

I believe in the diversity of species.

I love biology. It is one of my majors, and nothing fascinates me more than the study of living organisms. For as long as I can remember, biology has interested me, and what interests me most is the stunning variety. The latest estimate puts the number of multi-celled species at 8.7 million, with over 80% still undiscovered. And this doesn't even account for the millions of species that have gone extinct over the course of evolution. The most amazing thing about all of this, though, is that each of these species is completely unique. The particular patterns of adenine, guanine, cytosine, and thymine (the building blocks of DNA) that determine whether an individual is a bur oak tree or a plains pocket mouse, will only happen once. As a biologist, this diversity of species leaves me with at least 8.7 million things to learn, and, as someone who loves to learn, this makes me incredibly happy.

Now, what makes me less than happy is the fact that we are currently in danger of losing much of the diversity on our planet. Currently, 16,938 species are listed as threatened with extinction, which includes those that are critically endangered, endangered, and vulnerable. This is over a third of the species that have been assessed for their threat of extinction, and doesn't include the incredible numbers that are yet to be discovered. Now, species go extinct all of the time. It is part of the natural life process, and to think that we could, or should, stop the extinction of all species is foolish. However, it is estimated that the current rate of extinction is 1,000 to 10,000 times higher than the natural extinction rate. In other words, our planet is currently experiencing a mass extinction. As someone who loves the diversity of this planet almost more than anything else, these numbers alarm me. But what breaks my heart is the fact that this mass extinction is man-made, and therefore, avoidable. Whether this planet loses a species due to climate change, habitat loss, overhunting, pollution, or introduced species, humans are ultimately to blame.

This leads me to my next belief.

I believe in maintaining diversity.

For the past two summers I have worked closely with two things: bats and prairies. While these things occupy very different branches of biology, they brought me face to face with the reality of threatened diversity. I'll start with bats. Over the past two years I have spent over 50 nights, staying up until 3 am, in the hopes of catching a small, brown, unassuming creature; *Myotis sodalis*, the Indiana bat. Our goal was to determine how these bats were utilizing tracts of woods that were slated to be cut down, because the Indiana bat, with its unique combination of adenine, guanine, cytosine, and thymine, is federally endangered. And, you guessed it, the Indiana bat is endangered because of the actions of humans. These past two summers, I held individuals of a species that I have the very real possibility of outliving.

At this same time, I was spending time on a research project aimed at restoring tallgrass prairie. Most people do not realize it, but Iowa contains one of the most endangered ecosystems on the planet. At one point, 85% of Iowa was tallgrass prairie. Today, less than one tenth of one percent remains. To put that in perspective, the Amazon Rainforest, often used as the poster child for endangered ecosystems, still contains 80% of its original area. Modern agricultural practices have replaced an incredibly diverse ecosystem that could boast 300 species of plant per acre, with monocultures of corn, beans, and non-native grass species. Not only are species threatened by this, but an entire ecosystem.

I cannot change the past. I cannot bring back extinct species such as the passenger pigeon, or replant 85% of Iowa back to prairie, and I may be powerless to save the Indiana bat. But, I do not have to sit back and watch the things that I love continue to disappear without putting up a fight. I know that my life will be dedicated to conservation, and to maintaining the diversity of species on this planet. To me, diversity is beautiful, and I treasure it all the more because it is in danger of disappearing.

My name is Olivia Schouten, and I believe in diversity.