

# A Snake Story

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One thing I've learned while working on this project is that everyone has a snake story, and today I want to share ours. On the shoreline of the islands in the western basin of Lake Erie there lives a snake. The Lake Erie watersnake or LEWS is a medium-sized, non-venomous watersnake known for its reduced coloration found no where else in the world. It spends its days basking along the shoreline or foraging out in the near shore waters for fish. Historically, this snake was so numerous, from the beginning of European exploration the region was described as The Islands of Serpents, or Snake Islands and recorded as such on the earliest maps for the rest of the world to see. But not for long. In the late 1800's, the island region was settled. Inland habitats were drastically cleared for farming and quarry operations and several early accounts describe the purposeful demise of the once prevalent animals.

Given the well documented declines in population size, moving from descriptions of the islands for their "wreaths of watersnakes" to a campaign of extermination, the snake was identified as a candidate for Federal listing as early as 1985, and first proposed for listing in 1993. Finally in 1999, the USFWS designated the Lake Erie watersnake as 'Threatened' and soon after, ODNR listed it as 'Endangered'.

The agencies cited three primary threats to the continued persistence of the species: low population size, extensive habitat destruction and persecution by humans.

However, identifying the threats was only part of the path toward the solution.

Soon after the listing, Dr. Richard King of Northern Illinois University recognized the need for understanding more about the biology of the snake and began a 3 ½ year radio-telemetry study. In order to help this species, we needed to know if the populations were continuing to decline. Additionally, we knew that the snakes were found on the shoreline, but how much habitat did an individual snake use? And did they spend the winter there, or did they go somewhere else?

As a new graduate student, I was sent to the islands to serve solely as a summer field technician for the project. I arrived on Kelleys Island in July of 2000 and found that I had already acquired the nick name of "snakelady" before even seeing a Lake Erie watersnake that wasn't in a pickle jar.

Little did I know the islander nick name would have predictive powers!

At the same time the new research project was underway, an intensive campaign by the ODW and USFWS pushed for increased education and awareness through publications such as LEWS News, which contained current information regarding the biology of the snake and the progress of the scientific studies underway.

This was listing that hit the ground running!

What most people don't know is when a species is Federally listed, it is required that U.S Fish and Wildlife Service outline a Recovery Plan which will address the threats originally identified. In 2003, the final recovery plan was accepted with three main criteria for delisting: (1) Population Persistence, (2) Habitat Protection and Management and (3) Reduction of Human Induced Mortality.

The new information gained from the telemetry study regarding LEWS populations and their habitat usage, along with the solid foundation toward the outreach campaign

provided a framework to set the goals of the recovery criterion. The first criterion of Population Persistence dictates an overall population of 5,555 adult snakes on all of the U.S. islands that persists for six consecutive years, and furthermore, that the number of snakes found on each of the four largest islands also have minimum population sizes according to island size. The second criterion of Habitat Protection and Management was set up similarly to the first, setting both overall and island specific goals for inland and shoreline habitats based on island size. The third criterion addresses human induced mortality and says that both intentional and accidental killing of LEWS no longer poses a significant threat to their continued persistence.

When you boil these criteria down further, you might come up with three main components of many if not all good conservation programs: research, management and outreach. But the tricky part again, isn't in identifying what these components are, but how do we fulfill the separate goals of each component and have them come together to achieve the goal of recovering a species? One piece of the pie is no more, or less important than the others.

To meet the needs of the research goals, we established an annual census period dubbed "The Nerodio" which started in 2001. The goal of Nerodio is simple, yet vital to answering whether or not we have met the goals of the population persistence criterion. We count snakes.

How does one count snakes? Well...it involves your hands, a snake bag (a.k.a. old pillow case) and the willingness to get chewed on and pooped on simultaneously.

Multiply that by 10-15 volunteers over several sites on all the islands and you average over 1500 snakes captured and tagged in a two-week period. But that's the easy part. The more tedious task involved is processing the animals to obtain the data needed to determine just how many animals are on the islands. Our mark-recapture process involves taking several measures on each animal, scoring them for sex and color pattern, and inserting a PIT tag, or small microchip, under the skin if they don't have one already. Using the ratio of the number of marked and unmarked animals, we generate estimates of adult LEWS population size over all of the islands.

Our most current estimates indicate that LEWS population sizes have met the recovery criterion for 6 the consecutive years on the four largest islands and over all islands combined. In fact, Lake Erie watersnakes now exceed 11,000 animals; twice that of the required total population size. We can now say with a great deal of confidence, that small population size no longer appears to be a significant threat to the snakes' persistence.

Addressing the criterion of habitat protection and management utilized a similar strategy to the population criterion, requiring an overall amount of both shoreline and inland habitats on all islands combined, as well as minimum amounts on the 4 large islands.

We set to achieve these goals using two primary means of protection.

The first was through a LEWS habitat management plan submitted by the Ohio Department of Natural Resources, which says that ODNR will manage its properties in a way that minimizes the threat to LEWS populations. This was our most significant method of habitat protection, fulfilling the total amount of habitat needed on all the islands combined, as well as 3 out of 4 islands. Unfortunately, even with over 200 acres of state property cited for protection, we were still short on South Bass Island.

Fortunately, the Lake Erie Islands Chapter of the Black Swamp Conservancy and the Ohio Division of Wildlife partnered to initiate a voluntary conservation easement

program for the Lake Erie Islands, which acted as our second means of habitat protection. A conservation easement is restriction a private landowner voluntarily places on their property that permanently protects its conservation values, while simultaneously saving them thousands of dollars in property taxes.

With the addition of our completed private land agreements through 2007, we met our shoreline goal for South Bass but were short 5 acres of inland habitat.

And we're not done yet! Less than a month ago, we received word that the Western Reserve Land Conservancy who has been partnering with the LEIBSC and the Put-in-Bay Park District have a signed purchase agreement with a private land owner on South Bass Island for 8.65 acres! When the purchase is finalized, hopefully sometime later this summer, we will have exceeded our goal of land protection and completed this recovery criterion as well.

Probably our greatest challenge in Lake Erie watersnake recovery was meeting the goals of reducing human persecution. This threat was identified as the most significant factor contributing to the snake population declines.

The first part of this recovery criterion addressed accidental mortality. Rare instances of this type of mortality include accidental ingestion of fishing lures and drowning from getting stuck inside aluminum cans. Additionally, we conducted road surveys in 2005 which showed that the number of snake deaths due to vehicular traffic was low and consisted mostly of very young watersnakes. Overall, our studies have determined that accidental mortality has minimal impacts to the overall LEWS population size.

Addressing intentional human induced mortality was slightly more challenging and required the use of a multitude of strategies. In my opinion, the number and diversity of the methods utilized in this recovery program to educate the public is one of our greatest achievements.

Recall that the education and outreach campaign started prior to the drafting of the recovery plan, with a focus that was local, but consisted of general items such as our newsletter, informational pamphlets and the "Watersnakes Welcome Here" signs.

In 2003, I was fortunate enough to make LEWS recovery my fulltime job. This allowed for a greater number of outreach strategies to be undertaken and involved getting locals to vocalize their questions and concerns about the snake and its recovery. I started my "islandsnakelady" public e-mail address and this newspaper column "Ask the Snakelady" which highlighted questions directly e-mailed to me by local residents or tourists. As the years progressed, the number and types of outreach strategies we used grew to include things like large scale show and tell events, a number of major newspaper and magazine articles, radio interviews, a website and, of course, television. In August of 2006, Mike Rowe and Dirty Jobs came out for day in the life of the snakelady, and started what I call the "Dirty Phenomenon", and frankly, I don't think it can be stopped.

If we look at our outreach efforts over the years as it relates to the number of people we have reached as one measure of success we have achieved with this recovery criterion, we are looking at a conservative estimate of 10 - 15 million people.

Just think about that number again.....10 – 15 million people around the world now know about the Lake Erie watersnake and some of the methods we are using to recover this species. An amazing accomplishment for a snake with one of the smallest home ranges of any animal in the United States.

So you might be asking yourself, what's left to do? In the coming months, we plan to continue all of our research and outreach work as in previous years. We also are planning additional formal surveys of island residents and tourists regarding their actions and attitudes toward the snake. Look for these to come to your P.O. boxes very soon. We will also be submitting a 5-year review of the recovery plan and the progress made thus far to the regional office of the USFWS.

In this document will be our strong recommendation to proceed with de-listing.

And then? Well, unfortunately I can't tell you how or when our snake story ends because we're not quite done with it.

The final decision is ultimately left to the USFWS regional office.

However, I hope with what I've shared with you today, you all have a pretty good idea of just how far we have come!