Beliefs about natural forest systems

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Summary

Forest management agencies are increasingly compelled to consider the beliefs and values of a range of stakeholders in decisions regarding forest resources. Beliefs about natural forest processes underpin a range of attitudes and responses to resource management. This paper explores concepts of natural forests. Group interviews were conducted with 38 people with diverse interests and experience in forest environments. Participants were members of forest-related interest groups: groups supporting and opposing commercial harvesting of native forests as well as bushwalking, hunt and four-wheel-drive clubs. Participants discussed ethical forest management and their personal experience of forest environments. Diversity and change emerged as important characteristics of natural forest, although participants expressed varied views regarding the naturalness of human-induced change such as logging and burning. Participants' understanding of the relationship between humans and the natural environment was ambivalent at times, with humans viewed as both part of and contaminating natural forests. The findings demonstrate the dynamic and multi-faceted nature of environmental concepts. They also suggest the value of facilitating conversation between diverse groups to encourage new understandings of natural forest systems.

Keywords: amenity value of forests; forest ecology; public opinion; forest management; surveys; Australia

Introduction

There is increasing interest in understanding the 'social acceptability' of forestry management systems and integrating these judgments in the development of sustainable forest management systems (Brunson *et al*. 1996; Ribe 1999; Williams *et al*. 2001). While judgements of acceptability are not yet well understood, they are likely to be underpinned by assessments of multiple salient outcomes of forest management (Williams *et al*. 2001). These may include perceptions of ecological and visual impacts, timber yield, safety of harvesting practices and so forth. Beliefs about nature and naturalness have an important influence on judgements of acceptable land use (MacNaghten *et al*. 1992). This paper explores people's perceptions of natural forest environments. It outlines a framework for understanding the nature of these beliefs and reports a study undertaken to examine beliefs about natural forests in Australian society.

Perceived naturalness is an important dimension of environmental experience. In general, people prefer environments which have natural elements, particularly water and vegetation (Kaplan and Kaplan 1989). Several researchers have reported positive correlation between environmental preferences and perceived naturalness (for example Fenton 1985), and natural environments have been shown to have significant benefits for human well-being (Ulrich 1984; Kaplan 1995). In its simplest terms, naturalness describes the degree to which an object or event is considered to be consistent with the usual course of nature. Judging naturalness therefore involves a comparison of an object or event with a pre-existing mental representation (schema) of what is normal or usual in nature. As such, conceptions of naturalness are not dichotomous, distinguishing only between natural and unnatural environments (Wohlwill 1983). Environments may be assessed on a scale or hierarchy of naturalness, distinguishing for example between environments that are 'totally natural', 'civilised nature', 'semi-natural' or 'non-natural' (Mausner 1996, pp. 344–345).

Beliefs about naturalness are likely to differ across social contexts, but some themes recur. These include beliefs about human influence on the physical environment, and beliefs about change in nature. Researchers of human–environment relationships have tended to define natural environments by the absence of human intrusion (for example Wohlwill 1983), contrasting natural environments with those built or significantly altered by humans. This conception of naturalness may not be universal, however: Wohlwill and other researchers (see for example Lowenthal and Prince 1976) recognised that distinct boundaries between humans and nature are fostered particularly within Western society, and may not be applicable within other cultures. More recent work suggests that even contemporary Western conceptions of natural environments may not include such clear-cut distinctions. Mausner (1996) conducted interviews exploring the concept of nature with North American residents. Her findings show that participants in fact described multiple views of the relationship between humans and the natural world, sometimes displaying considerable ambivalence about this relationship: 'I don't necessarily segregate man from nature — man is definitely part of nature, at least at one time he was.' (Mausner 1996, p. 340).

Perceived change in an environment is also fundamental to beliefs about naturalness. Wohlwill (1983) argues that change itself is one of the key attributes used to distinguish 'natural' and 'built'

environments. Continuous growth and change and ongoing organic processes differentiate nature from built environments and artifacts. The rate and cause of change are salient factors; Mausner (1996) found that human-induced change was generally considered to be more sudden than natural change, and that environmental change attributed to human activity was viewed as unnatural. Consistent with this belief, Lamb and Purcell (1990) found that the agent of structural change in vegetation was important to perceived naturalness: grazing, dereliction and weed invasion were seen as unnatural but fire was not.

Specific outcomes of change will also be important. Canadian researcher Thomas Dunk (1994) interviewed forest workers regarding their beliefs about forest harvesting. Logging itself was described as a natural process: 'I think it's the most natural thing in the world to go and cut a tree down. I really do' (p. 21). But the outcomes of clear fell harvesting were viewed as unnatural:

> With clear-cutting … nothing seems natural. Where I cut 30 years ago that's grown back natural, but in clear cut areas only one species of tree is planted and grows. There will never be wildlife. [59-year-old cutter] (p. 21).

In this example there is a clear discrepancy between the timber cutter's representation of a natural forest (which includes a belief that natural forests have many species and wildlife present), and the perceived outcomes of the otherwise 'natural' process of cutting down trees.

While assessments of human influence and the rate, cause and outcomes of change are particularly salient to beliefs about natural forest systems, the criteria for assessing these characteristics are not fixed. Judgements of naturalness will be influenced by social learning and the context of assessment. For example, people with different social and environmental backgrounds are likely to assess naturalness in different ways. Place of residence and places visited, formal and informal training, environments encountered via a range of media (for example films and literature), and the beliefs and attitudes of social peers, all provide examples of 'nature' that will influence an individual's concept of what is typical in nature (Purcell 1987). Education and environmental experience will play a key role in shaping beliefs about natural forests. This is illustrated in a study by Lamb and Purcell (1990), which shows that lay perceptions of naturalness differ from ecological conceptions. They asked participants to evaluate the naturalness of photographs of vegetation. They found that tall and dense vegetation was perceived to be more natural than low open vegetation, no matter the ecological naturalness. Participants could detect structural changes in vegetation caused by grazing, fire or weed invasion, but were less discriminating in their judgments of high vegetation than of low vegetation.

Judgements of naturalness are also likely to vary over time and across different social contexts. MacNaghten *et al.* (1992) conducted an experiment in which participants assessed the acceptability of environmental changes depicted in a series of computer-edited images. Prior to evaluation of the scenes, researchers showed participants a video, ostensibly explaining the research project but actually subtly defining the concept of naturalness. Two concepts of nature were presented in two experimental conditions: nature as virgin territory and nature as visual harmony. They found that judgements of acceptability differed across the two conditions. MacNaghten's study shows that beliefs about naturalness will have important implications for other environmental assessments, but also suggests that concepts of nature may be multi-faceted. The salience of a given facet may depend on factors within the judgement situation. Consistent with this, Andersson (1994, 1995) considers judgement of naturalness to be dynamic over time. His research, observing pairs of individuals discussing the relative naturalness of different forest environments, shows how beliefs about ideal or natural forests are developed and modified through conversation.

Beliefs about naturalness of forests managed for wood production are an important component of overall assessments of acceptable forestry practice. It is important to recognise the dynamic nature of these judgments and that individuals and groups will differ in their assessments of naturalness. This paper reports an exploratory study undertaken to examine beliefs about natural forests among contemporary Australians. Beliefs about naturalness have been explored in a variety of ways. Survey-based evaluations of actual and simulated environments provide useful insight (for example Lamb and Purcell 1990), but interviews allow more detailed exploration of belief systems (see for example Mausner 1996; Cobern *et al.* 1999). The beliefs of people actively involved in forest management debates are particularly salient for policy makers and planners seeking to understand public response to forestry practice. In this study participants recruited from a range of organisations concerned with forest management discussed their understanding and experience of forest environments. Analysis of interview transcripts sought to identify common and divergent views about the characteristics of natural forests.

Method

The principal goal of the study was to develop an understanding of the ideas and language used to describe natural forests. Group interviews, including focus groups, are an excellent method for gaining an understanding of the beliefs, language and experiences of people from a range of backgrounds (Krueger 1988).

Participants

Conceptions of nature vary with an individual's current place of residence (Pederson 1979; Orland 1988), environmental experience and commitments (Strumse 1996; Cary and Williams 2000), and gender (Virden and Walker 1999). Participants were recruited to ensure variation in environmental commitment and experience. Interviews were conducted with a total of 38 people, including 27 males and 11 females. Participants were recruited through 19 organisations concerned with forest management. Nine Victorian 'Green' or environment conservation groups nominated a total of 19 participants. Nominating groups included the Wilderness Society, Concerned Residents of East Gippsland, Field Naturalist groups and bushwalking clubs. A further 19 participants were nominated by organisations associated with the Public Land Council (PLC), an umbrella organisation formed to coordinate political pressure for greater access to and multiple use of public lands. The PLC sought better public land access for timber harvesting industries. Relevant member organisations at the time of this research included the Victorian Association of Timber Industries, as well as recreational vehicle and hunt clubs. Sixteen participants lived in an urban setting (Melbourne, Victoria) and 22 in rural areas (East Gippsland, Victoria).

Procedure

During 1994, two group interviews were conducted in Melbourne (urban) and three in East Gippsland (rural). The sizes of groups ranged from 7 to 13. Separate interviews were conducted with people associated with groups either supporting or challenging commercial timber harvesting in native forests. It was hoped that this would allow participants to share their views and experiences in a non-confronting environment. Each interview was of two hours duration. Interview questions were wide ranging, asking participants to discuss moral issues of forest management, describe typical notions of wilderness and of Australian forests, and to describe personal experiences of forest environments.

Analysis

Interviews were transcribed for analysis. Transcripts and interviewers' notes were then read and re-read to identify common themes. Similarities and differences were noted. Based on these patterns, categories or themes were formed. The complete transcripts were then coded against these categories. This paper presents only those findings relating to beliefs about naturalness of forest environments.

Results

The terms natural and nature were used frequently by many participants in the interviews. Participant comments made it clear that while all forests contain natural elements, some forests are more natural than other forests:

> I think there is a spectrum of natural … so you might go from Ellery [an 'old growth' forest in East Gippsland] at the one end of the spectrum and you might get bush that's been really tampered with, but it would still be natural compared with pine forests where they have to use pesticides all the time.

Two concepts appeared to underpin participants' understanding of a natural forest: diversity and change. Of these, diversity was the concept used most consistently to describe forests in a natural state. Several participants emphasised 'A forest is not just trees'. Diversity was seen as important not only within a single forest ecosystem, but across a region:

> There is no such thing as a typical Australian forest … You can't even say there is a typical East Gippsland forest … that's the beauty of this area … we are on the corner of a continent, where all these plants from west and north meet. We are in that beautiful merging zone and there is no such thing as a typical East Gippsland because of the great variety we've got.

Timber plantations were characterised as a less natural forest, and their lack of diversity was given as evidence of this:

> Eucalypt plantations … have no undergrowth in them … they are very uniform and very artificialised … they are a very inferior forest in my view, as an aesthetic source, but I accept they are very productive bits of ground.
>
> It's static, nothing changes. Once you've seen 15 of the trees, the next 15 are the same and so on all neatly in a row and that's it. Nothing varies.
>
> You could look out and see the pine forest and in one sense it was just a desert, because it was just a plantation, like a wheat crop or of anything else.

Change over time was also an important characteristic of a natural forest. There was a diversity of views, however, regarding what constitutes natural change. This is evident within a conversation between two participants who had both been involved in protesting logging of old-growth forests in East Gippsland:

> Alex: We cannot get a steady state where nothing changes. That's not how nature works.
>
> Angie: I'm not saying it should be but it should shift slowly.

Several comments, particularly by participants affiliated with organisations opposing commercial harvesting in native forests, seemed to imply that natural forests are unchanging.

> [Wilderness is] a place where you can go and see how things have been since the beginning of time.
>
> To me, it's a reference point. As society shifts, as humans grow, as the population explodes, as industries emerge and science marches on its merry way and genetic engineering and all these things are going on around us, we run the risk of transforming our species into something that is completely off the rails. If we have a reference point back to natural systems, then at least we can see something that's natural.

These comments appeared to draw on more symbolic meanings of natural forests, rather than a literal understanding of ecological processes.

Not all change was viewed as natural. An obvious example is change brought about by human activity, including forest harvesting:

> … the practice of forestry as it is currently executed in our native forests … they clear fell and they burn. It's not a natural disturbance in a forest.

Others saw harvesting as a natural process:

> What I think about logging is, we are only doing what nature does, only quicker. We are making it renew quicker and making the cycle go faster, that is all. Because really all those trees will stay there until they rot and then the new ones will come up. End of story. What logging does is keep the cycle going except a bit quicker.

It is interesting to note that even in this comment by a participant who clearly supports continued logging in native forests, the speed of change that is associated with forest harvesting is considered a limitation to its perceived naturalness.

The naturalness of forest harvesting was also assessed with reference to the outcomes of change. These comments reflect a view that change associated with loss of diversity or changes in forest composition or structure might be seen as unnatural:

> What we are doing to the forests is changing them from what they would have been in original state … from a forest to a plantation.
>
> [There is a] difference between old forests and forests that have been turned into little spindly saplings and wattles and stuff like that after it's been logged. There is just no comparison. One is degraded, the other is pristine.

In the latter quote, it is interesting to note that tall forest is considered more natural than forests of smaller trees. This is consistent with work by Lamb and Purcell (1990) and Mausner

(1996) who found that interview participants used tree size as an indicator of tree health and longevity.

Participants varied in their understanding of the naturalness of fire within a forest ecosystem. One participant offered lack of fire as an indicator of naturalness:

> There are areas like the Ellery catchment where it's been proven that they haven't been touched by fire, there are trees in there that haven't been touched by fire for well over 200 years, some of them even over 350 year age groups. So we still haven't contaminated it yet. That to me is natural.

Others clearly viewed fire as an important part of Australia's natural forests. In one interview two participants commented that absence of grazing in forests resulted in dense tree growth. A third participant commented 'Oh, nature will take care of that, it'll put a fire through that nobody can handle'.

An important theme within the interviews was the perceived naturalness of humans and human activities within forests. Most participants saw humans as part of a natural forest. This was sometimes expressed as an abstract statement, here by rural participant supporting harvesting of native forests: 'I believe that men are a part of the natural order of things and belong in the forest, and people shouldn't be locked out of it.'

More commonly, however, the view that humans are part of a natural forest was expressed as a feeling experienced while spending time in forests:

> As a hunter I certainly get that feeling. I feel part of the environment. It's an instinctive thing. You are out there … and you are switched on to everything. You are looking out for deer most of the time, but you are part of the whole scene. I think it's just an instinctive thing with me, that's just deeply satisfying.

Terms such as 'being part of' the forest, 'tuning into' the forest, feeling 'at one with nature', 'totally relating' to the forest and feelings of 'belonging' were repeatedly used to describe participants' relationships with forests. Two participants (both members of organisations opposing commercial harvesting in native forests) took a different view, suggesting that humans are not part of a natural forest environment:

> As a person I don't really fit into that ecosystem … If you ever spend any time out there you don't ever become part of it. I mean you still have to build your own shelter, you have to change the environment to exist there as a human being. We as humans adapt things. We create our own little environments … where a tree tends to merely exist.

This view was unusual and challenged by other participants in the interviews, as in this conversation:

> Angie: I think humans generally are gross consumers and we don't know when to stop. Even way back in history, way, way back, native people in fact have altered things to the degree that they've killed out all our megofauna in Australia.
>
> Alex: But then if you say that you've got to accept as well that we are a natural … we are one of the species, we are not some totally separate things, even as consumers.
>
> Angie: I'm beginning to think we are.
>
> Alex: I feel that we are one of the species and we are therefore entitled to have our impact like any other creature …
>
> Angie: But I was just saying that humans have a greater impact on the natural environmental than I think any animal. That's why I can't see that we can ever be part of that natural system.

Despite this challenge to overt statements about the role of humans in a natural forest, ambiguity about the perceived naturalness of human activity underscores comments made by a number of other participants. The example given above about humans 'contaminating' forests through fire is one such example. Ambiguity is also evident in this comment which reflects on the symbolic meaning of forests for people seeking to protect these ecosystems:

> Well I think that they do symbolise something that isn't human. They are a good example of something that isn't human … Trees are quite different and their reality is different and we can't understand their reality at all.

Diverse views about the role of humans in natural forest systems are also evident in the range of opinions expressed regarding the need for forests to be managed. Some participants argued that many forests are best left without human intervention: '[Wilderness] is there and we can leave it alone and it will look after itself. It's an ecosystem.'

Others, primarily those affiliated with the PLC, argued that forests needed to be managed by humans to maintain natural characteristics:

> One of the things that has been happening is areas set aside as pristine as possible. But nobody has bothered to consider how you are going to pay for the management of these areas, and so you gradually see an infiltration of various ferals, various weeds in a lot of these areas and not enough funds have been put aside for adequate management … You need a very good reason for being there and managing this area to keep it in its natural form, and unless funds are set aside for the management of these areas they will become more and more degraded.
>
> There have been numerous examples of park systems where fires have been suppressed and it results in a total change in the environment. The qualities that the park was established for disappeared without some form of management.

Discussion

Beliefs about nature and naturalness were an important component of participants' discussions about forest management. Beliefs about diversity, change and human–forest relationships provided a basis for conceptions of natural forests.

Diversity and change were described as characteristic of natural forests, though participants expressed a range of views on pace and cause of natural change. There appeared to be some tension in descriptions of natural forest as both changing and unchanging. Apparently conflicting comments tended to occur at different times during the interview and seem to suggest that the meanings we attribute to forests occur on a number of levels. Descriptions of on-going change seemed more closely related to discussions of ecological processes, while comments on forests as unchanging seemed to reflect on more abstract or symbolic aspects of human–forest relationships. Our understanding of forests and natural environments more generally is overlain with rich symbolic meanings. Forests can signify continuity and refuge in a rapidly changing world (Schroeder 1996; Williams 1998), and participant

descriptions of natural forests reflect this complexity of symbolic and literal meanings.

Consistent with findings of Mausner (1996), some participants were ambivalent about the relationship between humans and natural forests. Several participants described feelings of 'being-in-nature' and also asserted in more abstract terms that humans are part of nature, yet also described humans' activity as 'tampering with' or 'contaminating' natural forests. Mausner argues that the nature–people polemic has had a major impact on conceptualisation of natural environments in Western, industrialised culture. This dichotomy will continue to infuse our talking about forests, despite the construction of more abstract and phenomenological dialogues which position humans as part of nature.

The study was designed to capture a range of views regarding natural forest systems, and not as a systematic comparison of individual and group differences in these beliefs. It is possible, however, to make some general observations about the relationship between these beliefs and environmental affiliation (membership of an organisation supporting or opposing commercial harvesting in native forests). The views of natural forests held by these two broad groupings were probably characterised more by similarity than difference. Affiliates of both groups shared beliefs about the importance of diversity and change in natural forest systems, and almost all participants considered humans to be part of natural forest environments. Furthermore, individuals affiliated with both groups were concerned about a perceived alienation of people from forests, and argued the need for humans to 'get back to nature'. There were, however, several suggestions of important differences. Affiliates of groups supporting commercial harvesting of native forests (and greater access to public lands) appeared more likely to see logging activity as natural, and to view human management as important to ensure natural forest environments are maintained. There is also some suggestion that individuals opposing commercial harvesting were more likely to describe natural forests in symbolic language, creating alternative meanings of forest environments. For example, these participants were much more likely to describe the forest as a source of continuity in a rapidly changing world.

Layered meanings attributed to natural forest systems points to the multi-faceted and dynamic nature of human conceptual systems. Barsalou (1985) argues that conceptual structures are formed in the context of use. In line with this, Andersson (1994, 1995) has shown that beliefs about natural and ideal forests evolve through conversation. Beliefs about natural forests change over time, and multiple meanings may provide information for judgements over relatively short periods. The interviews reported in this paper were conducted in 1994. Around this time a number of environmental histories relating to Australian forests were published (Pyne 1992; Flannery 1994). In the intervening period, the reading Australian public has been exposed to new ideas challenging commonly held beliefs about change in the Australian environment. It would be valuable to explore how lay and expert views of natural forests have changed during this period.

Conclusion

The term naturalness generally refers to the degree to which an element or event is consistent with the character and processes of nature. It is significant, however, that the term 'natural' is also used to describe actions considered to be morally right. To describe something as 'natural' might infer it is 'instinctively or immediately felt to be right' in the sense of natural morality (Brown 1993). The close relationship between what is natural and what is good underscores the importance of understanding beliefs about natural forests. This knowledge will provide a stronger basis for understanding social acceptance of forest management systems.

It is clear however that conceptual systems regarding naturalness are dynamic. The multiple constructions of naturalness evident in this study suggest the potential for bringing together people with disparate views on forest management to forge new and shared understandings of what is natural and right in forest management. Dialogue of this kind contributes to social learning (Endter-wada *et al*. 1998); when groups with differing views on forest management come together, to listen and discuss, new understandings of forest environments will emerge.

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