible threats demarked with a dash)

Threats were assessed for habitat classes considered most relevant to crayfish.

Level I Threats	All Aquatic Habitats
1. Residential, Commercial & Recreation Areas	M
2. Agriculture & Aquaculture	M
3. Energy Production & Mining	L
4. Transportation, Service, & Security Corridors	L

Level I Threats	All Aquatic Habitats
5. Biological Resource Use	L
6. Human Intrusions & Disturbances	-
7. Natural System Management & Modifications	VH
8. Invasive & Other Problematic Species, Genes & Pathogens	H
9. Pollution	M
10. Natural Disasters	-
11. Climate Change	H-M
Overall Threat	H

References Cited in Chapter Five

Conservation Measures Partnership. 2025. *Open standards for the practice of conservation.* Version 5.0. Last accessed September 4, 2025. www.ConservationMeasures.org

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