Resilient Landscapes Hub 2022 Annual Progress Report – Attachment A

Project number/ID	Project name/title	Project summary	Project leader	Lead organisation	Approved funding					Start date	Completion date	Status	Outputs
					NESP funding $	Other cash contributions $	Other in-kind contributions $	Total other contributions $	Total budget $				
1.1	Solutions science for resilient landscapes	Environmental research has increased awareness of the threats to Australia's biodiversity and the urgent need to address them, but surprisingly little research has focused on solutions. The Resilient Landscapes Hub will adopt a user-driven, solutions-focused, co-research model aimed at strengthening and restoring resilience in Australia's landscapes. This project will support the development and implementation of the 'solutions science' framework under Research Plan 2021 (RP2021). It will also identify a suite of projects and activities to evaluate and iteratively improve the framework and build capacity among researchers, research users and funders to foster the solutions-science approach.	Professor Michael Douglas	The University of Western Australia	200,000	33,333	166,667	200,000	**400,000**	1/07/2021	31/12/2026	Current	Solutions science for resilient landscapes (start-up webpage)
1.2	Strengthening resilience to threatening processes and extreme events	Most terrestrial and freshwater ecosystems have been impacted by a common set of threatening processes. This project will establish the foundation for the hub's research on building resilience to threatening processes such as priority environmental weeds, invasive animals and diseases, extreme events such as bushfires, floods and droughts, and hydrological alterations such as water extraction. The project will also consider landscape-scale interactions among threatening processes. This project will identify prospective research projects based on targeted scoping reviews, workshops with research users and other consultation. Outputs include reviews and a set of priority, co-designed project proposals for submission in subsequent research plans.	Associate Professor Samantha Setterfield	The University of Western Australia	200,000	33,333	166,667	200,000	**400,000**	1/07/2021	31/12/2026	Current	Strengthening resilience to threateneing processes and extreme events (start-up webpage) A digital futures roadmap for northern Australia's Indigenous land and sea managers (report)
1.3	Restoring and recovering landscape resilience	Innovative, practical and cost-effective approaches are required to restore and recover resilience for landscapes and species. This project will establish the foundation for the hub's research on practical solutions for landscape restoration and species recovery for terrestrial and freshwater species and ecosystems. This will include identifying opportunities where landscape restoration and recovery can support economic recovery and community prosperity, particularly in regional Australia. This project will identify prospective research projects based on workshops with research users and consultation, and will support co-design with researchers and research users. Outputs include a set of priority co-designed project proposals for subsequent research plans.	Professor Mark Kennard	Griffith University	150,000	25,000	125,000	150,000	**300,000**	1/07/2021	31/12/2026	Current	Restoration and recovery for resilient landscapes (start-up webpage)
1.4	Socioeconomic insights for resilient landscapes	Many challenges for resilient landscapes are attributable to people – but people are an essential part of the solutions. Good data and information are necessary but not sufficient to enhance and restore resilience. Outcomes also depend on social and economic values, norms and behaviours. This project will establish the foundation for the hub's research on (1) evaluating, (2) planning and (3) implementing environmental management strategies/policies/plans and actions for resilient landscapes. It will identify prospective research projects and support co-design with researchers and research users. Outputs include reviews and a set of priority co-designed project proposals for submission in subsequent research plans.	Professor Natalie Stoeckl	University of Tasmania	800,000	133,333	666,667	800,000	**1,600,000**	1/07/2021	31/12/2026	Current	Socioeconomic insights for resilient landscapes (start-up webpage) Integrated data requirements for natural resource management (report)
1.5	Monitoring resilient landscapes	Monitoring of environmental condition and trend provides a critical underpinning to policy and operational decision-making. Monitoring has historically required high input by trained personnel, making it costly and therefore highly targeted. Emerging technologies are increasing opportunities for remote or passive monitoring and recruiting non-specialist input including citizen science. This project will identify prospective research projects based on targeted scoping reviews and workshops with research users and other consultation, and will support the co-design process with researchers and research	Dr Chris Chilcott	CSIRO	150,000	25,000	125,000	150,000	**300,000**	1/07/2021	31/12/2026	Current	Monitoring resilient landscapes (start-up webpage) Indigenous digital women rangers (video)

		users. Outputs include reviews and a set of priority co-designed project proposals for submission in subsequent research plans.											
1.6	Indigenous knowledge and managing the Indigenous estate	This project will bringing together Indigenous knowledge, values and expertise with western scientific knowledge for better planning, prioritisation and evaluation of research actions to enhance the stewardship of the Indigenous estate and adjoining lands. The project will fulfil two broad objectives: (1) establish the foundation for research that delivers solutions for managing the Indigenous estate and (2) mobilise Indigenous knowledge to better understand, manage and conserve Australia's environment. Through participatory research practice – primarily with Indigenous Australians – this project will identify a suite of prospective projects to be co-designed for co-implementation by Indigenous and non-Indigenous researchers in subsequent research plans.	Professor Stephen van Leeuwen	Curtin University	200,000	33,333	166,667	200,000	**400,000**	1/07/2021	31/12/2026	Current	Indigenous knowledge and managing the Indigenous estate (start-up webpage)
1.7	Cross-cutting initiative lead – Threatened and migratory species and threatened ecological communities	This project will provide the research foundation for the 'threatened and migratory species and threatened ecological communities' cross-cutting theme to support policy development, program management and regulatory processes to protect Australia's environmental assets in terrestrial, Ramsar and marine environments. It will also facilitate the Resilient Landscapes Hub's contribution to the cross-cutting themes of the other 3 hubs. It will identify prospective research projects through scoping, reviews and workshops and will support the co-design process with research users and researchers. Outputs include a review and priority co-designed project proposals for submission in subsequent research plans of all four hubs and an overall research plan for this cross-cutting theme.	Professor Helene Marsh	James Cook University	300,000	50,000	250,000	300,000	**600,000**	1/07/2021	31/12/2026	Current	Cross-cutting initiative research (start-up webpage)
1.8	Queensland threatened lizard survey	Threatened species of lizards are among native fauna and flora receiving immediate emerging priority funding support from the National Environmental Science Program (NESP). Bushfires, invasive species and loss of habitat have contributed to a decline in some species of snakes and lizards. This project will provide funding to Monash University to support conservation efforts to help reptiles struggling to adapt to changing environmental conditions. This project secured funding as an emerging priorities project under the first phase of NESP. It will now be undertaken by the Resilient Landscapes Hub. The project will conduct fieldwork that surveys sites with historic records, and new potential sites and surrounding habitats. The project will estimate population distribution and abundance; and assess key threats, for a select group of Qld threatened reptile species. The research builds on the findings of a comprehensive review of the conservation status of Australian lizards and snakes carried out in 2017 – Lizard and snake action plan 2019.	Dr David Chapple	Monash University	83,000	—	—	—	**83,000**	1/07/2021	30/6/2023	Current	Queensland threatened lizard survey (start-up webpage)
2.1	Assessing risks to the environment from water-resource development in northern Australia, using north Queensland as a case study	To ensure biodiversity is protected, iIndividual developments in northern Australia are currently assessed under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) EPBC Act and other state planning legislation to ensure biodiversity is protected. However, there is a need to take a broader regional approach to assessing risks from cumulative impacts of multiple developments. This project will use the western Cape York Peninsula and /south-eastern Gulf of Carpentaria region in north Queensland as a case study to examine existing risk- assessment frameworks for water- resource development. The project will collate information on , and data on environmental and cultural values for waterways in fromin thenorth Queensland and will synthesise potential environmental impacts on freshwater species from across northern Australia western Cape York Peninsula /southeast Gulf of Carpentaria region. It will develop a pathway to improveing community engagement, and identify knowledge gaps to guide National Environmental Science Program (NESP) research into improve outcomes for environmental and cultural values. The project willould also contribute to integrated planning/assessment work within the Australian Department of Agriculture, Water and the Environment (DAWE) North Queenslanld Assessments contract project (CI: A. Dale).	Michele Burford	Griffith University	299,996	44,399	428,793	473,192	**773,188**	1/05/2022	30/6/2024	Current	Assessing risks to the environment from water-resource development in northern Australia, using north Queensland as a case study (start-up webpage)
2.2	Best practice management of feral cats and red foxes	This project will utilise facilitated expert workshops to identify: 1) best-practice management methods for invasive mesopredators, 2) key knowledge gaps that require further research to inform best-practice management. This information will support practitioners to improve real-world management outcomes and provide clear direction for research on invasive mesopredator management in Australia.	Guy Ballard	University of New England	194,504	36,428	158,076	194,504	**389,008**	1/07/2022	31/12/2026	Current	Best practice management of feral cats and red foxes (start-up webpage) Current and emerging feral cat management practices in Australia (report)

2.3	Using integrated data analysis to assess regional transferability	This project will help decision-makers determine the extent to which research that is undertaken in one region is transferable to another. It will also help identify areas that are most/least suited to different regional planning approaches. First, it will add climate and threatened species-relevant data to an existing integrated dataset. Second, it will analyse the data to identify (a) groups of regions that share 'similar' social, economic and biophysical characteristics and/or regions that are 'similar' to particular locations (e.g. priority places, protected areas) and (b) regions that have characteristics most suited to particular planning approaches (that focus on conservation/ecological systems).	Vanessa Adams	University of Tasmania	139,984	23,000	116,984	139,984	**279,968**	1/07/2022	31/3/2023	Current	Using integrated data analysis to assess regional transferability (start-up webpage)
2.4	National overview of monitoring framework/tools for Ramsar sites	One of Australia's key obligations under the Ramsar Convention is to maintain the ecological character of its internationally listed Ramsar wetlands, with these responsibilities shared by the Australian Government in partnership with state and territory governments and non-government site managers. Australia's 66 Ramsar wetlands cover more than 8.3 million hectares and exhibit a range of biophysical and ecological characteristics (DAWE, 2022). Each Ramsar wetland is essentially unique in the context of spatial and temporal pressures on ecological character. Appropriate monitoring, using context-specific indicators, is key to understanding changes in condition and ecological character of Ramsar sites in response to natural and anthropogenic disturbances. A well-designed monitoring program can provide critical information to enable site managers to adaptively manage and assess the effectiveness of management interventions and actions to restore and improve condition. Given the specific spatial and temporal context of each Ramsar wetland, this project will develop a better understanding of the monitoring frameworks appropriate for use at Ramsar sites and identify current knowledge gaps to guide research and development of tools to build capacity to monitor and manage Ramsar wetlands.	Fran Sheldon	Griffith University	176,446	30,087	36,498	66,585	**243,031**	1/05/2022	30/6/2023	Current	National overview of monitoring framework/tools for Ramsar sites (start-up webpage)
2.5	Addressing Kakadu's strategic research needs	The Indigenous-owned lands of Kakadu National Park are World Heritage-listed and globally significant. The natural and cultural values of Kakadu are at risk from a range of threats that will intensify over time. To manage these threats, there is a pressing need to develop a Kakadu research strategy. This project will deliver a research strategy that will provide guidance on both *what* research needs to be done and *how* it should be conducted in Kakadu. The project will also provide the foundation for a co-designed program of research in which hubs of the National Environmental Science Program (NESP) and their cross-cutting initiatives address Kakadu's research priorities.	Michael Douglas	University of Western Australia	300,000	48,000	400,000	448,000	**748,000**	1/06/2022	31/12/2023	Current	Addressing Kakadu's strategic research needs (start-up webpage)
2.6	Protecting threatened species in safe havens	This project will assess the current safe-haven network, which is designed to protect predator-susceptible species, especially those that are threatened. Currently, safe havens are generally designed to protect mammals from introduced carnivores, such as foxes and feral cats, and use either fenced areas or islands from which predators have been removed. There is a need to develop a list that identifies other predator-susceptible, threatened species that are currently not represented in safe havens. Such a list will assist with the prioritisation of resources to support the expansion of species in safe havens. This project will update the status of the network and identify additional species that could potentially be protected in safe havens. These species may be expanded from just mammals to, for example, reptiles and ground-dwelling birds.	Matt Hayward	University of Newcastle	43,000	7,167	11,555	18,722	**61,722**	1/7/2022	31/12/2023	43,000	Protecting threatened species in safe havens (start-up webpage)
2.7	Research to support the management of priority desert threatened species	This project aims to support Indigenous rangers to reverse the trajectories of 3 priority desert species – the bilby, great desert skink (Tjakura) and night parrot. The National Environmental Science Program (NESP) Resilient Landscapes Hub will provide scientific support to desert ranger groups through co-development of standardised monitoring techniques for these species and co-design of research projects that lead to improved management of introduced predators and fire to protect threatened species. All programs will use a 2-way science approach that integrates local Indigenous knowledge with the latest technologies to develop efficient, effective and user-friendly monitoring techniques and threat-management programs.	Rachel Paltridge	Indigenous Desert Alliance	1,150,000	25,000	1,274,000	1,299,000	**2,449,000**	1/7/2021	31/12/2026	Current	Research to support the management of priority desert threatened species (start-up webpage)