

HEADWATERS OF KANKAKEE RIVER DRAINAGE HABITAT NARRATIVE

Habitat description

Rivers and streams of the Kankakee River (Illinois River) drainage are those found in northwest Indiana that flow west into Illinois and eventually the Illinois River. Headwater streams are those having a drainage area of < 20 mi². Headwater streams of the Kankakee River drainage are now highly modified, often manmade, sandy/muck bottom, channelized ditches, maintained to drain agricultural lands and control flooding.

Problems affecting species and habitats

Species threats

Respondents ranked the following threats to wildlife in headwaters of Kankakee River drainage habitat:

Rank	Threats to wildlife in headwaters of Kankakee River drainage habitat
1 (tie)	Degradation of movement/migration routes (overwintering habitats, nesting and staging sites)
1 (tie)	Habitat loss (breeding range)
2 (tie)	Habitat loss (feeding/foraging areas)
2 (tie)	Dependence on irregular resources (cyclical annual variations) (e.g., food, water, habitat limited due to annual variations in availability)
3	Specialized reproductive behavior or low reproductive rates
4	Viable reproductive population size or availability
5	High sensitivity to pollution
6	Small native range (high endemism)
7 (tie)	Bioaccumulation of contaminants
7 (tie)	Predators (native or domesticated)
8 (tie)	Invasive/non-native species
8 (tie)	Diseases/parasites (of the species itself)
9 (tie)	Dependence on other species (mutualism, pollinators)
9 (tie)	Regulated hunting/fishing pressure (too much)
9 (tie)	Unintentional take/ direct mortality (e.g., vehicle collisions, power line collisions, by-catch, harvesting equipment, land preparation machinery)
9 (tie)	Near limits of natural geographic range

Appendix F-14: Rivers and Streams Kankakee River (Illinois River) Drainage Headwater

Respondents offered no additional threats to wildlife in headwaters of Kankakee River drainage habitat.

Respondents listed top threats for wildlife in headwaters of Kankakee River drainage habitat (not ranked):

- Dredging/construction (removal of aquatic vegetation and increasing depth of ditch)
 - Pike: Pike have suffered a major loss of spawning habitat due to prevalence of dredging within the watershed. This practice, along with levee construction, has resulted in the near elimination of instream emergent wetland vegetation throughout the majority of the watershed
- Habitat loss/degradation:
 - Requires shallow clear water with little current in weedy areas over gravel, sand, and silt to feed on insects and lay reproduce
 - Tadpole madtom feeds in dense vegetation and hides from predators in the leaf litter, dead wood and other cover. By removing vegetation and cover in the stream, the tadpole madtom also loses spawning areas. (Tadpole madtoms typically lay eggs under submerged objects.)
 - Degradation of the stream channel will also increase the velocity of the current (if straightened or cleared of debris), which will remove the tadpole madtom's preferred current-free, quiet habitat
- Runoff (increases flow of stream, turbidity, and siltation of needed substrates)

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the threats to wildlife in headwaters of Kankakee River drainage habitats. There were no responses.

Habitat threats

Respondents ranked threats to headwaters of Kankakee River drainage habitat:

Rank	Threats to headwaters of Kankakee River drainage habitat
1	Habitat degradation
2	Stream channelization
3	Commercial or residential development (sprawl)
4 (tie)	Nonpoint source pollution (sedimentation and nutrients)
4 (tie)	Habitat fragmentation
4 (tie)	Agricultural/forestry practices
5 (tie)	Impoundment of water/flow regulation
5 (tie)	Invasive/non-native species
6 (tie)	Successional change
6 (tie)	Drainage practices (stormwater runoff)
7	Point source pollution (continuing)
8 (tie)	Residual contamination (persistent toxins)
8 (tie)	Climate change

Appendix F-14: Rivers and Streams Kankakee River (Illinois River) Drainage Headwater

8 (tie) Diseases (of plants that create habitat)

Respondents noted no additional threats to headwaters of Kankakee River drainage habitat.

Respondents listed top threats to headwaters of Kankakee River drainage habitat (not ranked):

- Habitat degradation/fragmentation/channelization (removal of debris to speed up water transfer/removal of shallow water)
 - Channelization of many streams in the upper Kankakee watershed and associated fragmentation of wetland habitat has severely altered the state of aquatic habitat in general
- Non-point source pollution (sedimentation resulting in smothering of substrates and turbidity)

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the threats to headwaters of Kankakee River drainage habitats. There were no responses.

Additional research and survey efforts

Current body of research

Species research

All respondents stated that the current body of science is inadequate for wildlife in headwaters of Kankakee River drainage habitat.

Respondents identified the following citations (title, author, date, publisher) that would give the best overview of wildlife in headwaters of Kankakee River drainage habitats in Indiana.

Title = Fishery, Habitat, and Recreational Use Surveys for the Kankakee River;

Author = Price and Robertson;

Date = 2005;

Publisher = DNR - Division of Fish and Wildlife (in review)

Title = A fishery survey of the Kankakee River in Indiana;

Author = Robertson and Ledet;

Date = 1981;

Publisher = DNR - Division of Fish and Wildlife

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 headwaters of Kankakee River drainage habitats. There were no responses.

Habitat research

All respondents stated that the current body of science is inadequate for headwaters of Kankakee River drainage habitat.

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Appendix F-14: Rivers and Streams Kankakee River (Illinois River) Drainage Headwater

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Date = 1981;
Publisher = DNR - Div. of F & W

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 headwaters of Kankakee River drainage habitats. There were no responses.

Research needs

Species research

Respondents ranked research needs for wildlife in headwaters of Kankakee River drainage habitat:

Rank	Research needs for wildlife in headwaters of Kankakee River drainage habitat
1 (tie)	Relationship/dependence on specific habitats
1 (tie)	Limiting factors (food, shelter, water, breeding sites)
2 (tie)	Distribution and abundance
2 (tie)	Threats (predators/competition, contamination)
3	Population health (genetic and physical)
4	Life cycle

Respondents noted no other research needs for wildlife in headwaters of Kankakee River drainage habitat.

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 headwaters of Kankakee River drainage habitats. There were no responses.

Habitat research

Respondents ranked research needs for headwaters of Kankakee River drainage habitat:

Rank	Research needs for headwaters of Kankakee River drainage habitat
1 (tie)	Distribution and abundance (fragmentation)
1 (tie)	Threats (land use change/competition, contamination/global warming)
1 (tie)	Growth and development of individual components of the habitat

Appendix F-14: Rivers and Streams Kankakee River (Illinois River) Drainage Headwater

- 2 Relationship/dependence on specific site conditions
- 3 Successional changes

Respondent noted no additional research needs for headwaters of Kankakee River drainage habitat.

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the research needs for headwaters of Kankakee River drainage habitats. There were no responses.

Conservation actions necessary

Species actions

Respondents ranked conservation efforts by how well they address threats to wildlife in headwaters of Kankakee River drainage habitat:

Rank	Conservation efforts for wildlife in headwaters of Kankakee River drainage habitat
1	Habitat protection (use below for details)
2	Regulation of collecting
3 (tie)	Population management (hunting, trapping)
3 (tie)	Population enhancement (captive breeding and release)
3 (tie)	Reintroduction (restoration)
3 (tie)	Threats reduction
3 (tie)	Translocation to new geographic range
3 (tie)	Limiting contact with pollutants/contaminants
3 (tie)	Stocking

Respondents noted no other current conservation practices for wildlife in headwaters of Kankakee River drainage habitat.

Respondents recommended these practices for more effective conservation of wildlife in headwaters of Kankakee River drainage habitat (not ranked):

- Restoring the connection between the streams and the wetlands that were formerly associated to allow pike access to spawning areas. Current water management regimes often rely on pumping to fill restored wetlands, thus, fish passage is still restricted
- Habitat protection
- Possible reintroduction of the least darter into suitable habitats that have been restored

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the conservation practices for wildlife in headwaters of Kankakee River drainage habitats. There were no responses.

Appendix F-14: Rivers and Streams Kankakee River (Illinois River) Drainage Headwater

Habitat actions

Respondents ranked conservation efforts by how well they address threats to headwaters of Kankakee River drainage habitat:

Rank	Conservation efforts for headwaters of Kankakee River drainage habitat
1	Habitat restoration through regulation
2 (tie)	Protection of adjacent buffer zone
2 (tie)	Cooperative land management agreements (conservation easements)
3	Habitat protection on public lands
4 (tie)	Habitat protection through regulation
4 (tie)	Habitat protection incentives (financial)
4 (tie)	Habitat restoration on public lands
4 (tie)	Habitat restoration incentives (financial)
4 (tie)	Restrict public access and disturbance
4 (tie)	Land use planning
5 (tie)	Pollution reduction
5 (tie)	Technical assistance
5 (tie)	Managing water regimes

Respondents listed no other current conservation practices for headwaters of Kankakee River drainage habitat.

Respondents recommended the following conservation practices for headwaters of Kankakee River drainage habitat (not ranked):

- Wetland restoration projects with connectivity to the stream or corridor development that allows passage to wetlands already restored. We need to move toward natural regulation of water levels instead of artificial means
- Habitat protection (including regulation)
Protection of adjacent buffer zone
- Restrict disturbance to habitat (dredging, removal of debris)

Technical experts and conservation organizations reviewed the above results and were asked if these were a reasonable representation of the conservation practices for headwaters of Kankakee River drainage habitats. There were no responses.

Proposed plans for monitoring

Current monitoring

Species monitoring

Appendix F-14: Rivers and Streams Kankakee River (Illinois River) Drainage Headwater

Respondents were aware of the following monitoring efforts by state agencies for wildlife in headwaters of Kankakee River drainage habitat:

- Occasional regional or local (less than once a year and not regularly scheduled) monitoring

Respondents were aware of no monitoring efforts by other organizations for wildlife in headwaters of Kankakee River drainage habitat.

Respondents ranked monitoring efforts by state agencies based on their importance for conservation of wildlife in headwaters of Kankakee River drainage habitat:

Rank	Monitoring efforts by state agencies for conservation of wildlife in headwaters of Kankakee River drainage habitat
1	Occasional regional or local (less than once a year and not regularly scheduled) monitoring
2	Periodic regional or local (less than once a year but still regularly scheduled) monitoring
3	Regional or local once a year monitoring

Respondents ranked monitoring efforts by other organizations based on their importance for conservation of wildlife of headwaters of Kankakee River drainage habitat:

Rank	Monitoring efforts by other organizations for conservation of headwaters of Kankakee River drainage habitat
1 (tie)	Periodic regional or local (less than once a year but still regularly scheduled) monitoring
1 (tie)	Occasional regional or local (less than once a year and not regularly scheduled) monitoring

Respondents listed regional or local monitoring by state agencies for wildlife of headwaters of Kankakee River drainage habitat (not ranked):

- IDNR fishery surveys are occasionally conducted on the Iroquois River, Yellow River, and Kankakee River
IDEM occasionally samples fish for contaminants analysis for the annual Fish Consumption Advisory
- IDEM and IDNR collect fish community samples in this area; thus, they may have data on the distribution of least darters.
- IDEM monitors the Kankakee River basin once every five years to determine if the stream are supporting a well-balanced warmwater aquatic community. Tadpole madtoms may have been captured while sampling headwater streams.

Respondents listed no regional or local monitoring by other organizations for wildlife in headwaters of Kankakee River drainage habitat.

Respondents listed organizations that monitor wildlife in headwaters of Kankakee River drainage habitat (not ranked):

Appendix F-14: Rivers and Streams Kankakee River (Illinois River) Drainage Headwater

- IDNR
- IDEM

Respondents considered monitoring techniques for wildlife in headwaters of Kankakee River drainage habitat:

Monitoring techniques for wildlife in headwaters of Kankakee River drainage habitat	Used	Not used but possible with existing technology and data	Not economically feasible
Radio telemetry and tracking	--	X	--
Reporting from harvest, depredation, or unintentional take	X	--	--
Mark and recapture	--	X	--
Professional survey/census	X	--	--
Volunteer survey/census	--	X	--
Trapping (by any technique)	X	--	--
Representative sites	X	--	--
Probabilistic sites	X	X	--

Respondents noted no other monitoring techniques for wildlife in headwaters of Kankakee River drainage habitat.

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 headwaters of Kankakee River drainage habitats. There were no responses.

Habitat inventory and assessment

Respondents were aware of the following inventory and assessment efforts by state agencies for headwaters of Kankakee River drainage habitat (not ranked):

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

Appendix F-14: Rivers and Streams Kankakee River (Illinois River) Drainage Headwater

- Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment

Respondents were aware of no inventory and assessment efforts by other organizations for headwaters of Kankakee River drainage habitat.

Respondents ranked inventory and assessment efforts by state agencies based on their importance for conservation of headwaters of Kankakee River drainage habitat:

Rank	Inventory and assessment
1	Occasional regional or local (less than once a year and not regularly scheduled) inventory and assessment
2	Periodic regional or local (less than once a year but still regularly scheduled) inventory and assessment
3	Regional or local year-world inventory and assessment

Respondents listed no inventory and assessment efforts by other organizations for headwaters of Kankakee River drainage habitat.

Respondents listed regional or local inventory and assessment by state agencies for headwaters of Kankakee River drainage habitat (not ranked):

- Habitat evaluations are conducted as part of general stream surveys by DNR biologists. Such surveys have been conducted on the Iroquois River, Yellow River and Kankakee River
- IDEM conducts a habitat assessment while sampling stream for fish community assessments using the QHEI (Qualitative Habitat Evaluation Index)
 - QHEI would provide a habitat assessment for sites where least darters were collected

Respondents listed no regional or local inventory and assessment by other organizations agencies for headwaters of Kankakee River drainage habitat.

Respondents listed organizations that monitor headwaters of Kankakee River drainage habitat:

- DNR Division of Fish and Wildlife

Respondents considered inventory and assessment techniques for headwaters of Kankakee River drainage habitat:

Inventory and assessment techniques for headwaters of Kankakee River drainage habitat	Used	Not used but possible with existing	Not economically feasible

Appendix F-14: Rivers and Streams Kankakee River (Illinois River) Drainage Headwater

		technology and data	
GIS mapping	--	X	--
Aerial photography and analysis	--	X	--
Systematic sampling	X	--	--
Regulatory information	X	--	--
Participation in land use programs	X	--	--

Respondents listed no additional inventory and assessment techniques for headwaters of Kankakee River drainage habitat.

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 headwaters of Kankakee River drainage habitats. There were no responses.

Recommended monitoring

Species monitoring

Respondents recommended the following monitoring techniques for effective conservation of wildlife in headwaters of Kankakee River drainage habitat (not ranked):

- Periodic electrofishing surveys and mark recapture techniques probably provide the best information about the pike populations
- Representative sites or look for sites where the habitat is suitable for the least darter and seine in the vegetation over rocky substrate
- Seining or kick net
- Electrofishing

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 headwaters of Kankakee River drainage habitats. There were no responses.

Habitat inventory and assessment

Respondents recommended the following inventory and assessment techniques for effective conservation of headwaters of Kankakee River drainage habitat (not ranked):

- Systematic sampling of habitat along the length of the stream to provide baseline data for comparison across time
- GIS mapping of restored, fully connected wetland to provide an inventory of available spawning habitat

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 headwaters of Kankakee River drainage habitats. There were no responses.