

Spider biologist denies suspicions of widespread data fraud in his animal personality research

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Animal personality researcher Jonathan Pruitt is under fire about his data on social spiders.

By [Elizabeth Pennisi](#) Jan. 31, 2020 , 6:35 PM

It's been a bad couple of weeks for behavioral ecologist Jonathan Pruitt—the holder of one of the prestigious Canada 150 Research Chairs—and it may get a lot worse. What began with questions about data in one of Pruitt's papers has flared into a social media–fueled scandal in the small field of animal personality research, with dozens of papers on spiders and other invertebrates being scrutinized by scores of students, postdocs, and other co-authors for problematic data.

Already, two papers co-authored by Pruitt, now at McMaster University, have been retracted for data anomalies; *Biology Letters* is expected to expunge a third within days. And the more Pruitt's co-authors look, the more potential data problems they find. All papers using data collected or curated by Pruitt, a highly productive researcher who specialized in social spiders, are coming under scrutiny and those in his field predict there will be many retractions. The furor has even earned a Twitter hashtag—[#PruittData](#).

Yet even one of the researchers who initially probed Pruitt's data cautions that what has happened remains unclear. “There is no hard evidence that [Pruitt's] data are fabricated,” says behavioral ecologist Niels Dingemanse of Ludwig Maximilian University of Munich (LMU).

As for Pruitt, he's in the middle of 4 months of fieldwork in Australia and the South Pacific and insists there has been no data fabrication or fraud, saying the data issues are all mistakes. “These errors are not unheard of in data management,” he told *ScienceInsider* in a phone call on Thursday night U.S. time, his first interview since the retractions. Nonetheless,

“If a scientist can’t be careful, that’s as big an indictment as someone who goes around and adjusts data. ... I appreciate the amount of time people have spent to navigate this situation fairly.”

But Pruitt's excuse doesn't wash for Daniel Bolnick, editor-in-chief of *The American Naturalist*, given what he says is being discovered in raw data files. “Pruitt’s explanation strikes me as ludicrously blasé about the extent of the concerns,” he says. “The extent of the problems is hard to reconcile with accidents.

A McMaster University spokesperson said the university is “aware of allegations regarding Jonathan Pruitt” but declined further comment on the matter. A University of California Santa Barbara spokesperson also says the school is aware of the allegations regarding Pruitt, who left a faculty position there in October 2018 for Canada. “While we cannot discuss specific cases, maintaining the highest degree of integrity in all research endeavors is essential to our mission. We have robust procedures on our campus to address instances of research misconduct, and we would cooperate with any other institution conducting an investigation,” she noted in an email.

As divisive as retractions can be, behavioral ecologists are hoping to control the damage to their field’s reputation by being open about their investigations, detailing them on blogs and social media. “It might taint the field, but it’s something we will just have to weather,” says Leigh Simmons, a behavioral ecologist at the University of Western Australia. Even outsiders to the field are taking notice of the attempt at transparency. “It is very, very hard to prevent fraud (if that is what happened here) but [the response] should be a model for responding to it,” Seth Finnegan, a paleobiologist at the University of California (UC), Berkeley, tweeted.

Although some researchers have tweeted that the affair reflects the lack of scientific rigor in animal behavioral studies—and in particular, the documentation of animal personalities, Pruitt’s colleagues summarily reject that. “It’s a gross overstatement to say this is now the death of the field,” Dingemanse says.

Last year, a young researcher not in Pruitt’s lab came to behavioral ecologist Tom Tregenza of the University of Exeter with questions about a paper in *The American Naturalist* co-authored by Pruitt on how animal social interactions strengthen personalities and can help a population survive, using social spiders as a test case. Tregenza recruited Dingemanse and two other colleagues to probe the paper’s data. They ran simulations of the experiments to see whether they could explain how the data might be generated naturally. They could not. “We were simply finding there were too many replicates of the same data points,” Dingemanse says.

He then approached Pruitt’s co-author, Kate Laskowski, a behavioral ecologist at UC Davis, and Bolnick. Laskowski, too, scrutinized the work and found more questionable data, first in that paper and then in two other papers she’d co-authored with Pruitt; he had been the sole

source of the animal data for analyses of how social interactions strengthen animal personalities and affect a group's survival.

Pruitt, who conducted research in the United States funded by the National Science Foundation (NSF) for almost 10 years before Canada lured him with a grant of \$350,000 annually for 7 years, offered Laskowski and Bolnick several explanations for these anomalies, they say, but ultimately agreed to a retraction of the initial paper, which was announced on 17 January. A few days later, Laskowski tweeted her dismay that other papers she had done with Pruitt were about to face the same fate. "I am not excited to say that there were similar problems in the raw data of another of my papers—this paper is now retracted, too."

After that first retraction, Bolnick, a behavioral ecologist at the University of Connecticut, Storrs, received dozens of emails, some anonymous, expressing concerns about other papers involving Pruitt. He forwarded those emails to the research integrity office at McMaster and alerted other journals. This week on his blog Eco-Evo, Evo-Eco, he explained his involvement to date and announced the creation of a Google document compiling Pruitt papers being looked at, with details about how the data were collected and now, being newly analyzed. "I'm very concerned that people collaborating with him will be tarred with the same brush," Bolnick says. "There are definitely papers out there [co-authored by Pruitt] where other people collected the data and I consider those papers to be sound and trustworthy."

Noa Pinter-Wollman, a behavioral ecologist at UC Los Angeles, is among those suddenly reevaluating her work with Pruitt. Interested in animal interactions and network analysis, she teamed up with Pruitt 5 years ago. He became "a close collaborator and a trusted friend," she says, and together they've published almost 20 papers. Pruitt alerted her to the first retraction 2 weeks ago and she's been scrambling since then to deal with the news. She's confident of her and her students' work and has assurances from others in Pruitt's lab that their data are sound, "so we are focusing on data collected and curated by Jonathan," she says. That involves writing computer programs to ferret out data irregularities such as duplicated information or certain sequences of numbers that don't have the expected randomness. "This is the type of forensics that I never imagined I would have to do," she says. Already, she's found three papers she wants to retract and is investigating three more.

She is a cosigner on a public statement released 29 January by Ambika Kamath, a behavioral ecologist at UC Berkeley and former Pruitt postdoc, and Pruitt lab members and collaborators promising to get to the bottom of these problems. "We are working as a community to create a resource about which papers are reliable," Pinter-Wollman says. "But it's a tragedy for me. I lost a trusted collaborator."

I hope that it all turns out that he's been careless. But if he has falsified data, then he has to pay the price.

Many people are grieving. “I’m devastated,” says Pruitt’s former graduate school adviser, Susan Riechert, a behavioral ecologist at the University of Tennessee, Knoxville; suspicions have also been raised about Pruitt’s Ph.D. thesis on spiders. Outgoing and energetic, Pruitt is considered smart, creative, and collaborative. “He’s very sharing of his work with other people and [with] credits,” Riechert says.

Behavioral ecologists often struggle to get funding for their fieldwork, but Pruitt has been well supported. Since 2014, he has held three grants from NSF, totaling \$600,000 and he also has some funding from the U.S. National Institutes of Health. Canada’s selection of him for one of its endowed chairs created for the country’s 150th anniversary seemed to cement him as a young superstar in the field.

Pruitt says he is puzzled by what’s happening. After the initial retraction came out, he tells *ScienceInsider*, “Each morning when I woke up, there was a different anonymous email taking issue with a different dataset and a different paper. ... Do they think I was just copying and pasting a spreadsheet? I don’t think I would do that.”

At first, he was in the fray tweeting—but no longer. “There are so many voices and they are so loud and diverse, there’s no way to address it.” Instead, he says he’s focusing on his fieldwork, setting insect traps across the South Pacific before and after cyclones hit to learn how different species are affected by these tremendous storms. Last year, he reported on work in which he collected [data on spiders before and after a U.S. hurricane](#). It’s one of the papers now being scrutinized.

Pruitt says he has no expectations that he will be able to continue in behavioral ecology, saying he knows he has lost the trust of his colleagues about his data. But these cyclone data will be useful no matter what happens, he says. “If I’m on fire and my longevity is [short], I will bequeath them to another researcher.” He is concerned, however, that as each retraction happens, even innocuous mistakes in his data or experiments will be cause for more retractions. It’s a worry that Dingemanse shares. Such careful inspection of data will often turn up something, no matter how well collected and compiled, he says. “If you looked at my data [this way], you might also come up with causes for concern,” Dingemanse says.

According to Bolnick, 23 journals are investigating Pruitt’s papers. And the community is feeling its way through the trouble. “Nothing like this has ever happened in our discipline,” says Simmons, who is editor-in-chief of *Behavioral Ecology*.

Simmons has spent the past 3 days poring over the 11 papers Pruitt has written for his journal, going back to a data repository now mandated by his journal and others to check raw data. Yet he laments that the initial hashtag—#Pruittgate—is too damning and thinks “we need to, as much as we can, avoid a witch hunt.”

Still, even Pruitt's staunchest supporters want to see the situation resolved. "I hope that it all turns out that he's been careless," Riechert says. "But if he has falsified data, then he has to pay the price."

With reporting by Erik Stokstad.

****Update, 3 February, 9:30 a.m.:*** *This story has been changed to more accurately reflect how concerns about Pruitt's data were first brought to the attention of Dingemans and his colleagues. An additional quote by Bolnick reacting to the Pruitt interview has also been added.*