

Participation for protection: how collaboration between local communities, government agencies, and researchers can protect native species from invasive species

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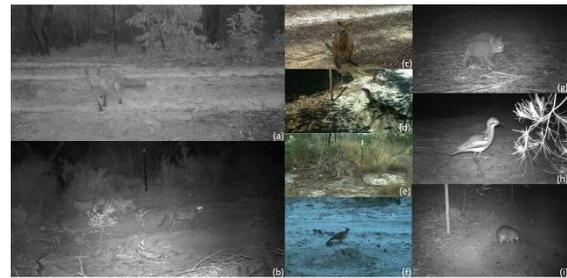
Australia has a rich cultural background with a strong connection to its unique fauna. Unfortunately, its native fauna is threatened by climate change and invasive species, such as red foxes and feral cats. Since their arrival from Europe early in the 19th century, these two species have wreaked havoc on native wildlife in almost every corner of Australia, including its many islands.

Local managers have tried to control foxes and feral cats to protect the continent's unique terrestrial fauna. However, economic, ecological and social challenges make managing these species on inhabited islands difficult, due to high costs, widespread ecological impacts, and social concerns, such as fear of water supply contamination and risks to pets and children from poisoned baits. Our research demonstrates an approach to address the multidimensional challenges of invasive species management. We propose a six-step framework to include local ecological, economic, and social knowledge to select the best management strategies to control the impacts of foxes and feral cats on Minjerribah, an island in Southeast Queensland.

Plans to control invasive species on inhabited islands must account for local ecological conditions, budgetary constraints, and social perspectives. Simply put, a "one size fits all" approach will not work in the long-term. Our paper shows that under current local conditions, a high intensity control plan to eradicate red foxes is the best management option for meeting conservation objectives on Minjerribah. The preference for this strategy can be explained by: 1) the general perception that fox ecology is better understood; 2) familiarity with current control measures, and 3) wider political and community support, as foxes are not considered companion animals (like cats). However, more research is needed regarding alternative management strategies to

jointly control the impacts of feral cats and foxes, as previous research has shown that joint-management is the most effective approach to control invasive species populations.

Modern conservation should account for multi-dimensional and often contesting perspectives. Failing to set clear objectives and include local stakeholders through a transparent process could derail the success of conservation interventions in the long-term.



Camera trap images of invasive, native, and culturally relevant species of Minjerribah-North Stradbroke Island, Queensland, Australia (2014-2016).

*Images show invasive species (left panes): (a) European red foxes (*Vulpes Vulpes*) and (b) feral cat (*Felis catus*) and its prey. Centre and right panes show some of the native and culturally relevant species impacted by invasive species: (c) Swamp wallaby with her "joey" in the pouch (*Wallabia bicolor*), (d) Lace monitor (*Varanus varius*), (e) Eastern grey kangaroo (*Macropus giganteus*), (f) Common bronzewing (*Phaps chalcoptera*), (g) Koala (*Phascolarctos cinereus*), (h) Bush stone curlew (*Burhinus grallarius*), and (i) Northern brown bandicoot (*Isoodon macrourus*).*

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