

Living with, living without weeds: bridging theory and practice

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- drive theoretical and practical research frontiers on the cultural environment
- provide a basis for more effective multidisciplinary engagement with the natural and physical sciences
- contribute to the development of relevant local, state and federal policy
- build Australia's international research presence in the cultural dimensions of environmental sustainability

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Living with, living without weeds: bridging theory and practice

This discussion paper provides a record of a workshop hosted by AUSCCER on the theme of 'Living with, living without weeds: bridging theory and practice'. On February 18-20 this year, we assembled about thirty academics and practitioners at the Novotel Wollongong. They were connected with our own projects and with projects where we knew there were partnerships between social scientists and invasive plant managers. The group encompassed a variety of disciplinary traditions (ecology, geography, history, anthropology) and working contexts (State and Local government, NGOs, Aboriginal Land Councils, and Universities). They came from all over Australia.

We asked, in an age of social and ecological change, how do we live with weeds? What does this entail ecologically and socially? What are the everyday experiences of managing weeds? A full analysis of the conflicting views on weed management is beyond the scope of this paper – and the workshop. Broadly speaking however there is a clear difference between an ecological vision and policy framework that insists some places be free from weeds (encapsulated in seeing this as a 'war', Figure 1), and the lived experience of weed managers on the ground.

The aspiration that some places can and should be completely free of weeds ignores the ways human and weed history are one and the same thing, as argued by Priya Rangan below. The aspiration is one manifestation of a pristine ideal that excludes humans from nature, despite the fact that humans have been influencing landscapes such as those in Australia for tens of thousands of years. The pristine ideal is of limited use in a present and future where human influences dominate earth surface processes.

We hoped that the workshop could make some modest steps to reconciling these two opposing views, and we used two particular strategies. One was to invite keynote speakers who, from different disciplinary perspectives, have carefully considered and challenged the pristine and static view of nature within which some weed management is conceptualised. The second was to draw on our own social sciences research on weeds and weed managers, in which we have become very aware of a diversity of practices (Atchison and Head in prep; Klepeis, Gill and Chisholm 2009).

Our first keynote speaker Professor Richard Hobbs (ecologist at the University of Western Australia) built on his work on novel ecosystems (Hobbs et al. 2006) to help us think further about the 'new normal' or 'new nature' (Low 2002). Novel (also emergent) ecosystems refer to 'compositions and abundances of species that have not previously occurred within a given biome' (Hobbs et al. 2006:2). In direct contrast to assumptions about a balanced and stable nature separate from humans, this research shows much more dynamic past conditions and uncertain futures. Richard asked whether acknowledging the extent of present and projected change sends us down a 'slippery slope' where there are no longer any environmental rules and anything goes? His answer was a resounding 'no'; it is possible to find a middle ground where effective ways forward are possible. But this requires more pragmatic acceptance of what is actually happening, more systematic discussions of desired futures, and attention to the principle of 'first, do no harm'.



Figure 1. Headlines and reports from the 'War on weeds'.

The second keynote speaker Associate Professor Brendon Larson (social scientist at the University of Waterloo, Canada) took this discussion further to ask whether accepting the inevitability of living with invasive species is 'just giving in'? Using his juggling skills to illustrate metaphors of stability, uncertainty and change, Brendon also argued that we need to learn to live in - and with - novel socio-ecological systems (Larson 2011). And we will need new metaphors to help us do this.

The rest of the first day was spent listening to diverse presentations and diverse voices. It is impossible to summarise them fully, but recurring themes included the following:

- The practical experience of many people who live with and manage weeds is already in the new normal (in contrast to those sections of conservation biology that contest novel ecosystems).
- These experiences vary in space, time, scale and context and are worth documenting.
- Documenting lived practice can potentially help us to be more systematic in our pragmatism and make more effective use of scarce resources.
- The reason to do so is a future that is very uncertain and over which we may have influence but not control.

Elaborating the details under each of these bullet points is beyond the scope of this discussion paper, but will be the subject of a more detailed later publication.

Each of the participants was invited to contribute their reflections on the event in the comments section of the AUSCCER blog (<http://uowblogs.com/ausccer/>). These reflections are collated below, with minimal editing for reasons of space and repetition, to provide a record of the workshop and some of the interactions that took place. (Thanks to Catherine Phillips for this suggestion, which is a simplified version of methods used by Ian Cook et al. 2011).

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Ben Gooden, ecologist, UOW

As a ‘reductionist’ ecologist riddled with anxieties about ‘objective realities’, I was initially apprehensive about my impending interactions with social scientists... was the workshop going to be a case of never-the-two-shall-meet? I came to the meeting with the objective dream (delusion perhaps?) that the threat status, and thus prioritisation for management, of a particular weed should be driven solely by its actual impacts on natural communities and ecosystems, not by people’s perceptions of its threat.

Well, I was indeed thrown out of my comfort zone, but my experience of the workshop and interactions with academics, weed managers and stakeholders from a vast spectrum of disciplines was a very positive and fruitful one. My world view was frequently challenged by the knowledge and experiences of others, and I sincerely believe that my own research has been enriched by this event. In particular I gained an increased appreciation for the ‘human’ dimension of the weed management dilemma. In the long-run, a weed may indeed have adverse impacts on ecosystems (e.g. by reducing native biodiversity values), yet the capacity for us to manage it effectively relies almost exclusively on the perceptions, motivations and value systems of multiple interacting stakeholders. Thus, for effective weed management, I now consider that it is important to understand the interactions between the intrinsic biological characteristics of the weed and the ecosystems and landscapes across which it invades, as well as the ways in which multiple stakeholders utilise that landscape, and the ways in which they perceive and utilise the weed in their everyday lives. The next step, then, must be for ecologists, indigenous land owners, social environmental scientists, geographers and humanities researchers (amongst others) to collaborate to reinvent the existing paradigm of ‘weed prioritisation’ to include the multiple interacting dimensions of human ecology, as well as the intrinsic biological properties and ecosystem impacts of the weed.

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Christian Kull, geographer, Monash University

Your four themes in this blog are a good interpretation of what the workshop pointed towards, and I'll just add a couple of minor observations here:

One, for me one of most memorable lines in the workshop was when it was pointed out that all the money seems to go to controlling bad weeds already loose in the landscape (for which there is often little chance of broad scale 'success') while there is little money spent on identifying and managing new weeds (for which there is more of a chance of success).

Two, I propose that we look at the four themes that the blog lists and do it once by replacing the word 'weeds' with 'agricultural/pastoral weeds' and once by replacing it with 'environmental weeds'. When I do this it highlights for me that for agricultural and pastoral weeds, scientists and managers are probably already in the 'new normal' mindset, whereas this is not the case for environmental weeds. Can we learn from this?

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Priya Rangan, geographer, Monash University

The four themes provide an excellent framework for bridging theory and practice associated with weed management, and showing how social and natural science researchers can work productively with policy makers, land management agencies and weed managers. Just as Christian mentions in his comments, one of the things that struck me during the workshop was the difference between 'agricultural' and ecological/conservationist approaches to weeds and weed management. People engaged in agriculture, horticulture, and pastoralism around the world have lived and dealt with weeds for as long as they have been practiced; weeds are part of their world of routine activity and few assume that they can 'live without weeds'. Their perspective – based on observation and experience — is both philosophical and pragmatic, so much so that either of these words encapsulates the meaning of the other. Weed management is then about keeping alive and growing the plants you want on your fields or pastures, and taking out those you do not want from the same areas.

The mainstream views of invasion ecologists and conservation biologists who articulate their concern for the environment from a seemingly holistic perspective reflect an ideology and practice towards weeds which seems diametrically opposite: it is an exclusionary view of weeds as though they are a species unto themselves, that they can be exterminated, and that it is possible to 'live without weeds'. The irony is that although they see themselves as different from cultivators and pastoralists, the techniques and methods for tackling unwanted plants is pretty much the same, i.e., application of herbicides, biological control, and so on. In sum, the practices are neither holistic nor beneficial for the environment they desire to protect and restore to some original state.

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Richard Martin, anthropologist, University of Queensland

My comments build on those posted by Christian and Priya regarding the designation of species as weeds within different contexts, relating particularly to the question of land use. As I argued with respect to views about plants in this Gulf country, the question of what plants ‘belong’ is negotiated through ambiguities about whether species are useful, economically productive, and aesthetically pleasing, as well as whether these species have been present in the environment for a considerable length of time. At the same time I noted that perceptions of plants as species is not necessarily reflective of Aboriginal and indeed non-Aboriginal understandings of categories, with certain individual things (particularly large trees) monumentalized in different ways. This reflects the way in which experience invests meaning in the landscape, or to put it perhaps more radically – the experiential involvement in the world is part of what makes that world meaningful, and meaningful, through perception, action, and imagination, as Gillian Paxton argued. There is of course a political dimension to this – I note a provocation posed by an Aboriginal Ranger during an interview in the Gulf, who stated, “It’s not that big a leap from talking about introduced plants as belonging to start to talk about Whitefellas belonging too, hey, you get into trouble that way”. However, I argue that the exploration of the complexities and ambiguities about what belongs provides insights into the complexities and ambiguities of colonial experience within a postcolonizing society, which is particularly relevant to the consideration of socio-ecological futures.

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Brendon Larson, Waterloo University

It was an honour to be invited to this workshop because Australians are known to be world-leaders in thinking about weeds and invasive species and I have been following the work of several of the other presenters for years. It was a wonderful opportunity to learn more about the approach to “novelty” in Australia and I particularly appreciated the “grounded” perspective of the managers who are actually enacting control of weeds and invasive species on the ground.

On the first day, Lesley Head summarized our orienting question as follows: “In a time of cultural and ecological change, how do we live with weeds?” It’s noteworthy that her question was not whether to live with them, but how. Yet the biggest lesson I took from the workshop, which concurs with the first theme in the blog post, is that this is the appropriate question. Despite opposition to non-native species in some ecological/conservation circles, managers in Australia appear to have moved on to this “how” question for practical reasons. The challenges, trade-offs, and simple fiscal limitations of invasive species control are immense. For me, one of the most graphic and exemplary images of the workshop was that of a weed manager in a biohazard suit spraying herbicides to control weeds in 40C heat in the Kimberley region—to take a drink he/she needs to decontaminate and thus a working “day” is a matter of only hours. Such practical challenges are a long way from high-falutin philosophical discussions about the need to control invasive species. It’s a reality check.

The other explicit contextual element I would add to the second theme is that of valuation. We heard several stories that documented diverse and sometimes conflicting stakeholder evaluation of non-native/invasive species. In “the new normal,” such diverse values can’t simply be discounted but must instead be opened up to broader societal deliberation about desired futures.

Finally, I strongly endorse the final theme because I have written elsewhere about the illusory control we seek to exercise in our approach to these novel species. In a way, this control is a way to manage our anxiety about an uncertain future. Yet it can also occlude the realities of the current situation. I think Mike Hulme’s words in his wonderful book, *Why We Disagree About Climate Change*, are quite pertinent for thinking about invasive species: “If we continue to talk about climate change as an environmental problem to be solved, if we continue to understand the climate system as something to be mastered and controlled, then we have missed the main lessons of climate change.” Life cannot be controlled, and we are part of life (not separate from it). That doesn’t mean that there aren’t very good reasons to control or attempt to control invasive species in certain circumstances, of course, but that we have only begun to adapt our thinking to the changing nature of nature.

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Libby Robin, historian, ANU

The value of the workshop was that the knowledge of practice was combined with the knowledge of policy. My particular interest is in how the practice of weeding can frame people’s relations with the non-human world. The strongest responses to my paper came from practical people like Dick Pasfield and Ian Borrowdale, who spend so much of their time applying for grants to undertake their ‘real work’, and often no-one responds to the real work, just to KPIs etc. In an over-managed world, it is still crucially important to offer meaning to workers, as it is this that gets them to work every day. If we classify all of our knowledge into categories mediated by ‘audit’ or ‘risk management’ priorities, we never talk about the positive, heart-warming elements of what we know.

By far the best definition of a weed was the one reported from the Aboriginal ranger in northern Australia (not Dean who was present, but another person) who said, ‘I know what a weed is – it is a plant in the book. If it is in the book, then it is a reason to keep people on country’.

The reason he weeds is that it is a way to value time on country. (The health benefits may be more important than the natural landscape management)

This was echoed by Dick Pasfield who noted that ‘Weeds of National Significance’ are not the worst weeds in the Kimberley where he is, and that the much worse weeds may not reach ‘national’ significance because he is in a remote area. But if he gets a grant to remove WoNS he has the opportunity to take out the more locally significant weeds at the

same time. The reason he weeds for WoNS is to take out the weeds he really cares about in his local environment (like Neem).

So the ‘national significance’ is a KPI for a policy maker, not a meaningful category for a person doing the work. Since the ecological significance is rather different from the national (there are more voters in the south, but more unsupervised country in the centre and north), the category of WoNS is purely instrumental, and perhaps we should admit this.

There is no doubt that people at the coalface are losing some meaning in their work as they apply for money by adhering to categories that are assessed from afar. As we are replacing the meaning of the work by ‘top down categories’, we are forcing a particular sort of ‘grant writing tedium’, which as any academic knows, can be far more soul-destroying and unrewarding work because of low success rates, and high wastage. For very practical land management tasks like weeding, the forms should be very simple — and there should be a capacity, perhaps, for people to be explicit and positive about how they are caring for land and natural resources and not always approaching the natural world as the enemy.

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Sharon Willoughby, historian, ANU and Royal Botanic Garden Cranbourne

Metaphor, meaning and the words that we use to discuss weed and land management are the strongest memories I have taken with me from the wonderful Wollongong ‘Living with and living without Weeds’ Workshop.

An idea that continues to intrigue me is the question posed by Brendon Larson – What would governance look like in the anthropocene? How do we engage our communities in management decisions and how do we work together (specialists and amateurs, practitioners and academics) to create metaphors for the new novel normal? Perhaps this workshop was the beginning of that process.

We saw some really useful models of engagement from the Northern Territory such as Susanne Casanova’s work in bio-control with local community. I have been thinking about how this engagement could enrich the work of both education and land management at the Royal Botanic Garden Cranbourne where I work. Home gardeners are after all important land managers in this equation.

For me ‘Gardening’ with its embedded notions of care (for all species) and its ability to foster ideas of community and novelty, as opposed to the more passive idea of ‘stewardship’, is a metaphor to reclaim as we come to grips with living in the anthropocene.

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Never before have I spent two days in a room with so many social scientists. It was fascinating! What could be good about weeds? Lesley asked this question. From the various workshop presentations and discussions it seems that our answers will be a function of our experiences with weeds, and how we perceive the value of both the weedy plant and the environment it is within. Sharon Willoughby made an excellent point related to this – whilst connecting to the natural world is promoted in education, when we exclude some species or label them as bad, we are sending mixed messages. I expect the ‘good plant’ vs. ‘bad plant’ argument is a hangover from European land use values that were initially derived from use of land for food production. In more recent times land has been regarded as having aesthetic and cultural values and now, finally also ecosystem function values. It is only perceived value that separates ‘good’ from ‘bad’, which makes weed management messages confusing. Brendon Larson’s point about the impact of dramatic language in weed propaganda was very relevant to this – it’s surely much harder to engage people in environmental management if the environment is portrayed as something to be distrustful of. Messages about plants and weeds must be presented in a useful way, and with relation to the environment they occupy. A plant is rarely a weed when viewed in isolation and Richard Martin and Gillian Paxton gave examples of how ‘weed’ species may serve cultural or ecological purposes in specific circumstances. This really demonstrates to me that weed messages must include information about circumstances.

The sphere of influence is at a local level. Dick Pasfield said this and it is one of my favourite quotes. We have to remember that Australia is big. With so much geographical, political, cultural and climatic separation across the continent, of course the sphere of influence is going to be at the local level because so much separation makes it hard for the government to determine what the vision is. Visions need to match circumstances, which are numerous.

Only at the local level can we get precise solutions for specific problems. Both ‘bottom up’ and ‘top down’ determinants (research information, policy, on-ground resources etc) have roles in structuring on-ground weed management. However, the difficulty is in connecting the two at the optimum level. We talked about the need to couple ecological quantitative data with qualitative social data, but I don’t think we really established how much driving should be coming from which direction. My personal guess is that this is another circumstance specific thing.

Overall, I thought we really hit the nail on the head, both in terms of detecting where the separation between weeds policy and weed management action lies, and in identifying why weed management is a fuzzy concept. Whilst Australian policy is largely focussed on living without weeds, or at least, pretending that we are striving for relative weed free-ness, management actions (theoretically guided by policy) are dependent on political pressures and human interpretation of the concept of weeds and the issues posed by weed presence. Factors such as where we live, how we use the environment and how we allocate values in our lives, all influence our feelings about living with weeds. I left the workshop with the impression that living with weeds is a circumstance specific thing, as is the way we connect weed management theory with practice.

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Keith Ferdinands, Northern Territory Department of Land Resource Management

There is a body of work out there which has attempted (with different degrees of success) to bring together researchers (social, ecological, economic), land managers and land holders. In the work we have done we have always been cautious of re-inventing the wheel and have focussed wherever possible on borrowing or modifying existing ideas/approaches, typically in collaboration with original developers/researchers and making them better.

For weed management to succeed given the size of the problem and the resources available will always be mismatched (i.e. less than is needed) it is imperative that a carefully planned, evidence-based approach utilising a collaborative/partnership approach is used. Bearing in mind my obvious bias to the use of 'weed risk management systems', I think the key elements that need to be considered and linked to each other are:

- *research,*
- *existing decision support systems (e.g. weed risk management systems),*
- *existing policies/guidelines/management plans and ways to improve how we educate and properly engage with key stakeholders, land managers, the general public, i.e. better dealing with the most complex part of weed management – people.*

Bringing these sometimes disconnected elements together will require (a) some changes in the way we do things (b) leaving our egos, "patches", "empires", personal agendas "at the door", and developing truly cooperative approaches to weed management. As suggested above, this coordinated/partnership approach is not new; nor has it been "completed" or always successful, but lots of useful information, tools and experience exist or are underway. The workshop [and] the associated research project has the potential to make an important contribution to this existing weed management related research/work/policy developments, BUT, only if it builds on the existing body or work and existing partnerships and does not seek to re-invent the parts which already exist.

If the ultimate aim is [to] improve the way we manage current and possible future threats/problems posed by weeds, we don't have the resources, nor will [there] be progress if we fail to build on what has already been done in improving the way we manage weeds.

In writing the above, I was conscious of the risk of stating the obvious, but decided it needs to be kept in mind with this work – and all work related to weed management – but particularly when research is involved. If this prompts further discussion / debate, that, in my opinion, is a good thing.

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Postscript

We asked in an age of social and ecological change, how do we live with weeds? What does the ‘new normal’ mean and how do we answer this? We see this workshop and discussion paper as just a beginning. As a step towards addressing these questions, one thing the workshop did was highlight the diverse ways that people are already living with and working with weeds, sometimes in ways that creatively adapt existing policies and programs to local and regional circumstances. For example in remote areas non-government groups are collaborating to reach specific landholder groups and stretch resources; community groups in the north are responding to specific skill sets within the indigenous community, and in southern Australia management organisations must build capacity among diverse peri-urban landowners. What do we make of this and what are the consequences?

We asked people to be provocative and they were. We were under no illusions about coming to firm conclusions. The workshop and responses above challenged us all, our paradigms, knowledge, and every day practices. The voices of practitioners in the workshop were very important. These people have 15, 20, 30 years of experience in dealing with weeds and it is clear from their practices that the new normal is widely acknowledged. In such a context, as discussants above identify, it is important to ask why the environmental ideal has not shifted.

The bigger challenge remains to shift to a different way of thinking or doing things or at least to consider the potentials of this and how it might look. In this sense we want to both build upon what has been done already, and also consider how existing actions and methods might be constraining the ways we live with weeds and deploy scarce resources.

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