

## August 2017 Featured Expert: *Valerie Milici*

*I'd like to introduce Valerie Milici, a Ph.D. Student in ecology at the University of Connecticut. I found her during a search on Twitter using the hashtag #actuallivingscientists. She is one of so many examples of women in science that I feel will help inspire girls to pursue STEM careers. Please help me welcome her. - Kirsten*



**TPNC:** What does a typical work day look like for someone in your position?

**Milici:** I'm not sure if there's such a thing as a typical day! As a graduate student I wear three hats at any given time; I am a student, a researcher, and a teacher. I typically work from 8 am until 6 pm and during this time I go to class, read papers and plan my field season, or grade papers and teach my classes.

My typical work day will change dramatically when it's summer- then it's field season time! From June until September my typical work day will involve me hiking in the rainforest all day long, finding sick seedlings, and determining what's making them sick and how this affects tropical plant diversity.

**TPNC:** What do you like about your job?

**Milici:** I like that I am working in a field that I am passionate about. I might work long days but this work is fascinating and it is of my own design. I'm not only using knowledge, I'm also generating knowledge that will enable us to better understand how the tropics are able to maintain such high levels of plant diversity! I'm a naturally creative person, and my research lets me be as creative as I want to be. My schedule is also very flexible, as long as I get my work done, it doesn't matter where I am.

**TPNC:** What do you find challenging about your job?

**Milici:** To do my research two things are required that aren't as much fun to do: I need permission to do my work, and I need money to do my work. Permitting is a job that feels like it's never done. My work is in another country that speaks another language, so I need to fill out forms in Spanish and make sure that I am following all of the rules of an unfamiliar country. I also need to import my samples from Panama into the U.S., so I

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need to fill out permits to allow me to do this. I need to be flexible because if any permits get rejected, it changes what I am allowed to do.

Also any research requires money to do it. Funding is highly competitive, and I must always be applying for funding to maximize what I am able to do. Especially because my work is done internationally, it is more costly, and I need to make sure that I can cover my living and travel expenses in addition to my research expenses.

**TPNC:** What types of classes did you have to take in college to get your position?

**Milici:** My bachelor's degree is in biology. It gave me a strong science background but biology is very different from my current field; ecology. The most important thing that I did in college to get where I am today is seek out research opportunities. I worked for three years in a laboratory on campus studying prairie dynamics, and I applied for summer internships to get summer research experience. I also volunteered with graduate students to help them collect data. These experiences, although not classes, are what convinced me that I love research and gave me the experience to demonstrate to my current school that I am capable of research.

**TPNC:** What is your favorite aspect of nature?

**Milici:** My favorite plant is the strangler fig. I love it because it has such an unusual life. It starts its life on the branch of a host tree, and slowly sends roots down from the branch to the soil. The roots of the fig wrap around the host tree and the roots fuse with each other so that they appear to be a tree trunk. Over time the host tree dies because it can't get the nutrients it needs and it decays in the middle of the strangler fig. This provides nutrients for the strangler fig, which can now support itself. Once the host tree has decayed, the strangler is a hollow lattice of its aerial roots. The fig is now habitat for many species of birds, snakes, and insects. A strangler fig is considered a "keystone species" because it is highly connected to other species in its ecosystem, and very important to these species. Without the strangler fig we would lose a lot of valuable habitat!

**TPNC:** What is the biggest misconception you would like the public to know about what you do?

**Milici:** All research is important, provided it's unbiased. It's necessary for us to study something very specific that when taken alone might not seem useful. However, all research connects to other research and it's when our knowledge is pooled together

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that we really unlock the mechanisms that shape our planet. It's as if each scientist is working on a pixel, and it's when we zoom out we see that there's an entire picture that we've created together.

*Thanks to Valérie for sharing the importance of research in ecology!*