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Wildlife ecology and management

New York state Herp Management

New York State is home to around 70 different types of Herps, a wide range of animals from salamanders and turtles to snakes, but their population sizes are a mystery to us because of the lack of management from the state. New York state needs to make changes to the way that herps are protected and managed. There was a project conducted in the 1900s named the Herp Atlas Project, which, when completed, showed distribution patterns of herps throughout New York state. This helped show where certain animals occurred in the state, which is essential for management. There have been no new Atlas Projects since the 90s, and there is a desperate need for a new project. Currently, there are hunting seasons for certain frogs and turtles that inhabit New York state, which is a crucial part of controlling the population an area has but only works if there Is a known amount of individuals in that population. In New York state's case, it is hurting these species. The importance of under-road crossings and how and why we should implicate these changes to help protect the herps of New York state. Finally, New York state could implement some ideas to raise funds and make people care more about herps. New York state currently has no specific management plan for the herps that inhabit the state, but change is needed to try and protect this diverse and important species.

The Herp Atlas project was a survey done from 1990-1999 ("Herp Atlas Project - NYS Dept. of Environmental Conservation," n.d.). This survey was conducted to map the distributions of herpetofauna species through New York State. Approximately 70 species of herpetofauna (“Herp Atlas Project - NYS Dept. of Environmental Conservation” n.d.) live in New York State, and knowing their distribution patterns is a big part of managing and protecting them. By knowing the distributions of all species in the state, conservation managers can make decisions around certain species, such as regulations on collection and the state of their population, whether it is endangered, stable, or threatened. All of this data was collected in the late 90s, and all of that information is now over 20 years old and is no longer accurate for the species around the state. Generally, the populations of all amphibians in New York State have been on the decline and not only that but they are “among the fastest declining taxa globally” (Boyle et al. 2021). During our interview with Doctor James Gibbs, he talked about this specific topic and stated that " there are no plans for a future Atlas project to be conducted" (Gibbs 2022). The only way we can start managing herps better in New York State is to conduct a new atlas project and find out how today's data would compare to the data collected 23 years ago. These Atlas projects that are conducted are not free, and multiple different sources fund them. Some private funds, such as State Wildlife departments, they are also publicly funded, such as U.S Fish and Wildlife Services (Dean n.d). Unfortunately, these agencies are limited on the money they receive and are more inclined to spend it where people's interests are rather than what is important. Doctors James Gibbs eluted to this during our interview when he said, "Unfortunately there is not enough interest or engagement with herps to pour money into compared to a species such as deer which are wildly popular for hunting and more important economically" (Gibbs 2022). Doctor gibs is speaking exactly why there has not been any recent Atlas Projects in recent years their populations are not "important" and money Is more focused on managing game species.

“Lack of Historical data against which to measure population trends greatly hampers Understanding the status of amphibians” (Gibbs et al. 2005). This quote speaks to precisely the problem we are discussing. New York State's lack of management of herps is a problem because there is no scientific data to show how many individuals are in any specific population. This is specifically important in the case of New York States hunting regulations regarding herps and, to be more specific, frog and turtle species. In New York state, 13 types of frogs can be hunted, and one type of turtle (“Checklist of Amphibians, Reptiles, Birds and Mammals of New York State," n.d.). Frogs are a Hunted species in New York state, which could be a problem because no scientific data shows how dense or slim the populations might be. The regulations that are set by the state for frogs are as follows there is no size limit, No daily bag limit, and there is no seasonal bag limit (“Reptile and Amphibian Hunting Seasons - NYS Dept. of Environmental Conservation” n.d.) they can also be hunted from sunrise to sundown and the only thing stopping any random person doing this is the need for a fishing or hunting license. To take some of those regulations and put them into perspective, anyone with a fishing or hunting license can go out and kill and collect as many frogs as they could ever possibly want almost year-round, with no restrictions on the size of the frogs they are catching. Frog species are important because “Changes in spatial characteristics of the remnant frog population are thought to indicate the impacts of local habitat fragmentation” (Patla and Peterson 2022). Overhunting of these frogs can lead to the decline in an already unknown population number with no knowledge of how abundant the populations are. The state has no idea or scientific data to base its regulations on. The hunting of turtles in New York State is slightly more regulated because there are tight restrictions on bag limit and size, but this does not make it any better. To start, only snapping turtles can be hunted. However, the regulations on hunting this species are that there is a limit of 5 per day and a seasonal limit of 30 turtles (“Reptile and Amphibian Hunting Seasons - NYS Dept. of Environmental Conservation” n.d.). The problem is that there is a size limit, and the turtle's shell must be over 12 inches which is a problem because ”they are hunting the biggest turtles out of the ecosystem” (Gibbs 2022). These regulations are better than frog regulations, but the argument still stands that we have no idea how abundant the populations are. If we are not careful, we can hunt them into endangerment. Regulations on these turtles need to change because these snapping turtles play a significant role in keeping their ecosystem clean as they are the “vultures” of their ecosystems they eat and clean up decomposing animals (Lovich et al. 2018). Without proper knowledge of the population status of both species, there is no way of knowing how damaging these hunting regulations are. Nor can anything be done about changing the regulations until more data is collected and released.

Currently, 70 different species of herps inhabit New York State. All these animals cross roads, whether salamanders, frogs, snakes, or other reptiles. These animals cross roads for many reasons, but a few are to get to their specific breeding sites, to get to their overwintering sites, to warm their body temperature on the warm pavement, and even to connect their fragmented habitats. Road mortality is a massive cause of decline for herps their decline is the “highest on rainy days because that is when they are crossing most frequently” (Langen et al. 2007). When it is hot and rainy outside, you will see tons of salamanders and frogs just lying or sitting on the road this is because “herpetofauna are uniquely at risk of road effects due to thermoregulatory requirements that attract them to warm road surfaces” (McGregor et al. 2015). During our interview with Doctor James Gibbs, we questioned him about the importance of implementing under-road crossings into roads in New York State. He said, "Having these types of crossings would increase their survivability and overall help their populations" (Gibbs 2022). If there was more data known about these species and where they breed, and where they congregate the most, we could find hot spots and implement these crossings in those hot spots. Data from a new atlas project would be perfect for analyzing where to add these road crossings to places with the highest species distribution. Similar to the reasons there has not been a new Atlas project, “The cost of installing and maintaining road crossing structures are substantial” (Woltz et al. 2008). Not only do they depend on public funding, but they also depend on the state because they include the construction of roads. Replacing roads is very expensive in New York State its “15,000-20,000 dollars per mile” (“Local Government Spending on Highways” n.d.). As stated earlier, there needs to be more interest behind herps to get people or money behind the idea. Without the people or money, there is no way of convincing the road department to add these needed under road crossings. Another issue would be repairing the roads because of the climate and seasons New York state has roads that are constantly moving and cracking due to the winter and expansion of water when it freezes and warms up. Due to this fact, under-road crossings would have to be replaced or repaired when the roads are fixed, which again cost lots of money that the fish and wildlife department does not have or cannot delegate towards. Under road crossing is a potential step New York State could take to start and manage and protect the herps that inhabit this land. However, it all starts with needed vital information on species distribution and species population sizes.

New York State should implement some mechanisms of bringing in money to dedicate towards herps and, at the same time, bring more people's attention to the state of herp populations in the state. A potential way more money could be brought in is by increasing the tolls to cross into the New York State, and a percentage of that money could go towards projects that were stated above, such as a new atlas project, under road crossings and hunting regulations. A second possible opportunity is creating commercials like the ones seen on tv, the sad commercials that pull on the audience's heartstrings with an opportunity to donate money to support these herps and try to protect them. One thing that New York state does is sell $5 stamps called habitat and access stamps. The issue with the stamps is that the money that is collected is "aimed at protecting and improving fish and wildlife habitat, and improving public access for fish and wildlife-related recreation" (“Donations for Recreation & Wildlife - NYS Dept. of Environmental Conservation” n.d.). This is a problem because it clearly states that money is getting put back into recreation and is less used for projects that have anything to do with herps or herp management. To start to understand these species and try to start to help them, we need money, and we need people to be interested in them. Nothing about how New York State manages these herps will change without those two things.

To conclude, New York State currently has no population data, no management plan, and currently no future ideas to conduct any new data-collecting projects. To better understand the more than 70 species of herps that inhabit New York State, we must strive to push funding toward herps as a whole. Nothing substantial can be done without money and people's interest. With both of these things, we can go out and conduct projects such as a second Herp atlas project which would provide us with crucial information on the distribution patterns of different species. This atlas project is also the base information needed to help us implement under road crossings in areas with high distributions of herps which would raise herps road crossing survivability immensely. Finally, all of this data could then be used to make important changes to the current hunting regulations, which would, in hand, slow down the general decrease of herps. All these implications and strategies are ways New York state can come in and start to protect and manage these beautiful species, but it all starts with their initiative.

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