



Michael Douglas

The project worked with *Bininj* Traditional Owners to develop and apply indicators for the cultural-ecosystem health of the floodplain.

IMPACT STORY 2019

# Keeping Country healthy in Kakadu National Park

Invasive para grass (*Urochloa mutica*) threatens important cultural and ecological values of Nardab floodplains in Kakadu National Park. NESP researchers have built on long-term collaborations with *Bininj/Mungguy* Traditional Owners to develop and apply *Bininj* indicators of cultural-ecosystem health for the floodplains. These indicators are being used to identify priority areas for targeted para grass control and monitor the effectiveness of treatments.

► Find out more about this project



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Photo courtesy of Microsoft.

This project has brought together Indigenous knowledge, western science and technology to help look after country.



The only thing that saddens Traditional Owner and Kakadu ranger Simon Dempsey is seeing the Nardab floodplain becoming choked with invasive para grass (*Urochloa mutica*). The thick, waist-high grass threatens many important values on these floodplains. It blocks access to his family's turtle-hunting grounds. It leaves magpie geese with no place to nest. And it prevents him from taking his family to share knowledge and explain *Bininj* responsibilities to care for this floodplain.

"If nobody can do anything about it in Kakadu, Kakadu won't be left."

– Mr Simon Dempsey, Traditional Owner and Kakadu ranger

But research funded by the Australian Government's National Environmental Science Program has shown that something can be done about para grass.

For 10 years, researchers from CSIRO, Charles Darwin University and The University of Western Australia have been collaborating with *Bininj* Traditional Owners to map the current extent of para grass, predict where it will spread in the future, and enact targeted control.

This research partnership showed that para grass does not spread randomly across the floodplain. Instead, the areas of the floodplain most at risk from para grass invasion coincided with the areas that *Bininj* identified as the best habitat for turtle and magpie geese.

Para grass threatens areas that are important to *Bininj* people for hunting.



Photo courtesy of Microsoft.



Photo courtesy of Microsoft.

Kakadu ranger and Traditional Owner Simon Dempsey.

"Without the research to start with we would never have been in a situation to know that in the future we're going to lose all of the turtle and geese grounds."

– Ms Annie Taylor, Kakadu ranger

The current project, led by CSIRO's Dr Catherine Robinson and the *Bininj/Mungguy* Steering Committee, builds on previous work funded by TRaCK and NERP, and uses NESP research to guide effective weed management. This has enabled the team to combine the evidence developed by science with the knowledge from *Bininj* collaborators and Kakadu park managers to identify priority areas for targeted control of para grass. *Bininj* chose to monitor magpie geese, turtles and the health of important sites used for a range of cultural, hunting and family purposes as indicators of the success of the experiment.

Guided by this unique adaptive co-management approach, spraying para grass led to a rapid recovery of the *Bininj* indicators, with a visible reduction in the area choked by weeds, an increase in open water and the return of important plant, bird and animal species.



“In one year we got all the food back. We got all the geese back and we got all the ducks back and we got all the turtles back. Everybody’s really excited that we can do something about this.”

– Annie Taylor

Ms Taylor says that Indigenous-led adaptive co-management shows how Traditional Owners, scientists and park managers can work together to not only ‘push back’ against the spread of para grass but successfully eradicate it.

“Working with the scientists, getting the feedback on the work we’re doing so we can actually see what’s happening, it just makes such a difference.”

– Annie Taylor

“It gives us purpose to basically get out there and do it.”

– Simon Dempsey

Mr Dempsey says the knowledge gained from the project can be shared with other ranger groups trying to control para grass in other parts of the Northern Territory.

Kakadu National Park Manager of Country and Culture Feach Moyle says that the cooperation between the different stakeholders – researchers, Parks staff and *Bininj/Mungguy* Traditional Owners – was the best part of the project.

“It’s a good example of joint management, with park rangers and scientists working with Traditional Owners to achieve their aspirations and to achieve aspects of the plan of management for Kakadu National Park.”

– Mr Feach Moyle, Kakadu National Park Manager of Country and Culture

The project has given Simon Dempsey hope that his grandchildren will know the floodplain as he knew it as a child – an amazing place where you can walk out and just pick up the food you need.

“Our grandkids will have something in the future for them. Somewhere where they can do their own grocery shopping, like a shop. Our floodplain is basically our front door to our own grocery shop.”

– Simon Dempsey

Kakadu Traditional Owner Na-gangila Bangalang agrees.

“And it’s good this time, it’s really good. You can see beautiful floodplains now; less para grass. The sun is coming up now, especially bush tucker for us. The people like magpie geese and freshwater turtle.

And today everything’s changed now. We can see magpie geese, and people go hunt for freshwater turtle. And it’s getting really good now – reminds me of a long time ago when old people used to go hunting. Today it’s really good for us, for a new start and a new generation now.

*Kunkare birrikarmi... njamed nakka paragrass, bolkkime namekke scientist mob birrimwam birridurkmirri, birrimarnbom kamak rowk nawu ngadberre kunred. And bolkkime, mayh everywhere now.*

(In the past there was ... what’s it, para grass. Now those scientists have come and worked to make sure our Country is healthy. And now there are animals everywhere.)”

– Mr Na-gangila Bangalang

*Bininj/Mungguy* chose to monitor magpie geese, turtles and the health of important sites.



Photo courtesy of Microsoft.



Photo courtesy of Microsoft.

Project leader Cathy Robinson and rangers Serena McCartney and Annie Taylor assess para grass management actions.

## Research outputs

### News releases

- [AI transforms Kakadu management](#) (Microsoft, November 2019)
- [AI transforms Kakadu management](#) (CSIRO, November 2019)

### Selection of media activity

- [Microsoft teams up with Kakadu's owners](#) (Canberra Times)
- [Microsoft teams up with Kakadu's owners](#) (News.com.au)
- [Drones and AI making a dent in Kakadu's war against weeds](#) (ZD Net)
- [Microsoft teamed up with Indigenous Traditional Owners in Kakadu, using AI and drones to rehabilitate parts of the national park](#) (Business Insider)
- [Microsoft teams up with Kakadu's owners](#) (Bendigo Advertiser)
- [AI meets Indigenous intelligence in Kakadu](#) (Government News)
- [Microsoft, CSIRO partner with Kakadu National Park on environmental project](#) (IT Wire)

- [AI and Traditional Knowledge combine to rehabilitate Kakadu National Park](#) (National Indigenous Times)
- [CSIRO, Microsoft project combined AI with Indigenous knowledge to protect national parks](#) (Computer World)

### Blog

- [Magpie geese return with help from ethical AI and Indigenous Knowledge](#) (CSIRO, November 2019)

### Videos

- [Using Bininj knowledge to care for Nardab](#) (Nov 2020)
- [AI transforms Kakadu management](#) (Nov 2019)
- [Using technology to monitor Country](#) (Sep 2019)
- [Bininj/Mungguy healthy country indicators in Kakadu National Park](#) (May 2019)

### Factsheet

- [Bininj/Mungguy healthy country indicators](#) (start-up factsheet, April 2019)

### Project webpages

- [Bininj/Mungguy healthy country indicators](#) (NESP)
- [Managing threats to floodplain biodiversity and Indigenous values](#) (NERP)
- [Gamba grass effects on savanna carbon & fire](#) (NERP)
- [Floodplain foodwebs](#) (TRaCK)

## Attributions

- Project leader: Cathy Robinson (CSIRO)
- Project team: Michael Douglas, Samantha Setterfield (University of Western Australia), Justin Perry (CSIRO), Jennifer Macdonald (CDU-CSIRO)
- Dennis Cooper (Northern Hub/Northern Land Council)
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- TRaCK and NERP research programs and researchers

