

for dinosaur bones, his field crew chats and jokes around, creating memories and forging friendships. “The best way to endure it is to put together a field crew of people who are like-minded and enthusiastic and really want to be there,” he says. “Then you can sit around and have fun.”

### BUILDING WITH BOREDOM

Boredom isn't just something to endure: it can carry value of its own, giving the brain uninhibited space to wander and wonder. As a graduate student, Smith had an idea while watching ants (*Novomessor cockerelli*) move around in a box for hours: what if he reunited a group of isolated worker ants with the queen instead of with the rest of the colony, as he had done in other experiments? The results were surprising: the queen attacked the main worker and rallied the rest of the workers to gang up on it. The discovery spawned two publications: one in the German journal *Naturwissenschaften*<sup>2</sup> in 2011, and the other in *Animal Behavior*<sup>3</sup> in 2012.

Smith also credits boredom for some unexpected twists in his career. During bouts of daydreaming and podcast-listening while doing menial tasks, he decided to create a series of YouTube videos and launch a podcast, *Age of Discovery*, in which he interviews biologists about their careers. Developing those multimedia skills helped him to land his current job, which includes outreach and communications. “I spent countless hours thinking about whether I wanted to commit to things that were tangential to my research but turned out to not be tangential to my career,” he says. “That stuff wouldn't have happened if I was just occupied in front of the computer writing all the time or whatever.”

Boredom can also spark creative ways to minimize it. Frustrated with how long it took to run computer simulations for his software, Hadley more than once boosted his efficiency by rewriting programs created by others. “If you are only doing something once or twice, you can afford to wait a couple of seconds,” he says. “When you are doing permutations two million times, that's two million seconds lost. It helps me reduce my downtime.”

These kinds of stories are being documented in an emerging field of research on the value of boredom. In one study<sup>4</sup>, Jennifer Hunter, a PhD student at York University in Toronto, and her colleagues found that — after accounting for traits such as extroversion — people who are prone to boredom also report being curious types, adding to growing evidence that boredom can breed innovation. “I think it can be a huge catalyst,” she says. “Don't ignore your boredom. It can tell you really powerful things about what you're doing.”

As a career evolves, boredom can become a state of comfort. Although Warkentin's frog-counting work might sound tedious, she doesn't mind it — instead, she finds it

satisfying to be in the natural world and enjoy serendipitous experiences with wildlife. She looks for the same personality fit when fielding applicants for her team. “When I'm recruiting students,” she says, “I'm like, ‘Does this sound like your idea of a good time?’”

The answer might be ‘no’, and those feelings are worth paying attention to, says Margaret Couvillon, a behavioural ecologist who recently completed a postdoc at the University of Sussex, UK, and will soon begin teaching entomology at the Virginia Polytechnic Institute and State University in Blacksburg. Couvillon started out as a neurobiology PhD student, and found herself staring at slices of bird brains. As she slowly inserted probes into the tissue to find neurons, she became discontented. Her true interest was animal behaviour, and she realized that she really wanted to watch animals in action, not study their brains in the lab.

When she transferred to an ecology programme elsewhere, she discovered that her experiments included plenty of tedious elements, too. She has spent “many, many, many hours” watching videos of dancing bees (*Apis mellifera*) and timing and measuring their movements to determine where they forage. She has also spent a lot of time sitting in front of honeybee feeders, counting insects that visit and waiting for long stretches when none come by. But Couvillon has discovered that she's much happier enduring boring work when it addresses the questions that truly interest her. And with so much of her time taken up by mentally exhausting tasks, she has come to cherish the chance to sit by a honeybee feeder on a nice day. She suggests keeping expectations realistic — after all, nobody has a job that delivers eureka moments every day.

She also recommends shadowing a variety of scientists to see whether the daily reality seems appealing before committing to a speciality. “Not all dirty work is created the same,” Couvillon says. “You have to have an everyday life you can handle.” ■

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2. Smith, A. A., Hölldobler, B. & Liebig, J. *Naturwissenschaften* **98**, 237–240 (2011).
3. Smith, A. A., Hölldobler, B. & Liebig, J. *Animal Behav.* **83**, 587–593 (2012).
4. Hunter, J. A., Abraham, E. H., Hunter, A. G., Goldberg, L. C. & Eastwood, J. D. *Thinking Skills Creativity* **22**, 48–57 (2016).

### CORRECTION

The Careers feature ‘Visa to visit’ (*Nature* **536**, 365–366; 2016) wrongly stated that Kelsey Glennon asked students from indigenous tribes not to stand so close to her. She actually made the request of all her students.

## TRADE TALK

# Star selector



As an astronomy PhD student at Harvard University in Cambridge, Massachusetts, Nathan Sanders learnt statistical modelling to analyse supernova explosions. Now, he

works for *Legendary Entertainment* in nearby Boston, applying those quantitative skills to predict which stars and story lines can make a film into a commercial success.

### When did you consider leaving astronomy?

I had learned a new computational framework in a statistics course. As I applied those techniques for my thesis, I realized that I loved what I was doing, and the reason had more to do with the statistical models than the astronomy applications. That made me open to new opportunities. I thought I would be doing a disservice to myself if I didn't explore them.

### What appealed to you about this position?

When I was hired in 2013, *Legendary* had just launched its applied-analytics division in Boston. It felt like an opportunity to rethink and reinvent the way that companies pick which films to make and how to build support for them. The goal was to be the first in Hollywood to make decisions on the basis of data and evidence rather than on intuition.

### Besides technical skills, what do you look for in candidates when you recruit?

Communication is key. You have to be comfortable with diverse concepts, and talk to business people, filmmakers and technical colleagues.

### How did you hear about this position?

I emphasize the importance of volunteering and getting out into the community. As a first-year graduate student, I started a project called *Astrobites*, a collaborative writing project that creates a *Reader's Digest* version of astronomy literature. I also volunteered with an organization doing live science demonstrations. The executive director was a friend of the chief analytics officer at *Legendary Entertainment*. It was one of those random connections that so often creates a job opportunity, but that can be hard for scientists to foster if they are completely focused on their thesis work. ■

### INTERVIEW BY MONYA BAKER.

This interview has been edited for length and clarity. See [go.nature.com/2bix4y7](http://go.nature.com/2bix4y7) for more.