

PRAIRIE GRASSLAND HABITAT NARRATIVE

Habitat description

A prairie is a complex natural community covered with a dense mixture of tall grasses and other herbaceous plants.

Problems affecting species and habitats

Species threats

The respondent listed no "critical threats," but cited these "serious threats" to wildlife in prairie grassland habitats in Indiana (not ranked):

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

The respondent listed as "somewhat of a threat" to wildlife in prairie grassland habitats in Indiana (not ranked):

- Invasive/non-native species
- Predators (native or domesticated)
- Dependence on irregular resources (cyclical annual variations) (e.g., food, water, habitat limited due to annual variations in availability)

The respondent listed as "slight threat" to wildlife in prairie grassland habitats in Indiana (not ranked):

- Near limits of natural geographic range
- Viable reproductive population size or availability

The respondent listed no additional threats to wildlife in prairie grassland habitats in Indiana.

The respondent listed top threats to wildlife in prairie grassland habitats in Indiana (not ranked):

- Availability of habitat
- Mowing grasslands

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the threats to wildlife in prairie grassland habitats. Their responses included:

- No. We have less than 1/10th of 1% remaining of natural prairie grasslands in Indiana; thus, habitat loss must be considered a critical threat. In addition, the prairies that do remain are relatively small in size, so that area sensitive species are especially vulnerable. Finally, invasive species post a serious, if not critical threat, to our remaining prairies.
- No...this summary is wholly inadequate to address the significant threats to native prairie ecosystems in Indiana, which have declined by more than 99% since presettlement time. How can a habitat type that has declined by >99% not have critical threats? Grassland birds are the fastest declining guild of bird species in North America, and nearly 20 species of grassland dependent birds, mammals, reptiles, and amphibians are either state endangered or state special concern. In addition, 20% of the USFWS's Birds of Conservation Concern for the Midwest region are grassland dependent. Many of the threats

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listed are correct, but I believe they are much more serious than depicted. Direct loss through successional change and lack of adequate management (e.g. fire) is a key component, as is habitat fragmentation and predation/parasitism, but there is so little native prairie remaining that any loss is considered a significant loss. While many grassland dependent wildlife species can use other types of grasslands for breeding and foraging, the majority of these grasslands are either highly disturbed (e.g. haylands) or ecologically poor in plant species composition and/or structure, making them inferior habitats for grassland wildlife.

Habitat threats

The respondent named no "critical threats," but listed the following as "serious threats" to prairie grassland habitats in Indiana (not ranked):

- Counterproductive financial incentives or regulations
- Successional change
- Agricultural/forestry practices

The respondent considered the following as "somewhat of a threat" to prairie grassland habitats in Indiana (not ranked):

- Commercial or residential development (sprawl)
- Habitat fragmentation
- Habitat degradation

The respondent listed the following as "slight threats" to prairie grassland habitats in Indiana (not ranked):

- Invasive/non-native species
- Residual contamination (persistent toxins)

The respondent listed no additional threats to prairie grassland habitats in Indiana.

The respondent listed the following as top threats to prairie grassland habitats in Indiana:

- Mowing during breeding season
- Conversion of grasslands to row crops or housing developments

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the threats to prairie grassland habitats. Their responses included:

- Habitat fragmentation and degradation are serious threats
- Again, few remaining prairies compared to presettlement time, small size (fragmentation), and degraded (invasive species/succession) are all critical problems for Indiana prairies.
- As mentioned above, considering that >99% of the native prairie in Indiana is gone, how could there not be any critical threats to its continued persistence? Again, most of the threats are accurate, but the seriousness is much greater than depicted. Greatest threats include successional change (esp. woody invasion), invasive species, habitat fragmentation, ag encroachment (both mechanically and chemically), and mowing during the nesting season.

Additional research and survey efforts

Current body of research

Species research

The respondent said that the current body of science for wildlife in prairie grassland habitats is adequate.

Respondents identified the following citations (title, author, date, publisher) that would give the best overview of wildlife in prairie grassland habitats in Indiana.

Title = Atlas of Breeding Birds of Indiana;
Author = Castrale, JS, E Hopkins, C Keller;
Date = 1988;
Publisher = IDNR

Title = BNA Account - Savannah;
Author = Wheelwright and Rising;
Date = 1993;
Publisher = American Ornithologists' Union

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the current body of science for wildlife in prairie grassland habitats. Their responses included:

- No. A more thorough listing of literature for more prairie species would be useful.
- No...these publications either deal with a single species, or with the distribution of bird species in the state. What is needed is detailed information on life history and habitat needs for the full complement of representative species, which is more like the species list under aggregated grasslands. The two species listed in the prairie guild are wholly inadequate to describe the makeup of the diversity of prairie wildlife.

Few papers address Indiana specifically, but papers from the midwest region or other midwest states can substitute. Additional papers include:

Herkert, J.R., D.W. Sample, and R.E. Warner. 1996. Management of midwestern grassland landscapes for the conservation of migratory birds. Pages 89-116 in F.R. Thompson III, editor. Management of midwestern landscapes for the conservation of migratory birds. USDA, Forest Serv. Gen Tech. Rep. NC-187.

Samson, F.B and F.L. Knoop, editors. 1996. Prairie conservation. Island Press, Washington, D.C.

Sample, D.W. and M.J. Mossman. 1997. Managing habitat for grassland songbirds: A guide for Wisconsin. Wisconsin DNR.

Habitat research

The respondent said that the current body of science for prairie grassland habitats in Indiana is adequate.

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Respondents identified the following citations (title, author, date, publisher) that would give the best overview of prairie grassland habitats in Indiana.

Title = see previous citations

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the current body of science for prairie grassland habitats. Their responses included:

- No. Division of Nature Preserves has extensive data based on systematic inventory for prairies.
- No.....see previous citations. Also:

Thompson, J.R. 1992. Prairies, forests, and wetlands: The restoration of natural landscape communities in Iowa. Univ. of Iowa Press.

Packard, S. and C.F. Mutel. 1997. The tallgrass restoration handbook. Island Press.

Herkert, J., et. al. 1993. Habitat establishment, enhancement, and management for forest and grassland birds in Illinois. Ill. Dept. of Conservation, Nat. Heritage Technical Pub. #1.

McClain, W.E. 1997. Prairie establishment and landscaping. Ill. Dept. of Nat. Resour., Nat. Heritage Tech. Pub. #2.

Research needs

Species research

The respondent listed no "urgently needed" or "greatly needed" research for wildlife in prairie grassland habitats in Indiana. The respondent listed as "needed" research (not ranked):

- Life cycle
- Distribution and abundance
- Limiting factors (food, shelter, water, breeding sites)
- Threats (predators/competition, contamination)
- Relationship/dependence on specific habitats
- Population health (genetic and physical)

The respondent listed no other research needs for wildlife in prairie grassland habitats in Indiana.

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the research needs for wildlife in prairie grassland habitats. Their responses included:

- Yes.
- Yes. I believe we need information on how prairie wildlife responds to habitat fragmentation, predation and parasitism, invasive species, and other threats, so as to design conservation efforts that address the most pressing issues.

Habitat research

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The respondent listed no “urgently needed” or “greatly needed” research for prairie grassland habitats in Indiana. The respondent listed as “needed” research (not ranked):

- Successional changes
- Distribution and abundance (fragmentation)
- Threats (land use change/competition, contamination/global warming)
- Relationship/dependence on specific site conditions
- Growth and development of individual components of the habitat

The respondent listed no other research needs for prairie grassland habitats in Indiana.

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the research needs for prairie grassland habitats. Their responses included:

- Mostly yes, but would also be useful to get better information regarding invasives control and management.
- Restoration of native prairie on private lands is the best way to increase habitat for grassland dependent wildlife. However, better information is needed on restoring prairie ecosystems, not just patches, and how networks of restored prairie can contribute to the conservation of grassland dependent species on a landscape scale.

Conservation actions necessary

Species actions

Reviewing a list of conservation actions, the respondent stated that none of them address threats to wildlife in prairie grassland habitats in Indiana “very well.” The following conservation efforts address threats “somewhat” (not ranked):

- Habitat protection
- Threats reduction
- Native predator control
- Exotic/invasive species control
- Regulation of collecting
- Protection of migration routes
- Limiting contact with pollutants/contaminants
- Public education to reduce human disturbance

The respondent offered no other current conservation practices for wildlife in prairie grassland habitats in Indiana.

The respondent listed the following practice for more effective conservation of wildlife in prairie grassland habitats in Indiana:

- Conservation and active management of grassland habitats

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the practice for wildlife in prairie grassland habitats. Their responses included:

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- Seems confusing. Actions listed above are "conservation and active management of grassland habitats." It would be extremely valuable if a few large restorations could be completed, so that a suite of large-sized, managed prairies, were available to prairie dependent wildlife.
- Partially. Active management (e.g. prescribed burning, control of exotics) is critical to maintaining existing prairie habitat, but to really conserve prairie wildlife, it will require large scale restoration of native prairie habitats, mostly on private lands. The best way to do that is to provide incentives to private landowners to convert cropland or non-native grasslands to native prairie habitat. This will need to be done strategically, and on a landscape scale that will influence populations over a large area. It will also require an understanding of the most pressing needs for restoration (e.g. shortgrass, tallgrass) based on the location and target species.

Habitat actions

Reviewing a list of conservation actions, the respondent stated that none of them address threats to prairie grassland habitats in Indiana "very well." The following conservation efforts address threats "somewhat" (not ranked):

- Habitat protection through regulation
- Habitat protection on public lands
- Habitat protection incentives (financial)
- Habitat restoration through regulation
- Habitat restoration on public lands
- Habitat restoration incentives (financial)
- Selective use of functionally equivalent exotic species in place of extirpated natives
- Succession control (fire, mowing)
- Protection of adjacent buffer zone
- Restrict public access and disturbance
- Land use planning
- Technical assistance
- Cooperative land management agreements (conservation land easements)

The respondent offered no other current conservation practices for prairie grassland habitats in Indiana.

The respondent listed the following for more effective conservation of prairie grassland habitats in Indiana:

- Incentives for conserving and managing grasslands

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the conservation actions for prairie grassland habitats. Their responses included:

- Private Land must be protected. CRP provides financial incentives for the landowner.
- Again, a few large-sized managed sites would be great benefit.
- Yes, but see above. Main efforts should be on private lands for restoration, not public lands.

Proposed plans for monitoring

Current monitoring

Species monitoring

The respondent was aware of no state agency monitoring efforts for wildlife in prairie grassland habitats in Indiana.

The respondent was aware of the following monitoring efforts by other organizations for wildlife in prairie grassland habitats in Indiana:

- Statewide once-a-year monitoring

The respondent stated that no state agency or organization monitoring efforts were “crucial” for conservation of wildlife in prairie grassland habitats in Indiana. The respondent stated that “statewide once-a-year-monitoring” by other organizations is “somewhat crucial.”

The respondent was aware of no regional or local monitoring by state agencies for wildlife in prairie grassland habitats in Indiana.

The respondent listed the following regional or local monitoring by other organizations for wildlife in prairie grassland habitats in Indiana (not ranked):

- Statewide breeding bird survey
- May Day bird counts
- Summer bird counts

The respondent listed the following organizations that monitor wildlife in prairie grassland habitats in Indiana (not ranked):

- USGS
- Birding organizations

The respondent listed the following as “frequently used” monitoring techniques for wildlife in prairie grassland habitats in Indiana (not ranked):

- Driving a survey route
- Volunteer survey/census

The respondent stated that the following monitoring techniques are “occasionally used” (not ranked):

- Spot mapping
- Mark and recapture
- Professional survey/census
- Trapping (by any technique)
- Representative sites
- Modeling
- Probabilistic sites

The respondent stated that “radio and telemetry and tracking” falls into the category of techniques “not used but possible with existing technology and data” for monitoring wildlife in prairie grassland habitats in Indiana. The respondent listed no techniques that were “not economically feasible.”

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The respondent was aware of no other monitoring techniques for wildlife in prairie grassland habitats in Indiana.

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the monitoring techniques for wildlife in prairie grassland habitats. Their responses included:

- Nongame Program conducts statewide monitoring.
- Yes

Habitat inventory and assessment

The respondent was aware of no inventory and assessment efforts by state agencies for prairie grassland habitats in Indiana.

The respondent was aware of the following inventory and assessment efforts by other organizations for prairie grassland habitats in Indiana:

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

The respondent listed no "crucial" efforts by state agencies for conservation of prairie grassland habitats in Indiana. The respondent listed the following as a "somewhat crucial" effort by other organizations:

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

The respondent listed no regional or local inventory and assessment by state agencies for prairie grassland habitats in Indiana.

The respondent offered the following regional or local inventory and assessment by other organizations for prairie grassland habitats in Indiana:

- Statewide aerial imagery of habitats, land uses

The respondent listed USDA as an organization that might monitor prairie grassland habitats in Indiana.

The respondent listed the following as a "frequently used" inventory and assessment techniques for prairie grassland habitats in Indiana:

- Aerial photography and analysis

The respondent listed the following as "occasionally used" (not ranked):

- GIS mapping
- Systematic sampling
- Participation in land use programs
- Modeling

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The respondent listed no items that fall into the categories of "not used but possible with existing technology and data" or "not economically feasible."

The respondent offered no other inventory and assessment techniques for prairie grasslands habitats in Indiana.

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the inventory and assessment techniques for prairie grassland habitats. Their responses included:

- Division of Nature Preserves conducts statewide habitat inventory and assessment.
- Yes

Recommended monitoring

Species monitoring

The respondent recommended the following monitoring techniques for effective conservation of wildlife in prairie grassland habitats in Indiana (not ranked):

- Roadside surveys
- Spot mapping on smaller area

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the monitoring techniques for effective conservation of wildlife in prairie grassland habitats. Their responses included:

- Natural Heritage Program within Division of Nature Preserves is beginning to use a methodology that creates "occurrence" polygons, based on GPS points, or polygons, that includes suitable habitat.

Habitat inventory and assessment

The respondent recommended this inventory and assessment technique for effective conservation of prairie grassland habitats in Indiana:

- Aerial imagery coupled with modeling

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the inventory and assessment techniques for effective conservation of prairie grassland habitats. Their responses included:

- Division of Nature Preserves has completed statewide inventory, using aerial photographs, flight verification, and on the ground field surveys to find remnant prairies.

Technical experts and conservation organizations offered the following additional comments:

- If this information is based on only one respondent, then it seems that some method for obtaining more responses is needed.

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