



A newly-hatched albino Black Ratsnake hangs with its normal-colored clutch-mate. This summer, two of seven healthy hatchlings are albino - just like their grandfather!

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***White Black Ratsnakes
– An Oxymoron & a
Genetics Lesson***

If you've been following Nature Discovery for more than two years, it's hard to forget our six-foot albino male Black Ratsnake. He died in May of 2011 at the age of about 17 years. More than a decade of loyal service as our primary snake "ambassador" earned him a eulogy in our June 2011 *Wild Times* (accessible on the website). The female ratsnake with which he mated a number of times was about two years younger. She died this past winter.

The first generation offspring from various clutches were, of course, all normal-colored ratsnakes. If you haven't brushed up (or had a need to) on your Genetics 101 lately, the albino gene for color is a double recessive trait. Since all of our second-generation individuals carry one dominant normal-color gene from the mother (A) to match with one recessive albino gene from the father (a), the black characteristic masks the albino one in the offspring (Aa). Therefore, all offspring are expected to be normal-colored ratsnakes. However, each still carries the masked albino gene.

This spring, two of our females - a five and four-year-old - mated with male siblings and laid eggs. When two snakes mate (in this case, siblings) that are each heterozygous for the color gene (Aa), the dominant normal-color (A) or recessive albino-color (a) of one mate has an equal chance to match with either gene of the other. The four separate genes between the two parents (two "A" and two "a") can pair-up in three possible combinations: AA, two of Aa, and aa. Of these, only one (aa) has the combination to produce an albino-looking offspring. This July, seven healthy offspring hatched, and, by a roll of the dice, two of them came up albino - just like their grandpa!

We are mindful of the fact that identification and recognition of field marks is an essential component in our lessons about Michigan snakes as well as other wildlife. Of course, we need to show audiences how a *normal*-colored ratsnake would be identified. We can't help but view the albinos as mere novelties – albeit, definite attention-grabbers.

A much more serious downside... Inbreeding is incidental within our genetically-limited menagerie. We certainly don't have the space here to house ratsnakes separately. I read somewhere that crossing one generation of snake siblings yields a high percentage of offspring with no apparent genetic flaws. In succeeding generations of sibling-crossing, however, genetic flaws become the norm. Unfortunately, we have no information regarding the genetic history of our albino patriarche, but, within the pet industry, the quest to produce albino individuals with the potential to sell them at a higher price drives breeders to cross siblings with regularity.



The Originals. We currently have fourteen ratsnake individuals over two generations borne from their late parents/grandparents. Many more have been given to institutions around the state for educational opportunities.

Our first generation of sibling breeders was doubtfully the real "first." Over half of the offspring from one sibling-cross last year and from two more crosses this year have been physically deformed. The defects have ranged from malformed embryos that never hatched, to, most commonly, individuals with a severely kinked spine that have no chance to survive. We've employed deep-freezing as our means to euthanize them.

The Black Ratsnake, while rare in Michigan, is quite common in forested areas within states to our south. Carol and I are planning a trip south before the summer is out to see if we can secure an individual or two to give our home population a much-needed shot of genetic diversity.

As in years past, we would like to give a hatchling Black Ratsnake to any educational institution at any level. It's a gentle, highly-handleable, low-maintenance, classroom pet. Book a program with us, and we'll throw in a "ratsnakeling" along with all the care tips you need!

-Jim McGrath

Catch Nature Discovery on WLNZ Radio's Coffee Break on Friday, August 16

Jim is scheduled to appear on Friday, August 16 at 9:15am, discussing our hatchling ratsnakes and more. The show airs weekdays from 9 to 10am on 89.7 FM. Listen live online at lcc.edu/radio/onair/ or watch it live (or later in the day at 6pm) online at lcc.edu/tv/watch. We'll post a reminder on our Facebook fan page.





The Secret Lives of Michigan Salamanders

*Sunday, August 11
1 to 5pm \$5/person*

Did you know Michigan is home to twelve species of salamanders? Due to their highly nocturnal nature and propensity to shy away from light, these silent amphibians are much more difficult to detect on the landscape than frogs. At 2pm we will present *The Secret Lives of Michigan Salamanders*. Through a combination of beautiful Powerpoint images and up-close inspection of live specimens of nearly every species in the state, participants will receive an intimate look into their life cycles, behavior, habitats, and distribution. Threats to their survival due to human activities will be discussed, in addition to what you can do on your property to enhance their chances to survive.



At the presentation's conclusion participants will have the opportunity to watch a number of salamanders eat. See our newly-hatched Black Ratsnakes, including two albino hatchlings.

Visit the rest of our interactive Michigan reptiles & amphibians zoo. Take a guided walk on the trails. Our knowledgeable staff is on hand to help you make the most of your visit!

Our giant silk moth farm is in full swing and caterpillars are getting huge! There is still time to purchase and raise a few Cecropia larvae with complete care instructions. This impressive caterpillar metamorphoses into the largest moth on the continent! A fascinating endeavor for kids as well as adults.

This ornate 5th Instar Cecropia is nearly four inches in length.

Spaces Still Available for August Summer Day Camps...



Michigan Reptiles & Amphibians **August 5-8; 9am to 3pm** ***Starts Monday!***

for students 9 yrs & older

Here's a full week of Michigan frogs, salamanders, turtles, lizards and snakes in the classroom and in the field. Students will handle snakes, and catch insects and worms to help feed and maintain our whole zoo. We'll also take 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. With parental permission, there will also be opportunity to take home a small frog or snake to keep in captivity complete with care instructions.

FEE: \$180. Contact us over the weekend to enroll.

Michigan Reptiles & Amphibians at LCC **August 5-8; 1 to 4pm *Starts Monday, too!***

for students going into 2nd & 3rd grade

Carol is teaching this class at Lansing Community College (East Campus). Call LCC at 483-1860 Monday morning to enroll. You can also just arrive 30 minutes before the class begins and enroll on the spot.

Nature Discovery **August 12-15; 9am to 3pm**

for students 7-9 yrs of age

This 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 collecting, tree, shrub, vine, and wildflower identification, pond life studies, and more. We will also take a couple of short drives around the neighborhood to experience a diversity of habitats and wildlife.

FEE: \$180 (\$90 NR deposit). Contact us to enroll.



Around the State in August

- ❖ Friday, August 2: 8:00pm. MI Frogs Presentation; Hartwick Pines St Park, Grayling.
- ❖ Saturday, August 3: 1:30pm. Seldom Seen Herps Presentation; Hartwick Pines St Park, Grayling.
- ❖ Saturday, August 10: 10:30am. MI Reptiles & Amphibians Presentation; Huron Co Nature Ctr.
- ❖ Sunday, August 18: 3pm. MI Amphibians & Reptiles Presentation; Dunham Lake, Hartland.
- ❖ Saturday, August 24: 11:30am to 2pm. MI Reptiles & Amphibians Exhibit; Edwardsburg Conservation Club.
- ❖ 12pm. Butterflies & Moths Presentation; Leila Arboretum, Battle Creek.
- ❖ Sunday, August 25: 10:30am. MI Reptiles & Amphibians Presentation; Sierra Club Retreat, Camp Miniwanca, Stony Lake.



Climate Change Realist

The media wouldn't let us escape the fact that editors of *Rolling Stone* chose to put a rock-star-like photo of Boston marathon bomber, Dzhokhar Tsarnaev, on the cover of the August issue. While the media, advertisers, and, thus, the general public got themselves into a righteous and, ultimately inconsequential, tizzy over *Rolling Stone's* perceived glamorization of a domestic terrorist, they overlooked or chose to ignore the issue's most critical contribution to its readers – an article entitled *The Arctic Ice Melt, A Report from the Front Lines of Climate Change*. By continuously sweeping news about the global climate crisis into a corner the media is delivering a grave disservice to the society it ostensibly serves.

The NASA Global Climate Change website is a great source to keep you up-to-date. From the July 25 article, *An Unrecognizable Arctic*: "Scientists are becoming increasingly concerned that climate change could trigger one or more "tipping points" – abrupt, possibly irreversible changes that tip Earth's climate into a new state. Approaching a tipping point has been likened to pushing an egg towards the end of a table, and ultimately watching it fall and break. Potential climate tipping points include: an ice-free Arctic summer, irreversible melting of the Greenland ice sheet; rapid thawing of the permafrost in Alaska; and shifts in the Atlantic Ocean's circulation. Here's a link to the full article: <http://climate.nasa.gov/news/958>.

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Check out our Youtube channel, *Wild Williamston*, too!

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