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Nicholas Herriman La Trobe University

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Cover Page Footnote

I acknowledge the Watha Wurrung, traditional owners of Limeburners Bay. Trevor Hogan introduced me to Indigenous conservation. Project coordinator Danny Reddan patiently inducted and assisted me in the Limeburners Link projects. The trainees allowed me to participate. Julie Andrews, Sophie Creighton, Carole Herriman, Ray Madden, John Morton, Nic Peterson, Nick Smith, David Trigger, and Yunita Winarto challenged and encouraged my analysis. I am deeply grateful to all these people.

CRIB NOTES

Management of Biodiversity: Creating Conceptual Space for Indigenous Conservation



NICHOLAS HERRIMAN

ABSTRACT

Indigenous people have, in recent decades, become increasingly involved in environmental conservation. Notwithstanding, some social science research has critiqued as problematic or untenable ideas (notably "Indigeneity" and "conservation") that putatively underpin Indigenous conservation. But does the critique accurately characterize actual Indigenous conservation projects? And can we create conceptual space for Indigenous conservation? Based on experience participating in and observing Indigenous conservation projects, it appears that, partly by emphasizing human management of biodiversity, the projects avoided pitfalls identified by the critique. Future social science analysis might remain relevant by addressing the idea of management of biodiversity.

INTRODUCTION

Environmental conservation projects are increasingly incorporating Indigenous peoples (Vincent and Neale 2016). The advantages seem twofold: improve Indigenous lives while simultaneously restoring damaged environments (Cochran 1998:144). Notwithstanding, social science analysis has critiqued ideas such as Indigenous, conservation, wilderness, and redemption. These ideas apparently provide the conceptual basis for Indigenous conservation (see Dove 2007). Granted, critiquing these ideas offers insight into current environmentalist discourse produced by environmental organizations, especially images and text in websites, pamphlets, and funding applications. But is the critique relevant to all Indigenous conservation practice?

Some conservation programs in Australia, collectively called Limeburners Link, appear to have avoided

the shortcomings raised by the social science critique. Limeburners Link incorporated Indigenous Australians (Aboriginal people) in southeast Australia. The everyday practice of Limeburners Link involved intense human management of biodiversity.

ENVIRONMENTALISM: PROTECTED AREAS AND CONSERVATION PROJECTS

Since the 1960s, environmentalist political parties, social movements, ideologies, states of being, modes of conduct, cultural production, and discourse have emerged in local and global contexts (Brosius 1999:280; Orlove and Brush 1996:329). These diverse phenomena are connected by a sense that climate change, pollution, "loss of biodiversity, and poor management of natural resources" have resulted from modernity and its (rapacious) exploitation of the environment (Smith 2011:2).



FIGURE 1. Sunshine breaking at Limeburners Link fieldsite.

Pertaining to this article, environmentalism embraced an existing commitment to protected areas (national parks, wildlife sanctuaries etc.) which dated back to late 1800s (Spence 1996). Environmentalism was also associated with a seeming innovation known as conservation projects. Conservation projects seek to restore or manage damaged habitats, such as abandoned mines and polluted waterways. As with Limeburner's Link, conservation projects have also taken place in protected areas.

Around the 1990s, a new environmentalist perspective began to see protected areas as detrimental to Indigenous peoples and to biodiversity. It was observed that states have removed Indigenous people from areas to create parks and reserves (Spence 1996). This Yellowstone model neglected the importance of local or Indigenous people in maintaining the environment of protected areas (Stevens 1997). Aside from the harm to Indigenous peoples, certain (often introduced) species thrived in protected areas to the exclusion of local species, thereby reducing biodiversity. From criticism of the Yellowstone model, a new paradigm emerged (Cochran 1998:143-144). Environmentalists now advocated the idea of allying with Indigenous people to conserve protected areas.

Accordingly, in Australia, for instance, Indigenous people have worked in conservation in a variety of roles. These include managing land—such as

heritage sites, Aboriginal land areas, and native title areas—over which Indigenous people hold certain rights in consequence of their Indigenous identity. Indigenous conservation work also incorporates rehabilitating areas affected by mining and other resource extraction; this usually occurs in tenements (land that miners rent from the government). Finally, as regards national parks, sanctuaries etc., cooperative management or joint management has incorporated Indigenous people as conservation managers. Aside from Indigenous employment and consequent well-being, this was supposed to control extraction of resources, promote ecotourism, and so on in such protected areas (Cohen 2017; Haynes 2009; Orlove and Brush 1996; Vincent and Neale 2016).

THEORETICAL PROBLEMS: ENVIRONMENTALISM, CONSERVATION, AND INDIGENEITY

Though billed as a solution to social and environmental problems (see Stevens 1997), social scientists nevertheless have critiqued ideas relating to Indigenous involvement in conservation projects in Australia and elsewhere. For brevity and clarity, I adopt the voice of the social science critique in the following paragraphs.

- 1. The environmentalist idea of conservation is problematic. From the 1970s, conservation focused on diminishing populations of iconic species, like elephants or seals (Trigger, Toussaint, and Mulcock 2010). Later, environmentalists' attention tended to move to larger ecosystems. Thus, what counts as conservation is historically contingent (Orlove and Brush 1996).
- 2. Involving Indigenous people in conservation can also be problematic. Who is labelled Indigenous (Murray Li 2000); on what grounds; and, to what ends (Cadena and Starn 2007; Comaroff and Comaroff 2009)? For instance, the concept Indigenous can be employed to exclude rights of others, even to the detriment of migrants, refugees, and other

- poor local people (Acciaioli 1990, 2009; Dove 2007).
- 3. The idea of a "natural connection between Indigenous peoples and the environment" (Brosius 1999:280) is romantic and potentially racist. It renders Indigenous people as primitives or ecologically noble savages in touch with the environment but out of touch with modern life (Orlove and Brush 1996:335). By contrast, Indigenous peoples may creatively engage in political and environmental issues in ways that may not easily accord with the Western concept of conservation (Dove 2007; Murray Li 2000).
- 4. The Indigenous knowledge idea has shortcomings. Environmentalists advocate drawing on Indigenous or traditional environmental knowledge (TEK) —or local ecological knowledge (LEK)—as a response to the scientific language of modernity. Granted, Indigenous knowledge might be more successful in managing fish stocks than management by state scientists. However, due to social dislocation, current generations of Indigenous people may have incomplete historical Indigenous knowledge. Sometimes knowledge deemed "Indigenous" has been influenced by other cultures. Even if purely Indigenous knowledge could be identified, this may have limited applicability to, for instance, new invasive species or current climate change. Furthermore, knowledge classified as Indigenous can become reified. Good, useful, and local knowledge is not necessarily Indigenous, but may be "heterogeneous, negotiated and hybrid" (Dove 2007).
- 5. Redemption through re-creating wilderness is debatable. Environmentalists extoll wilderness as a pristine or untouched habitats. They also claim that "ecosystems can exist in, or return to, a state free from disturbance from all human beings" (Orlove and Brush 1996, 335). The idea of wilderness overlooks that people are crucial in maintaining ecosystems (Smith 2011).

6. In settler societies, environmentalists seek to partially atone for the dispossession of Indigenous people by restoring a pristine environment (Smith 2011). In the White settler imagination, wilderness is linked with redemption. However, many introduced species are unlikely to be eradicated and so could be considered as part of the environment. Further, eradication may be undesirable; some introduced species are more established in Australia, for example, in than their place of origin, and they may also support certain vulnerable or endangered local species. Moreover, the idea of a single turning point of environmental destruction, namely the arrival of colonizers with accompanying species and pathogens, is untenable (Crosby 2015). Rather, colonization is an arbitrary point in a natural history comprising many substantial alterations over the millennia.

The above six points approximate the social science critique of the ideas underpinning Indigenous conservation projects. However, the critique only partially applied to the practice of Limeburners Link, which did not, for instance, focus on a single iconic species to restore a pristine wilderness untouched by humans, in order to redeem colonial history, but rather involved intensive human management of the environment. This suggests that people working in environmental conservations projects have adjusted their practice, indicating that the critique may require adjustment.

COLONIZATION AND BIODIVERSITY

The context of the Limeburners Link projects is colonization and reduction of biodiversity. Prior to colonization, the Australian state of Victoria may have been one of the most densely populated areas in Australia, with an estimated 30 distinct societies, including semi-permanent and permanent settlements. Smallpox may have decimated the population in the decades before permanent European settlements were established in 1834 and 1835. Within two decades of colonization, the

remaining Indigenous population of about 10,000 declined by 50-90% as people died of various causes or were killed by White settlers (Broome 2005:90-93).

Following this cataclysm, Indigenous ecological practices continued to break down. Crucial knowledge of environmental maintenance was lost to specific locales as people were effectively removed. Compounding this, Europeans intentionally introduced new species (sheep, cows, rabbits, wheat) and accidentally brought weeds, rats etc. Currently, an estimated 30 per cent of Victoria's native animals, and close to half of its plant species, are "already extinct or threatened with extinction", in what the Australian Conservation Fund (2009) calls an extinction crisis.



FIGURE 2. Sign explaining that Limeburners Bay belongs to wetlands protected under the Ramsar Convention.

LIMEBURNERS LINK

Limeburners Link attempted to address both Indigenous disadvantage and biodiversity loss in a location near the Victorian city of Geelong. Limeburners Lagoon State Nature Reserve is a wetlands created by a freshwater stream running into Limeburners Bay. Incorporating plains grasslands, mangrove shrubland and coastal saltmarsh, the area provides habitat for indigenous and endangered

animal and plant life. Areas of Limeburner's Bay are covered under the Ramsar Convention, which protects wetlands in various worldwide locations. The area comprises lands of the Indigenous Australian tribe, Watha Wurrung.



FIGURE 3. Sign explaining ecology of saltmarsh and mangroves.

The specific project goals were to conserve a small ecosystem and to provide training and education to generate Indigenous employment. The coordinator, Danny Reddan, represented Greening Australia, an environmental non-government organization that provided certification in Conservation and in Land Management to the Indigenous trainees. All Indigenous trainees lived in lower socio-economic areas around Geelong. Not all belonged to the Watha Wurrung tribe; some had moved from different parts of Victoria. The trainees had been recruited through Wathaurong Aboriginal Co-Operative, whose mandate includes providing services to



FIGURE 4. Limburners Link trainees.

Indigenous Australians in the greater Geelong area. On any given day, the number of Indigenous trainees attending varied. Additionally, there were several non-Indigenous volunteers, whom I joined on five occasions over 2010 and 2011. The numbers of volunteers also varied.

Shell Australia was a major financial contributor to the Limeburners Link project. In remote and resource-rich areas in Australia, Indigenous people negotiate with resource extraction companies around issues of heritage, native title, and environmental laws (O'Faircheallaigh 2008). However, in Limeburners Link, no direct benefits (such as special rights, access, or concessions) accrued to this petrochemical company. Although the involvement might thus be cynically dismissed as a public relations exercise, very little press exposure accrued to this company through Limburners Link. It is thus possible that a sense of corporate responsibility or triple bottom line motivated Shell.

In studying this instance of Indigenous involvement in environmental conservation, my method was to volunteer on five separate days. I participated (in weeding, training, lunch time kick of the football etc.) and observed (taking fieldnotes, keeping a diary, taking photographs). On several occasions, before and after such participant observation, I informally interviewed the coordinator, Danny Reddan, and took rough notes of what he said.

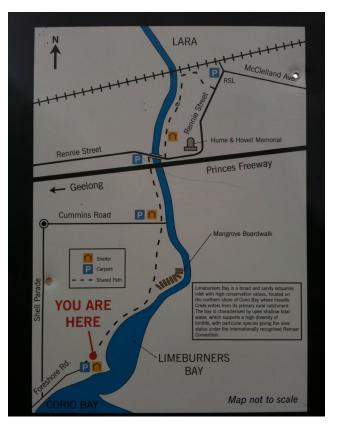


FIGURE 5. Sign depicting map of Limeburners Bay.

PRACTICE IN THE FIELD

The immediate focus of Limburners Link was protecting pockets of indigenous plant species found around Limeburners Bay. Known as 'remnant' populations, species included Beaded glasswort (Sarcocornia quinqueflora), Frankenia (Frankenia pauciflora), Windmill grass (Chloris truncata), Creeping boobialla (Myoporum parvifolium), and Wallaby grass (Rytidosperma caespitosum).

The goal was to protect this population from invasive vegetation. While plants from other parts of Australia can be harmful to remnant vegetation, we mostly focused on galenia (*Galenia pubescens*), ox tongue (*Helminthotheca echioides*), and milk thistle (*Sonchus oleraceus*).

Most of the time was spent weeding. On one occasion, we heavily weeded an entire small area



FIGURE 6. Beaded glasswort (Sarcocornia quinqueflora).



FIGURE 7. Frankenia (Frankenia pauciflora).



FIGURE 8. Windmill grass (Chloris truncata).



FIGURE 9. Creeping boobialla (*Myoporum parvifolium*).



FIGURE 10. Wallaby grass (Rytidosperma caespitosum).



FIGURE 11. Galenia (*Galenia pubescens*), native to Southern Africa, is a ground cover apparently introduced to Australia to cover disturbed ground around mines and roadsides.



FIGURE 12. Ox tongue (*Helminthotheca echioides*), originates from Europe and Western Asia.



FIGURE 14. Heavily weeded area of remnant population observable to right of fence. To the left, Chilean needle grass (Nassella neesiana) (an invasive species) prevails.

to protect a pocket of remnant population. This was a relatively isolated and containable area being surrounded by a road, a shed, and a fence.

Generally, however, it seemed pointless to try to eradicate well-entrenched, invasive species. Nevertheless, an edge effect could be ascertained between areas of remnant populations and the invasive species. Along these edges, we weeded the invasive species, thwarting their spread and allowing the remnant population to increase.



FIGURE 13. Milk thistle (*Sonchus oleraceus*), native to Western Asia, Europe and Northern Africa.



FIGURE 15. Edge effect.

In the above edge effect image, native Beaded glasswort is visible to the left. Uprooted Galenia is piled on the right. The intended effect was that Beaded glasswort should regrow where Galenia had been weeded.

Labor-intensive hand weeding was essential on the edges because chemical herbicides would also kill indigenous species. For neophytes, the most difficult aspect was recognizing which plants needed to be weeded. In some cases, invasive species are successful



FIGURE 16. Hand weeding Galenia to protect the remnant pocket of Beaded Glasswort.



FIGURE 17. Trainees doing coursework before heading into the field.

precisely because they so closely resemble indigenous species. The guiding principle was "if in doubt, don't pull it out".

Aside from the weeding and planting, on the mornings of two of the days I undertook research, Reddan coordinated training sessions at offices of the Wathaurong Aboriginal Cooperative. Designed to fit the participants' goals, the certificate syllabus focused on technical applications of current environmental science, such as plant recognition and use of

pesticides. The afternoons and, indeed, the other days were spent weeding at Limeburners Bay.

Two results were achieved. First, in support of plant biodiversity, remnant populations were protected or reinforced. Second, local Indigenous men obtained hands-on training and, subsequently, certification in Conservation and Land Management.

DISCUSSION

Limeburners Link reinforced pockets of indigenous plants at a wetlands area in southeast Australia. Indigenous people also obtained training and qualifications through these projects. Limeburners Link was limited in scope, involving only several people in a small area. Moreover, my fieldwork was limited to 5 days participant observation. Nevertheless, the social science critique of Indigenous conservation seemed only partly applicable.

The critique might apply partly with regard to redemption; it must be granted that Limburners Link tried to recreate a pre-colonial environment. Also, Limburners Link implicitly attempted to seek amends for past injustices against Indigenous people. Practically though, Limburners Link did not attempt to revive an environmental golden past invoked by the scholarly critique of redemption. Rather than creating a pristine, untouched 'wilderness', the goal was human management of biodiversity.

Another way the social science critique might be applicable is with regard to the concept of "Indigenous". Limeburners Link did not involve another and significant local Indigenous organization—Wathaurung Aboriginal Corporation. Wathaurung Aboriginal Corporation is distinguishable as the state government "Registered Aboriginal Party" for managing Indigenous heritage matters on behalf of local, Traditional Owners. By contrast, the Wathaurong Aboriginal Co-operative, which was involved in Limeburner's Link, sees itself as not exclusively representing Traditional Owners

whose ancestors lived locally, but also representing local Indigenous people whose ancestors may have lived in other parts of Australia. The inclusion of the Co-operative was the outcome of local politics of indigeneity, which it is beyond the scope of this Crib Note.

In other regards, the social science critique of Indigenous conservation seems of limited applicability. Limburners Link did not simply perpetuate a stereotyped idea that all Indigenous people are intrinsically at one with the environment. Rather, the training aspect of Limburners Link implied the usefulness of current environmental science. Also, the involvement of non-Indigenous volunteers contrasted with the stereotype. The project coordinator certainly emphasized this, saying "not all Aboriginal people are interested in natural resource management", but when they are, "it can align well with their knowledge of local environments". He also stated that both Indigenous and non-Indigenous people must understand how to protect and sustain biodiversity.

Limburners Link did not focus on iconic species. Though Limeburners Bay is thought to be part of the habitat of the Orange Bellied Parrot (*Neophema chrysogaster*), a critically endangered and iconic species in Victoria, the preservation of this parrot was not espoused during the days I volunteered or during the interviews. Rather, the focus of discussion and education was on topics such as soil microbiology.

Aside from the critique of the ideas or discourse of Indigenous involvement in conservation, scholars have also developed a critique of practice. In particular, 'cooperative management' of protected areas has fallen short of expectations (Orlove and Brush 1996). Relationships between Indigenous and non-Indigenous environmentalists are described as fraught and unstable (Cohen 2017; Vincent and Neale 2016). In one study, divisions between "white and Aboriginal actors" undermined "joint management" (Haynes 2009). These problems have been ascribed to cultural and social incompatibilities between non-Indigenous and Indigenous conservationists (Orlove and

Brush 1996). In the limited context of Limeburners Link, it appeared that goals of the Indigenous and non-Indigenous participants sufficiently aligned to avoid these problems, but more research would be required to determine if this were the case.

CONCLUSION

Limeburners Link was premised on intense management of the environment. Management implies (1) the heavy involvement of humans with the environment and (2) an impossibility (and undesirability) of a pristine, untouched wilderness. Thus, the practice in Limburners Link did not easily succumb to the critiques offered by social science. Perhaps these findings indicate that environmentalists—Indigenous and non-Indigenous—have acted in response to the social science critique. Possibly, the changes have come from within environmental science. Maybe other factors can be adduced. In any case, my findings suggest that the concept of management is crucial in the practice of Indigenous conservation.

Thus, management also requires analysis. I alluded to research demonstrating practical problems with joint management between Indigenous and non-Indigenous conservationists. So here I focus on conceptual problems. "Business management" implies running a project according to plans that are strategic (rough and directional) or operational (measurable and controllable). We expect that, operational modifications notwithstanding, the outcome is predictable. Environmental management implies applying a plan to components of an ecosystem. But is following a plan for the environment possible? Are outcomes predictable?

Perhaps other concepts might prove more appropriate. For instance, with regard to farming, Richards (1989) argues that interaction with the environment is more like a performance, responding to exigencies, requiring good social skills. Thus, a performance (rather than following a plan) creates the outcome.

This suggests that the concept of 'management' might also have limitations in explaining the practice associated with the conservation projects I have described. In any case, if the Limburners Link projects are any indication, the practice of Indigenous conservation is changing. The practice of Indigenous conservation may not live up to its early promise, but neither does it always succumb to the social science critique. So to better understand it better, the critique may require refining.

Dr. Nicholas Herriman, *Anthropology Program, La Trobe University,* n.herriman@latrobe.edu.au

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