

ENVIRONMENT

Australia cuts coral research

Reef-science centre set to lose government funding.

BY ADAM MORTON

Ocean researchers around the world are dismayed that an Australian research institute that has become an international authority on the declining health of reef ecosystems will lose most of its government funding after 2021.

Papers by scientists at the Centre of Excellence for Coral Reef Studies, based at James Cook University in Townsville, were cited almost 40,000 times in 2017 — the most citations for any institute in the world doing reef science. But in late October, it emerged that the Australian Research Council (ARC), an independent government agency, had not shortlisted the centre to receive a share of the latest round of funding. The ARC has funded the centre since its inception 13 years ago.

The centre will lose 37% of its current annual budget of about Aus\$12 million (US\$8.7 million), and its title as an ARC centre of excellence. James Cook University says it is committed to delivering world-class coral-reef research into the future, but has not explained how the centre will be supported. The centre's director, Terry Hughes, declined to comment on the decision.

Scientists fear job losses and a reduced research capacity are to come. They say the centre's work is important to people living alongside reefs across the tropics. "It is deeply stupid for Australia not to fund, or even consider funding, its world-leading coral-reef research," says Garry Peterson, an environmental scientist at the Stockholm Resilience Centre.

The coral-reef centre employs about 300 scientists. Its most celebrated work, which established the extent of recent bleaching along the Great Barrier Reef (T. P. Hughes *et al.* *Nature* **543**, 373–377; 2017), involved aerial surveys and 100 divers.

Some researchers link the ARC's decision to the Australian government's failure to adequately address climate change, which is the greatest threat to coral reefs. "A different government with a different outlook would have found a way to support that centre," says physicist Bill Hare, chief executive of the climate-research and policy institute Climate Analytics in Berlin.

But ARC chief executive Sue Thomas says that the decision was based on a standard competitive process. ■



The invasive ant *Linepithema humile* disrupts seed dispersal in indigenous South African plants.

Across the world, invasive species — organisms that have been introduced into ecosystems beyond their natural habitats, and that spread over large distances on their own — are considered a major threat to biodiversity, human health and economies. Climate change is expected to further their global spread, in part by reducing the resilience of native ecosystems.

To create the report, in 2015, 37 researchers from 14 national organizations, led by the National Biodiversity Institute and the Centre of Excellence for Invasion Biology at Stellenbosch University, began collating data from institutions around the country.

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The researchers report that 7 new species are introduced into South Africa each year, and that about 775 invasive species have been introduced so far. This contrasts with the 556 invasive species previously reported by the government. Most of the species identified by the latest report are plants, with insects the next most common. (For comparison, the United Kingdom says that it has 184 non-native invasive species.) The report's authors consider 107 of the species in South Africa to have major impacts on biodiversity or human well-being.

Invaders of note include trees in the *Prosopis* genus, such as honey mesquite (*P. glandulosa*), which damages animal grazing areas, outcompetes local plants and, according to a 2017 study in Mali, seems to encourage the growth of populations of the malaria-carrying *Anopheles* mosquito, among other effects (G. C. Muller *et al.* *Malar. J.* **16**, 237; 2017).

Others include the *Sirex* wasp (*Sirex noctilio*), which threatens South Africa's 16-billion-rand forestry industry; the ant

Linepithema humile, from Argentina, which disrupts seed dispersal in indigenous plants; the North American small-mouth bass (*Micropterus dolomieu*), which has outcompeted indigenous fish; and the water hyacinth (*Eichhornia crassipes*), from South America, which chokes the country's waterways.

As well as their cost and toll on biodiversity, the report explores the pressure that invasive species put on the water supply. This year, Cape Town almost became the first major city in the world to run out of water. In May, researchers argued that alien plants, which often use more water than do indigenous ones, consumed more than 100 million litres of water a day — about one-fifth of the city's daily usage — and that water losses due to invasive species could triple by 2050. The report estimates that invasive trees and shrubs, if left unchecked, could threaten up to one-third of the water supply to cities such as Cape Town, and consume up to 5% of the country's mean annual rainfall run-off.

Despite enacting the 2014 regulations and spending at least 1.5 billion rand a year to curb invasive species, the country is not keeping up, says the report. "The most concerning finding was how ineffective we have been," says co-author Brian van Wilgen, an applied ecologist at Stellenbosch University.

But the authors also note that their confidence in almost all their estimates is low, because of poor monitoring and evaluation data — and that more research into impacts and monitoring techniques is needed.

Jasper Slingsby, an ecologist with the South African Environmental Observation Network in Cape Town, agrees. "We need better funding and concerted research effort in this space as a national priority," he says. ■