



How do we drive a renaissance for national island conservation in Australia?

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ABSTRACT

Australia's approach to managing and conserving its offshore islands as important national assets warrants urgent review. There is a growing realisation that the current trajectory of loss of natural heritage on islands must be reversed, particularly in an era of increasing climate change. We propose a role description and an organisational model for a national Australian Islands Alliance that champions conservation action, prioritises investments aligned to risks, and that connects partners at a strategic national level. A national alliance offers important opportunity to assess threats and report on condition. Four key foundations underpin a national alliance dedicated to championing island care and expert management: (1) management informed by evidence; (2) sound return on investment; (3) national coordination in partnership with States and Territories; and (4) community participation inclusive of Aboriginal peoples' and Torres Strait Islanders' custodial rights and interests. The message from experiences shared across Australia, New Zealand and the Pacific region is that traditional island custodians and stakeholders are vital partners to restoration efforts. These shared learnings collectively demonstrate the time is now for Australia to move forward with a respectful and unified direction to progress successful and sustainable island conservation and restoration.

Keywords: alliance, Australian islands, community, conservation, custodian, island arks, partnership, prioritisation, restoration, Sea Country.

Introduction

In recent years, there has been a heightened awareness of the importance of Australia's islands for its people (through leadership, governance, cultures, social dimensions), biodiversity conservation (as refugia for species or populations threatened by environmental risks on the mainland), and for ecosystem services that underpin tourism and other island-based industries (e.g. fisheries, traditional ecological knowledge of Sea Country). Island care, including conservation and restoration, are operationally complex, and requires substantial knowledge, clearly defined goals, cross-cultural partnerships, broad community involvement and often long-term financial commitments. At the commencement of the UN Decade of Ecosystem Restoration (www.decadeonrestoration.org/about-un-decade) in 2021, it is timely to reflect on the importance of protecting Australia's offshore islands as significant ecosystem assets for the nation, and to take action towards a unified national collective to incentivise, invest in, and deliver secure outcomes for these exceptional places within cultural and ecological contexts.

Australia's States and Territories include some 8411 offshore islands, contributing 40% of Australia's coastline and containing 35% of threatened species listed under the Commonwealth *Environment Protection and Biodiversity Act 1999* (GeoScience Australia 2004; Woinarski *et al.* 2014). Many of these islands are vested as conservation reserves, national parks or World Heritage Areas given their significance for nature conservation, geomorphology, ongoing ecological and biophysical processes, or their role in human and cultural history (Morris *et al.* 2018). For example, although more than 90% of Tasmania's offshore islands are statutory reserves, they contain over one-third of the

State's land-based threatened fauna species and some, such as King Island, are centres of local extinction and nationally critically endangered species. Others, such as the subantarctic Macquarie Island, have become international exemplars of the benefits of eradicating invasive pests (Bryant and Harris 2020). Similarly, off the coast of New South Wales, Lord Howe Island has seen the extinction of nine of its 13 species of land bird (Springer 2018).

Due to the isolation of their habitats by virtue of the sea, many offshore islands support important breeding grounds for seabirds, marine turtles and seals, as well as secure populations for common and threatened fauna experiencing threats in unmanaged mainland habitats (Burbidge *et al.* 2018). However, many island species have very restricted ranges, and reduced genetic diversity relative to mainland populations (Frankham 1998) and therefore remain at higher risk to extinctions. Twenty five percent of Australia's total mammal extinctions were island endemics (Burbidge and Manly 2002; Woinarski *et al.* 2015), with a further two island endemic species of mammal now considered recently extinct (the Christmas Island pipistrelle (*Pipistrellus murrayi*) and the Bramble Cays melomys (*Melomys rubicola*) (Lunney *et al.* 2011; Gynther *et al.* 2016). Major bushfires on Kangaroo Island (South Australia) in 2020 burnt over 200 000 ha of the island, heightening the risks of local extinction for 11 species of flora and fauna (Robinson 2020).

Passive management (insofar as management that improves learning alone rather than lessons fed back into improved management, Rist *et al.* 2013) was once considered sufficient for many offshore (and remote) islands. However, climate change is now driving substantial changes which will require rapid and substantive shifts in environmental care if we are to mitigate these impacts (Garnett and Reside 2018). The changing nature of island communities means their resilience to climate change, once embedded in traditional knowledge and ways of life, is seeing more island communities becoming less able to withstand extreme natural events (Campbell 2009). On populated islands throughout the south-east Asian and Pacific regions, the primary impacts of climate change on biodiversity conservation from sea level rise and coastal erosion also require consideration of the spatial and temporal secondary impacts following the displacement of people (Wetzel *et al.* 2012). Climate change impacts on Australia's Torres Strait islands' environments and communities are becoming increasingly evident (Cheer *et al.* 2020). A global compilation on island tourism suggests that without resilience and the capacity to adapt to and successfully manage a new set of global challenges impacting tourism; island-based economies such as farming, fisheries, livestock and craft will decline (McLeod *et al.* 2021). On the positive side, the nature of a confined landmass surrounded by water has offered successful outcomes for island conservation managers seeking to restore critical habitats and to eradicate (rather than control) non-indigenous species.

The remoteness of many islands means that conservation efforts can have permanent outcomes for their ecosystems. Arguably the successes of island invasive species eradication and native species conservation programs across Australia (e.g. Robinson and Copson 2014; Springer 2018; Heriot *et al.* 2019), and nearby New Zealand (e.g. Galbraith and Cooper 2013; Russell and Broome 2016; Towns *et al.* 2018), offer a strong return on investment nationally. Many islands across northern and southern Australia are now again being cared for by their respective Aboriginal or Torres Strait Islander custodians, following their return via diverse processes including native title determinations. These places hold deep spiritual and cultural connections, and societal relevance as marine and island food sources (Bock *et al.* 2022).

Despite representing assemblages of unique ecosystems and species groups (Morris *et al.* 2018), Australia's islands have not benefited from consistent legislative, management or conservation efforts commensurate with their contribution to the nation's natural capital, nor to the wealth or other socio-economic returns they generate. This contrasts with many Australian land and seascapes that have received significantly more attention through coordination and subsequent funding; for example, by various Co-operative Research Centres and university-based Centres of Excellence. However, the National State of the Environment Report 2021 (Clark *et al.* 2021) has for the first time included commentary specific to islands, assesses their outlook especially for climate change and biosecurity issues, and forecasts a tenuous state for these ecosystems. The role of islands as important habitats for many threatened and other species is also receiving increasing attention (DAWE 2021).

Island Arks Australia, a co-operative network of islanders and island conservation practitioners, has over the past 15 years been instrumental in showcasing island care and management nationally (Fig. 1). During this time extensive networks have been formed, scientific evidence gained and published, and a number of inspiring island conservation initiatives successfully implemented and communicated (www.islandarks.com.au, Fig. 2). This nation-wide alliance recognises the growing urgency of protecting Australia's islands, and that a more comprehensive, unified, and nationally coordinated approach is needed. Specifically, there is a demonstrated need for holistic (combined ecological, cultural and social) island conservation and management, supported by multi-tiered partnerships, underpinned by applied science and local knowledges, and financial sustainability. This approach reflects the model adopted for the restoration of the Great Barrier Reef, which demonstrates not only the urgency but complexity of issues when multiple stakeholders are involved.

Australian islands are currently managed under multiple jurisdictions (e.g. national, state and territory governments, administrations for external territories, common law interests and native title rights and interests). This is hampering efforts



Fig. 1. Island Arks VI, Rottneest Island, Western Australia. Symposia have been held across Australia, including Fiji, since 2012. These Island Arks Symposia remain important forums for island practitioners and Traditional Owners to connect, communicate and share island conservation initiatives throughout the Australia–Pacific region.

to manage them more efficiently for conservation and restoration programs. Given this complexity, no government or other organisation currently exists that has neither the authority nor the motivation to drive national co-ordination for islands, nor to work towards long-term investments specifically for islands. In this perspective, we propose that Australia as a nation needs a national (collective) alliance to coordinate island management. Custodial and stakeholder input is needed to develop a role description and an organisational model for transitioning Island Arks Australia into a more comprehensive and effective alliance that takes up a strategic national leadership position.

To accomplish these visions, we suggest establishing an Australian Islands Alliance (*sensu* Kark et al. 2022) to champion a National Island Conservation Strategy in partnership with key stakeholders. This Strategy would scope and promote the direction and role of a national alliance but requires further consultation with its key implementers, including offshore island custodians. Such a strategy would include definition of the Alliance's governance structure, set a vision to drive four foundations

of action fundamental to island restoration (Fig. 3), and establish principles for identifying priority islands to strategically focus Australia's island management actions. Recognition of and collaboration with Aboriginal and Torres Strait Islander custodians of Australia's offshore islands is key to inclusivity. A communication plan would support complementary exposure and outreach for achieving the Strategy's vision and prioritised actions for all interested parties.

The role of an alliance as a champion for Australia's islands

The importance of islands at a national scale and for a whole range of values remains largely obscured to most Australians, including investors. Celebrating the importance of islands needs to reach a far greater audience than it does currently. A national island alliance needs to set the right incentives to empower community sectors more broadly than Island

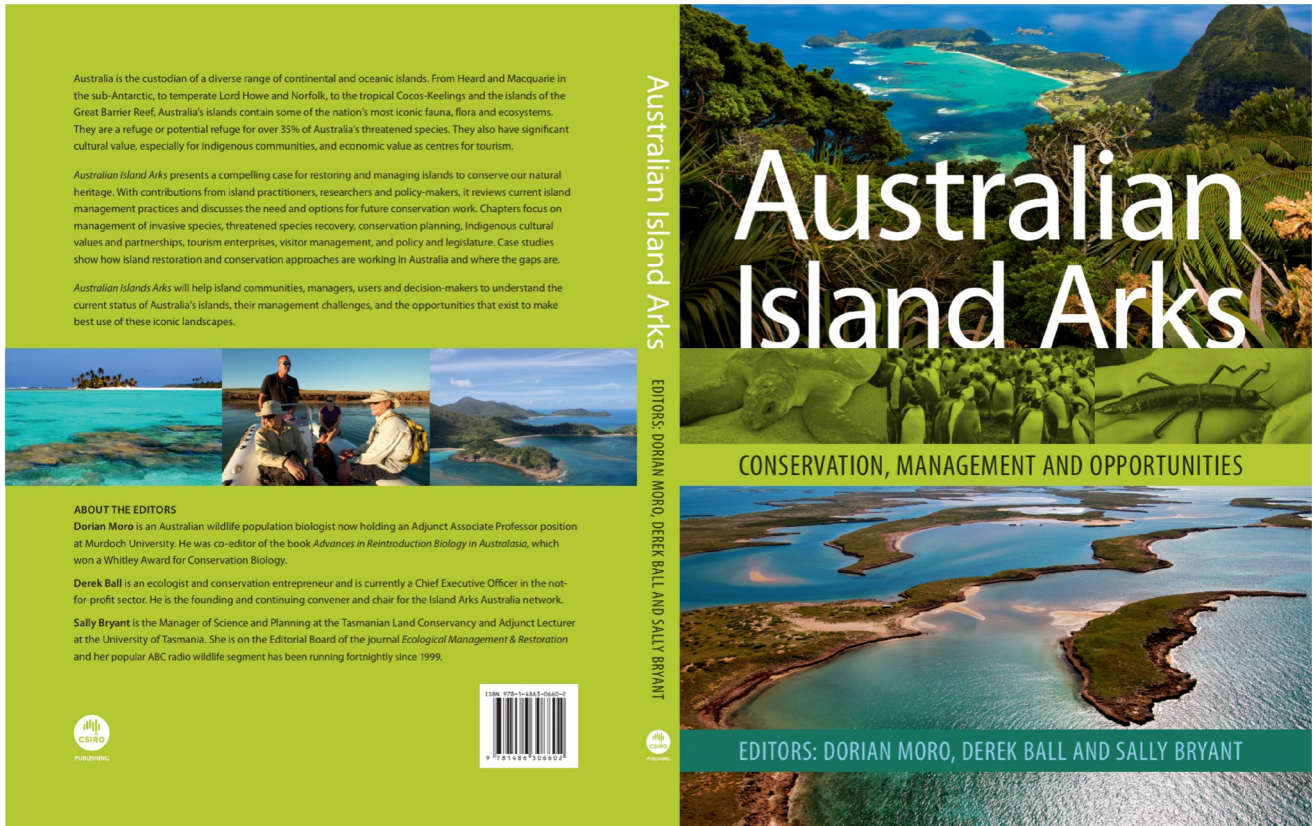


Fig. 2. Australian Island Arks, published by CSIRO Publishing in 2018, comprises 16 chapters from 46 contributing authors summarising the current state of knowledge on Australia’s offshore islands, and key lessons learned across the Australasian region.

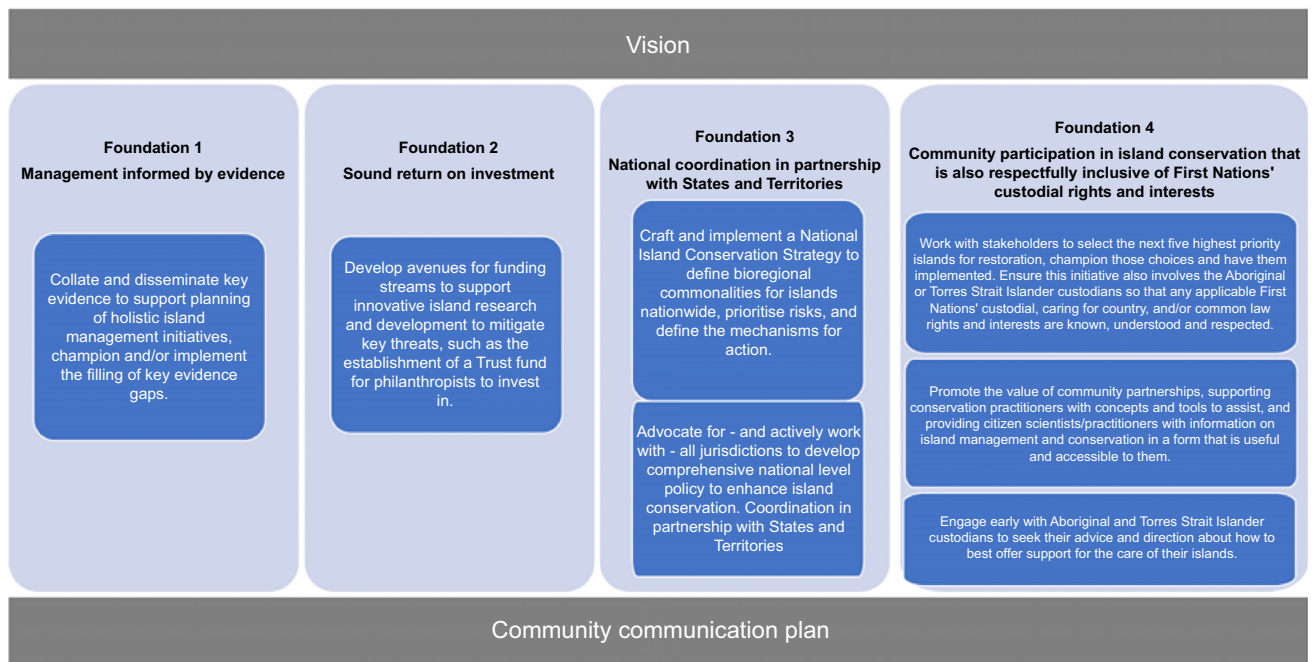


Fig. 3. A model for an Australian Island Arks Alliance, showing the four key foundations (or pillars) that represent the goals of an alliance, each with focus areas for action. A National Island Strategic Plan would include these within its framework and a communications plan to reach out to stakeholders and custodians with an interest in island conservation, cultural ties, and/or island investment.

Arks Australia has been able to to-date. An initial objective for an alliance could address the question: ‘What would motivate more people, including investors and decision makers, to engage with island custodians and managers to support improved holistic island conservation initiatives?’ The response will require conveying stories that resonate across a broad sector of the community, including those whose views are influenced not just by environmental issues, but also by custodial, cultural, social and/or economic interests.

Woinarski *et al.* (2018) suggest that a national alliance should include strategic approaches to constrain the impacts of climate change, the development of systematic policy for conserving island biodiversity, a national risk assessment for island biodiversity, and also establishing an enduring national fund to support island conservation efforts. A national island alliance could fill this gap by advocating for, and actively working across jurisdictions to develop strategic national level investments and other approaches to expedite island conservation, akin to Australia’s Threatened Species Strategy (DAWE 2021).

International context for an island alliance

In considering the structure and function of a national island alliance, some guidance may be found by examining other environmental organisations that have similar goals. National platforms have been considered by Kark *et al.* (2022) and we do not repeat these here. For a comparative international context, two quite different examples are provided below: the Pacific Regional Environmental Programme (SPREP), and the Caribbean Environment Program. Both have been formed by inter-governmental agreements, although governance differs significantly; the first example being a largely centralised approach, and the second offering an example of a regionalised approach where functions are undertaken by autonomous contracted organisations.

In terms of geographical jurisdiction, SPREP is perhaps the largest organisation globally with a mandate for island management. SPREP is the Pacific region’s inter-governmental organisation for environmental protection and sustainable development, and was formally established in 1993 under a multi-lateral agreement amongst its founding country members (www.sprep.org). Structurally SPREP has 22 island state members (Pacific Island national governments) and five metropolitan members with interests in the region (Australia, New Zealand, the United Kingdom, the United States of America and France). The organisation is largely centralised with headquarters in Samoa but has project management operatives present in many member Pacific countries. Functionally, its portfolio of responsibility includes projects aligned to climate change resilience, environmental governance and reporting, protection of ocean and island ecosystems, waste management and pollution control,

knowledge brokering, capacity building and communications. Recent funding has been derived from international aid, e.g. Global Environment Facility, United Nations Environment Program (UNEP), European Development Fund and member contributions (from both Pacific island states and metropolitan members). Core income in 2020 was in excess of USD4.5 million.

The Caribbean Environment Program was established by the UNEP in 1981 under its Regional Seas Programme, and activated in 1983 under a multi-lateral agreement amongst 26 Caribbean member countries (the Cartagena Convention) (see UNEP 2022). Subsequently members adopted a number of technical agreements on key issues facing the region (co-operation in combating oil spills, 1986; specially protected areas and wildlife, 2000; and pollution from land-based sources, 2010). The Program is decentralised, having thematic Regional Activity Centres (RAC) in Curacao, Guadeloupe, Cuba, Trinidad and Tobago. Each RAC is a financially autonomous, national, regional or international organisation designated by the Parties to the Cartagena Convention to co-ordinate or carry out functions aligned to the Program’s technical agreements (UNEP 2022). For example, the Specially Protected Areas and Wildlife Regional Activity Centre (SPAW-RAC) undertakes five pieces of thematic work: creation and strengthening protected areas in the wider Caribbean region, development of guidelines for the management of protected areas and species, conservation of threatened and endangered species, conservation and sustainable use of coastal and marine ecosystems, and program co-ordination. Designated funding for program co-ordination in 2021 was €910 000, provided by the Government of France and the European Union (EU). Donors fund tranches of project-based work. For example, in 2018–22, in excess of €3 million was provided by the EU for prevention of coastal risk resulting from climate change (SPAW-RAC 2022).

A network and role description for a national island alliance

Australia has a large network of people with diversely rich cultures and knowledge, which includes Aboriginal or Torres Strait Islander peoples, and managers and scientists with skills in island conservation. Island Arks Australia has proven to be an effective forum for these stakeholders to access this network. However, stakeholders with broader social and/or economic interests have not yet been well represented, and all stakeholders remain disconnected and isolated from core island strategic issues at the national scale.

A primary role for a national island alliance should include the collation and dissemination of information (i.e. evidence) to support the planning of holistic island management initiatives, and where needed, to champion and/or

implement the filling of information gaps. Some first steps are evident at the national level: under the Threatened Species Strategy Action Plan 2021–2026 (DAWE 2022), Priority Places are now identified for habitats or future refuge areas that support, or may support, multiple threatened and other species; the first six Priority Places to be recognised nationally are all islands, selected on the principles of risk, and their multiple benefits to threatened species, importance to people, and level of uniqueness, amongst other criteria (www.awe.gov.au/environment/biodiversity/threatened/strategy/20-priority-places). We recognise and respect that Aboriginal and Torres Strait Islander custodians of offshore islands will self-determine their level of involvement, if any, they and/or their communities might have with the proposed alliance; this is the abiding principle of free prior and informed consent, and the right to say no.

A secondary role for a national island alliance would be to work with island stakeholders, including from the outset the traditional custodians of offshore islands (Bock *et al.* 2022), to facilitate the selection of priority islands for restoration, to champion those choices, and to have these funded and implemented. In parallel, an alliance would build on a national evidence base to support conservation prioritisation actions for targeted islands to focus on the most effective and efficient conservation actions for island biodiversity nationally.

Finally, Ball *et al.* (2018b) propose that a national island management platform should be based on four foundations: (1) management informed by evidence; (2) sound return on investment; (3) national coordination in partnership with States and Territories; and (4) community participation inclusive of Aboriginal peoples' and Torres Strait Islanders' custodial rights and interests. Here, we describe how a national island alliance would champion these foundations by actively promoting the diverse socio-economic, cultural and conservation benefits that effective island management provides to Australia. Building focus actions within these foundations, through a suitable (and inclusive) governance model would complement the role description of a national island alliance.

Management informed by evidence

Island Arks Australia has had a strong focus on collating and disseminating evidence-based information on Australia's islands. For example, during the 2012 Island Arks Symposium (Canberra, Australia), the first ever 'State of the Islands' reports were presented for every State and Territory jurisdiction (except external territories) with most of these reports subsequently published on the symposium website (<https://islandarks.com.au/island-reports/australias-state-of-the-islands-report>). Morris *et al.* (2018) further reviewed and expanded this information into a more recent and comprehensive national-level report. Collectively, Moro *et al.* (2018) provided a comprehensive review of Australian islands in

terms of risks, and care, conservation and management opportunities across the nation, and further encompassing understandings gained from New Zealand and across the Pacific. The Island Arks Symposium has featured presentations from Aboriginal island custodians and Torres Strait Islander peoples about their respective sea countries and islands, and these forums remain an important opportunity to network collegially and share information (Fig. 1). These forums, however, need to recognise and support meaningful and respectful data empowerment for Aboriginal and Torres Strait Islander custodians on the basis of their free, prior and informed consent (Lovett *et al.* 2020).

While these publications and presentations are important steps, there remains significant deficiencies in planning and prioritising island management initiatives. Where evidence is deficient for decision making, it needs to be collected with due prioritisation of regional versus local (island) environmental harm or risk, while acknowledging that the precautionary approach should apply to manage unacceptably high risks on islands where evidence is scant or absent. For example, there is limited national-level analysis of island bioregionalisation compared to mainland bioregions or subregions (Thackway and Cresswell 1995, but see the recent Interim Biogeographic Regionalisation for Australia (IBRA) version 7; <https://www.dcceew.gov.au/environment/land/nrs/science/ibra>). We thus do not have a transparent and comprehensive view of how habitats are represented on the >8000 offshore islands around Australia, in contrast to extensive Australian mainland habitat data. In addition, while species occurrence records for islands (including for threatened species) exist on multiple platforms, and multiple databases hosted at national, state and territory levels (e.g. NatureMap <https://naturemap.dbca.wa.gov.au>; Atlas of Living Australia <https://www.ala.org.au>), information is scant and no comprehensive analysis of what islands contribute as essential habitat to listed species exists at a national scale. Finally, the recent national database of protected areas referred to as CAPAD 2020 (DoE&E 2021) does not distinguish between island and mainland protected areas where high environmental risks to island species or populations exist.

For offshore islands, a national database that identifies priority risks to important or significant islands or archipelagos, commensurate with suitable mitigation measures to reduce the risks, is conspicuously absent. Designing and prioritising island conservation initiatives at a national level to achieve sound return on investment (see next section below) may be biased by dogma without this risk-based approach. The precautionary principle offers one avenue to protect island ecosystems and their biodiversity in the absence of evidence, and to support organisations to identify and assess alternative methods to manage the risks exacerbated by human activities on island ecosystems. To contrast with an example where national data are available,

analysis in the Action Plan for Australia's Birds 2020 shows the difference in the Red List Index Score for birds between continental and oceanic islands compared to mainland Australia (Garnett and Baker 2021). Here, comparative data validate the urgency to protect offshore islands; these data provide evidence to target mitigation efforts to protect birds using islands as refugia and nesting sites. More recently, a national database developed to list threatened species across all of Australia's islands (Baxter *et al.* 2021) consolidates what we know of each island within the national context of threatened species. However, an extension of that database could include additional and multiple island values (e.g. important population aggregations) and island risks (e.g. coastal erosion), together with an assessment of the likelihood and consequence of threats to those values and to characterise these as 'risk heat maps'. Priority 'risk heat maps' could then inform the management of residual risks and the future investment required to mitigate threats. Without these risk maps, the observational datasets alone remain limited to their use by practitioners.

Sound return on investment

The national importance of island values is not fully celebrated by Australian communities, nor by the elected decision makers that represent them. Sound investment in islands will necessitate sensible, tangible outcomes involving the social dimensions of communities, governments, and businesses, and the involvement at the outset of their Aboriginal and Torres Strait Islander custodians. The benefits of island restoration projects are long term and outweigh initial high investments. Ultimately the broader Australian community needs to have 'a shared vision and a realisation that the current trajectory of loss of natural heritage on islands needs to change' (Ball *et al.* 2018b).

For example, there has been sustained resourcing of community-based and pan-regional island care and management across Torres Strait as an international transboundary region (Torres Strait Regional Authority 2016). Further, there is increasing government recognition of the importance of Sea Country (coastal and marine areas including islands) and its care and protection by Sea Country custodians, with multi-year investment of public funds into Sea Country within Indigenous Protected Areas and other Sea Country collaborations (Rist *et al.* 2019; Larson *et al.* 2020; Gould *et al.* 2021; State of Queensland 2021).

Significant investments, and priority interventions, have recently been undertaken on some of Australia's higher profile islands. As one example, successful eradication of invasive animals has been achieved on subantarctic Macquarie Island (Robinson and Copson 2014; Springer 2018), culminating in several species of seabirds having their conservation status significantly improved under the EPBC Act (Garnett and Baker 2021). A recent cost-benefit analysis of a rodent eradication program on the subtropical oceanic

Lord Howe Island indicated net benefits to both Australian and local communities (Gillespie and Bennett 2017). Although managers have had to negotiate community division on the acceptability of this program, results may extend to improved trajectories for threatened species on the island should the eradication succeed (Pickrell 2019). The restoration of Dirk Hartog Island off Western Australia as a multispecies and habitat recovery effort is one of the most geographically extensive island invasive animal interventions in Australian conservation history (Heriot *et al.* 2019; Algar *et al.* 2020); this island is now a dedicated refuge and reintroduction site for species threatened on the mainland (Cowen *et al.* 2020), illustrating the biodiversity benefits of large-scale multispecies investments into targeted eradication programs. Significant interventions on the oceanic islands of Christmas (western tropical), Torres Strait and Norfolk (eastern temperate) Islands are also underway (Torres Strait Invasive Species Advisory Group 2015; Waltham *et al.* 2018). If outcomes are well communicated, the ecological successes should be nationally evident, and inspire Australia to move forward with further investments in holistic interventions on islands. However, to date, these investments have not contributed to building community interest at a national level nor island management capacity nationally.

Tourism offers an un-tapped commercial incentive for long-term island restoration investments, with potential for contributions to actively support the natural values the tourism industry depends on (Ball *et al.* 2018a, 2018c). Islands make a significant contribution to Australia's regional and state economies. For example, in 2019–20, the tourism industry contributed an estimated \$AUS 1.0 billion to the Southern Great Barrier Reef (SGBR) regional economy (4.0% of the SGBR region's gross regional product), and supported some 11 000 jobs (7.2% of employment in the SGBR region equating to one in 14 jobs; www.teq.queensland.com/au/en/industry/research-and-insights/industry-performance/southern-great-barrier-reef-performance-snapshot).

National coordination in partnership with States and Territories

A national island alliance offers important direction to not only assess threats and condition reporting, but to support the building of more positive partnerships with government. For example, designating some islands containing important nature conservation values as 'Matters of National Environmental Significance' or as 'Threatened Ecological Communities' under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* could impose safeguards on these islands and improve conservation efforts; this was a key recommendation of Woinarski *et al.* (2018). The recognition of islands as Priority Places (DAWE 2022) is an important premise to the national identity of these assets for species conservation. Finally, monitoring

trends in the state of islands through national island condition indices (Clark *et al.* 2021) are essential to better understand and interpret environmental condition over time. A national island alliance offers a forum to support the development of these national benchmarks and metrics for islands to inform State of Environment reporting.

Community participation in island conservation

The way in which nature conservation has been achieved in Australia in historical times has certainly evolved (reviewed by Ball *et al.* 2018c): from the first government sponsored National Park gazettal in 1879, to the formation of environmental non-government organisations such as the Australian Conservation Foundation in 1963. Land management has also changed in recent times, commensurate with the level of involvement of an increasing diversity of rights- and interest-holders: the development of regional Natural Resource Management groups, the creation of Aboriginal and Torres Strait Islander controlled and operated Land and Sea management entities beginning in the 1990's (Szabo and Smyth 2003), and the formation of private protected area managers such as the Australia Wildlife Conservancy, Bush Heritage Australia and Tasmanian Land Conservancy, together with an increasing network of volunteer and local 'Friends of community island groups (Bryant and Copley 2018). This trajectory signals that biodiversity and environmental conservation is not the sole realm of government or dedicated conservation practitioners but is founded in living and enduring community partnerships, especially on islands (Ball *et al.* 2018a; Bryant and Copley 2018; Towns *et al.* 2018).

Island insularity produces special societal effects often expressed in the human context as an 'islandness' (Mitropoulou and Spilanis 2020). This social identity is commonly explained by legible geographies such as the distinctive cultural, place-bound identities such as those of Aboriginal and Torres Strait Islander peoples (Grydehøj *et al.* 2020). The legibility of islands is intimately connected to human events over time and space (the spatio-temporal), and continues to be of specific relevance to Aboriginal and Torres Strait Islander custodians of islands. Grydehøj *et al.* (2020) identify that islands foster cultural distinctions, foster histories that connect people with place, and foster Indigenous territoriality. In conceptualising an Australian Islands Alliance, a deepened understanding of the Australian Indigenous island-related agency context will be crucial in establishing meaningful partnerships with Aboriginal and Torres Strait Islander custodians of islands.

While community partnerships are essential for supporting conservation programs in any environmental landscape including islands, the mode of engagement changes dramatically if the island is inhabited. Island people have a vested interest in protecting their local environment but equally in safeguarding their wellbeing and way of life (Coulthard *et al.* 2017), and must be central in every stage of the

planning and delivery of restoration projects. Understanding island economies and the key motivational drivers embedded in 'islandness' can potentially mean the difference between program success or failure (Conkling 2007; Grydehøj and Hayward 2014). Cooperation of island people not only saves project managers invaluable time and money, but also fosters ownership and longevity into conservation initiatives well beyond their projected timeframe.

The social dimensions of island conservation are now well recognised (Bryant and Copley 2018), driven increasingly by the involvement of a broader community and by traditional cultures (Gould *et al.* 2021). This shift in responsibility mirrors that in New Zealand where communities and Māori iwi are increasingly demanding that their aspirations and views are considered in planning and implementing island conservation interventions, because as place-located custodians they can provide the generational longevity needed beyond government timeframes (Towns *et al.* 2018; Saunders *et al.* 2022).

Increasing attention is being directed at restoring larger inhabited islands (discussed previously), and community support is pivotal to retaining island partnerships and progressing conservation actions. Fractured community consultation in the planning of eradication of rodents on Lord Howe Island using rodenticides, not only caused significant disruption to the program timeframe and budget but jeopardised its ultimate success (Bryant *et al.* 2022). Custodians, conservation investors, practitioners, and academics must now work together to re-imagine a bolder, more integrated and entrepreneurial conservation field that can be sustained into the future. A national island alliance, by its broad nature, would promote the value of the community being a vital component of any island conservation initiative, from the onset of program planning to successful implementation.

A way forward for an Australian Islands Alliance

We propose the creation of a national 'Australian Islands Alliance' as a collaborative collective of conservation practitioners and Traditional Owners across Australia's States and Territories, partnering with island communities, and with representation across a wide spectrum of island contexts. An Australian Islands Alliance would progress island conservation more effectively under a national strategic framework (Fig. 3). In response to our introductory question about community motivation to invest and support island conservation nationally, we recommend the following actions for a national Australian Islands Alliance may include:

- Craft and implement a National Islands Conservation Strategy that highlights and prioritises risks, and defines the mechanisms for action.

- Collate and disseminate key information or data to support the planning of holistic island management initiatives, and where needed, to champion and/or implement the filling of key information gaps. Better recognition of and respect for Indigenous data sovereignty and Indigenous data governance in the context of Australian islands are core elements of effective, meaningful and sustained collaborations in the integrated care of islands.
- Develop mechanisms for investments to support innovative island research and mitigate key threats, such as the establishment of a Foundation Trust fund with a secure capital base.
- Engage early with Aboriginal and Torres Strait Islander custodians for advice and direction on how to best offer support for the care of their islands and Sea Country, and how to engage community participation in island conservation that is respectfully inclusive of First Nations' custodial rights and interests. A future Australian Islands Alliance stands to benefit not only from custodial collaborations on (island) ground, but also an enriched and newly stimulated research context arising from the collaborative relations between and amongst Aboriginal peoples, Torres Strait Islander peoples and non-Indigenous Australians.
- Workshop the selection of five high priority islands for restoration, champion these (e.g. 'Five islands over 5 years') and have critical actions implemented, while concurrently working on developing a national evidence base to support planning for conservation of Australian islands. Such an initiative needs to involve the respective Aboriginal or Torres Strait Islander custodians so that any applicable custodial, caring for country, and/or common law rights and interests are also known, understood and respected.
- Advocate for and actively work with all jurisdictions to develop comprehensive national level policy approaches to enhance holistic island conservation.
- Promote the value of community partnerships, supporting conservation practitioners with concepts and tools to assist, and providing citizen scientists/practitioners with information on island management and conservation in a form that is useful and accessible to them.

Conclusion

The future restoration of islands requires a holistic approach to coordination: expertise across local community including island custodians, the environment sector and business who collectively bring a diversity of people to the table, and a respect for what these networks offer across different phases of stakeholder and community engagement and action. Inclusion of traditional custodians at the early partnership stage of project planning and discussions to contextualise and respectfully empower shared island management

(Bock *et al.* 2022), an emphasis on national partner coordination (Kark *et al.* 2022), involvement and support from *bona fide* conservation entrepreneurship to finance island development and conservation agendas (Ball 2022), contribution and ownership from local communities into conservation initiatives in Australia (Bryant *et al.* 2022), and the clear message from knowledge gained in New Zealand that island stakeholders and custodians are vital partners to restoration professionals (Saunders *et al.* 2022), collectively demonstrate the time is now for Australia to move forward with a unified national collaborative to progress island conservation and restoration.

References

- Algar D, Johnston M, Tiller C, Onus M, Fletcher J, Desmond G, Hamilton N, Speldewinde P (2020) Feral cat eradication on Dirk Hartog Island, Western Australia. *Biological Invasions* 22, 1037–1054. doi:10.1007/s10530-019-02154-y
- Ball D (2022) Conservation entrepreneurship for offshore island enterprises: a perspective. *Pacific Conservation Biology* 28, 355–361. doi:10.1071/PC21056
- Ball D, Bryant SL, Mau R (2018a) The interplay between tourism and conservation on islands. In 'Australian Island Arks: conservation, management and opportunities'. (Eds D Moro, D Ball, SL Bryant) pp. 165–176. (CSIRO Publishing: Clayton, Vic.)
- Ball D, Moro D, Bryant SL (2018b) Australia's islands: current thinking, emerging themes and a way forward to manage these offshore assets. In 'Australian Island Arks: conservation, management and opportunities'. (Eds D Moro, D Ball, SL Bryant) pp. 235–248. (CSIRO Publishing: Clayton, Vic.)
- Ball D, Williams J, Christian M (2018c) The 4C's approach to island management. In 'Australian Island Arks: conservation, management and opportunities'. (Eds D Moro, D Ball, SL Bryant) pp. 61–70. (CSIRO Publishing: Clayton, Vic.)
- Baxter P, Rogers A, Kark S (2021) Kark Group's "Island Occurrences of Threatened Australian Species (IOTAS)" database, October 2021. Data Collection. The University of Queensland.
- Bock E, Hudson L, Isaac J, Vernes T, Muir B, Whap T, Dulfer-Hyams M, Mclean M, Fell D (2022) Safeguarding our sacred islands: Traditional Owner-led Sea Country governance, planning and management in Australia. *Pacific Conservation Biology* 28, 315–329. doi:10.1071/PC21013
- Bryant SL, Copley PB (2018) Partnerships for island conservation: it's all about people. In 'Australian Island Arks: conservation, management and opportunities'. (Eds D Moro, D Ball, SL Bryant) pp. 177–190. (CSIRO Publishing: Clayton, Vic.)
- Bryant SL, Harris S (2020) Overview of Tasmania's offshore islands and their role in nature conservation. *Papers and Proceedings of the Royal Society of Tasmania* 154, 83–106. doi:10.26749/rstpp.154.83
- Bryant SL, Bower H, Bower S, Copley PB, Dann P, Matassoni D, Sprod D, Sutherland DR (2022) Island partnerships building collective impact. *Pacific Conservation Biology* 28, 303–314. doi:10.1071/PC21021
- Burbidge AA, Manly BFJ (2002) Mammal extinctions on Australian islands: causes and conservation implications. *Journal of Biogeography* 29, 465–473. doi:10.1046/j.1365-2699.2002.00699.x
- Burbidge AA, Legge S, Woinarski JCZ (2018) Australian islands as 'arks' for biodiversity. In 'Australian Island Arks: conservation, management and opportunities'. (Eds D Moro, D Ball, SL Bryant) pp. 99–114. (CSIRO Publishing: Clayton, Vic.)
- Campbell J (2009) Islandness: vulnerability and resilience in Oceania. *Shima: The International Journal of Research into Island Cultures* 3, 85–97.
- Cheer K, Lui FW, Shibasaki S, Harvey A, Grainger D, Tsey K (2020) The case for a Torres Strait Islander-driven, long-term research agenda for environment, health and wellbeing. *Australian and New Zealand Journal of Public Health* 44, 177–179. doi:10.1111/1753-6405.12979

- Clark G, Fischer M, Hunter C (2021) Australia state of the environment 2021: coasts, independent report to the Australian Government Minister for the Environment, Commonwealth of Australia, Canberra. doi:10.26194/AANZ-RF46.
- Conkling P (2007) On islanders and islandness. *Geographical Review* **97**, 191–201. doi:10.1111/j.1931-0846.2007.tb00398.x
- Coulthard S, Evans L, Turner R, Mills D, Foale S, Abernethy K, Hicks C, Monnereau I (2017) Exploring 'islandness' and the impacts of nature conservation through the lens of wellbeing. *Environmental Conservation* **44**, 298–309. doi:10.1017/S0376892917000273
- Cowen S, Rayner K, Sims C, Friend T, Knox F, Ottewell K, Gibson L (2020) Dirk Hartog Island National Park Ecological Restoration Project: Stage Two – Year Two Translocation and Monitoring Report. Department of Biodiversity, Conservation and Attractions, Perth.
- DAWE (2021) The Australian Government's Threatened Species Strategy 2021–2031. Department of Agriculture, Water and the Environment, Canberra.
- DAWE (2022) Threatened Species Strategy Action Plan 2021–2026. Department of Agriculture, Water and the Environment, Canberra.
- DoE&E (2021) CAPAD 2020. Available at <http://www.awe.gov.au/agriculture-land/land/nrs/science/capad>. [accessed 30 January 2022]
- Frankham R (1998) Inbreeding and extinction: island populations. *Conservation Biology* **12**, 665–675. doi:10.1046/j.1523-1739.1998.96456.x
- Galbraith M, Cooper H (2013) Tiritiri Matangi – an overview of 25 years of ecological restoration. *New Zealand Journal of Ecology* **37**, 258–260.
- Garnett S, Baker BG (2021) 'The Action Plan for Australian Birds 2020.' pp. 816. (CSIRO Publishing: Clayton, Vic.)
- Garnett S, Reside AE (2018) Managing islands in the context of climate change. In 'Australian Island Arks: conservation, management and opportunities'. (Eds D Moro, D Ball, SL Bryant) pp. 221–233. (CSIRO Publishing: Clayton, Vic.)
- GeoScience Australia (2004) 'Geodata topo 100K. Google Earth, 1:100,000 scale vector map data (DVD).' (Geoscience Australia: Canberra)
- Gillespie R, Bennett J (2017) Costs and benefits of rodent eradication on Lord Howe Island, Australia. *Ecological Economics* **140**, 215–224. doi:10.1016/j.ecolecon.2017.05.007
- Gould J, Smyth D, Rassip W, Rist P, Oxenham K (2021) Recognizing the contribution of Indigenous Protected Areas to marine protected area management in Australia. *Maritime Studies* **20**, 5–26. doi:10.1007/s40152-020-00212-z
- Grydehøj A, Hayward P (2014) Social and economic effects of spatial distribution in island communities: comparing the Isles of Scilly and Isle of Wight, UK. *Journal of Marine and Island Cultures* **3**, 9–19. doi:10.1016/j.imic.2014.03.002
- Grydehøj A, Nadarajah Y, Markussen U (2020) Islands of indigeneity: cultural distinction, indigenous territory and island spatiality. *Area* **52**, 14–22. doi:10.1111/area.12520
- Gynther I, Waller N, Leung LK-P (2016) Confirmation of the extinction of the Bramble Cay melomys *Melomys Rubicola* on Bramble Cay, Torres Strait: results and conclusions from a comprehensive survey in August–September 2014. Department of Environment and Heritage Protection, Brisbane.
- Heriot S, Asher J, Williams MR, Moro D (2019) The eradication of ungulates (sheep and goats) from Dirk Hartog Island, Shark Bay World Heritage Area, Australia. *Biological Invasions* **21**, 1789–1805. doi:10.1007/s10530-019-01937-7
- Kark S, Rogers A, Moro D (2022) Towards a national platform for Australia's islands. *Pacific Conservation Biology* **28**, 362–372. doi:10.1071/PC21062
- Larson S, Stoeckl N, Jarvis D, Addison J, Grainger D, Watkin Lui F, Walalakoo Aboriginal Corporation, Bunuba Dawangarri Aboriginal Corporation RNTBC, Ewamian Aboriginal Corporation RNTBC, Yanunijarra Aboriginal Corporation RNTBC (2020) Indigenous land and sea management programs (ILSMPs) enhance the wellbeing of Indigenous Australians. *International Journal of Environmental Research and Public Health* **17**, 125. doi:10.3390/ijerph17010125
- Lovett R, Prehn J, Williamson B, Maher B, Lee V, Bodkin-Andrews G, Walter M (2020) Knowledge and power: the tale of Aboriginal and Torres Strait Islander data. *Australian Aboriginal Studies* (2), 3–7.
- Lunney D, Law B, Schulz M, Pennay M (2011) Turning the spotlight onto the conservation of Australian bats and the extinction of the Christmas Island Pipistrelle. In 'The biology and conservation of Australasian bats'. (Eds B Law, P Eby, D Lunney, L Lumsden) pp. 485–498. (Royal Zoological Society of New South Wales: Mosman)
- McLeod M, Dodds R, Butler R (2021) Introduction to special issue on Island tourism resilience. *Tourism Geographies: An International Journal of Tourism Space, Place and Environment* **23**, 361–370. doi:10.1080/14616688.2021.1898672
- Mitropoulou A, Spilanis L (2020) From insularity to islandness: the use of place branding to achieve sustainable island tourism. *International Journal of Islands Research* **1**, 31–41. doi:10.21427/5rtc-9p69
- Moro D, Ball D, Bryant SL (2018) Introduction: Australia's island arks. In 'Australian Island Arks: conservation, management and opportunities'. (Eds D Moro, D Ball, SL Bryant) pp. 1–10. (CSIRO Publishing: Clayton, Vic.)
- Morris K, Algar D, Armstrong D, Ball D, Bryant SL, Cauty P, Copley PB, Dickman C, Fisher A, Gillespie G, Johnston M, Kelly D (2018) Values of islands across Australia. In 'Australian Island Arks: conservation, management and opportunities'. (Eds D Moro, D Ball, SL Bryant) pp. 11–44. (CSIRO Publishing: Clayton, Vic.)
- Pickrell J (2019) Rat eradication launched on populated island: 'landmark' Lord Howe Island project alarms some residents but will likely save local fauna. *Science* **364**, 915–916. doi:10.1126/science.364.6444.915
- Rist L, Campbell BM, Frost P (2013) Adaptive management: where are we now? *Environmental Conservation* **40**, 5–18. doi:10.1017/S0376892912000240
- Rist P, Rassip W, Yunupingu D, Wearne J, Gould J, Dulfer-Hyams M, Bock E, Smyth D (2019) Indigenous protected areas in Sea Country: Indigenous-driven collaborative marine protected areas in Australia. *Aquatic Conservation: Marine and Freshwater Ecosystems* **29**, 138–151. doi:10.1002/aqc.3052
- Robinson T (2020) The 2019 to 2020 fire season in Australia: a Kangaroo Island perspective. *The South Australian Naturalist* **94**, 7–37. doi:10.3316/informit.647309440136320
- Robinson SA, Copson GR (2014) Eradication of cats (*Felis catus*) from subantarctic Macquarie Island. *Ecological Management & Restoration* **15**, 34–40. doi:10.1111/emr.12073
- Russell JC, Broome KG (2016) Fifty years of rodent eradications in New Zealand: another decade of advances. *New Zealand Journal of Ecology* **40**, 197–204. doi:10.20417/nzjecol.40.22
- Saunders A, Towns D, Broome K, Horn S, Neureuter S, Conomos K, Corson P, Galbraith M, Gilbert J, Ogden J, Waterhouse K (2022) Social dimensions in island restoration: some case studies from Aotearoa – New Zealand. *Pacific Conservation Biology* **28**, 341–354. doi:10.1071/PC21036
- SPAW-RAC (2022) 2019-2020 Activity Report Operations and budget. Available at https://www.car-spaw-rac.org/IMG/pdf/spaw-rac_activityreport_2019-2020.pdf. [accessed 12 June 2022]
- Springer K (2018) Island pest management. In 'Australian Island Arks: conservation, management and opportunities'. (Eds D Moro, D Ball, SL Bryant) pp. 85–98. (CSIRO Publishing: Clayton, Vic.)
- State of Queensland (2021) Raine Island National Park (Scientific) Management Statement. Prepared by the Wuthathi People, Meriam Nation People and Queensland Parks and Wildlife Service and Partnerships (QPWS&P), Department of Environment and Science, Qld.
- Szabo S, Smyth D (2003) Indigenous protected areas in Australia. In 'Innovative governance: Indigenous peoples, local communities and protected areas'. (Eds H Jaireth, D Smyth) pp. 145–164. (Ane Books: New Delhi)
- Thackway R, Cresswell ID (Eds) (1995) 'An Interim Biogeographic Regionalisation for Australia: a framework for establishing the national system of reserves, version 4.0.' (Australian Nature Conservation Agency: Canberra)
- Torres Strait Invasive Species Advisory Group (2015) Torres Strait Regional Biosecurity Plan 2018-2023. Report prepared by the Land and Sea Management Unit, Torres Strait Regional Authority, Australia.
- Torres Strait Regional Authority (2016) Land and sea management strategy for Torres Strait 2016-2036. Report prepared by the Land and Sea Management Unit, Torres Strait Regional Authority, Australia.

- Towns D, Broome K, Saunders A (2018) Ecological restoration on New Zealand islands: a history of shifting scales and paradigms. In 'Australian Island Arks: conservation, management and opportunities'. (Eds D Moro, D Ball, SL Bryant) pp. 205–220. (CSIRO Publishing: Clayton, Vic.)
- UNEP (2022) Our regional platforms. Available at <https://www.unep.org/cep/who-we-are/our-regional-platforms>. [accessed 12 June 2022]
- Waltham NJ, Schaffer J, Buist J, Geyle M, Toby D (2018) Working with land and sea rangers to tackle tropical wetland restoration and conservation on the north-western islands, Torres Straits, Australia. *Wetlands Ecology and Management* **26**, 1143–1156. doi:10.1007/s11273-018-9637-4
- Wetzel FT, Kissling WD, Beissmann H, Penn DJ (2012) Future climate change driven sea-level rise: secondary consequences from human displacement for island biodiversity. *Global Change Biology* **18**, 2707–2719. doi:10.1111/j.1365-2486.2012.02736.x
- Woinarski JCZ, Ball D, Burbidge AA (2014) Islands. In 'Ten commitments revisited: securing Australia's future environment'. (Eds D Lindenmayer, S Dovers, S Morton) pp. 117–128. (CSIRO Publishing: Melbourne)
- Woinarski JCZ, Burbidge AA, Harrison PL (2015) Ongoing unravelling of a continental fauna: decline and extinction of Australian mammals since European settlement. *Proceedings of the National Academy of Sciences of the United States of America* **112**, 4531–4540. doi:10.1073/pnas.1417301112
- Woinarski JCZ, Burbidge AA, Reside AE (2018) Enhancing island conservation outcomes: the policy and legal context, need, and options. In 'Australian Island Arks: conservation, management and opportunities'. (Eds D Moro, D Ball, SL Bryant) pp. 45–60. (CSIRO Publishing: Clayton, Vic.)

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