

FITS AND STARTS: ANTI-RACISM EFFORTS IN THE BIOSCIENCES

Five biologists discuss attempts to redress racism's legacy in their fields.

Science is steeped in injustice and exploitation. Scientific insights from marginalized people have been erased; natural-history specimens have been taken without consent; and genetics data have been manipulated to back eugenics movements. Without acknowledgement and redress of this legacy, many people from minority ethnic groups have little trust in science and certainly don't feel welcome in academia – an ongoing barrier to the levels of diversity that many universities claim to pursue.

Despite a steady stream of publications outlining how to decolonize biology, very little of the advocacy talk has turned into action. As part of a short series of articles about decolonizing science triggered by *Nature's* 2022 special issue on racism, the journal spoke to five researchers who hope to create real-world change.

PAMELA LAIRD INVEST THE TIME TO BUILD TRUST

Historically in Australia, research has been a dirty word among First Nations communities, some of the most 'researched on' people in the country. They got no ownership of the data obtained from their participation, no recognition of their sovereignty and no help in building their own research capacity. But there's been a national push to try to ensure that research is driven, and co-designed, by Indigenous Australians themselves. Increasingly, national funders, including the National Health and Medical Research Council, require grant applicants to provide evidence of Indigenous partnerships, including Indigenous leadership.

I am a paediatric respiratory clinician at the Perth Children's Hospital. I conduct research at a Perth children's hospital called the Telethon Kids Institute, and travel to remote areas where the majority of the state's Aboriginal population lives. A wet cough that lasts for longer than one month is the earliest symptom of a



Pamela Laird (right) and her team have spent years earning community trust.

chronic disease called bronchiectasis, which is characterized by scarred or damaged lungs. Roughly 1.5% of Aboriginal children in remote areas have bronchiectasis, a big problem in these communities. We're trying to work out all the factors at play – including socio-economics and environmental hazards, such as dust. To offer help in a decolonizing way, my team, which is mainly non-Indigenous, must be invited into the community by the Elders and other key local members. It took two years of relationship-building to get invited in. It took another two years of conversations before we could commence research.

A lot of researchers don't take that much time, but Western research models won't work in First Nations. These communities are really hungry for health information – and because they could see that my colleagues and I were

not going to cut and run, they embraced what we were trying to do. We made sure that respiratory physicians and trained clinical staff were able to provide help and training for local providers. As families got help, that developed more trust, and more community members got involved in what we were doing. It was incredible. We now have 94% recruitment rates for our studies in four remote communities.

The biggest lesson that I've learnt is first, do no harm. Also, do what you say you are going to do, and follow it up. You have to allow a lot more time for this approach, and you've got to maintain communication every step of the way. We put posters up when our clinicians were coming to the area. After each visit, we would tell the community how many kids were treated. When COVID-19 prevented us from travelling, we kept the conversation going

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through Facebook and video conferencing. It requires loads of patience because cultural differences will crop up. For example, you can spend Aus\$5,000 (about US\$3,500) to get a two- or three-person team out to a community, and then not be able to enter because there's been a death and they are observing a month of mourning, called Sorry Business.

I advise researchers who want to work with these communities to have a strong grasp of our country's history, as tragic as it is, and of Indigenous Australian culture. I mentor colleagues to be culturally sensitive, as well. When you walk into a room, be aware of the historical power differential between white, majority Australians and marginalized Aboriginal community members. Be aware, too, of the doctor-patient power imbalance.

At first, I wanted to find out how many kids had bronchiectasis, and I wanted to do computed tomography scans of their lungs to better diagnose disease. After six years, I'm still not there, but we've treated and saved more than 100 pairs of little lungs.

Pamela Laird is a paediatric lung researcher at the University of Western Australia and Telethon Kids Institute in Perth.

SIEGLINDE SNAPP CHANGE THE REWARD STRUCTURE

Working for an international research organization that studies global food production, I think we, as an organization, need to change the reward structure. The current one tends to reward pure science first, then applied research and outreach – and it tends to exclude the global south, because much of work there is more locally contextualized and applied. Decolonization should go beyond simply citing colleagues from developing countries to including them in conferences and as co-authors, especially if we are creating knowledge together. According to a 2021 study, only 16% of articles in high-profile development journals were authored by researchers exclusively based in the global south; 73% of authors came from the global north (V. Ammarante *et al.* *Appl. Econ. Lett.* **29**, 1659–1664; 2021).

In my own field of crop science, as a white researcher from the United States, I have championed inclusivity in a couple of ways. One is a participatory research approach linking Indigenous scholars to conventional science through engagement. Participatory research creates new knowledge – it's an approach we wouldn't have found without engaging with farmers over many years.

I've studied rain-fed cropping systems alongside colleagues in sub-Saharan Africa,

notably Malawi, Zimbabwe and Tanzania, throughout my career. Those colleagues are not invited by their white, Western collaborators to speak at big conferences or to co-author high-profile papers in agriculture. My colleagues at the International Maize and Wheat Improvement Center (CIMMYT) and I hope to reverse this trend by advocating for decolonization through authorship. As a start, my team of researchers will include a paragraph about what each author did, and how the team paid attention to gender and global-south inclusivity in publications.

Most of the 13 agricultural gene banks and research centres in the global research partnership CGIAR, including CIMMYT, use the h-index for performance evaluations. It is a metric of a scientist's productivity and influence, prioritizing top publications. Alternative indices, such as Google Scholar, which includes outputs such as book chapters, can be less elitist and include a wider range of viewpoints.

Agricultural research is steeped in colonial attitudes in many ways, too. For example, many programmes focus solely on higher crop yields, rather than including the nuances of resource stewardship, such as how using perennial crops improves soil health at the cost of lower yields. By conducting agricultural research that involves scholars from the global south, we can better address a broader range of production and sustainability goals.

I'm also making the case at CIMMYT that performance evaluations reward sharing data sets and information with and between communities quicker. I'm excited to see things like Digital Green, a Microsoft product that shares everything from weather to market data with farmers and farmer educators equitably and swiftly. This is part of decolonization in my view. Rather than, say, top-down fertilizer recommendations from experts, this offers a way to connect people so they can share information more directly in a local context.

Sieglinde Snapp is director of the Sustainable Agrifood Systems programme at CIMMYT in Mexico City.

DANIEL AKINBOSEDE ACKNOWLEDGE RACIST ROOTS IN SCIENCE

As a Black person in the United Kingdom, all of my schoolteachers were white. I must have learnt about James Watson and Francis Crick every year from age 15 to 24. I was taught to revere these men for discovering DNA's structure, but I had to stumble onto the fact on my own that Watson has gone on record as saying that Black people are intellectually inferior.

Scientists are responsible for creating racial categories defined by skull size, pain tolerance,

skin thickness and intelligence. Many medical students surveyed today hold views that Black people have thicker skin and are more prone to drug addiction than white people. It is common knowledge that people believe these ludicrous things about biology, race and human categorization, but there is a reluctance to address it because that would be to acknowledge that scientists can be racist. Yet racist views continue to be put forth. In 2017, the University College London (UCL) campus was the venue for a secret eugenics conference. [Editor's note: A UCL investigation found that the conference to discuss eugenics and intelligence was held without the university's knowledge.]

Universities are failing big time in addressing the need to decolonize science. So are funders. A 2019 report found that out of 20,000 PhD fellowships funded by UK Research and Innovation (UKRI) over the previous 3 years, only 1.2% went to Black students – and only 30 went to students of Black Caribbean descent. Institutions offer enough lip service to equality, but they do the bare minimum, in part to shield themselves from criticism, often from right-wing commentators. It takes more than diversifying a reading list, putting pictures of a few Black scientists on the wall or giving out honorary degrees to famous Black people.

Although I finished my PhD earlier this year, I am part of a country-wide project involving UKRI and the UK Office for Students, an independent regulatory body for higher education, to improve access and participation for Black, Asian and minority-ethnic students (BAME) in postgraduate research study. One of the biggest challenges is getting universities to understand the full scope of the problem. They suggest surface-level actions such as diversifying a reading list rather than the sort of deep introspective work required to make significant change. They could, for example, fund efforts to critically examine the history and contemporary relationship between race and science.

More locally, I was part of the Race Equity Advocates programme at the University of Sussex. This was founded in 2019 made up of students from the six schools at the university with the worst race gaps in graduation rates. These representatives talked about the lived experiences of BAME students to their heads of school to push for change. I made several proposals, including an undergraduate academic course to educate students about race and science; a scheme to provide free or subsidized summer accommodation in otherwise vacant campus housing to a Black graduate student researcher; and a postdoc-to-fellow pipeline programme to boost the number of Black junior faculty numbers. None of my proposals was instituted. In fact, there was only one lecture on race and science in the 2021 autumn-term academic-skills module before the university decided to discontinue funding for the initiative. In my view, the university found it too



Madhusudan Katti says ecology would benefit from perspectives from all over the world.

threatening to try to empower students only for them to challenge the institution.

Daniel Akinbosede is a senior scientist at Domainex, a drug-discovery company in Cambridge, UK, and co-founder of Race Equity Advocates at the University of Sussex in Brighton, UK.

MADHUSUDAN KATTI CREATE SPACE FOR A VARIETY OF EXPERTISE

Last year, my colleagues and I wrote a paper highlighting five shifts that would help to decolonize ecology (C. H. Trisos *et al.* *Nature Ecol. Evol.* 5, 1205–1212; 2021). Ecologists need to improve how they incorporate varied perspectives, approaches and interpretations from the diverse peoples inhabiting Earth's natural environments. The five shifts are: the individual need to decolonize one's mind; understand the history of colonization and how it shaped Western ecology; facilitate access to and dissemination of data; recognize diverse scientific expertise; and establish inclusive research groups. Although it can be difficult to make reforms given how resistant institutions are to change, we are optimistic because we have received invitations to speak on these issues. People are ready for these conversations.

My colleagues and I developed a workshop around the five shifts. We have conducted it at my institution, and at the annual conference of the Society for Integrative and Comparative Biology. For each of the shifts, I have participants brainstorm and write down challenges and solutions that might lead to progress in these areas for their research departments or

institutions. We address them, shuffle groups and suggest policy changes and future action.

Some organizations are already moving forward with some low-hanging fruit, such as making data and published results more accessible. However, open-access publishing models put an even greater burden of publication costs on authors and perpetuate inequalities, because early-career researchers and those in the global south often can't afford them.

The most contentious area tends to be the reluctance of academia to accept non-credentialed expertise such as traditional knowledge. Universities are in the business of giving out credentials in the form of degrees. If academia no longer requires a PhD, that can be a challenge to the model. There are few, if any, incentives or rewards to work towards decolonizing academia, even though it takes time and effort away from furthering individual careers.

As an Indian American, I would like to see institutions expand anti-racism conversations rather than introduce new checklists of things to do. For example, at annual meetings, it would be great to see scientific societies make more connections with the Indigenous communities where we work and invite them to share their perspectives.

Madhusudan Katti is an evolutionary ecologist at North Carolina State University in Raleigh.

DOLORS ARMENTERAS PASCUAL PREVENT 'EQUITY WASHING'

I think there's a lot of 'equity washing' – if I can invent a term – which really pisses me off. By that, I mean researchers or institutions add

superficial, in-name-only equity efforts to their departments, events or collaborations – and nothing changes. Colleagues from rich nations will invite me to work on a project and say, "You only have to provide me with access to the field sites" or "You only have to provide me with the species data" 'Only'. It's unbelievable. Do you know how often I receive dismissive comments joking about cocaine and corruption when I introduce myself as a researcher from Colombia? These are researchers who have probably signed the Declaration on Research Assessment (DORA), which has a main goal of making research assessment more equitable around the globe. So far, more than 22,000 individuals and institutions in 159 countries have signed – but they mostly don't apply it.

For example, here is a typical funding rejection I receive: "The applicant has strong credentials. She has an excellent publication record for the field. However, compared to highly cited researchers, her output seems below the standards of the call." I don't have the resources available to colleagues in wealthier countries in the global north. To compare researchers' impacts fairly, I think we should change how metrics, such as h-index, are calculated. For example, one could multiply one's impact score by the percentage difference of gross domestic product spent on science between countries.

In an article last year, I detailed guidelines for healthy global scientific collaborations such as: avoid tokenism, build long-term collaborations and don't be extractive (D. Armenteras *Nature Ecol. Evol.* 5, 1193–1194; 2021). Much of it comes down to basic human communication. First, listen. Really listen. Try to put yourself in our position and have some empathy. I would like to see colleagues from the global north get out of their comfort zones and try to debate in another language. I'd also like to see more researchers take steps to dismantle the extractive scientific hegemony that keeps the funding power in the hands of people in the global north, hindering efforts to build capacity in the global south. We don't have time for progress to be so slow.

It's difficult when colleagues with privilege view those of us who vocalize our frustrations as complainers. If you want to collaborate with me here in Colombia to help you build a brand in France or the United Kingdom, forget it. I only accept invitations that allow my group to be on a level playing field and for us to take a leadership role. It's not easy, and there is a cost, but I find it helpful to set these boundaries.

Dolors Armenteras Pascual is a biodiversity conservation researcher at National University of Colombia in Bogotá.

Interviews by Virginia Gewin.

These interviews have been edited for length and clarity.

Correction

The interview with Pamela Laird contained several inaccuracies. She is a clinician at Perth Children's Hospital, not at the University of Western Australia; wet cough is a symptom, not an infection; and the team would have done CT scans only for diagnosis, not for testing treatments.