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Editorial

Why I have come to care about conservation and restoration in peopled landscapes

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For more than two decades my students, collaborators, and I have conducted field-based research aimed at conserving threatened species in some of the most remote (and incredibly beautiful!) places on the planet. Despite their remoteness, these sites have not been spared the ill effects of human activities – and anthropogenic threats are the ultimate causes of species declines in every instance (e.g. Wittmer *et al.* 2013). Examples include population declines of woodland caribou (*Rangifer tarandus caribou*) in British Columbia, Canada, resulting from apparent competition caused by changes to the predator–prey system following large-scale logging of old-growth forests; huemul deer (*Hippocamelus bisulcus*) in Chilean Patagonia, that were historically affected by overexploitation and habitat loss, but are now failing to recover at least in some areas due to apparent competition as well; and entire tropical vertebrate communities containing multiple threatened species, such as clouded leopards (*Neofelis diardi*), in Gunung Palung National Park, West Kalimantan, Borneo, whose habitat outside the National Park is rapidly disappearing due to anthropogenic land use changes. Like so many other conservation biologists, I am driven by the desire to conduct meaningful research that informs conservation management and may ultimately lead to the recovery of endangered species. But I find it uncomfortably difficult to identify tangible successes. Worldwide, human activities continue to cause population declines and species extinctions, perhaps even at increasing rates (Dirzo *et al.* 2014).

As I am writing this Editorial, I am on Codfish Island (Whenua Hou). Codfish Island is one of the many off-shore island reserves established and managed by the New Zealand Department of Conservation (DOC) to protect the country's threatened biodiversity. The invasive mammalian predators that wreaked havoc on the biodiversity of New Zealand's mainland were confirmed extirpated on Codfish Island in 2000, and since then the island has been a sanctuary including for many of New Zealand's most iconic species. For example, Codfish Island is home to a large proportion of the world's ~150 remaining kākāpō (*Strigops habroptilus*), a critically endangered, flightless parrot. But the island is precious in many other ways. Glancing out the window of our field station, I am treated to a glimpse of endemic Codfish Island fernbirds (*Megalurus punctatus wilsoni*) scurrying mouse-like through the dense vegetation. Just outside, I have stumbled across a snares snipe (*Coenocorypha huegeli*), introduced to Codfish Island for conservation purposes, and playfully pretended for 2 long minutes that freezing upon being sighted by a 'mammalian predator' is indeed an effective antipredator strategy. In the evenings I see Campbell Island teals (*Anas nesiotis*) along the beach. Yesterday night I heard the first call of the sooty shearwater (*Ardenna grisea*) just returning from its wintering grounds in Alaska. Later in the year, an estimated 500 000 breeding pairs will return every night to the island to attend to their nests and then chicks. The diversity of birds here is simply amazing. I am thoroughly enjoying every minute of my stay on this special island – and acutely aware of the privilege of being able to see firsthand a sight that few New Zealanders will ever enjoy.

As crucial as Codfish Island is to the survival of kākāpō, it is even more important to a far less well known endemic: the Whenua Hou diving petrel (*Pelecanoides whenuahouensis*). This species is new to science. It was described in 2018 by my PhD student Johannes Fischer (Fischer *et al.* 2018) and Codfish Island is home to their last remaining breeding colony. These small seabirds burrow their nests into a single, fragile sand dune on the island that is roughly 900 m long. Despite the eradication in 2000 of the invasive mammalian predators thought to be responsible for the species' extirpation across New Zealand and its territories, the population is recovering, if at all, extremely slowly. Indeed, there are currently fewer than 250 breeding individuals of this critically endangered species left. The reasons the population is so slow to recover are the topic of Johannes's ongoing PhD research.

Despite their dire situation, and contrary to the many other endangered species I have worked on, I like to think that Whenua Hou diving petrels at least have a fighting chance. The last remaining population inhabits one of the best managed nature reserves in the world, where access is severely restricted and there is a long history of effective management interventions. There is a collaborative team of scientists and managers committed to their conservation. Local iwi treasure the birds as *taonga* (treasure). If we are able to identify the factors responsible for their slow recovery, I see no reason why we shouldn't be able to implement conservation strategies that will permit the population to return to a viable size. In my opinion, most other endangered species face worse odds. Yet places like Codfish Island are extremely rare and fewer and fewer of my graduate students will have the opportunity to work in remote areas that contain relatively intact ecological communities. Perhaps most

importantly, even if Whenua Hou diving petrels recover on Codfish Island, the general public will not be able to enjoy them due to the inaccessibility of island they occur on.

Over the course of my professional career, I have become increasingly aware that we need new approaches that move conservation and restoration into peopled landscapes if we want to maintain even just a fraction of the current biodiversity. This process has been a somewhat reluctant and definitely very slow process – after all, one of the reasons I chose a career in conservation biology is my love for nature and the outdoors – and has been influenced by my moving to Wellington, New Zealand, in 2010. Wellington is a unique place in that it is an urban environment where native bird species have been and continue being restored. Restoration is centred around Zealandia, a predator-proof fenced reserve in the heart of the city. At least 10 bird species have already been successfully reintroduced into Zealandia, many of which have now spilled out of the reserve and into people's gardens. So when I look out of my living room window, a mere 1 km from Zealandia's fence, I can see up 7 endangered kākā (*Nestor meridionalis*) in the flowering kowhai tree (*Sophora* spp.). A North Island Saddleback (*Philesturnus carunculatus*) has complained loudly when I rode past closely on my mountain bike. Most of the time when I hike in what seems like intact forests outside of Wellington, I do not get to see or hear native birds at all.

Peopled landscapes offer other exciting opportunities for research and conservation that are less suitable to more traditional conservation projects, including for a new cohort of graduate students. And I wanted to explore and learn more about these opportunities. For example, there are opportunities to make use of novel technologies, some not yet invented, to use social media in ways unimaginable for someone like me who doesn't even have a Facebook account, and to tap into human knowledge, experience, potential, and willingness to get involved as citizen scientists (e.g. Anton *et al.* 2018). These opportunities will enable moving conservation into peopled landscapes where biodiversity can be restored or maintained and be seen and enjoyed by everyone, not just researchers with special permits. And by learning about biodiversity, we as a society will hopefully value it more. I am thus convinced that novel conservation approaches will play important roles for decades to come … yet we have only just begun research into conservation in peopled landscapes.

So when I was offered the opportunity to edit a special issue on 'Conservation and restoration in peopled landscapes in Oceania', I gladly agreed. This special issue presents seven original contributions (Gruber *et al.* 2018; Ireland *et al.* 2018; Linklater *et al.* 2018; Pedler *et al.* 2018; Russell and Stanley 2018; Shanahan *et al.* 2018; van Heezik and Seddon 2018) and a synthesis (Wittmer *et al.* 2018) that explore three important aspects associated with conservation in peopled landscapes in Oceania: conservation in densely populated and highly modified urban areas, challenges for invasive species control in urban areas, and stakeholder involvement including traditional landowners for conservation actions in protected areas. I hope you enjoy reading them.

Conflicts of interest

The author declares no conflicts of interest.

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References

Anton, V., Hartley, S., Geldenhuis, A., and Wittmer, H. U. (2018). Monitoring the mammalian fauna of urban areas using remote cameras and citizen science. *Journal of Urban Ecology* **4**, juy002. doi:10.1093/JUE/JUY002

Dirzo, R., Young, H. S., Galetti, M., Ceballos, G., Isaac, N. J. B., and Collen, B. (2014). Defaunation in the Anthropocene. *Science* **345**, 401–406. doi:10.1126/SCIENCE.1251817

Fischer, J. H., Debski, I., Miskelly, C. M., Bost, C. A., Fromant, A., Tennyson, A. J. D., Tessler, J., Cole, R., Hiscock, J. H., Taylor, G. A., and Wittmer, H. U. (2018). Analyses of phenotypic differentiations among South Georgian Diving Petrel (*Pelecanoides georgicus*) populations reveal an undescribed and highly endangered species from New Zealand. *PLoS One* **13**(6), e0197766. doi:10.1371/JOURNAL.PONE.0197766

Gruber, M. A. M., Pierce, R. J., Burne, A. R., Naseri-Sale, L., and Lester, P. J. (2018). Using community engagement and biodiversity surveys to inform decisions to control invasive species: a case study of yellow crazy ants in Atafu, Tokelau. *Pacific Conservation Biology* **24**, 379–387. doi:10.1071/PC17055

Ireland, L., Zabek, M., Galindes-Silva, C., Weir, S., West, R., Olds, L., Backhouse, B., Copley, P., and Read, J. (2018). More than just animals: opportunities and costs of reintroducing threatened black-footed rock-wallabies to remote Indigenous land. *Pacific Conservation Biology* **24**, 388–396. doi:10.1071/PC17059

Linklater, W., Chapman, H., Gregor, A., Calder-Flynn, R., Gouws, J., Quigan, O., Rustandi, A., Brian-Molitaviti, J., and Ying, Y. (2018). Initiating a conflict with wildlife – the reintroduction and feeding of kākā, Wellington City, New Zealand. *Pacific Conservation Biology* **24**, 360–370. doi:10.1071/PC18005

Pedler, R. D., West, R. S., Read, J. L., Moseby, K. E., Letnic, M., Keith, D. A., Leggett, K. D., Ryall, S. R., and Kingsford, R. T. (2018). Conservation challenges and benefits of multispecies reintroductions to a national park – a case study from New South Wales, Australia. *Pacific Conservation Biology* **24**, 397–408. doi:10.1071/PC17058

Russell, J. C., and Stanley, M. C. (2018). An overview of introduced predator-management in inhabited landscapes. *Pacific Conservation Biology* **24**, 371–378. doi:10.1071/PC18013

Shanahan, D. F., Ledington, J. E., and Maseyk, F. J. F. (2018). Motivations for conservation action in peopled landscapes. *Pacific Conservation Biology* **24**, 341–348. doi:10.1071/PC18010

van Heezik, Y., and Seddon, P. J. (2018). Animal reintroductions in peopled landscapes: moving towards urban-based species restorations in New Zealand. *Pacific Conservation Biology* **24**, 349–359. doi:10.1071/PC18026

Wittmer, H. U., Serrouya, R., Elbroch, L. M., and Marshall, A. J. (2013). Conservation strategies for species affected by apparent competition. *Conservation Biology* **27**, 254–260. doi:10.1111/COBI.12005

Wittmer, H. U., Anton, V., Gruber, M. A. M., Ireland, L., Linklater, W., Russell, J. C., and Shanahan, D. F. (2018). Conservation and restoration in peopled landscapes in Oceania: opportunities and challenges. *Pacific Conservation Biology* **24**, 409–416. doi:10.1071/PC18027