



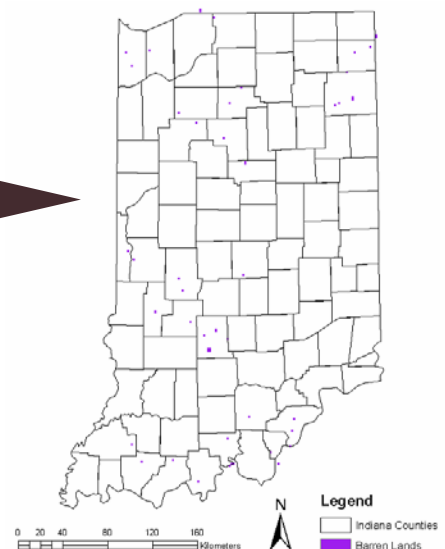
BARREN LANDS HABITAT SUMMARY



All barren lands habitats are characterized by bare rock, gravel, sand, silt, clay or other earthen material, with little or no “green” vegetation present, regardless of its inherent ability to support life. Vegetation, if present, is more widely spaced and scrubby than that in the “green” vegetated categories; lichen cover may be extensive. The habitat encompasses the following sub-types: bare dunes, cliffs, rock outcrops and active quarries. Only 0.19% of Indiana is barren land.



Indiana's barren lands comprise 0.19% of Indiana. These lands dominated by exposed rock or minerals with sparse vegetation cover 72 miles² or 46,191 acres.



Indiana's State Wildlife Action Plan

Representative Species of Barren Lands

The habitat guild for barren lands is represented by several species. These representative species “paint a reasonable mental picture” of barren lands.

Rough-Winged Swallow
Six-Lined Racerunner
Allegheny Woodrat

Lark Sparrow
Green Salamander

Piping Plover
Black Vulture
Eastern Phoebe



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Left to right: Northern Rough-Winged Swallows, Black Vultures, and Eastern Phoebe

Species of Greatest Conservation Need (SGCN) in Barren Lands

SGCN are animal species whose populations are rare, declining or vulnerable

Crawfish Frog
Piping Plover

Green Salamander

Plains Leopard Frog
Allegheny Woodrat



Left to right: Allegheny Woodrat, Green Salamander and Crawfish Frog

Threats to Barren Lands

- Habitat degradation
- Counterproductive financial incentives or regulations
- Habitat fragmentation
- Invasive/non-native species
- Commercial or residential development (sprawl)
- Agricultural/forestry practices
- Successional change
- Nonpoint source pollution (sedimentation and nutrients)
- Point source pollution (continuing)
- Drainage practices (storm water runoff)

High Priority Conservation Actions for Barren Lands

Restrict public access and disturbance

- Minimize human and domestic pet use in areas used by foraging piping plovers and at sites with potential breeding habitat.

Habitat protection on public lands

- Protect Lake Michigan sand dunes and allow natural dune processes to provide foraging areas and potential nesting habitat for piping plovers
- Maintain large diameter, mast-producing tree species in proximity to woodrat colonies.
- Enter into cooperative agreements for management of woodrat habitats on State Forest and State Park properties.
- Investigate crayfish abundance and distribution and other factors impacting crayfish frog colonies to develop land management practices for crayfish frogs.

Protection of adjacent buffer zone

- Provide for the development and/or maintenance of a forested buffer area around the bluffs occupied or suitable for occupancy by Green salamanders.
- Provide buffer of mature forested habitats adjacent to cliff lines containing woodrat colonies.

Habitat protection through regulation

- Develop and encourage the implementation of BMPs to avoid and minimize adverse impacts to barren lands, especially dunes, bluffs, cliffs, and rock outcrops for the benefit of green salamanders, piping plover, and Allegheny woodrat.

Habitat restoration on public lands

- Promote the development of moist prairies areas, and vernal pools on suitable public lands; maintain these areas with limited disturbance in the spring and early summer for the benefit of crawfish frogs and plains leopard frogs.
- Implement silvicultural practices that promote oak-hickory component to provide hard mast for forest-dependent wildlife such as the Allegheny woodrat.

Indiana's State Wildlife Action Plan

Habitat restoration incentives (financial)

- Enroll private properties that harbor woodrat colonies into the Classified Forest Program; develop management plans for woodrat habitats at privately-owned colony sites.

Succession control (fire, mowing)

- Prevent and eliminate woody encroachment into sparsely vegetated clay soil areas to benefit the crawfish frog.

Corridor development/protection

- Investigate the dispersal characteristics of the crawfish frog, green salamander, plains leopard frog, and Allegheny woodrat to assess available dispersal habitat and barriers to dispersal.

Land use planning

- Work with local and county municipalities for identification, protection, and management of crawfish frog, green salamander, plains leopard frog, piping plover and Allegheny woodrat habitats.

Adaptive Management

- Modify survey and monitoring, research and other conservation actions and activities in response to new information to improve habitat conservation efficiency for SGCN.

Threats to SGCN in Barren Lands

- Viable reproductive population size or availability
- Diseases/parasites (of the species itself)
- Habitat loss (feeding/foraging areas)
- Habitat loss (breeding range)
- Near limits of natural geographic range
- Small native range (high endemism)
- Predators (native or domesticated)
- Dependence on irregular resources (cyclical annual variations) (e.g., food, water, habitat limited due to annual variations in availability)
- Degradation of movement/migration routes (overwintering habitats, nesting and staging sites)
- Invasive/non-native species

High Priority Conservation Actions for SGCN in Barren Lands

Habitat protection

- Protect Lake Michigan sand dunes and allow natural dune processes to provide foraging areas and potential nesting habitat for piping plovers.
- Ensure silvicultural techniques allow for an adequate annual supply of hard mast for Allegheny woodrats.
- Protect bluff lines and sparsely vegetated clay and sandy moist soil for the green salamander, crawfish frog and plains leopard frog respectively.

Regulation of collecting

- Investigate the role of intentional and/or un-intentional take on the viability of SGCN in barren lands.

Reintroduction (restoration)

- Identify limiting factors for Allegheny woodrats.
- Determine distribution and relative abundance of rare species using barren lands such as the Allegheny woodrat, crawfish frog, plains leopard frog, and green salamander.
- Identify sites suitable for woodrat reintroductions within historic range.

Threats reduction

- Reduce raccoon populations in proximity to woodrat colonies to decrease the threat to woodrats from the raccoon roundworm.
- Provide technical assistance to land use planners stressing the importance of undeveloped barren lands for crawfish frogs, green salamanders, plains leopard frog, piping plover and Allegheny woodrats.

Native predator control

- Discourage gull use of dunes at sites with potential breeding habitat for piping plovers.
- Reduce raccoon populations in proximity to woodrat colonies.

Exotic/invasive species control

- Eliminate and/or control exotic invasive plant species (e.g., Tree of Heaven, garlic mustard) on cliff lines occupied by Allegheny woodrats and green salamander.
- Encourage retention and planting of native species that provide both soft and hard mast as food for woodrats.

Translocation to new geographic range

- Support the development of technical assistance materials to heighten public awareness of the dangers of releasing species into new geographical areas (even SGCN).
- Track shifts in the geographic range of barren land SGCN for correlation to global warming trends and new ecological relationships.

Protection of migration routes

- Protect Lake Michigan sand dunes and allow natural dune processes to provide foraging areas and potential nesting habitat for piping plovers

Limiting contact with pollutants/contaminants

- Investigate the impact of pollutants/contaminants on crayfish frogs.

Public education to reduce human disturbance

- Minimize human and domestic pet use in areas used by foraging piping plovers and at sites with potential breeding habitat.
- Minimize human and domestic pet use in cliff and bluff areas supporting green salamanders and Allegheny woodrats.

Adaptive Management

- Modify survey and monitoring, research and other conservation actions and activities in response to new information to improve conservation efficiency for SGCN.

