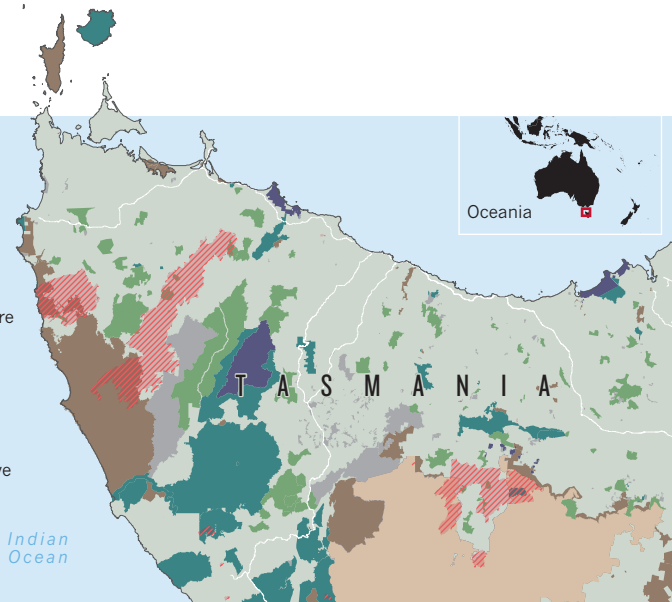


## FEELING THE BURN

Since mid-January, bushfires have blazed in northwestern Tasmania, threatening forest ecosystems that have not evolved to cope with such fires. Some of these landscapes date back more than 180 million years.

- ▨ Fires
- ▨ World heritage site
- ▨ Forest reserve
- ▨ National park
- ▨ State or regional reserve
- ▨ Conservation area
- ▨ Other designation

25 km



► made such storms more common in recent years. Tasmania saw one of the driest years on record in 2015. Furthermore, logging and dry conditions in the rainforest that surrounds these alpine forests have reduced its ability to act as a firebreak.

“There was no doubt pencil pine was on the mainland, but the fire and climate regime meant it couldn’t persist,” says David Lindenmayer, a forest ecologist at the Australian National University in Canberra. “If Tasmania is going to become more like the mainland, there is a distinct possibility that its time is going to be done. That is a huge loss for the world.”

Just a small percentage of the alpine and central-plateau fire-sensitive ecosystems in northwestern Tasmania have been killed by the blazes; 73 fires were still burning on 9 February.

But if fires become more frequent, that may spell the beginning of the end.

“If you have 2% [burning] every 10 or 15 years, it is not long before it is pushed into only the most fire-protected refuges,” says Jamie Kirkpatrick, a geographer and conservation ecologist at the University of Tasmania in Hobart.

To the chagrin of ecologists and bushwalkers, the fires have threatened several iconic landscapes, including the Walls of Jerusalem National Park and Mount Anne, the highest peak in southwestern Tasmania (see ‘Feeling the burn’). Hobart-based photographer Dan Broun and a colleague hiked up to a burned alpine area last weekend. When they crested the plateau, they were greeted by a dead world. “We were in shock. What we were seeing was

complete and utter devastation,” says Broun.

There have already been discussions about reseeding the burnt areas, but experts warn that it may not work; it is not at all clear that the strategy would make sense in a ‘new normal’ in which fires are predicted to run rampant in the area. Furthermore, grazing by wallabies and wombats keeps many seedlings from ever growing tall enough to reproduce. The existing pines may date from a slender window of time when heavy snows kept grazing animals away for long enough for the trees to grow out of their reach — a process that takes 50 years.

With threats to the region’s iconic forests clear, University of Tasmania ecologist David Bowman has called for an increased effort to collect seeds of fire-sensitive Tasmanian species and conserve them in another location, perhaps even on a sub-Antarctic island that would be safer from fire.

That would require a lot of seeds. Luckily, 2015 was a mast year — a period in which trees produce unusually large crops of cones and seeds — for many high-altitude conifers in Tasmania. In March and May, government biologists collected 1.57 million viable seeds from pencil and King Billy pines, as well as the shrub-like Cheshunt pine (*Diselma archeri*) and drooping pine (*Pherosphaera hookeriana*).

“We knew these sorts of [fire] events were likely in the future and the species we were looking at were so vulnerable to fire,” says James Wood, head of the Tasmanian Seed Conservation Centre at the Royal Tasmanian Botanical Gardens in Hobart. “Effectively, we are a Noah’s ark. We are just trying to hold onto material so it is not lost permanently.” ■

SOURCE: MAP: GRANT WILLIAMSON/UNIV. TASMANIA; DATA: IUCN WORLD DATABASE OF PROTECTED AREAS/TASMANIAN FIRE SERVICE

## POLICY

# US science agencies grapple with sexual harassment

*Funders threaten harsh penalties, but many have yet to take action.*

BY ALEXANDRA WITZE

Fabricating, falsifying or plagiarizing data can get a grant yanked or a researcher blacklisted for breaking the professional code of science. Now, some funders are facing a fresh challenge: what to do with grants given to scientists who commit sexual transgressions.

The US government does not classify sexual infractions as research misconduct. Instead, as recent high-profile cases illustrate, the National Science Foundation (NSF), NASA and the National Institutes of Health (NIH)

must navigate a relatively new legal landscape when confronted with sexual harassment by grant recipients. What is clear, specialists in research ethics say, is that agencies, institutions and researchers all need to improve their response to such behaviour.

“The public has a right for us to conduct publicly funded work honourably and with integrity,” says C. K. Gunsalus, director of the National Center for Professional and Research Ethics at the University of Illinois at Urbana-Champaign.

The latest scandal broke on 2 February,

when *The New York Times* reported that molecular biologist Jason Lieb had left the University of Chicago in Illinois after an internal investigation found that he had made unwelcome sexual advances to female graduate students, and had engaged in sexual activity with a student who was incapacitated and could not consent. In January, it became public that Christian Ott, a theoretical astrophysicist at the California Institute of Technology in Pasadena, was on unpaid leave for violating the institution’s sexual-harassment policy. And last October, astronomer Geoffrey Marcy announced

that he would retire from the University of California, Berkeley, after a similar verdict.

Lieb, Ott and Marcy have each brought millions in government research dollars to their universities, which must now decide how to handle the money. Funding agencies and institutions must comply with Title IX, a federal law that forbids sex discrimination (which, in legal terms, can include harassment or assault) in any educational programme that receives government money. The law has been on the books since 1972, but in 2011, the US Department of Education said that it would step up its enforcement of the sexual-harassment aspects.

To comply with Title IX, institutions must have a representative who investigates and resolves allegations of sex discrimination. The inquiries into Lieb, Ott and Marcy all went through the Title IX offices at their respective universities.

Once a Title IX investigation is complete, the institution must decide whether to take disciplinary action. A funding agency can open its own inquiry and levy extra penalties if it deems them necessary. NASA and the NSF have both put out statements recently saying that they



The Lick Observatory in California is home to an exoplanet search once run by Geoffrey Marcy, who left the University of California, Berkeley, after a sexual-harassment investigation.

do not tolerate sexual harassment by grantees; the NSF even threatened to pull funds entirely from institutions that do not comply with Title IX. But it has never banned a grantee, let alone an institution, for violating Title IX.

“Statements are good for changing the culture, but they have to be supported by action,” says Katie Hinde, an anthropologist at Arizona State University in Tempe.

The process is more complicated than simply yanking existing grants. “People come to us and say, why don’t you fix it?” says James Ulvestad, head of the NSF’s astronomy division. “Well, what the funding agencies can do is what federal law allows us to do.”

In general, funding awards are made to institutions, not the person who is the principal investigator (PI) for the work. Even if a PI has been found to violate institutional policies, his or her grant money will continue to flow to support graduate students, postdoctoral fellows and other collaborators on an affected project.

Lieb is PI or co-PI on more than US\$1.2 million in NIH grants, and the University of Chicago may nominate someone to replace him. Ott is involved in more than \$3.2 million in NSF funds; those grants are under review but their status remains unchanged for now, says NSF spokeswoman Ivy Kupec. Ott still has access to NSF facilities, including the Blue Waters supercomputer in Illinois, on which he runs simulations of supernova explosions.

Marcy had many lucrative private grants, including a share of the \$100-million Breakthrough Listen search for extraterrestrial intelligence. Those have been transferred to new PIs.

His old employer is now working on designating new PIs for the two NASA grants totalling roughly \$1 million that are in Marcy’s name.

It was actually a case of sexual assault that prompted the modern US definition of research misconduct, says Nicholas Steneck, a specialist in research integrity at the University of Michigan in Ann Arbor. In 1989, the NSF received complaints about the actions of a senior researcher while taking undergraduates to a research site in another country. The agency’s inspector-general ultimately found the researcher to have committed “16 incidents of sexual misfeasance with female graduate and undergraduate students at the research site; on the way to the site; and in his home, car, and office”. Many could be classified as sexual assaults.

The agency barred him from receiving federal funding for five years, according to a definition of misconduct that at that time included “serious deviations” from accepted research practices. After a fierce battle over the meaning of the phrase, agencies excised it from their definitions of misconduct in 2000. “Sexual harassment shouldn’t be tolerated,” Steneck says. “But it’s not so easy to say, ‘It’s research misconduct and that’s the way it ought to be handled’”

US agencies might learn a thing or two from funders in other countries, Steneck adds. Both Canada and Australia (see ‘Codes of conduct’) require federally funded scientists to meet a minimum ethical standard that specifically describes institutional roles.

“You need to set out a clear code of what to expect,” he says. ■

## CODES OF CONDUCT

Countries have very different laws governing how to deal with sexual misconduct in recipients of federal research grants. Some link it closely to research misconduct; others address the issue as more of a workplace violation.



### CANADA

A three-agency framework for responsible conduct of research says that “researchers shall follow the requirements of applicable institutional policies and professional or disciplinary standards”.

### AUSTRALIA

The Australian Code for the Responsible Conduct of Research classifies “other forms of misconduct, such as harassment, bullying or financial misconduct” as covered by employee relationships with their institutions.

### EUROPE

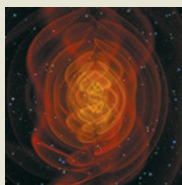
The European Code of Conduct for Research Integrity includes, among its principles of integrity, the “responsibility for the scientists and researchers of the future”.

### UNITED STATES

A phrase that covers sexual infractions was removed from the definition of research misconduct in 2000. But funders must adhere to a law known as Title IX, which prohibits discrimination on the basis of sex.



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