

Science Writing Competition 2016 – Runner-up entry

Below is the runner-up entry in the ‘18 and over’ category for the 2016 international Science Writing Competition organised by the University of the West of England’s [Science Communication Unit](#), [BBC Focus magazine](#) and [Royal Institution](#).

Runner-up: 18 and over

Ecology at a Crossroads

Anna Groves, aged 27

A woman sits in front of a computer screen, its glow illuminating her face after a long day at work. She triumphantly hits Ctrl+Enter a final time, and leans back in her chair, waiting, expectantly, for something to happen. One by one, lines of black text appear on her screen, counting iterations of her latest analysis. 9998. 9999. 10000. Finally, a large block of text and numbers appears, and a graph pops up. If this is a good day, she shouts, “eureka!” But most days she scratches her head while packing up to head home to her kids, planning how she’ll tackle this computer code differently tomorrow.

This woman is analyzing a large dataset of information, but she’s not working for the next big tech company – she’s an ecologist, helping a conservation agency make decisions for their next project.

Ecology has come a long way since its inception some 150 years ago. The earliest ecologists were brilliant natural historians, exploring the natural world and documenting the patterns and species they encountered. Decades later, classic experimenters tossed sea stars out of barnacle pools and fumigated mangrove islands off the Florida Keys to see what would happen. Each of these simple, yet elegant, experiments changed the way ecologists thought for decades to come.

Fast forward to today, and everything is big, big, big. Experiments take up more hectares, studies are done with more collaborators, and more data is collected and analyzed. More complex datasets mean more complex analyses, and modern students of ecology are more likely to take a programming course than one on taxonomy. Of course, the majority of researchers are collecting new data, too. But as data tables are replacing sketch books, the ecologist-programmer is replacing the ecologist-naturalist.

With such technological requirements, it’s increasingly hard to stay connected with nature. Academia is rigorous, and not exactly known for allowing much free time for those who pursue it. In the old days, the quintessential naturalist would not have

had to juggle grant deadlines, teaching, managing a lab, and their tenure application like a research professor does today.

Charles Darwin took five years off from the real world and paid his own way for his voyage on the H.M.S. Beagle. How many brilliant new ideas would we have today if ecologists had the freedom to do that?

Yet ecologists know they cannot truly understand plants without also understanding the mammals that eat them, the insects that pollinate them, the birds that carry their seeds, and the microbes that live in their roots. With estimates that 86% of Earth's species may still be unknown, and extinction rates accelerating, naturalists are more important than ever.

This is why so many ecologists are making the effort to get back outside and observe the world, and are calling on their peers to do the same. For every ecologist making advances from behind a computer screen, there is another out in the woods – probably on their day off – just observing.

This is the future, and challenge, of ecology: learning to embrace the torrent of information in the computer age while maintaining a personal connection to the natural world. It will be the ecologists that master both that will pave the way forward for the future of the discipline.

A woman walks in the woods. Her pants are tucked into her socks and she has a curled-up book shoved in a pocket on her backpack. She strays from the trail, meanders, stops frequently. She jots a note here, takes a photo there. Sketches something. She observes the species she sees and how they interact. Something catches her eye, and she kneels down, waiting, expectantly, for something to happen. Today is a good day. She shouts, "eureka!" and calls her colleague, who is sitting in front of a computer screen.