

# Q&A with Dr. Allison Sacerdote-Velat

Dr. Allison is the Nature Museum's curator of herpetology, and right now she is outside doing important fieldwork! Fieldwork is the type of research a scientist does where they collect data in the environments that they study.

Let's hear about what Dr. Allison is doing out in the field!

## What fieldwork are you doing right now?

### Dr. Allison:

Right now, we are in the middle of smooth greensnake nest monitoring and hatching season. Smooth greensnakes are one of only a few regional snakes that lay eggs. Smooth greensnakes have a unique nesting behavior. The females can lay their eggs early in the nesting season (late June), late in the nesting season (late July or early August), or anytime in between. Because of this variation in nest timing, as we monitor nests in the field, we may find new nests as the early nests are almost done with hatching. Early nests usually take about 30 days to develop and hatch, while late nests may only take a few days to hatch.

We monitor nests in the field to learn about their survival rates and threats. In the past several years, we found that egg survival is often less than 50% which can lead to population declines. To try to reverse that decline, we bring a portion of the eggs indoors to incubate, and maintain them through hatching. Our incubation success rate is typically 98%.

Once the eggs hatch, we measure and mark each hatchling, and then directly release most of them, so we can assess survival of the youngest age group. This is a challenging age group to study, because they are only about 4 inches long, and very well-camouflaged with their environment. They hide in the dried vegetation and in cracks in the soil.

Another conservation method we use is called "head-starting" in which we house a portion of the hatchlings for just under a year, to increase their body size before we release them.

This season, we are comparing the direct release technique and the head-starting technique in a reintroduction site. We released head-starts from 2019 back in May, and once this year's hatching is complete, we will direct-release some hatchlings in the same site. Over time, we can compare recapture rates and survival of head-starts and direct release snakes to help guide future conservation work with smooth greensnakes.



## Why is it important to study smooth greensnakes?

### Dr. Allison:

Smooth greensnakes are a unique part of our regional natural history, and they are declining in number in many parts of their historic geographic range. Their decline is largely tied to destruction of grassland habitats like prairies and sedge meadows. Habitat fragmentation is a factor in their decline because as roads carve up the landscape, it is difficult for such a small snake to cross roads in order to find new habitat. Even though a lot of grasslands are being restored, it is difficult for smooth greensnakes to colonize the improved sites. Because they are small-bodied, they only lay a few eggs per snake, so egg survival is critical to helping their populations persist and grow.

The smooth greensnake is an Illinois Species of Greatest Conservation Need, meaning we know they are generally declining, but we lack a lot of detailed information about them. By studying their populations, we can learn more about their threats, and what conditions they need in order to have their populations successfully grow. They are state-endangered in Iowa and Ohio, and state-threatened in Indiana—all states that have lost a lot of grassland habitat.



There is also a fairly new disease called snake fungal disease, which has threatened populations of some species of snakes. We have found some fungal infections in several snake species in the Chicago area including gartersnakes, milk snakes, and fox snakes. We check all of the snakes we encounter for symptoms of fungal disease, and collect swabs of potential infections.

## What's your favorite part of fieldwork?

### Dr. Allison:

My favorite part of fieldwork is that I get to see and work with wildlife in their habitat, and observe unique moments and interactions. While I am outside looking for snakes, I may see a variety of other species as well, like muskrats, wading birds, songbirds, and insects. Every day is different and I get to see the environment change throughout the season.

I enjoy seeing the plant communities go through their annual cycles and observing how the wildlife respond to those changes in food resources. Another fascinating aspect of fieldwork is all of the sounds in the environment. We were in an amphibian breeding pond in May and kept hearing a fawn bleating among all of the unique frog calls surrounding us.

