



*A Muskrat in the water has much greater odds of survival than one out of it.*  
Photo by Greg Smith.

## **THIS ISSUE**

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## ***The Life and Death of a Muskrat***

The act of *dispersal* is a necessary phenomenon across the kingdoms of life on our planet. From a 'population' perspective the process limits the likelihood of inbreeding. From the ever-dynamic 'environmental' aspect it allows members of the species to occupy and potentially colonize distant areas where habitat has been created or altered physically and/or biologically to become incidentally hospitable to them. Dispersal processes, in effect, work to fill voids that arise as environments and their components change over time.

Most plant and fungal dispersal takes place through the generation of seeds and spores. Usually, a tremendous volume of output is necessary so that a relative few have the fortune to land amid ideal conditions where they can grow and proliferate. The vast majority will ultimately settle in locations inhospitable if not outright hostile to their survival.

In the Animal Kingdom, especially evident to us with macroinvertebrates and vertebrates, the same general template applies: immature forms of the species are cast into the surrounding environment. The specific strategies and means by which the dispersal takes place are nearly as varied as the life forms themselves. A handful survive the ecological gauntlet to become reproductive adults. As for the rest, the journey falls short. Their fate is to provide sustenance for predators and scavengers.

It most often happens in the spring – nesting and offspring dispersal time for much of the wildlife that occupies our neighborhoods. Sources of mortality include a gamut of predators within the natural community. Predations that occur in meadows, woods and marshes largely go unnoticed by humans. We tend to witness such moments of peril when juveniles traverse our yards, parks and roadways. A threat commonly takes the less natural form of a cat, a dog, a lawnmower or a motorized vehicle.

Often, in its moment of peril an empathetic human stumbles upon one of the majority destined *not* to make it. Wildlife rehabilitation centers brace for a glut of 'rescued' young squirrels, rabbits, songbirds and more. Speaking of empathy...

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Juvenile Muskrats are subject to an especially traumatic means of dispersal. Snapshots that hint of the bigger picture - their forced exile from the wetlands of their birth – are evident on roads virtually everywhere right now. Naturally most Muskrat mortality occurs on *rural* roads and highways, and in the greatest density near the very wetlands from which they began their journey into the unknown.

Since first noticing the spectacle as a teen I've come to coin March as 'Muskrat Road-kill Month.' Indeed, every year I would see more flattened Muskrats in this month than in all the other months combined.

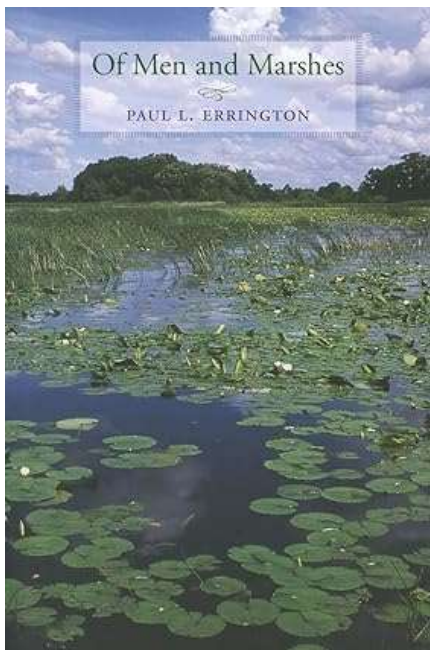


As evinced this year, however, February is rapidly turning into the new March. Beyond our enjoyment of increasingly common, unseasonably-warm temperature swings, the annual timing of nearly all wildlife behaviors and movements (i.e., see 'bird migration') is shifting. The Muskrat dispersal window is no exception. Unprecedented over several decades of observation, I've already seen a few dozen flattened on roadways before the end of February.

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At about fourteen years of age, circa 1971 in Chicago I recall walking with my naturalist friend 'Goose' into a small, dimly-lit proprietorship located on the ground floor of a large, old brick building – a used book store. Hardcover and paperback books were aligned on dusty shelves and crowded onto tables, loosely arranged according to genre. One section of shelves held books devoted to outdoor and nature interests to which we naturally gravitated. It was here that I came across and purchased for fifty cents a thin paperback entitled, *Of Men and Marshes*, by Paul Errington.

Errington grew up in east-central South Dakota in the early 1900s. He was an avid hunter and trapper – especially of ducks, Mink and Muskrat. He spent so much time wading through the marshes they became like home to him. He encountered and took fascination with the tremendous diversity of life supported within the habitat - from the myriad plants and invertebrates to the fish, amphibians, reptiles, birds and mammals that occupied it through the seasons. He would mature into one of the most celebrated wetland ecologists of his time.



The content of the book - published incidentally in 1957, the year of my birth - was in effect, his celebration of the habitat and its incredibly abundant and diverse biota. The work also manifests his effort to convince the reader that such habitats were worth protecting from a number of perspectives, as he watched increasing numbers of them being drained, filled in, or otherwise destroyed or degraded by human activities throughout his life.

His description of the habitat and its abundant and ever-dynamic inhabitants - most of which I had yet to personally encounter, but knew from copious poring through field guides - affected me greatly. I was all in on his call to preserve it. I can affirm that my absorption of his message at that time, to some degree, influenced the direction that my life was to take.

Errington was certainly the authority of his time on Muskrat ecology. Two scholarly books – *Muskrats*

*and Marsh Management* (1961) and *Muskrat Populations* (1963) are still valuable references to wetland ecologists today. Among other wildlife references, excerpts from these publications were required reading in some of my introductory wildlife biology courses at Michigan State University.

When observing Muskrats in the environment I routinely apply snippets of what I read among Errington's works to help interpret their activity. I also expound on the difficult life of a Muskrat to school children based not only on Errington's research and observations but on my own as seen through the lens of what I learned from his writings.

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A Muskrat out of water may not be quite as helpless as the metaphorical fish, but it is close. The marsh, lake, pond or river slough in which it resides not only provides it with food and shelter; the depths are this oversized murid's most reliable retreat from a host of predators, including large raptors, Coyotes, Raccoons, and especially Mink. Removed from that safe haven, an individual becomes an easy target.

Not to say it won't attempt to fight for its life when attacked. One day in my teenage years I was walking with my dog, Boris – a black German Shepherd, along the edge of a large pond in a rural park. Loping ahead of me he suddenly found himself incidentally positioned between the shoreline and a Muskrat that appeared to be foraging on the waterlogged lawn about thirty feet away from it. When it noticed the dog, the Muskrat instinctively scurried toward its source of safety - and directly at Boris. The dog charged toward it, then both animals froze nearly nose to nose. The Muskrat hunched in a defensive posture. The fur on its back bristled to attention. Boris appeared uncertain about this baffling new life form but was too curious to walk away. Head lowered to Muskrat-level he cautiously stretched his nose closer. The motionless Muskrat suddenly flashed forward with an exhaled snarl and struck his nose. The startled dog leaped backward. The Muskrat quickly scurried around him, splashed into the water and was gone.

I called Boris to come so I could inspect his nose. Blood had begun to rise from a shallow gash inflicted by a Muskrat incisor. Like a windshield wiper Boris' tongue reflexively emerged and swiped it clean. The incident and the wound seemingly forgotten as quickly as they had occurred, he pulled his muzzle from my grip and turned to continue his pond-side explorations.

Errington had written about the gusto with which various predators attack, kill and eat Muskrats. I knew that this scenario would have progressed very differently with a hungry Coyote or Mink substituting for my pampered, kibble-fed version of a carnivore.

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Assuming that in most cases a Muskrat - evolutionarily-honed to occupy this habitat - can find adequate food as well as shelter from predators and the elements here, why leave the water at all? The potential for overcrowding and the resultant dwindling of resources can happen in finite environments of any size in relation to almost any species, whether it is the number of humans occupying Planet Earth or the number of Muskrats occupying a few-acre roadside marsh.

Muskrats have their own ruthless, self-enforced and very effective means of population regulation. For those prone to strong feelings of empathy toward animal suffering the imagery is not good. Grisly, if not violent ends await the vast majority of castoffs. However, for all the drama and individual suffering, Muskrat populations by these species-specific means effectively fulfill the ends when it comes to dispersal objectives. In keeping with the myriad means but common ends seen across the



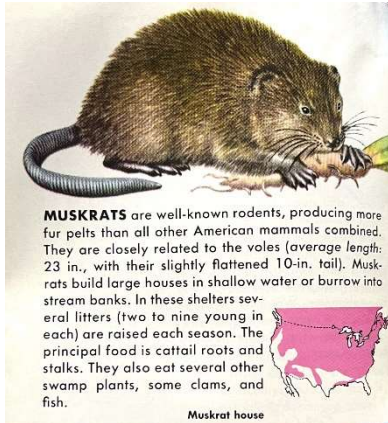
*A breeding Muskrat pair is remarkably prolific, yet few survive long enough to attain the opportunity.*

*Photo by Greg Smith.*



kingdoms of life, a relatively large number of young Muskrats are cast into the environment so that a few can find success in a distant habitat. The rest perish.

The Muskrat life span is short. Very few live to see a third birthday. Despite the brevity pairs appear to mate for life and can bear up to three litters per growing season. Only about the size of a small rat when they leave the nest the majority of young become food for an even wider scope of predators than those of the adults. They are easy victims for Great Blue Herons as well as for large Bull Frogs, Snapping Turtles and predatory fish.



The handful that dodge predation are nearly the size of their parents by the time winter sets in. Family members will share the tight quarters within a lodge, a large vegetative hump that juts above the water or ice. The adult male constructs it over weeks in the fall by cutting and piling cattail leaves. He then swims under it to gnaw entry holes up and into a snug, dry chamber situated several inches above the water line.

Throughout the winter the residents exit through the 'plunge holes' to dig up and feed on the roots of cattails and other aquatic plants. It is this time of year that Muskrats are most apt to feed on fish - alive or deceased - that often accumulate in and around the plunge holes as the ice thickens.



*From Mammals: A Guide to Familiar North American Species, Golden Guide Series, by Zim and Hoffmeister.*

The mated pair of adults tolerate the presence of their grown young through most of the winter. However, lengthening days and milder temperatures advancing through March trigger hormonal shifts in the adults that translate into intense territoriality. Adult Muskrats quite suddenly tolerate no other Muskrats, including their own grown young. The adult male turns aggressively on them, relentlessly chasing and viciously biting until they are driven from the home range. On larger bodies of water the young may be chased down shore... right into the territory of another hormonally-charged male. Those that live on smaller ponds and marshes have no choice but to leave the wetland entirely.

In March, young Muskrats forlornly waddle through alien terrestrial landscapes in search of any water that may remotely remind them of home. I remember one March in our next door neighbor's yard spotting a Muskrat hunched in a small puddle created by the trickle of effluent coming from their sump pump. The following day it was gone. This time of year a Muskrat can show up just about anywhere, with or without water.

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One March morning I walked across the street to access our mail box. I glanced northward on Williamston Road then did a double-take. About a tenth of a mile up the road I could see a small roundish dark figure very precisely seeming to walk the bright yellow center line in my direction. I started walking toward it to get a closer look, guessing it was a Muskrat.

An approaching car appeared over the rise behind it. I stepped to the side to let it pass all the while hoping the Muskrat would remain on its course and not veer into the path of the car. The car didn't brake or appear to decelerate as it whisked past the animal. The Muskrat stopped abruptly in response to the close passing object and sudden whoosh of air. A few seconds later it resumed walking the line.

As I closed in on it I wondered exactly how near-sighted this species was. Finally, at no further than ten feet it seemed to discern my presence and stop. I didn't want to disturb it or unnecessarily alter the course it had chosen, so I backed up and continued to walk in the direction I had come. A few seconds later I looked back and saw that it had resumed its journey. A few minutes later it passed the front of our

driveway. Before I went back to the house another car came down Williamston Road. Despite my near certainty of the Muskrat's pending fate, I found myself staying and watching while rooting in this moment for it to stay put on the center line to avoid being hit. It did. The following morning I drove south on Williamston Road anticipating the sight of a flattened Muskrat along the way, but saw nothing.

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Indeed, it is easiest to see Muskrats, or more likely, what's left of them on roads and highways now. Mammalian road-kills are common and varied this time of year. The all-season road-litter of squirrel and rabbit carcasses is joined by those of mammals fresh out of some degree of winter dormancy: skunks, raccoons, opossums and woodchucks. But for this stretch of weeks no other mammal falls victim with the prevalence of the Muskrat in its season of forced exile - especially on roads adjacent to wetlands.

Measuring no more than a foot in length, the flattened Muskrat on the road is easy to pick out from the others at even a glance through the windshield-in-motion. The bare, dark tail may be a giveaway, but its fur is a rich deep brown, the guard hairs remarkably sleek and shiny in the sunlight. Despite the circumstances, there is no denying it is a beautiful and functional pelt. No wonder the Muskrat has been and continues to be so commonly trapped for processing into luxurious garments.

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Amid the circannual strife and death of so many individuals there is an upside at the population level. A relative few do manage to have success in locating a marsh, pond lake edge or riverside slough that they can claim as their own. The rare, suitably-deep and amply vegetated wetland that they find unoccupied probably hadn't been vacant for long.

Both members of a Muskrat pair or an entire family are especially vulnerable over the winter. Under-ice food supplies may dwindle resulting in starvation. Drought may lower water levels to such a degree that shallower ponds freeze completely to the bottom, cutting off the Muskrats' access to plant roots. Hunger forces them to the ice's surface. They forage on whatever dry plant life they can find to avoid starvation. Out here, and in a weakened state they become sitting ducks for a host of predators.

Muskrats are most vulnerable to Mink predation in the winter. A Mink will dig and squirm its slinky body right into the lodge's living chamber, slaughter all the residents it can get its teeth on and dine on the remains for days or weeks afterward.



*The Mink is a formidable predator of the Muskrat.  
Photo by Greg Smith.*

A Muskrat fur trapper may line the shallows of a wetland with submerged traps. Muskrats also become regarded as pests then trapped when they dig into raised banks at pond edges and earthen impoundments or dikes in order to nest or overwinter. Over time, some if not all current residents within a particular home range may have been caught and removed.

Thus, by hook or by claw, talon or crook, Muskrat voids pop up in suitable habitat across a wetland-speckled landscape. The glut of late winter and early spring evictions is the mechanism by which these sites are quickly reoccupied by this prolific, tough and durable ecological component...

A March-wandering male then a female, or vice versa, discovers a 'free' wetland, bonds as a pair, raises a brood or two through the summer then overwinters as a family in a lodge or embankment. Then, just as their fathers, grandfathers and great grandfathers did, and down through so many more generations, this

male too will unceremoniously and aggressively evict his offspring the following March.

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I teach about Muskrat life and behavior to students, from preschool to eighth grade, usually in the month of March when they are most apt to see wanderers or victims. I utilize a combination of color Powerpoint photographs, a Muskrat pelt and the skull of a Muskrat I prepared from a road-kill that had occurred some twenty years ago in front of our driveway.

In general The Muskrat's tale is far from cheerful. One may argue that some of the accounts described above are too dire to share with younger children. I have found that my depictions of the drama stirs interest and a definite sense of concern in them. I encourage students of all ages to tell parents and others about Muskrats, how they live, about Mink and other predators, about why Muskrat fathers chase their young off the marsh, and why Muskrats are getting road-killed now.



*Students can touch and handle a Muskrat skull and pelt as part of the Muskrat Ecology lesson.*

Generating awareness in others to the lives of wild things extrapolates to the cultivation of an environmental ethic; more than would be remotely possible through no education on the topic at all - the current, broad status quo. Indifference toward a wild thing extends to indifference toward the habitat that it occupies, and further, to indifference toward the larger planetary ecosystem that each of us must take responsibility to sustain and equitably share.

*-Jim McGrath*



*Jake at CCVC cradles our most recent patient.*

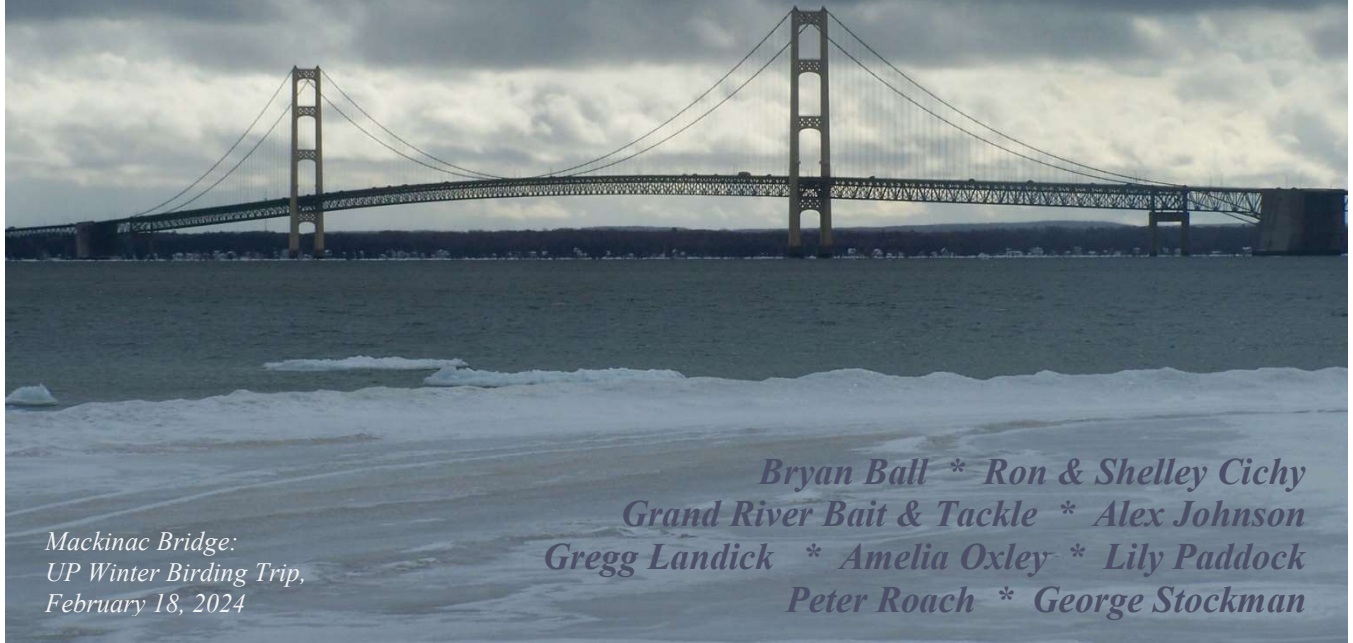
## **CEDAR CREEK VETERINARY CLINIC**

**The Official Vet of Nature Discovery!**

*Our old female Eastern Box Turtle developed an eye infection and loss of appetite. A visit to Cedar Creek Vets, then a round of eye drops and antibiotics later, her eyes are open, her appetite is back, and she's ready to meet and greet visitors to our nature center again. Thank you, CCVC! In addition to standard pet care did you know Cedar Creek Vets are specialists in reptile and bird health care? Visit [www.cedarcreekvet.com](http://www.cedarcreekvet.com) for more.*



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to our most recent donors...*



*Mackinac Bridge:  
UP Winter Birding Trip,  
February 18, 2024*

*Bryan Ball \* Ron & Shelley Cichy  
Grand River Bait & Tackle \* Alex Johnson  
Gregg Landick \* Amelia Oxley \* Lily Paddock  
Peter Roach \* George Stockman*

## ***Around the State in March***



**Saturday, March 2:** 9am-1:30pm. MI Reptiles & Amphibians Exhibit; Quiet Adventures Symposium, MSU.

**Wednesday, March 13:** 6-7:30pm. MI Reptiles & Amphibians Exhibit; Murphy Elementary, Haslett.

**Sunday, March 17:** 2pm. MI Reptiles & Amphibians Presentation; Gerald Eddy Environmental Ed Center, Chelsea.

**Saturday, March 23:** 9-4:30pm. MI Reptiles & Amphibians Exhibit; 3:45pm. Michigan Cavity-nesting Birds Presentation; Bluebird Festival, Washtenaw Community College, Ypsilanti.

**Tuesday, March 26:** 11am. MI Wildlife Presentation, Whittemore Library, Whittemore.

**Tuesday, March 26:** 2pm. MI Wildlife Presentation, Robert J. Parks Library, Oscoda.

# Nature Discovery

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517.655.5349

Williamston, MI 48895

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[www.naturediscovery.net](http://www.naturediscovery.net)

## Visit Our Nature Center by Appointment

***Suggested Minimum Donation***  
***\$5/person/hour***



*Our female Bull Frog waits patiently for a worm.*

The sky's the limit for natural science learning here – with a Michigan twist! Adults, couples and families are welcome to schedule an intimate outdoor or indoor visit to what we call “The Biggest



Little Nature Center in Michigan,” and “Home to the Largest Zoo of Michigan-native Reptiles and Amphibians.” The unique, in-person, hands-on experiences here are unmatched by a trip to a conventional zoo! We will bring snakes, turtles, frogs and salamanders out of tanks to interact with adults or students of any age or grade-level.

Identify and feed “the grand slam of Michigan turtles” - all ten species native to our state! Meet, pet and feed “Milberta”, our always hungry Red-footed tortoise.

Handle gartersnakes and watersnakes while learning identification tips and behavior traits, then watch them gobble up worms and minnows. Hold or “wear” a gentle 6-foot Black Rat Snake – the largest in the state!

Many more snakes, turtles, frogs and salamanders to identify and feed. Take a guided walk on our trails to identify birds and bird song, trees, vines, and invasive plants as winter fades.

Ask about arranging a custom birding field trip - for individuals, couples, and small groups of family friends or classmates.

Contact us for more info or to make an appointment most any day or evening.



*Eastern Bluebird.*



*Spring Break*

# *Wild Birds*

*Field Trip*

**Monday, March 25; 8am-2pm**



*Photo © Steve Sage.*

For students 5<sup>th</sup> grade & older. Jim will lead an intimate group of only 5 students and travel by van to an array of natural habitats throughout Mid-Michigan in search of bird diversity amid early spring migration.

Students will tally up to 50 birds or more on personal checklists we provide, including over a dozen species of waterfowl, an active bald eagle nest, plus hawks and owls on nests, too. Our powerful spotting scope allows for extra close-up looks. Bring binoculars if you have them (Compacts NOT recommended). Don't have a good pair of your own? That's okay. We have several pairs available for participants to borrow.

COST: \$90. Pack a bag lunch and water bottle, and be sure to dress for weather conditions. Advance registration required.



*Spring Break*

# *Wild Times*

*Day Camp*

**Wednesday or Thursday  
March 27 or 28; 9am-3pm**

For children K and older. This intimate day camp has a maximum enrollment of only six participants. Choose either day while spaces are available.

There is so much to do here that a camp day just flies by! Indoor activities include lots of time interacting with scads of specimens of small and large Michigan-native reptiles and amphibians, including turtles, frogs, salamanders and lizards. Participants never grow tired of handling our huge Black Ratsnakes. Our Red-footed Tortoise and Russian Tortoise love to munch lettuce right from the campers' hands.

Outdoor time involves activities on and off-trail across our six acres experiencing birds, bugs, frogs, snakes and more. Weather-permitting, students will sample the aquatic life beginning to stir in our vernal ponds out back. They will also learn how to identify and eliminate invasive alien plants, shrubs and vines.

Pack a bag lunch. A mid-morning snack will be served.

COST: \$80/student. Advance registration required. Contact us to reserve a day.

*Summer Day Camp:*  
*Mid-Michigan*  
*Field Birding*  
**June 10-13**



*Photo by Greg Smith.*

**For middle to high school students**

8am to 2pm. In this whirlwind 4-day adventure an intimate group of only 5 participants will try to encounter as many birds as possible in a variety of habitats. Each day we'll head in a different direction within an hour drive of Williamston to see up to 90 species, many of which you don't find just anywhere. Birders will keep their own personal checklists. Bring a good pair of binoculars. (Compact binoculars NOT recommended. Borrow ours!) Serious birders only, please. FEE: \$340 (\$170 NR deposit).



*Summer Day Camp:*  
*Nature Discovery*  
**August 5-8 or 19-22**

**For students 7 to 9 years.** 9am-3pm. Each week offers students engaging exposure to a range of Michigan wildlife through a mix of inside and outside activities, including hands-on studies with our huge collection of live Michigan

frogs, salamanders, turtles and snakes, in addition to bird-watching, insect observation, tree, shrub, vine, and wildflower identification, pond life studies, and more. We will also take short drives around the neighborhood to experience a diversity of habitats and wildlife. FEE: \$320 (\$160 NR deposit).

*Summer Day Camp:*  
*Michigan Reptiles*  
*& Amphibians*  
**August 12-15**



**For students 10 yrs & older.** 9am-3pm. Four full days of Michigan frogs, salamanders, turtles, lizards and snakes in the classroom and in the field! Students will handle snakes, and help feed and maintain all the animals on hand while learning about them at the same time. We'll also go on various field excursions by van and on foot around the neighborhood to find and identify as many wild herps as we can. Students will keep checklists of their finds. FEE: \$320 (\$160 NR deposit).





# ***Don't Throw Old Clothing Away***

Our daughter Lily is a department manager at H&M in Meridian Mall. She informed us that the store now has a drop-off recycling bin for old and worn clothes and nearly any other fabric. A growing number of clothing stores are providing the same service. If you need further incentive the store offers a voucher for 15% off when you drop off old fabric in any condition.

*Sign on the Clothing Recycle Bin at H&M.  
Learn more at [hm.com/garment-collecting](https://hm.com/garment-collecting)*

How to Recycle Clothing & Accessories

[https://earth911.com/recycling-guide/how-to-recycle-clothing-accessories/?utm\\_source=ActiveCampaign&utm\\_medium=email&utm\\_content=Start-Stop%20Savings%20%7C%20Recycle%20Clothing%20%26%20Accessories%20%7C%20DIY%20Reclaimed%20Wood%20Shed%20%7C%20Podcast%3A%20Dandelion%20Energy%20Geothermal%20Heat%20Pumps%20%7C%20Sustainable%20Does%20Just%20Fine&utm\\_campaign=Earth911%3A%20January%2019%2C%202024&fbclid=IwAR0fRkTQ4d7sK3173wb98pUrPsEifgfWAhAwMqTFzpMyEC4dK0IV91icqMU](https://earth911.com/recycling-guide/how-to-recycle-clothing-accessories/?utm_source=ActiveCampaign&utm_medium=email&utm_content=Start-Stop%20Savings%20%7C%20Recycle%20Clothing%20%26%20Accessories%20%7C%20DIY%20Reclaimed%20Wood%20Shed%20%7C%20Podcast%3A%20Dandelion%20Energy%20Geothermal%20Heat%20Pumps%20%7C%20Sustainable%20Does%20Just%20Fine&utm_campaign=Earth911%3A%20January%2019%2C%202024&fbclid=IwAR0fRkTQ4d7sK3173wb98pUrPsEifgfWAhAwMqTFzpMyEC4dK0IV91icqMU)

A Stylish Investment: Making Fashion Sustainable

<https://earth911.com/style/a-stylish-investment-making-fashion-sustainable/>

-JM

***The next generation would be justified in looking back at us and asking, “What were you thinking? Couldn’t you hear what the scientists were saying? Couldn’t you hear what Mother Nature was screaming at you?” - Al Gore***

***I don’t want you to be hopeful. I want you to panic. I want you to feel the fear I feel every day. I want you to act. I want you to act like you would in a crisis. I want you to act like your house is on fire, because it is. - Greta Thunberg***

***The personal actions that cut climate pollution fast are to go flight-, car-, and meat-free. Start with the one that feels most feasible for you; if you can’t totally go without, aim to cut your consumption today at least in half. – Kimberly Nicholas, Under the Sky We Make***

***What if we had storytelling mechanisms that said it is important that you know about the well-being of wildlife in your neighborhood? –Robin Wall Kimmerer***



Less Beef = Less CO<sub>2</sub>  
Cowspiracy.com

**[ Union of  
Concerned Scientists**  
Science for a healthy planet and safer world



Flightfree.org



RSPO.org



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