

Back at the zoo: BRV takeaways

In 2009 the Edward Lowe Foundation partnered with the Eastern Massasauga Rattlesnake Species Survival Plan (EMR SSP) to conduct research at Big Rock Valley (BRV). The EMR SSP, a consortium of 22 zoos, has a dual mission: to enhance the captive population of massasaugas and promote the snakes' conservation in the wild.

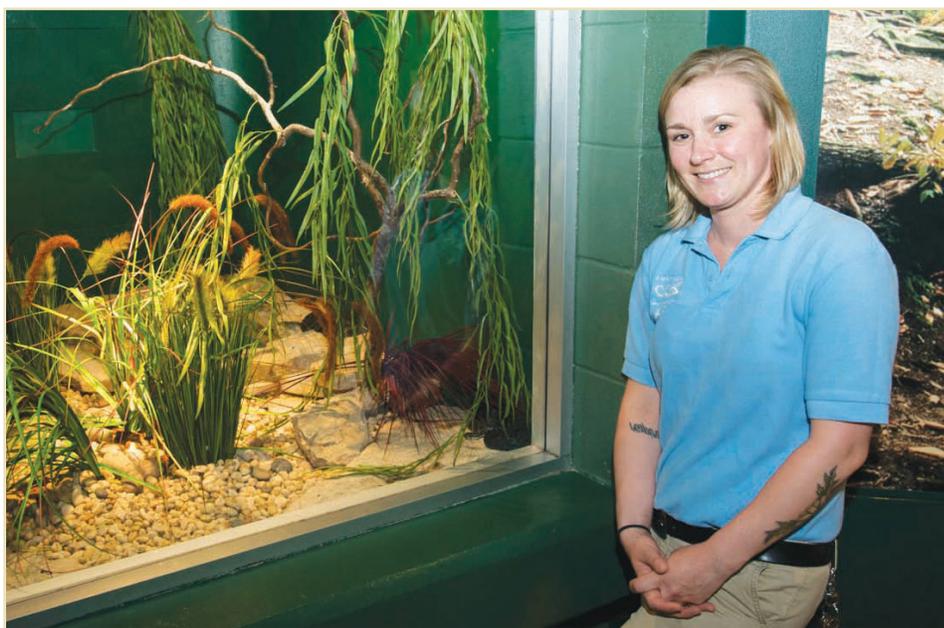
Each May members travel to BRV to hold their annual meeting and review breeding practices for their zoos' snakes, which are managed collectively. The group also spends considerable time outdoors, combing BRV's 2,000 acres searching for snakes to collect data for a longitudinal study.

"Finding reptiles in the field is not always a guarantee, so going to a place like Big Rock Valley where they are prevalent is a bonus," says Tara Archer, a herpetologist at the Columbus Zoo, who first visited the property in 2013.

Seeing massasaugas in their natural habitat was a big takeaway for Archer — and prompted her to give the zoo's exhibit a major makeover. The exhibit had been filled with a mulch substrate, which Archer removed and replaced with gravel. This enabled her to flood a section of the exhibit and create a mini-wetland. She also added cattails, foxtails, willow branches and bright red grasses similar to what she had observed at BRV.

Since revamping the habitat, the two massasaugas seem happier, especially the female snake, Archer says. "She's calmed down considerably, and now I can service the exhibit without her moving around a lot."

It's important to provide zoo animals with options — especially reptiles, which



New digs: Tara Archer by the refurbished massasauga exhibit where branches hang down to the grass, providing cover for snakes, and cattails are located near a heat lamp. "The snakes can curl up in the cattails when they want to bask, just like they would in the wild," Archer says. (Photo by Graham S. Jones)

need to thermoregulate. "Exhibits should have a hot spot and cool spot, and it's important to provide cover comfort," Archer says. "Even though they are in a protected place, they are always instinctively on the lookout."

Similarly, other EMR SSP researchers have altered their zoos' habitats after spending time at BRV.

"When we exhibit animals, we want to provide the best home possible and take care to meet all of their physical, social and psychological needs," says Penny Felski, a herpetological manager at the Buffalo Zoo in upstate New York and a regular visitor to BRV.

One of the changes Felski has made is to add cattails or dried grasses, logs and sphagnum moss to the massasauga enclosures. "Being out in the field at the Edward Lowe Foundation, you

get to see what kind of substrates the snakes are sitting on and observe their behavior," she says. "For example, I noticed that massasaugas don't usually sit directly on the surface of the ground, but prop themselves up on dried vegetation that has fallen over."

Reptile ambassadors

Felski was surprised to see how gentle the massasaugas were at BRV. "Usually when one is spotted in the field, they give us plenty of time to collect required data with no issues while we keep a safe distance away. I was expecting a little more spice from them, but like our zoo's snakes, they are docile as long as you don't try to handle them," she says. "That's a huge take-home message for me. It's important to tell people who may live in



a massasauga habitat that the snakes just want to be left alone. The animals that we have in captivity are ambassadors to their counterparts in the wild, and it is important to teach our visitors to respect all creatures, including rattlesnakes.”

EMR SSP researchers also collect environmental data, such as humidity and temperature of soil where snakes are found. “Although the data is for the longitudinal study, we can take that information back home and mimic what’s happening in the field,” Felski says.

Some like it hot

For Andrew Lentini, curator of amphibians and reptiles at the Toronto Zoo, temperature was a big takeaway. “At the foundation, we saw that massasaugas were basking in very hot temperatures in the high 30s or 40s degrees Celsius (more than 100 degrees Fahrenheit). This goes against conventional wisdom of how you keep temperate snakes,” says Lentini. “Recommended temperatures are generally 10 degrees Celcius cooler than what the snakes at BRV have shown us they prefer.” After seeing massasaugas at BRV, Lentini replaced lights in his zoo’s exhibit with ones that more closely replicate natural sunlight and produce more heat.

“What’s great about being at BRV is that you get to observe animals doing what they choose to do — rather than what we like to think they choose to do,” he adds.

Another benefit of visiting the foundation is connecting with industry colleagues.

“You learn things you might never have thought of otherwise about the husbandry of these animals,” says Dean Bowman, a zookeeper at the Potawatomi Zoo in South Bend, Indiana, who has attended several EMR SSP meetings. “I’ve gotten ideas for creating a more natural habitat for our exhibit, which helps with educating the public, and I’ve learned more about fieldwork.”

“It’s great for everyone to get together at one table and discuss what worked and what didn’t,” says Jeff Jundt, curator of reptiles at the Detroit Zoo. “I don’t know of any other SSP in the Association of Zoos and Aquariums that does something like this. Most groups send out surveys and communicate virtually. Being at the foundation makes it much easier to share best practices.”

Case in point, Felski attributes much of her zoo’s successful breeding program to the peer learning that goes on among EMR SSP members. In 2013 the zoo’s female snake gave birth for the first time, producing two neonates (Bravehart and Spade), and last year she gave birth to another five neonates. “The meetings are essential to information sharing and networking between zoos, government agencies and academia,” Felski says.

“I feel like the EMR SSP and foundation have really been able to accomplish something together,” says John Adamski, an assistant curator at Seneca Park Zoo in Rochester, New York. “It adds a lot of credibility to how we proceed with smaller projects or even projects that aren’t related to massasaugas.”

Researcher feedback

“At Big Rock Valley there is a larger population of snakes so we get a better understanding of what kind of habitat they like. I’ve been able to learn more in a shorter of period of time there, which makes me more of an expert here in my home range state. In addition, the way the foundation manages its property offers a lot of lessons.”

— John Adamski, an assistant curator at Seneca Park Zoo in Rochester, New York

“Visiting the foundation’s property is an awesome experience because the habitat is so well-managed. Often massasaugas are in degraded parcels, so it’s refreshing to see the amount of animals at Big Rock Valley.”

— Andrew Lentini, Ph.D. and curator of amphibians and reptiles at the Toronto Zoo

“It’s inspirational how the staff keeps everything Disney-clean and is so accommodating. What’s more, where else do you get to sleep in a boxcar?”

— Dean Bowman, a zookeeper at the Potawatomi Zoo in South Bend, Indiana