

Conservation And Restoration of Amphibians and Reptiles in the Great Lakes



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Nearly 60 Species of Herpetofauna in Michigan

- 18 Species Snakes
- 11 Species of Turtles
- 2 Species of Lizards
- 14 Species of Frogs and Toads
- 14 Species of Salamanders

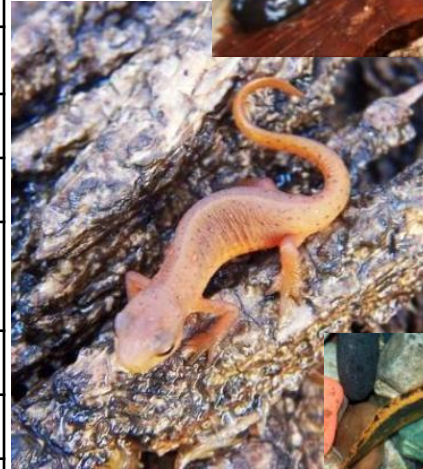


**MORE THAN HALF ARE SPECIES OF
GREATEST CONSERVATION NEED !!!**



Salamander Status

Salamanders Species	State Rank	Wildlife Action Plan
Western Lesser Siren	SC	SGCN
Mudpuppy*	SC	SGCN
Blue-spotted Salamander*		SGCN
Unisexual Ambystoma*	N/R	SGCN
Spotted Salamander*		SGCN
Marbled Salamander	T	SGCN
Small-mouthed Salamander	E	SGCN
Eastern Tiger Salamander*		SGCN
Red-spotted Newt*		
Central Newt*		
Four-toed Salamander*		SGCN
Red-backed Salamander*		
Dusky Salamander	N/R	SGCN
Two-lined Salamanders	N/R	SGCN



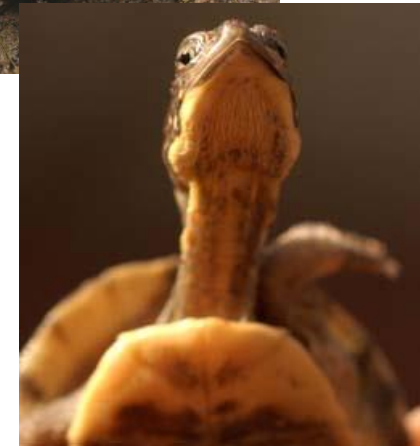
Frog and Toad Status

Frog and Toad Species	State Rank	Wildlife Action Plan
Eastern American Toad*		
Fowler's Toad	SC	SGCN
Green Frog*		
Mink Frog		SGCN
Bullfrog*		
Pickerel Frog*	SC	SGCN
Leopard Frog*		SGCN
Wood Frog*		
Cope's Gray Treefrog*		
Eastern Gray Treefrog*		
Blanchard's Cricket Frog*	T	SGCN
Northern Spring Peeper*		
Western Chorus Frog*		SGCN
Boreal Chorus Frog	SC	SGCN
Western Chorus Frog*		



Turtle Status

Turtles Species	State Rank	Wildlife Action Plan
Eastern Snapping Turtle*		
Eastern Musk Turtle*		SGCN
Western Painted Turtle		
Midland Painted Turtle*		
Blanding's Turtle*	SC	SGCN
Spotted Turtle	T	SGCN
Wood Turtle*	T	SGCN
Eastern Box Turtle*	T	SGCN
Red-eared Slider*		
Northern Map Turtle*		
Eastern Spiny Soft-shell*		



Lizard Status

Lizard Species	State Rank	Wildlife Action Plan
Five-lined Skink*		
Six-lined Racerunner*	T	SGCN



Snake Status

Snakes	State Rank	Wildlife Action Plan
Kirtland's Snake	E	SGCN
Queen Snake*	SC	SGCN
Butler's Garter Snake*	SC	SGCN
Eastern Ribbon Snake*		SGCN
Eastern Garter Snake*		
Copper-bellied Water Snake*	E	SGCN
Northern Water Snake*		
Northern Brown Snake*		
Northern Red-bellied Snake*		
Northern Ring-necked Snake*		SGCN

Snakes	State Rank	Wildlife Action Plan
Eastern Smooth Green Snake*	SC	SGCN
Eastern Milk Snake*		
Blue Racer*		SGCN
Black Rat Snake	SC	SGCN
Western Fox Snake		SGCN
Eastern Fox Snake*	T	SGCN
Eastern Hog-nosed Snake*		SGCN
Eastern Massasauga Rattlesnake*	SC	SGCN



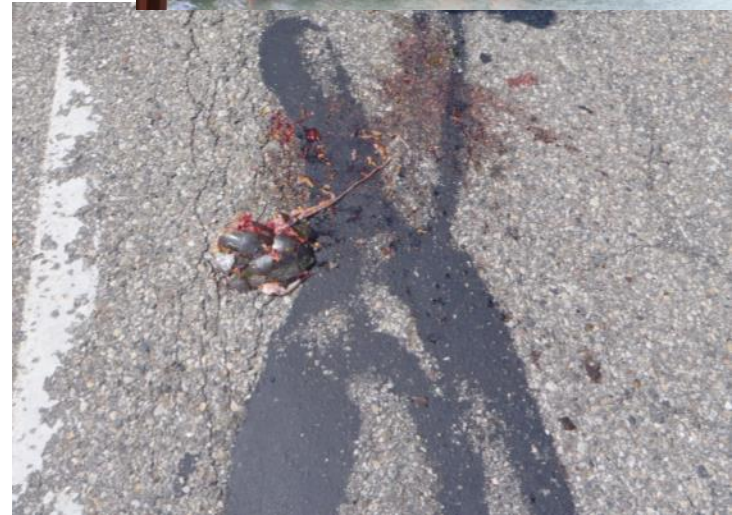
Why Are Herps Important

- Recognized as key bioindicators of environmental health and overall habitat quality.
- Biphasic (aquatic and terrestrial) life cycles.
- Mid-level position in food webs.
- High degree of sensitivity to toxins and other environmental stressors.
- Bioaccumulators of toxins and contaminants.
- Many species are seasonally wetland dependent (including vernal pool).
- Require a mosaic of different wetland types with intact upland habitat joining them.



Important Problems Facing Herps

- Habitat loss, degradation, and fragmentation.
- Road-related mortality.
- Subsidized predators and nest predation.
- Inappropriate timing and methods of ecological management and restoration techniques.
- Cryptic and hard to find so true status undetermined.
- Invasive species and disease.
- Illegal collection.

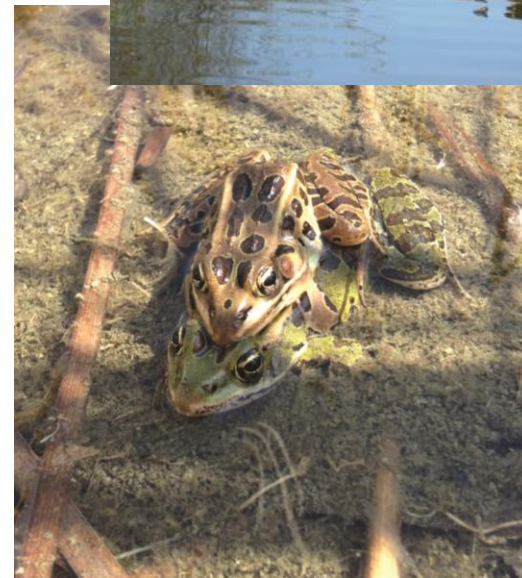


Important Problems Facing Herps



Important Problems Facing Herps

- Many are characterized as long-lived species, with slow maturation and low reproductive rates.
 - Mortality exceeding the normal rate of loss leads to population declines and possible long-term population/species extirpation.
- Historic disregard for non-game species in this State.
- Inefficient and ineffective species regulations.
- Insufficient resources to conduct status and population assessments.

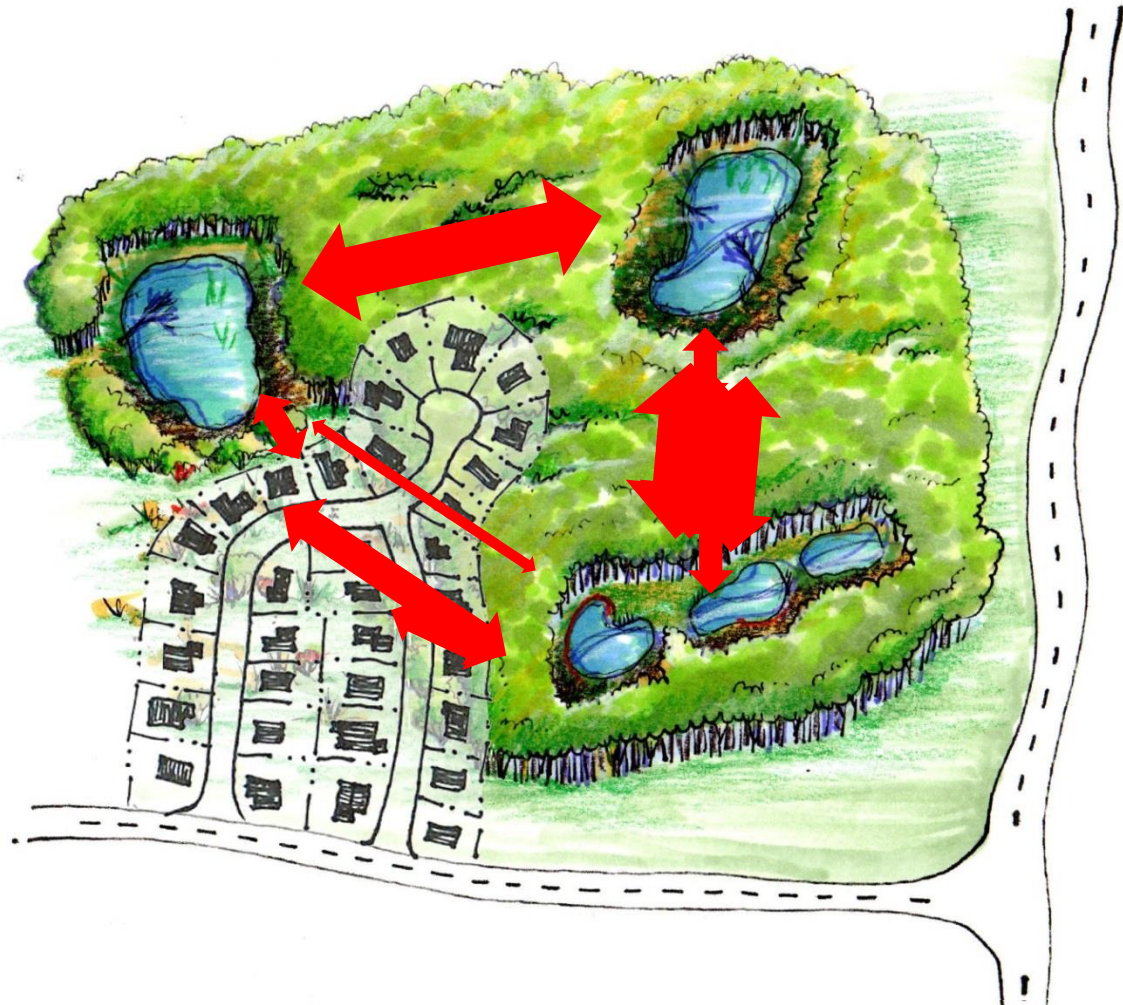


Conservation, Restoration, and Best Management



Maintain Connectivity

- Know the species you are trying to protect.
- Incorporate best management practices including culverts, corridors, and protection of critical zones.
- Effective and well planned site and community development plans.





- A. Vegetation planted to block salt spray
- B. Pollution catching vegetated buffers
- C. No mow zone along the shoulder in the spring during turtle nesting season
- D. No curb and gutter system to trap amphibians and reptiles on the road
- E. Road crossing structures maintain connectivity between herpetofauna habitat
- F. An embedded barrier with curved top directs animals toward crossing structures
- G. Wildlife crossing signs and lower speed limits at kill zones raise driver awareness and reduce road mortality

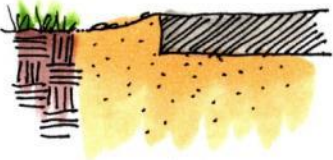
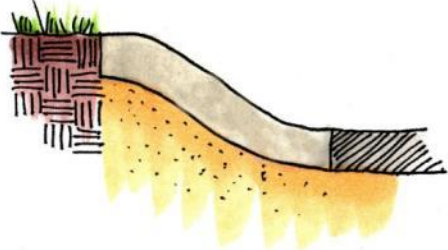
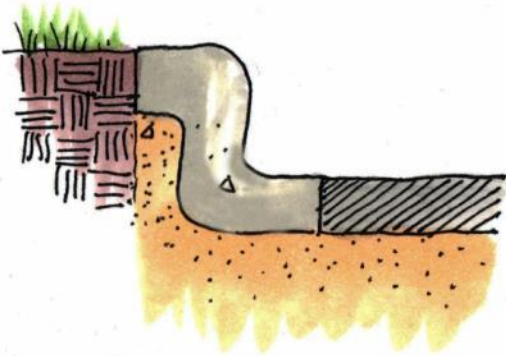


Herp Friendly Roads

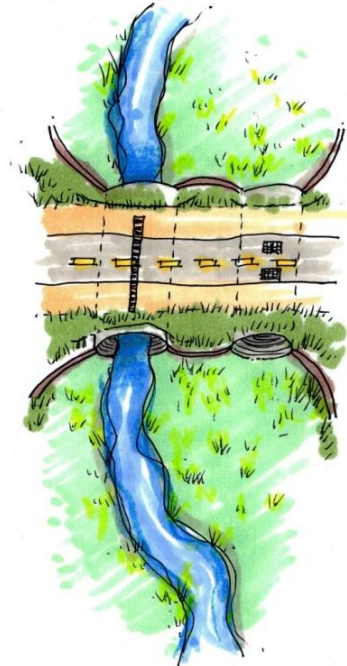
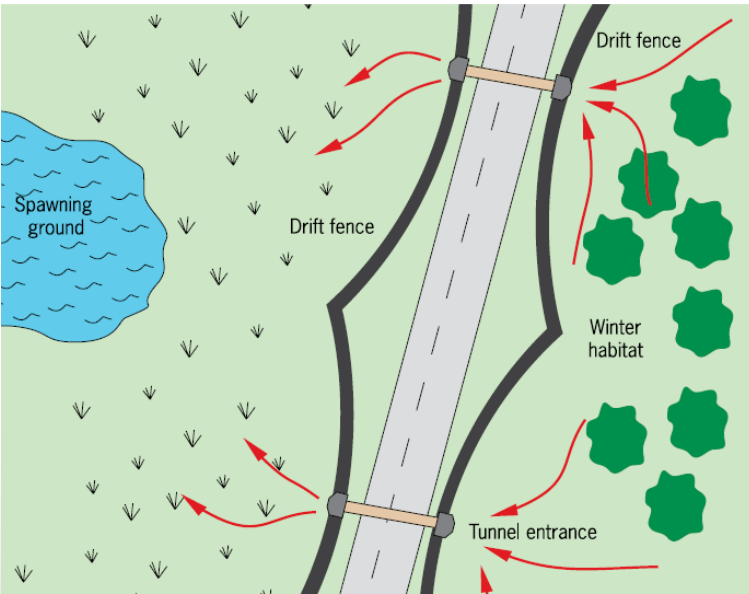
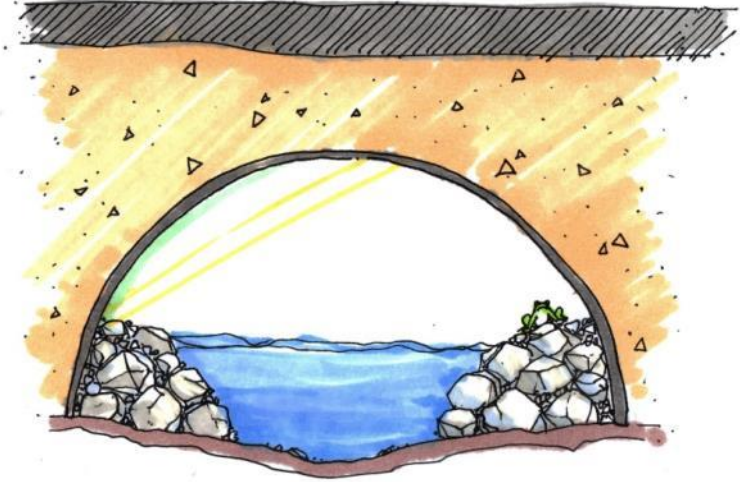
- Despite the many threats to herpetofauna associated with roads, BMPs can lessen the negative impacts



Modified Curbs and Gutters



Tunnels and Fences

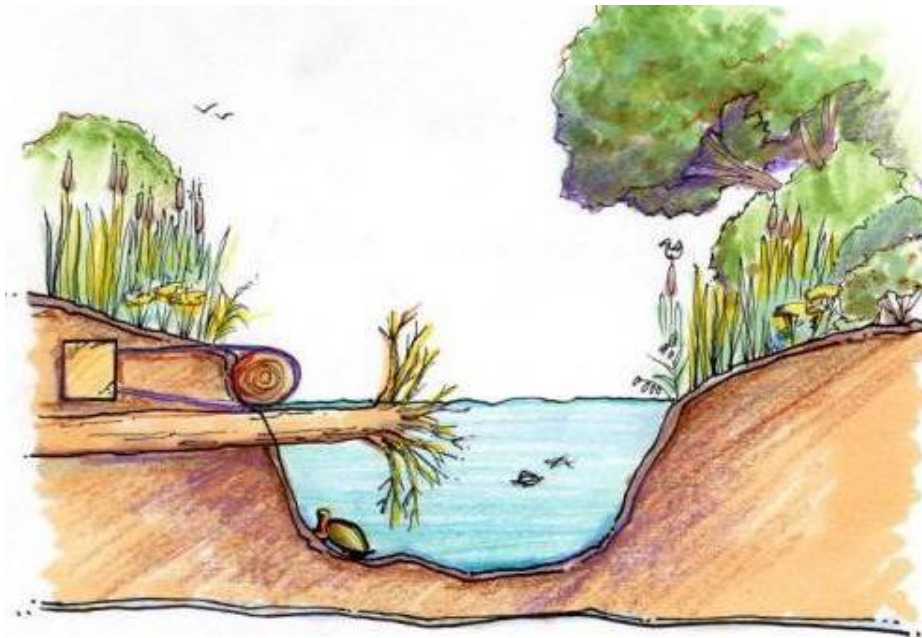


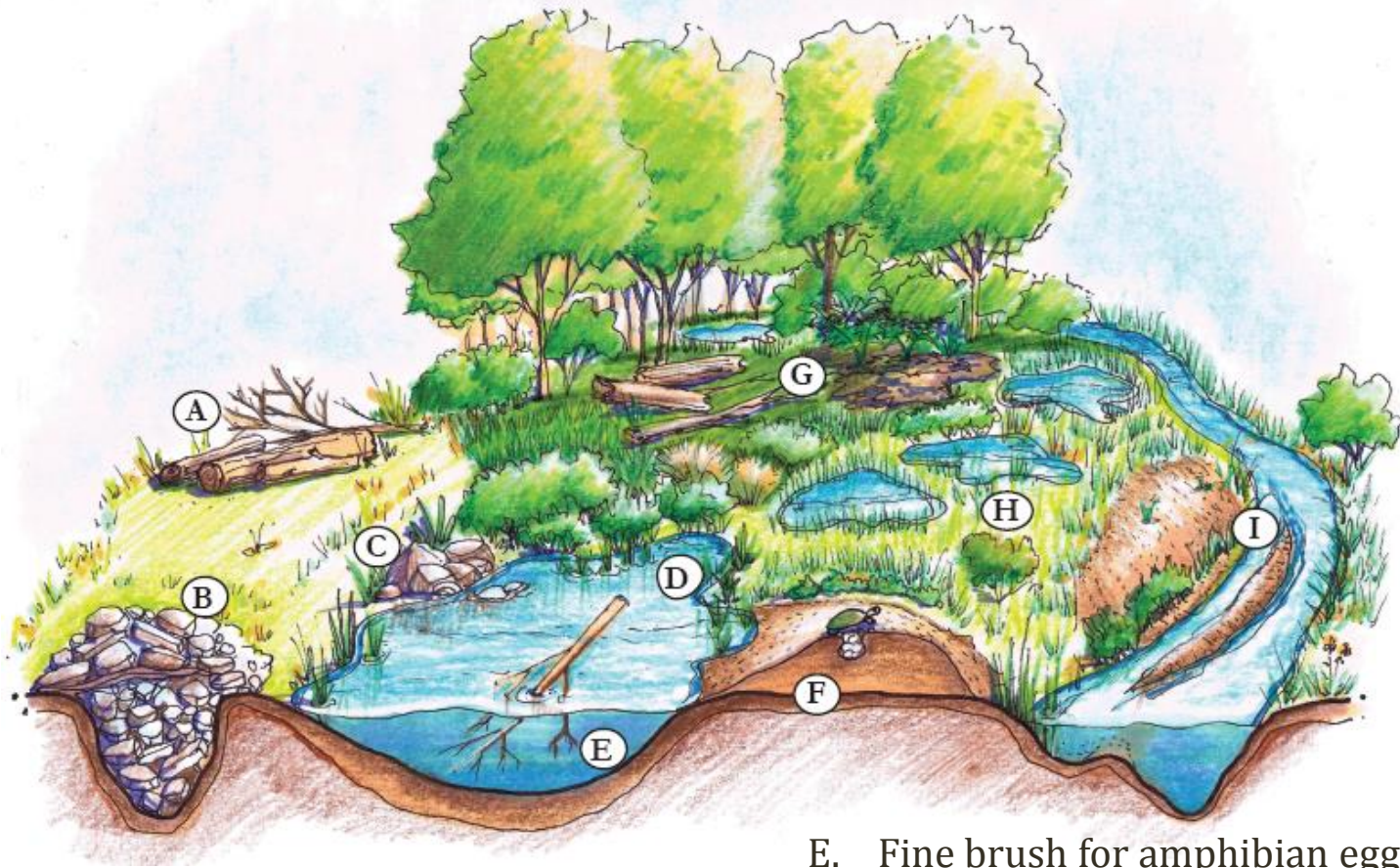
Wildlife Culvert Systems



Provide Structure and Microhabitat

- Fundamental in considering needs of amphibians and reptiles
- Nesting sites, hibernacula, woody debris, shallow slopes
- Focus on habitat connectivity and appropriate habitat to support all life stages of target species.

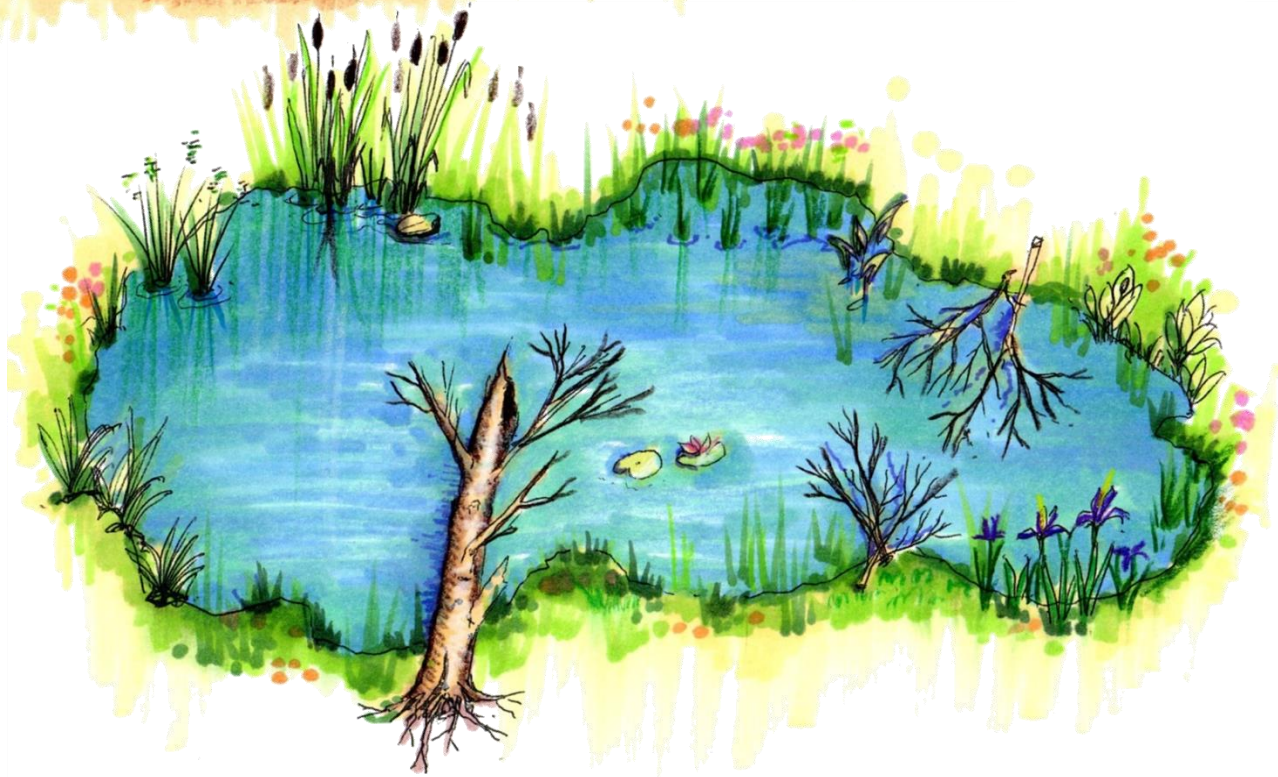
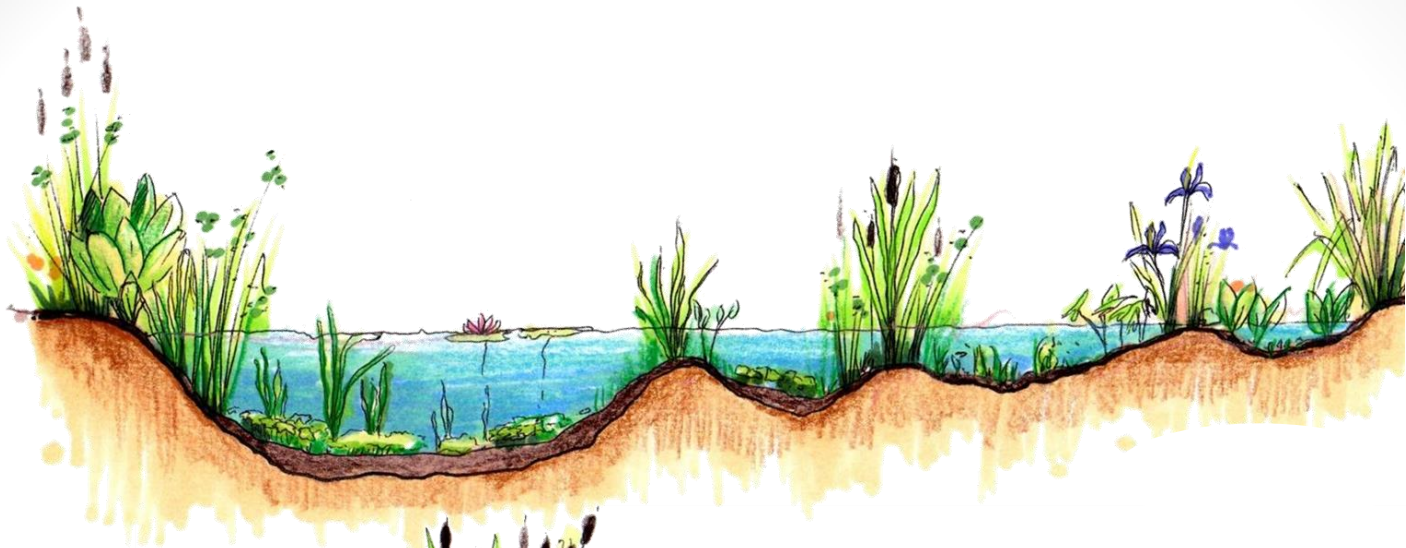




- A. Logs in a sunny location for cover, basking, nesting, hibernation
- B. Depression filled with rocks for reptile basking and hibernation
- C. Rocks along shoreline: shelter and basking
- D. Emergent/submergent vegetation for basking and foraging

- E. Fine brush for amphibian egg attachment
- F. Sunny areas of loose, well-drained soil for turtle basking/nesting
- G. Log & leaf litter for salamander cover, nesting, foraging and hibernation
- H. A variety of wetland types provided
- I. Sandy banks and sand bar for turtle nesting and reptile basking

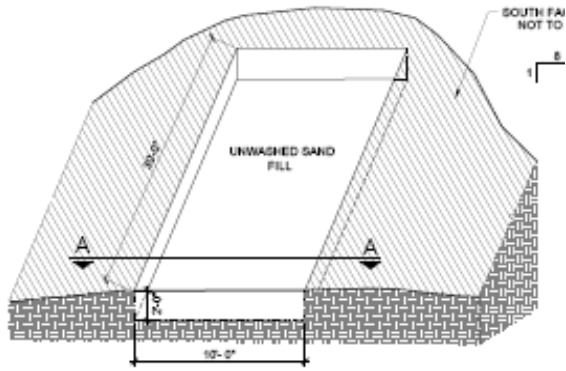




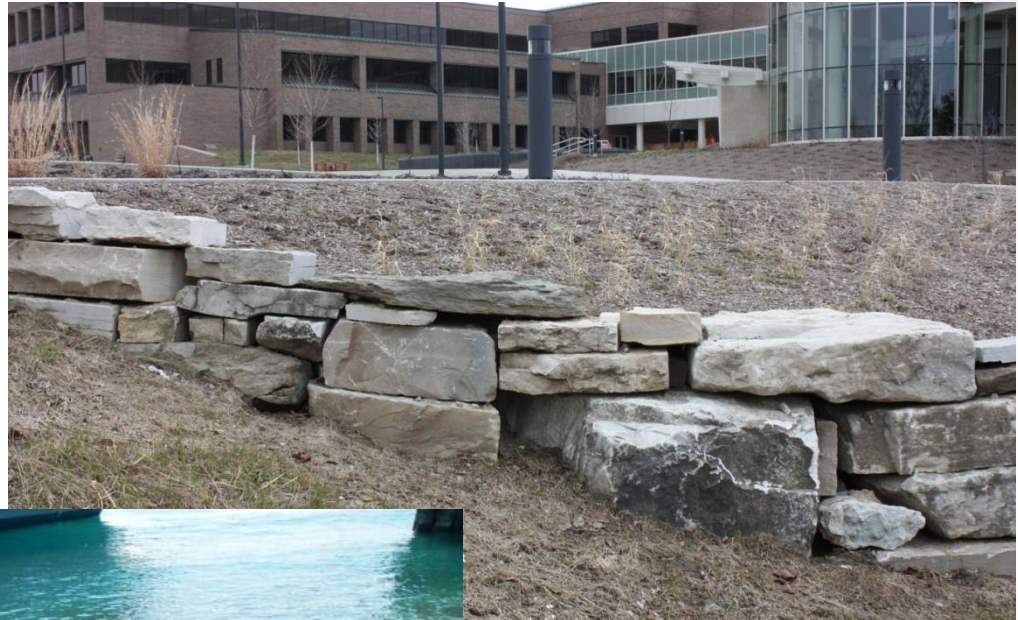
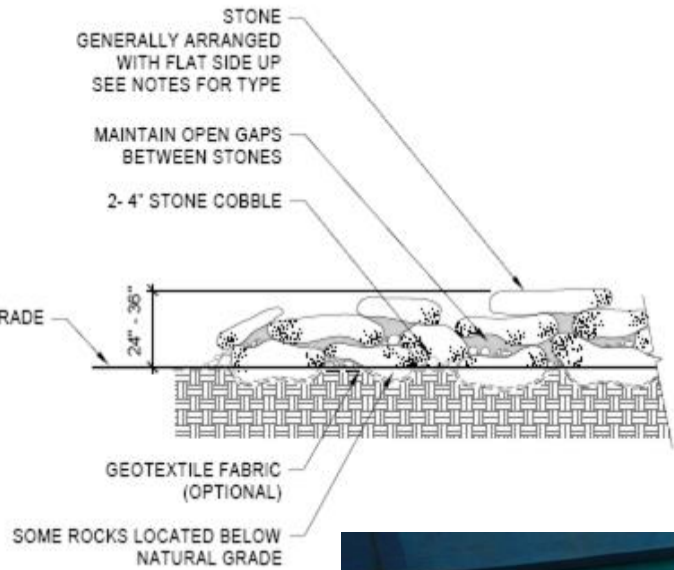
Basking, Nesting, and Shelter Logs



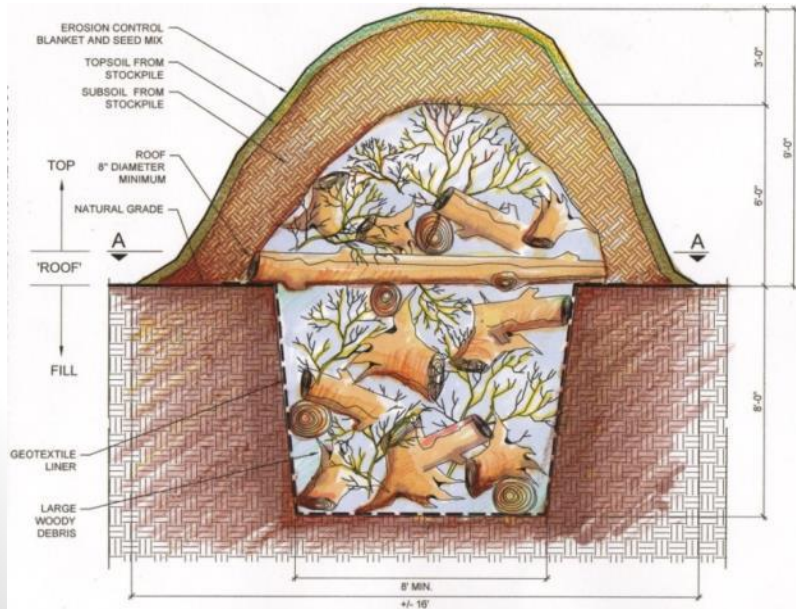
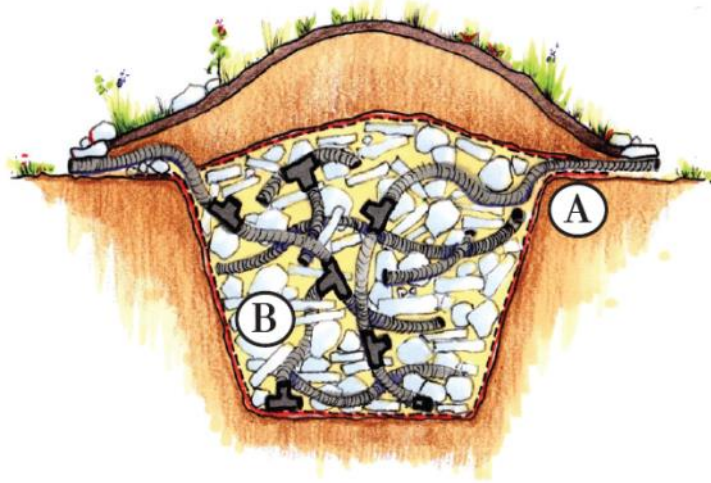
Turtle Nesting Site



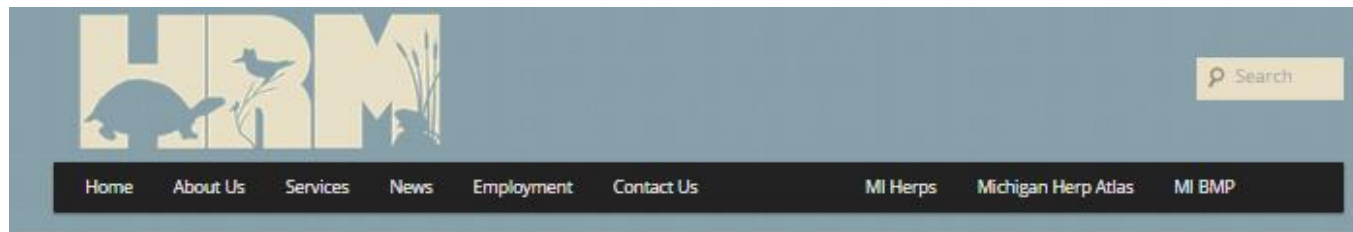
Rock Basking and Shelter Structure



Hibernacula Creation



Download the BMP



Amphibian & Reptile Best Management Practices for Michigan

The Amphibian & Reptile BMP Manual for Michigan is a comprehensive resource on amphibian and reptile conservation and management provided through a partnership with [Herpetological Resource Management](#) and [Michigan Department of Environmental Quality](#) for no cost.



Content to Include

- Natural History of Herpetofauna in Michigan
- Threats to Amphibians and Reptiles
- Conservation Efforts
- Management & Development Planning
- Ecological Restoration, Mitigation & Habitat Design
- Management Techniques
- Development Techniques

[Download MI BMP](#)



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 - 10. Conclusion and Next Steps



Appendix A: Management and Development Action Timeline

Management or Development Action	January	February	March	April	May	June	July	August	September	October	November	December
Road maintenance												
Herbicide, insecticide, and pesticide application												
Dredging contaminants												
Aquatic weed harvest												
Drawdowns												
Inundations												
Electrofishing												
Lampricide application												
Mowing												
Off-road vehicle and heavy machinery use												
Clearcutting and vegetation harvest												
Fire												
Construction												
Site grading												
Stream mitigation and dam removal												
Create habitat structures												
Relocation and translocation												



Appendix B: Community Matrix

	Species	Michigan's Habitat Communities																									
		Status	Lakes and Ponds	Streams, Rivers, and Floodplain	Emergent Marsh	Emergent Marsh Reed Canary Grass	Emergent Marsh Phragmites	Emergent Marsh Cattail	Great Lakes Coastal Marsh	Submergent Marsh	Bog/Muskeg	Fen	Wet Meadow	Wet Prairie	Floodplain Forest	Shrub Swamp	Deciduous Swamp	Coniferous Swamp	Vernal Pools	Deciduous/Mixed Coniferous Forest	Prairie /Grassland	Shrub/Scrub	Sandy Uplands /Dunes	Old Field	Agriculture Areas	Urban/Suburban	
Salamanders, Newts and Mudpuppies	Blue-spotted Salamander (<i>Ambystoma laterale</i>)	SN			X										X	X	X	X	X							X	
	Spotted Salamander (<i>Ambystoma maculatum</i>)	SN			X										X	X		X	X							X	
	Marbled Salamander (<i>Ambystoma opacum</i>)	E													X	X		X	X								
	Unisexual Salamander (<i>Ambystoma sp.</i>)														X	X	X	X	X	X					X	X	
	Small-mouthed Salamander (<i>Ambystoma texanum</i>)	E													X	X		X	X								
	Eastern Tiger Salamander (<i>Ambystoma tigrinum</i>)	SN	X		X								X	X	X	X		X	X	X				X	X	X	
	Southern Two-lined Salamander (<i>Eurycea cirrigera</i>)	ND		X																X							
	Northern Dusky Salamander (<i>Desmognathus fuscus</i>)	ND		X																X							
	Four-toed Salamander (<i>Hemidactylium scutatum</i>)	SN									X					X	X	X	X	X							
	Mudpuppy (<i>Necturus maculosus</i>)	SN	X	X																							
	Central Newt (<i>Notophthalmus viridescens louisianensis</i>)			X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X							X
	Red-spotted Newt (<i>Notophthalmus viridescens viridescens</i>)			X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X							X
	Eastern Red-backed Salamander (<i>Plethodon cinereus</i>)														X					X							X
	Western Lesser Siren (<i>Siren intermedia nettingi</i>)	SC	X	X	X																						



The Michigan Herp Atlas

Michigan Herp Atlas

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Northern Leopard Frog (*Rana pipiens*)

Entered by: *Haley Brown*
Record 2659

Created: November 8th, 2015 - 02:15 PM
Last Modified: November 8th, 2015 - 02:20 PM

County: Jackson County	Time: 2015-10-18 14:53:00	Qty: 2	Age: Varying	Sex: Unknown
Body Temperature:	Air Temperature: 70.00F	Ground Temperature:		
Sky Conditions: Clear	Habitat:			

Vouchers



Post a Comment

Submit

Statistics

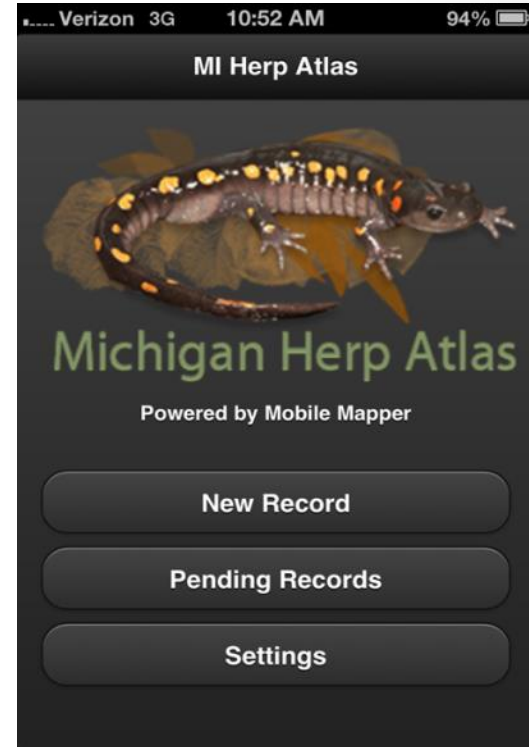
- ◆ Total Records: 4275
- ◆ Records Today: 0
- ◆ Number of Members: 468
- ◆ Endangered Species Records: 3
- ◆ Threatened Species Records: 87
- ◆ Species of Concern Records: 784

Database Links

- ◆ Species List
- ◆ New Records
- ◆ Search Records
- ◆ Activity Map
- ◆ Diversity Map
- ◆ Instructions
- ◆ Mobile App

User Links

- ◆ Add Record (basic)
- ◆ Add Record (detailed)
- ◆ View My Records
- ◆ My Records in Google Earth
- ◆ Profile
- ◆ Logout



Herp Atlas Background

- Started by MDNR in 2004 to address a lack of data for Michigan.
- Public-Private partnership to optimize project partnership and data protection.
- Document distribution and changes in populations statewide.
- Data is key to any effective conservation effort or management plan.



Herp Atlas Goals

- Improved species protection and enforcement.
- Improved collaboration and data sharing.
- Greater understanding of species habitat use and needs.
- Contributions by **EVERYONE** to build on species data for MI herps and resolve **NUMEROUS** data gaps statewide on amphibian and reptile species, distribution, viability, and stressors.
 - Its not what we know about MI herps that is disturbing, it is what we don't know that should alarming!



We need your observations!

- Dead or alive
- Commonly observed and rare
- All seasons
- Photo document if possible
- On-line entry
OR data cards still available
- Email accepted!



Questions?



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