



Viewpoint

Security and equity of conservation covenants: Contradictions of private protected area policies in Australia

Vanessa M. Adams^{a,b,*}, Katie Moon^{c,1}

^a Australian Research Council Centre of Excellence for Coral Reef Studies, James Cook University, Townsville, QLD, Australia

^b Northern Australia National Environmental Research Program Hub, Research Institute for the Environment and Livelihoods, Charles Darwin University, Darwin NT 0909, Australia

^c School of Earth and Environmental Sciences, James Cook University, Townsville, QLD, Australia

ARTICLE INFO

Article history:

Received 18 August 2011

Received in revised form 11 January 2012

Accepted 13 March 2012

Keywords:

Private land conservation

Covenant

Mining

Property rights

Queensland

ABSTRACT

Private land conservation is becoming a popular policy approach, given the constraints of increasing public protected areas, which include reduced availability of land for purchase, insufficient budgets for acquisition, and escalating management costs of small, isolated reserves. Conservation covenants represent a common policy instrument, now prominent in the United States, Canada and Australia, employed to compliment the protected area network. When 'topsoil' and subsoil, or 'mineral' use rights are decoupled, however, the security of covenants can become threatened if the country's economic policies take priority over conservation policies and mining is permitted where covenants exist. We discuss this issue on a theoretical level, examining four potential scenarios in which use rights are decoupled or coupled. We demonstrate that decoupled use rights can create an imbalance in the costs and benefits, to landholders and the government, from conservation and mining activities on private properties. We then present a case study in Queensland, Australia, in which the discrepancy of biodiversity and mining policies is directly threatening the ecological outcomes of conservation covenants on private land. We also reflect on our own personal research with landholders in Queensland to highlight the social consequences of such a policy position on the ability of State and Federal Governments to meet their policy commitments. The conflicts we identify can be used to improve the transparency of private land conservation.

© 2012 Elsevier Ltd. All rights reserved.

Introduction

Conservation covenants have emerged over recent decades to protect ecosystem services and natural features of importance on private land as a low-cost option for government to complement public protected areas. A conservation covenant may be defined as "a promise contained in a deed to land or real estate which is binding upon the current owner and all future owners. It defines the limitations, conditions or restrictions on the use of that land" (DSEWPaC, 2010). Covenants are typically entered into voluntarily and result in a change in property rights (i.e., limits the landholder's ability to exercise one or more of their 'bundle of property rights', e.g., vegetation clearing, cattle grazing, property development), and may require a commitment to a management agreement (e.g., strategies, actions, performance indicators) (Binning and Young,

1997). Covenants can be tailored to individual properties and landholders' circumstances, resulting in a degree of flexibility, yet they must remain consistent with the requirements of the administering institution and relevant legislation (Kabii and Horwitz, 2006). Examples of covenant programs include United States Conservation Easements (Merenlender et al., 2004), Canadian Conservation Agreements (The Nature Conservancy of Canada, 2011) and Australian conservation covenants and agreements² (Table 1). As of 2010, in the United States and Australia, these covenants protected 190,200 km² (Chang, 2011) and 30,280 km² (Table 1) of land, respectively. The increased use of covenants has been due, in part, to the inadequacy of funding and government commitments to establish new public protected areas (Jenkins and Joppa, 2009; Joppa and Pfaff, 2009; Knight, 1999; Langholz and Lassoie, 2001). In addition, public protected areas are unlikely to capture all ecosystems, particularly those smaller ecosystems on private land that may not be available for public protection due to cost of purchase

* Corresponding author at: Northern Australia National Environmental Research Program Hub, Research Institute for the Environment and Livelihoods, Charles Darwin University, Darwin NT 0909, Australia. Tel.: +61 8 8946 7449.

E-mail address: vanessa.adams@cdu.edu.au (V.M. Adams).

¹ Current Address: ANZSOG Institute for Governance/Institute of Applied Ecology, University of Canberra, Bruce, ACT 2601, Australia.

² In Australia, each State or Territory administers its own covenant or agreement program. The Commonwealth Government also has mechanisms to apply covenants under the *Environment Protection and Biodiversity Conservation Act* (1999).

Table 1

Pre-dominant state-based government conservation covenant programs in Australia. Number of covenants and area protected figures current as at June 2011.

State	Program	No. covenants	Area protected (km ²)	Average protected area (km ²)	Can mineral extraction occur?
New South Wales	Conservation Agreements Program	298	1328	4.5	Yes ^a
Queensland	Queensland Nature Refuge Program	379	20,780	55.3	Yes ^b
South Australia	Heritage Agreement Program	1455	6208	4.3	Yes ^c
Tasmania	Private Land Conservation Covenant Program	633	787	1.2	Yes ^d
Victoria	Trust For Nature Conservation Covenant Program	1030	427	0.4	Yes ^e
Western Australia	Conservation Covenant Program (National Trust of Australia (WA))	150	620	4.1	Yes ^f
	The Nature Conservation Covenant Program (Department of Environment and Conservation)	120	127	1.1	

^a National Parks and Wildlife Act 1974, Division 4, Section 47J (5).

^b Nature Conservation Act 1992, Part 4, Section 27 (1).

^c Native Vegetation Regulations 2003 under the *Native Vegetation Act 1991*, Part 2, Section 5 (1), (zc) and (zd).

^d Mineral Resources Development Act 1995, Part 1, Section 6.

^e Mineral Resources (Sustainable Development) Act 1990, Part 1, Section 6.

^f *Mining Act 1978*, Part 3, Division 3, Section 27.

or willingness of landholders to sell (Adams et al., 2011; Figgis, 2004; Pasquini et al., 2011).

Despite a global increase in the protected area network (of which covenants represent one protection mechanism), there exist several ongoing threats to their security, that is, “the relative strength of the protection agreement in place, specifically, the level of authority that can sign and revoke/dissolve an agreement” (Fitzsimons, 2006, p. 367). Public protected areas are experiencing a potentially widespread process of downgrading, downsizing and degazettement (Mascia and Pailler, 2011). The most recent cases of downgrading, downsizing and degazettement have largely occurred in response to industrial-scale petroleum and mineral extraction (Mascia and Pailler, 2011). Countries that currently have proposed protected area downgrades include the United States, New Zealand, Zimbabwe and Indonesia, each having created legislation that allows for these downgrades to enable mineral exploration and extraction in response to private sector requests (Mascia and Pailler, 2011). For private protected areas, a similar trend of requests to change or remove the conservation status of land has been observed, such as for Conservation Easements in the United States (Rissman and Butsic, 2010). In these cases, the landholders, who may have applied the protected area themselves or inherited it from a previous landholder, made the request for amendments to the easement to generate a private benefit from the protected area that could not be obtained with the covenant in place (Rissman and Butsic, 2010).

In Australia, the threats to the permanence of land to which a covenant has been applied exist primarily because the application of a covenant does not exempt that land from mineral exploration and extraction. Relevant mining legislation in the different Australian jurisdictions clearly explains that private land (freehold and leasehold), including land with a covenant in place, is not exempt from mining activities. That is, it is not so much a problem of downgrading in Australia, but rather the governments seeking to support conservation mechanisms on private lands that allow them to meet their various conservation commitments without prohibiting existing or future mineral access rights.

In this article, we focus on conservation covenants on private land, and examine the potential social and ecological risks of downgrading or degazetting covenants to exercise mineral use rights, which arise when ‘topsoil’ and subsoil or ‘mineral’ use rights are decoupled. We use Australia as a case study, where there is an ongoing debate surrounding the security of conservation covenants and whether covenants should provide protection from mineral exploration and extraction, given the potential for negative effects of mining activity on protected natural values. In particular, we aim to highlight social inequities in the establishment of these private protected areas, whereby landholders are encouraged by the government to apply a perpetual conservation covenant to protect ecosystem services at their private cost (e.g., the Delbessie Agreement, *DERM*, 2007), without any surety of their investment. The social consequences of such a policy contradiction (i.e., that mining can be permitted in an area that has been formally recognized to be of conservation value) are explored.

While our article focuses on Australia, similar problems may arise in other nations where covenants are currently being used or explored for conservation on private lands and where mining is a prevalent economic activity. Through our case study, we highlight the potential pitfalls for other nations who use or intend to use covenants to secure biodiversity conservation on private land, which has decoupled use rights. We first outline the land use rights in Australia, then discuss the distribution of costs and benefits under four generic use rights scenarios and lastly we present a case study of the Queensland Nature Refuge program, giving particular consideration to the social consequences associated with the competing conservation and mineral extraction policies.

Land use rights in Australia

Private landholders in Australia are entitled to exclusive possession of the land and the right to use the land for income or other legal purposes (e.g., intensive commercial uses such as grazing and agriculture, or conservation). These rights apply to freehold (i.e., where the landholder holds the land title and thereby has permanent possession of the land) and leasehold (i.e., where the

landholder holds a land tenure contract with a State or Territory Government that awards possession for a specified time, area and purpose) land, both tenures which are effectively managed as 'private land' (Fitzsimons and Wescott, 2004). By voluntarily placing a covenant on a property, the landholder chooses to restrict their 'use rights', or what we call 'topsoil use rights', defined as the right to utilize the topsoil, in accordance with relevant legislation and regulations. Topsoil rights include the top layers of the soil and landscape features. These rights, including cattle grazing and crop production, may be restricted under a covenant, based on the extent to which they are considered to be incompatible with the core purpose (i.e., conservation) of the covenant.³

Yet, when a covenant is established, the relevant state government in Australia does not prohibit the issuing of new mineral exploration and extraction permits, as is common in the case of national parks (e.g. New South Wales, 1990; Queensland, 1989). Rather, the government reserves the right to issue exploration and extraction licenses in areas that have a covenant, as well as those areas that do not. That is, the government retains the rights to access subsurface minerals, referred to here as 'mineral use rights', and can therefore issue both exploration and extraction permits to third parties to enter private property for mineral exploration and extraction purposes. This legal structure creates an inequitable situation in which landholders are typically responsible for the costs of establishing a covenant and maintaining that area, but incur the risk of losing the resultant conservation benefits if mineral extraction rights are exercised. Meanwhile, the government receives the conservation benefit from the covenant without many of the associated costs.

Distribution of costs and benefits under different land use scenarios

We explored the distribution of costs and benefits to the landholder, the holder of topsoil use rights, and government, the holder of mineral use rights, under different land use scenarios to demonstrate the equity issues that arise when topsoil and mineral use rights are decoupled and not aligned to achieve concomitant economic and environmental goals. We present four *hypothetical* scenarios in which we considered a combination of factors including whether use rights are coupled (where a single entity or individual holds both topsoil and mineral rights) or decoupled (where multiple entities or individuals held the rights separately). The scenarios in which use rights are decoupled reflect the land use rights structure of Australia while the coupled use right scenarios reflect common land use right structures in other countries and provide a useful comparison. We considered the direct economic costs (including opportunity costs) and benefits, and ecological costs and benefits associated with each scenario. In the scenarios in which the landholder has placed a covenant on their land, we assume that the covenant protects the biodiversity values of the property and may also qualify as an IUCN recognized protected area that contributes to state and national targets for biodiversity conservation.⁴ We assumed that the spatial distribution of

minerals and conservation values overlap as an estimate of the worst case scenario but recognize that in some instances mining could occur near an area that has a covenant without negating conservation features. We also recognize that mining strategies vary in their effect on topsoils, but assume as a worst case scenario that they fully affect conservation values. We assumed in our scenarios that when a landholder exercises their topsoil use rights for production purposes, that associated land management practices may have both positive and negative effects on conservation values. For example, changes in fire regime and an increase in weed distribution, coupled with long-term grazing, have been implicated in the decline of Northern Australia's mammals and granivorous birds (Franklin et al., 2005; Kutt and Woinarski, 2007). Land management practices in low impact grazing systems that reduce threats to production value (e.g., uncontrolled fires and weeds), however, can benefit the natural values on the property (Adams et al., 2012). Lastly, we assume that the landholder does not receive any financial benefits from the covenant as a worst case scenario. This outcome is not always the case because covenants may be associated with stewardship payments or councils may offer rate (property tax) reductions on land to which a covenant has been applied (e.g. both of these types of benefits were examined in a study in Queensland, Moon and Cocklin, 2011a).

In the first two scenarios we explored the existing Australian case of 'decoupled' use rights and in the third and fourth scenarios we explored the distribution of benefits and costs for 'coupled' use rights. In scenario 1, the landholder has established a covenant and voluntarily restricted their topsoil use rights such that only compatible and sustainable land uses may occur within the covenanted area (e.g., restricted grazing or agricultural activity as is common on Queensland properties that have a covenant). The direct economic costs of maintaining the covenant, as well as the opportunity costs of restricting topsoil use rights, are borne by the landholder. Yet in this scenario, the government has exercised its rights to extract minerals. Therefore, the ecological benefits of the covenant are lessened or negated by the mineral extraction, the landholder does not benefit from the mineral extraction and the government receives economic benefits from the mining exploration and extraction. In scenario 2, the landholder and the government both voluntarily restrict their use rights to establish the covenant, therefore the direct financial costs of maintaining the covenant are borne by the landholder, but both the landholder and government may experience opportunity costs by restricting their use rights. In scenario 3, the landholder holds both the topsoil and mineral use rights and has voluntarily restricted both rights to establish a covenant and has borne the costs. Therefore, all maintenance and opportunity costs are borne by the landholder. In scenario 4, the landholder exercises their use rights and bears the costs and accrues the benefits (both ecological and economic) of land use and/or extraction. The associated land use and management practices may have positive and/or negative effects on conservation values, depending on which actions the landholder undertakes.

A comparison of scenarios 1 and 3 demonstrates most clearly how decoupling topsoil use rights from mineral use rights creates an inequitable distribution of benefits and costs of conservation covenants. When use rights are decoupled, the landholder incurs the costs of conservation, but does not derive any benefits of mineral extraction; when use rights are coupled, the landholder is in control of the costs and benefits derived from their land. The costs and benefits in scenario 1 are distributed inequitably with the direct costs of the covenant borne fully by the landholder and the

³ In some Australian states, for example Queensland, "Leases granted for pastoral purposes may be used only for grazing or agriculture. Although a lease is issued for a primary purpose (such as those listed above), the Minister has the power to approve the conduct of additional or fewer uses on the subject land for the term of the lease, provided any amendments complement the original purpose" (DERM, 2010a). A guide to land tenure under the Land Act 1994. Available from: http://www.derm.qld.gov.au/land/state/pdf/land_tenure.qld.pdf (accessed May 30 2011).

⁴ Queensland Nature Refuges are recognized as IUCN class V and VI protected areas; however private protected areas may qualify as IUCN Class I–VI categories depending on factors such as the security and permanence of the protected area

(see Fitzsimons, 2006). IUCN Class I–VI protected areas contribute to national targets to meet international commitments such as the Convention on Biological Diversity 2020 target to protect 17% of all terrestrial habitats (UNEP, 2010).

benefits associated with mineral extraction flowing to the government. Scenario 2, however, demonstrates that costs and benefits can be equitably distributed, even if use rights are decoupled, so long as the landholder and the government *both* choose to restrict their use rights in favor of conservation over extraction.

Queensland Nature Refuges – a case study

To examine the current situation regarding use rights of covenants, we selected Queensland, Australia, as a case study. The state of Queensland has more land under covenant (referred to as Nature Refuges) than any other Australian jurisdiction (Table 1). The Queensland Government has committed to add 120,000 km² of land to the reserve system, 40,000 km² of which will be in national parks, bringing the total protected area to 200,000 km² by 2020 (Anna Bligh Premier of Queensland, 2008). The Queensland Government's commitment means that two thirds of the intended expansion will fall on other public lands, such as state forests, and private land (DERM, 2010b). This proposed expansion represents a potentially large increase in the extent of land under private conservation. Moreover, since 2007, the Queensland Government has committed \$5.7 million through the NatureAssist program to provide financial incentives for on-ground work to encourage landholder enrolment in the Nature Refuge program.

Despite a firm commitment to conservation, the Queensland Government continues to issue exploration permits for coal and other mineral resources within the protected area estate, including Resource Reserves, State Forests, Timber Reserves, Forest Reserves and Nature Refuges. Of the 284 IUCN Class III–VI protected areas in Queensland (excluding Nature Refuges), 53 have applications and 173 have approved exploration permits within their boundaries (DERM, 2011a; DME, 2011a,b,c), which demonstrates that the threat to the protected area estate is of concern. Similarly, there are 273 current mineral exploration permits within the boundaries of 149 of the 379 Nature Refuges, with some Refuges having multiple active exploration permits within their boundaries (DERM, 2011b; DME, 2011a,b,c) (Fig. 1). Of the 273 permits for exploration on Nature Refuges, 186 were approved *after* the Nature Refuge was gazetted and therefore the conservation value and intended use of the property was known by the Queensland Government (DERM, 2011b; DME, 2011a,b,c).

While the Nature Refuge program plays an important role in complementing national parks to meet the Queensland Government's conservation objectives (DERM, 2010b), the Queensland economy is strongly linked to the mining sector, which represented 9.7% of gross state product in 2007 (DME, 2007). There is a strong likelihood that mineral deposits and rare, threatened or endangered ecosystems will in some instances overlap and hence there exists a potential conflict in the Queensland Government's economic and conservation policies. For instance, between June 2006 and March 2008 the Queensland Government issued four permits for exploration within the Bimblebox Nature Refuge, an 80 km² private protected area gazetted in 2003 and located in one of Australia's 15 national biodiversity hotspots (DSEWPaC, 2003). As of 2011, an application for a mineral extraction lease and mineral extraction development license had been submitted for coal mining in Bimblebox, but the status of the application is not yet known. In 2007, the Queensland Government also issued an exploration permit for coal resources in the Avocet Nature Refuge, causing the landholder, who had contributed thousands of hours of voluntary activity to improve the ecological integrity of his Refuge since its establishment in 2003, to seek to revoke the agreement in protest of a "devious, hypocritical and uncaring government" that failed to assist him in protecting part of the nation's biodiversity (Nature Refuge Landholders Association, 2010, p. 2).

Social consequences of policy contradictions

The threat of mineral extraction to Nature Refuges in Queensland has not gone unnoticed. Individual Nature Refuge owners (e.g., Bimblebox) have established their own websites to inform the community of mineral extraction threats in an effort to garner support. Environmental lobby group Friends of the Earth have staged protests to stop coal exploration in Nature Refuges (Friends of the Earth, 2010), which have been reported on in the popular media, including the Sydney Morning Herald newspaper (Agius, 2010) and the Australian Broadcasting Corporation, the national broadcaster (Fitzpatrick, 2010). AgForce, an industry body representing Queensland's rural producers, reports on their website that many Nature Refuges are currently under mineral exploration permits and "a handful have been subject to exploration" (AgForce, 2011). The Nature Refuge Landholders Association (NaRLA) published a special edition of their newsletter in May 2010, dedicated to the conflict between biodiversity conservation and mineral extraction interests, and stated: "While mining has long been a threat to remnant ecosystems, native fauna, water supplies and human health, we are now seeing that many types of "protected areas" present little obstacle for mining" (NaRLA, 2010, p. 1).

In fact, during our own research (e.g., Moon and Cocklin, 2011a,b), in which we have conducted interviews with landholders in Queensland regarding conservation issues, questions have been raised about the level of security afforded to biodiversity through the Nature Refuge program. Two landholders with Nature Refuges expressed disappointment at the lack of security of their covenant:

"We've put the Nature Refuge on, thinking it would be sacrosanct, like a national park or close to it, and we realised that there is ministerial power to change whatever we agreed to. But we have since found out that we can still have mining exploration leases taken out over a Nature Refuge. That really, really, really devalues the Nature Refuge in my eyes. There's enough stuff that can be dug up. If someone's put a Nature Refuge in, go around it".

And:

"We thought the place would be run like a national park. But now we've got prospectors out here on the place looking for tin, have had for 2 years. They make more money out of royalties [from minerals] than they do on conservation, so hopefully something will get sorted out, so that a place like this, that is solely a conservation area, can be ear marked in legislation that it can be exempt from mining."

AgForce recently surveyed their members who have Nature Refuges on their property, and found that for most, "the threat of mining on Nature Refuges is an issue of concern" (AgForce, 2011).

Ultimately, protecting biodiversity on private land through conservation covenants and easements requires landholders to commit their time, money and energy. The exercise of mineral use rights that are counter to the landholder's conservation commitment can diminish the legitimacy of conservation covenant programs, and may ultimately result in reduced participation. We believe the high profile nature of the Bimblebox Nature Refuge mining case (ABC News, 2011; Landline ABC News, 2011) hints at the conflicts that may become common place if mining is permitted in areas that have conservation covenants. Government reform on use rights in Australia will undoubtedly serve to avoid an increase in such conflicts, through the provision of strengthened covenants security and transparency.

We acknowledge that biodiversity *and* minerals are public goods. Therefore, we do not recommend nationwide coupling of topsoil and mineral use rights in Australia, such that landholders are

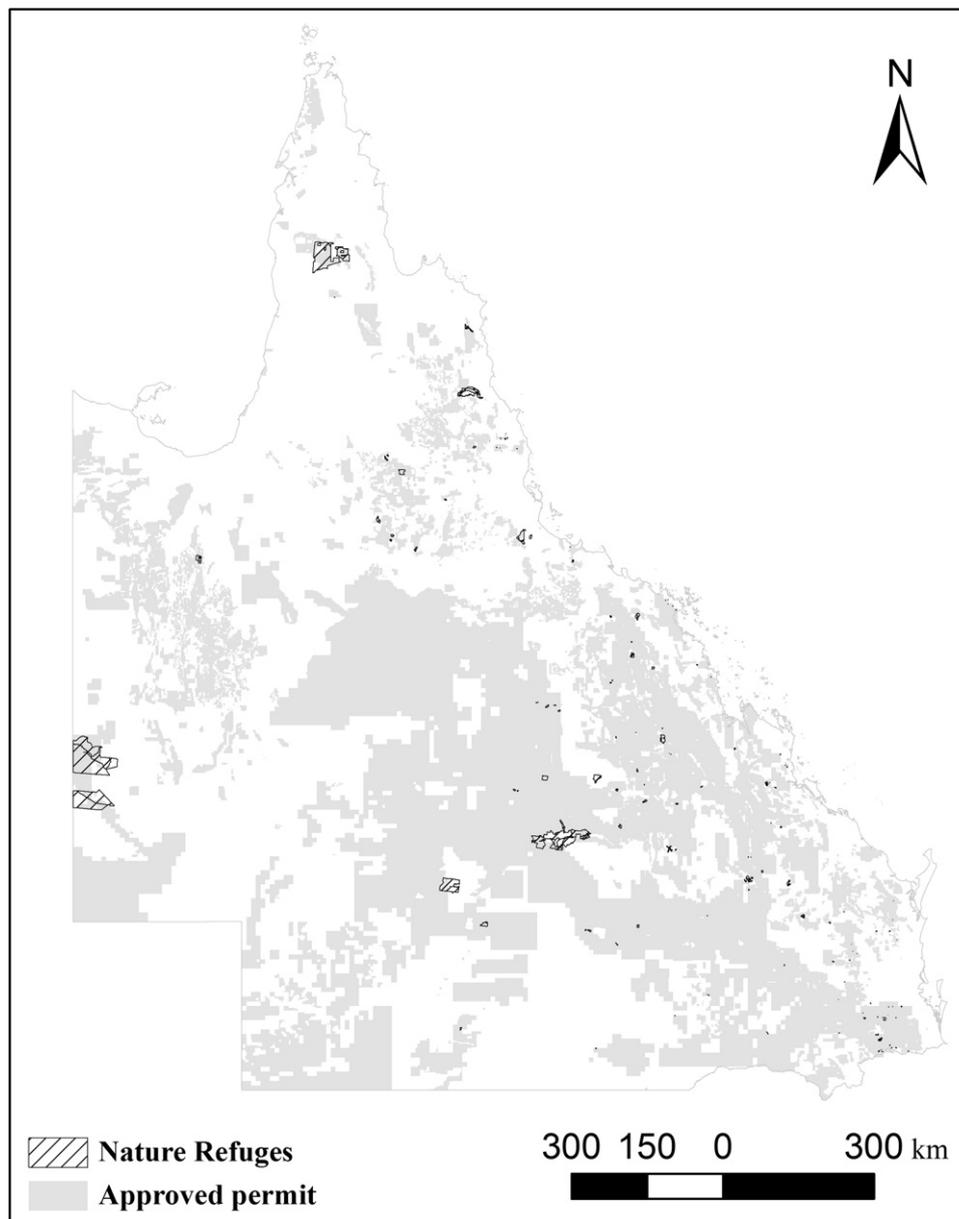


Fig. 1. State of Queensland and 149 Nature Refuges that have current approved exploration permits (include coal, mineral, petroleum or multiple types).

given mineral use rights. Yet, when biodiversity values are assessed to be of sufficient value to justify the application of a conservation covenant, we do suggest that a similar process to that used to establish a national park in Queensland be taken. In the case of national parks, all relevant departments, including the Department of Mines and Energy, are consulted to determine what other priorities might exist for the property before a national park is declared. If there are other priorities, such as existing mining or timber permits, these permits must first expire so that all other interests are removed (e.g., no mineral exploration and extraction permits would be renewed and the government would commit to not issuing any further permits) and then gazettal of the national park will proceed.⁵ If such a process was used for covenants,

⁵ See the Queensland Government Department of Environment and Resource Management website for more detail http://www.derm.qld.gov.au/parks_and_forests/managing_parks_and_forests/principles/how_parks_are_declared.html.

competing priorities, such as existing mineral exploration permits, could be identified at the outset of the covenant and while competing interests are being resolved, a temporary covenant or management agreement could be implemented. Once all exploration and/or mining permits were resolved or expired, a full covenant could then be placed on the property and both the government and the landholder could jointly restrict their use rights to ensure the conservation status of the property. This approach could better ensure the secure protection of biodiversity and other public goods from the threat of mining, in addition to an equitable distribution of costs and benefits when landholders restrict their use rights through the application of a conservation covenant. We recognize that were this recommendation adopted, governments may be reluctant to offer covenants to landholders. We believe, however, that the government commitments to meeting conservation targets, such as the Queensland Government's promise to protect 20 million hectares by 2020, should be given equal consideration to economic policies to avoid existing contradictions.

References

- ABC News, 2011. Backflip on land conservation agreement angers land-holders, ABC, Rural. Available from: <http://www.abc.net.au/rural/content/2011/s3356142.htm> (accessed November 2011).
- Adams, V.M., Segan, D.B., Pressey, R.L., 2011. How much does it cost to expand a protected area system? Some critical determining factors and ranges of costs for Queensland. *PLoS One* 6, e25447, doi:10.1371/journal.pone.0025447.
- Adams, V.M., Pressey, R.L., Stoeckl, N., 2012. Estimating land and conservation management costs: the first step in designing a stewardship program for the Northern Territory. *Biological Conservation* 148, 44–53.
- AgForce, 2011. Mining on Nature Refuges. Available from: http://www.agforceqld.org.au/index.php?gtiPage=&page_id=174 (accessed May 2011).
- Agius, K., 2010. Mine Threatens Nature Refuge: Green Group. Sydney Morning Herald, Sydney.
- Anna Bligh Premier of Queensland, 2008. Witches Falls' 100th birthday; national park area increase commitment. Available from: <http://www.thepremier.qld.gov.au/library/word/newsroom/video/Witches.Falls.transcript.doc> (accessed February 2010).
- Binning, C., Young, M., 1997. Motivating People: Using Management Agreements to Conserve Remnant Vegetation, Consultancy Report Series CR97/01. National Research and Development Program on Rehabilitation of Remnant Vegetation, Environment Australia, Canberra, Australia, p. 79.
- Chang, K., 2011. 2010 National Land Trust Census Report. National Land Trust, Washington, DC.
- DERM (Department of Environment and Resource Management), 2007. Delbessie Agreement (State Rural Leasehold Land Strategy). Available from: http://www.nrw.qld.gov.au/land/state/rural_leasehold/strategy.html (accessed February 2010).
- DERM (Department of Environment and Resource Management), 2010. A guide to land tenure under the Land Act 1994. Available from: http://www.derm.qld.gov.au/land/state/pdf/land_tenure_qld.pdf (accessed May 2011).
- DERM (Department of Environment and Resource Management), 2010. Protected Areas for the Future: Cornerstones for Terrestrial Biodiversity Conservation. Available from: <http://www.derm.qld.gov.au/wildlife-ecosystems/biodiversity/pdf/paf/acquiring-managing.pdf> (accessed November 2011).
- DERM (Department of Environment and Resource Management), 2011. Protected Areas of Queensland – Boundaries. Available from: <http://dds.information.qld.gov.au/dds/> (accessed June 2011).
- DERM (Department of Environment and Resource Management), 2011. Nature Refuges and Coordinated Conservation Areas. Available from: <http://dds.information.qld.gov.au/dds/> (accessed June 2011).
- DME (Department of Mines and Energy), 2007. Summary report – The economic significance of mining and mineral processing to Queensland. Available from: <http://www.dme.qld.gov.au> (accessed June 2011).
- DME (Department of Mines and Energy), 2011. Current Exploration Permits for Coal. Available from: <http://www.dme.qld.gov.au/> (accessed June 2011).
- DME (Department of Mines and Energy), 2011. Current Exploration Permits for Minerals. Available from: <http://www.dme.qld.gov.au/> (accessed June 2011).
- DME (Department of Mines and Energy), 2011. Current Exploration Permits for Petroleum. Available from: <http://www.dme.qld.gov.au/> (accessed June 2011).
- DSEWPac (Department of Sustainability, Environment, Water, Population and Communities), 2003. Australia's 15 National Biodiversity Hotspots. Available from: <http://www.environment.gov.au/biodiversity/hotspots/national-hotspots.html#hotspot2> (accessed May 2011).
- DSEWPac (Department of Sustainability, Environment, Water, Population and Communities), 2010. Conservation covenants. Available from: <http://www.environment.gov.au/biodiversity/incentives/covenants.html> (accessed June 2011).
- Figgis, P., 2004. Conservation on Private Lands: The Australian experience. IUCN, Gland, Switzerland and Cambridge, UK.
- Fitzpatrick, S., 2010. Nature Refuge Owner Vows Mine Fight. Australian Broadcasting Corporation, Sydney. Available from: <http://www.abc.net.au/news/stories/2010/11/05/3057891.htm> (accessed July 2011).
- Fitzsimons, J.A., 2006. Private Protected Areas? Assessing the suitability for incorporating conservation agreements over private land into the National Reserve System: A case study of Victoria. *Environmental and Planning Law Journal* 23, 365–385.
- Fitzsimons, J.A., Wescott, G., 2004. The classification of lands managed for conservation: existing and proposed frameworks with particular reference to Australia. *Environmental Science & Policy* 7, 477–486.
- Franklin, D.C., Whitehead, P.J., Pardon, G., Matthews, J., McMahon, P., McIntyre, D., 2005. Geographic patterns and correlates of the decline of granivorous birds in northern Australia. *Wildlife Research* 32, 399–408.
- Friends of the Earth, 2010. ACTION – Protect our Nature Refuges from Mining! Friends of the Earth, Brisbane.
- Jenkins, C.N., Joppa, L., 2009. Expansion of the global terrestrial protected area system. *Biological Conservation* 142, 2166–2174.
- Joppa, L.N., Pfaff, A., 2009. High and far: biases in the location of protected areas. *PLoS One* 4, e8273, doi:10.1371/journal.pone.0008273.
- Kabii, T., Horwitz, P., 2006. A review of landholder motivations and determinants for participation in conservation covenanting programmes. *Environmental Conservation* 33, 11–20.
- Knight, R.L., 1999. Private lands: the neglected geography. *Conservation Biology* 13, 223–224.
- Kutt, A.S., Woinarski, J.C.Z., 2007. The effects of grazing and fire on vegetation and the vertebrate assemblage in a tropical savanna woodland in north-eastern Australia. *Journal of Tropical Ecology* 23, 95–106.
- Landline ABC News, 2011. Off limits, Australia. Available from: <http://www.abc.net.au/landline/content/2010/s3325310.htm> (accessed November 2011).
- Langholz, J.A., Lassoie, J.P., 2001. Perils and promise of privately owned protected areas. *Bioscience* 51, 1079–1085.
- Mascia, M.B., Pailler, S., 2011. Protected area downgrading, downsizing, and degazettement (PADDD) and its conservation implications. *Conservation Letters* 4, 9–20.
- Merlenlender, A.M., Huntsinger, L., Guthey, G., Fairfax, S.K., 2004. Land trusts and conservation easements: who is conserving what for whom? *Conservation Biology* 18, 65–76.
- Moon, K., Cocklin, C., 2011a. A landholder-based approach to the design of private land conservation programs. *Conservation Biology* 25, 493–503.
- Moon, K., Cocklin, C., 2011b. Participation in biodiversity conservation: motivations and barriers of Australian landholders. *Journal of Rural Studies* 27, 331–342.
- Nature Refuge Landholders Association, 2010. Special Edition. NaRLA, South Brisbane, p. 12. Available from: <http://education.naturerefuges.com/newsfiles/18-1.pdf> (accessed May 2011).
- New South Wales, 1990. National Parks and Wildlife (Mining Prohibition) Amendment Act.
- Pasquini, L., Fitzsimons, J.A., Cowell, S., Brandon, K., Wescott, G., 2011. The establishment of large private nature reserves by conservation NGOs: key factors for successful implementation. *Oryx* 45, 373–380.
- Queensland, 1989. Mineral Resources Act.
- Rissman, A.R., Butsic, V., 2010. Land trust defense and enforcement of conserved areas. *Conservation Letters* 4, 31–37.
- The Nature Conservancy of Canada, 2011. Donating Land or Conservation Agreements. The Nature Conservancy of Canada, Toronto. Available from: http://www.natureconservancy.ca/site/PageServer?pagename=ncc_help_giftsofland_easements (accessed June 2011).
- UNEP, 2010. Report of the Tenth Meeting of the Conference of the Parties to the Convention on Biological Diversity (UNEP/CBD/COP/10/27). Available from: <http://www.cbd.int/doc/meetings/cop/cop-10/official/cop-10-27-en.pdf> (accessed June 2011).