Australian Government
Australian Research Council

EI 2018 ENGAGEMENT AND IMPACT

Engagement and Impact 2018

Macquarie University

MQU (IN) - Impact

Overview

Title

(Title of the impact study)

Cross-cultural biodiversity surveys in eastern Arnhem Land

Unit of Assessment

Aboriginal and Torres Strait Islander research

FoR codes

(Identify up to three two-digit FoRs that relate to the overall content of the impact study.)

05 - Environmental Sciences
20 - Language, Communication and Culture

Socio-Economic Objective (SEO) Codes

(Choose from the list of two-digit SEO codes that are relevant to the impact study.)

95 - Cultural Understanding
96 - Environment

Australian and New Zealand Standard Industrial Classification (ANZSIC) Codes

(Choose from the list of two-digit ANZSIC codes that are relevant to the impact study.)

04 - Fishing, Hunting and Trapping
82 - Adult, Community and Other Education

Keywords

(List up to 10 keywords related to the impact described in Part A.)

Indigenous Ecological Knowledge

Conservation

Aboriginal languages

Cultural Maintenance

Biodiversity

Ecological Surveys

Remote Australia

Threatened Species

Environmental Threats

Sensitivities

Commercially sensitive

No

Culturally sensitive

No

Sensitivities description

(Please describe any sensitivities in relation to the impact study that need to be considered, including any particular instructions for ARC staff or assessors, or for the impact study to be made publicly available after EI 2018.)

Science and Research Priorities

(Does this impact study fall within one or more of the Science and Research Priorities?)

Yes

Science and	Practical Research Challenge

Research Priority	
Environmental change	Options for responding and adapting to the impacts of environmental change on biological systems, urban and rural communities and industry.

Impact

Summary of the impact

(Briefly describe the specific impact in simple, clear English. This will enable the general community to understand the impact of the research.)

Macquarie, in collaboration with the remote community of Ngukurr in South East Arnhem Land, has integrated regional biodiversity data through a two-way relationship with the Atlas of Living Australia. Indigenous knowledge of regional biodiversity has realised cross-cultural impacts on the ways of knowing and managing biodiversity through the Atlas of Living Australia.

Macquarie employed over 50 people from Ngukurr who were previously unemployed and in 2016 established a young peoples (Yangbala) empowerment project which continues today. 50 young people aged 18-35 were paid to work on the project while mentoring senior school children. Three young people have gone on to study at Macquarie University and they are the first people from Ngukurr community to attend University in over 30 years.

Beneficiaries

(List up to 10 beneficiaries related to the impact study)

Ngukurr School

Yugul Mangi Rangers

Atlas of Living Australia

Numbirindi Rangers

Yirralka Rangers

Yirralka Homelands Schools

Ngukurr community

Numbulwar community

Yirrkala community

Details of the impact

(Provide a narrative that clearly outlines the research impact. The narrative should explain the relationship between the associated research and the impact. It should also identify the contribution the research has made beyond academia, including:
- who or what has benefitted from the results of the research (this should identify relevant research end-users, or beneficiaries from industry, the community, government, wider public etc.)
- the nature or type of impact and how the research made a social, economic, cultural, and/or environmental impact
- the extent of the impact (with specific references to appropriate evidence, such as cost-benefit-analysis, quantity of those affected, reported benefits etc.)
- the dates and time period in which the impact occurred.
- where relevant, evidence of how Aboriginal and Torres Strait Islander ethical research guidelines were integrated into the research activities and processes detailed in the impact study

NOTE - the narrative must describe only impact that has occurred within the reference period, and must not make aspirational claims.)

Through collaborative field work with the Yugul Mangi Indigenous Rangers, Elders and young people in the remote community of Ngukurr, South East Arnhem Land, Macquarie created two-way Indigenous engagement with the Atlas of Living Australia.

Macquarie achieved three distinct impacts: the value of the biodiversity data held in the Atlas of Living Australia was demonstrated to Indigenous Australians; the value of Indigenous knowledge was demonstrated to non-Indigenous Australians and the Atlas of Living Australia; and cross-cultural ways of knowing and managing biodiversity were promoted through the communication channels including Atlas of Living Australia website.

The work completed by the community of Ngukurr and Macquarie features on the Atlas of Living Australia website and includes film and photos. Additional information details how a remote Aboriginal community used and contributed to the Atlas of Living Australia for the benefit of their community, local land management and Australian conservation.

Macquarie continues this work with ongoing funding from the Atlas of Living Australia (and others). Macquarie has expanded this work into neighbouring communities and Indigenous Protected Areas of eastern Arnhem Land spanning about 30,000km2. The project has involved over 300 Aboriginal people of eastern Arnhem Land some of whom have gone on to study at University.

The scientific outputs of the work include substantially increasing the documented locations of species in eastern Arnhem Land, finding new populations of Near Threatened Species, expanding the known range of threatened species and finding two species undescribed by Western science.

In each survey Macquarie ran western scientific and Indigenous surveys of plants and animals. The Indigenous methods include searching for animals and plants, tracking and looking for scats. Elders also taught the people involved about language and cultural knowledge associated with the species found and the places visited.

SOCIO-ECONOMIC IMPACT
Local community members were involved in the project from start to finish. Their engagement in the project transferred skills and confidence in: project management, digital literacy, finding and learning about plants and animals, speaking traditional languages, speaking English to stakeholders and conducting training.

CULTURAL IMPACTS
Macquarie synthetised multiple language names and cultural knowings about plants, animals and surveyed places. Traditional languages and cultural knowledge is highly endangered in the South East Arnhem Land region (recently declared as an Indigenous Protected Area). More than seven traditional language groups live in the centralised town of Ngukurr. The main language of Ngukurr is now Kriol which draws on English, Marra and some other language groups.

Macquarie developed a 140 page multi-lingual field guide for use in surveys. The guide includes 275 species and every known language names for each species. Macquarie created an innovative online version of these plant and animal language names and descriptions. Development of these products has built local capacity in word processing, PowerPoint, online data entry and understanding of the biodiversity of the region.

ENVIRONMENTAL IMPACT
Macquarie has substantially increased the documented locations of species in Eastern Arnhem Land and added these to the national Atlas of Living Australia online database. Macquarie has found new populations of Near

Threatened Species, expanding the known range of threatened species and finding two species undescribed by Western science. By building local biodiversity knowledge local people are learning firsthand the increasing impacts of environmental threats to the region. These include altered fire regimes, invasive animals (cats, cane toads, buffalo, pig, horse), weeds, climate change and de-population.

The local Indigenous Rangers (Working on Country program) who manage the South East Arnhem Land Indigenous Protected Area were also involved in the research. Macquarie built a stronger evidence base for local land management decisions and assisted in improving local knowledge about the condition of species across the Indigenous Protected Area. There is an enhanced local understanding about how to best protect regional biodiversity from new threats to Country, such as altered fire regimes, feral animals and weeds. Elders, Rangers and other Aboriginal collaborators also learnt language associated with these species and places that were not widely known or shared before.

Evidence of Aboriginal and Torres Strait Islander ethical research guidelines were integrated into the research activities and processes detailed in the impact study.The Cross-cultural biodiversity surveys in eastern Arnhem Land project were subject to Macquarie ethics clearance and has incorporated the principles of indigenous research.

Macquarie recognised the diversity of indigenous peoples, including the different SE Arnhem Land communities with more than 7 traditional language groups that live in the centralised town of Ngukurr that contribute to the custodianship of the area studied, and the local Indigenous Rangers.

Macquarie recognised the rights of these communities to self-determination through the Yangbala empowerment project for young people. This project built a stronger evidence base for local land management decisions to maintain, control, protect and develop their cultural heritage, including their traditional knowledge of the SE Arnhem Land areas.

Macquarie acknowledges the sources of information and those who have contributed to the research. Macquarie recognised that Indigenous knowledge contributed to the ongoing impacts of the study and recognised this contribution by transferring or sharing intellectual property and any benefits that result from the research to the SE Arnhem Land communities.

Associated research

(Briefly describe the research that led to the impact presented for the UoA. The research must meet the definition of research in Section 1.9 of the EI 2018 Submission Guidelines. The description should include details of:
- what was researched
- when the research occurred
- who conducted the research and what is the association with the institution
- details of any Aboriginal and Torres Strait Islander people or communities who were consulted throughout the research.)

From 2012-2017 Macquarie conducted 14 cross-cultural biodiversity surveys with Traditional Owners across eastern Arnhem Land including on Ngalakan, Ngandi, Yukgul, Warndarrang, Wagilak and Yolngu clan estates. Traditional Owners of each clan estate were consulted about the research including who, where, when and how it would be conducted prior to any surveys being undertaken.

Macquarie used a range of Western scientific standard fauna traps and methods to collect plant specimens. The traps used were Elliot, Cage, Pitfall, Funnel and camera traps. Macquarie established a local herbarium with hundreds of plant specimens that is held at the Yugul Mangi Ranger office in Ngukurr. Identifications are made using field guides and fauna Apps.

During the surveys we collect all location, scientific and cultural data through our own purpose built innovative cross–cultural biodiversity survey App (on tablets). This data is then downloaded for use in local community reports and some (non-sensitive data) is uploaded to the Atlas of Living Australia national biodiversity database.

We have also written a number of blogs for the Atlas of Living Australia website about our work as well as given many conference presentations and written journal articles.

FoR of associated research

(Up to three two-digit FoRs that best describe the associated research)

05 - Environmental Sciences
20 - Language, Communication and Culture

References (up to 10 references, 350 characters per reference)

(This section should include a list of up to 10 of the most relevant research outputs associated with the impact)

Ens, E., Burns, E., Russell-Smith, J., Sparrow, B and Wardle, G. (2014) The cultural imperative: making long-term monitoring and the environment relevant, Chapter 4, In: Biodiversity and Environmental Change: Monitoring, Challenges and Direction. Eds: D. Lindenmayer, E. Burns, N. Thurgate, A. Lowe. CSIRO Publishing, Melbourne.

Ens, E. (2012) Conducting two-way ecological research. Chapter 3 In: People on Country: Vital Landscapes, Indigenous Futures Eds: J. Altman and S. Kerins. Federation Press, Sydney.

Daniels, C., Nelson, E., Roy, J., Dixon, P., Ens, E. and Towler, G. (2012) Commitment to our Country: Story of the Yugul Mangi Women Rangers. Chapter 11 In: People on Country: Vital Landscapes, Indigenous Futures Eds: J. Altman and S. Kerins. Federation Press, Sydney.

Ens, E., Scott, M., Yugul Mangi Rangers, Moritz, C. and Pirzl, R. (2016) Putting Indigenous conservation policy into practice delivers biodiversity and cultural benefit. Biodiversity and Conservation 25: 2889-2906

Ens, E., Daniels, C., Roy, J., Nelson, E. and Dixon, P. (2016) Creating multi-functional landscapes: Using exclusion fences to frame feral ungulate management preferences in remote Aboriginal-owned northern Australia. Biological Conservation 197: 235-246

Moritz, C., Ens. E., Potter, S. and Catullo, R. (2013) The Australian monsoonal tropics: An opportunity to protect unique biodiversity and secure benefits for Aboriginal communities. Pacific Conservation Biology 19: 343-355

Ens, E. J., Finlayson, C. M., Preuss, K., Jackson, S. and Holcombe, S. (2012) Australian approaches for managing ‘country’: using Indigenous and non-Indigenous knowledge. Ecological Management and Restoration 13(1): 100-107

Ens, E. J., Towler, G., Daniels, C., the Yugul Mangi Rangers and the Manwurrk Rangers. (2012) Looking back to move forward: Collaborative ecological monitoring in remote Arnhem Land. Ecological Management and Restoration 13(1): 26-35

Ens, E. J. (2012a) Monitoring outcomes of environmental service provision in low socio-economic Indigenous Australia using innovative CyberTracker technology. Conservation and Society 10(1): 42-52

Additional impact indicator information

Additional impact indicator information

(Provide information about any indicators not captured above that are relevant to the impact study, for example return on investment, jobs created, improvements in quality of life years (QALYs). Additional indicators should be quantitative in nature and include:
- name of indicator (100 characters)
- data for indicator (200 characters)
- brief description of indicator and how it is calculated (300 characters).)

Name

Young People Enrolled in the Ranger Training Program

Indicator Data

50 young people (2014-2016)

Indicator Description

This is the number of youth enrolled in the ranger training program.

Name

Plants Collection

Indicator Data

200 plant specimens

Indicator Description

200 plant specimens are now preserved in cool dry conditions in the Yugul Mangi Ranger shed (with some duplicates at the NSW and NT Government herbariums).

Name

Documented locations of new species

Indicator Data

14 locations

Indicator Description

The number of locations in which new species were documented

Name

Program Expansion

Indicator Data

The program has expanded to 6 new communities.

Indicator Description

These communities include Urapunga, Mole Hill,Numbulwar, Yirrkala, Gangan and Yilpara.