

forest officials entrusted with the task of protecting the forest. In the third case, with NGO-promoted forest management, greater importance was given to protecting the resource from outsiders. Infractions by community members, however, went unpunished by the NGO, since it had other activities in the community and did not want to antagonise some community members.

Our findings indicate the crucial impact of monitoring on the cohesiveness of institutions as well as on the success of forest-management initiatives. Clearly, it is necessary to ensure rule compliance by community members as well as by outsiders. When sanctions are strictly enforced, they prevent the spread of free-riding behaviour,

thereby instilling a sense of trust in the community. It is essential, however, to provide conditions that facilitate a sense of justice and fair play by ensuring that all individuals who break rules are penalised, irrespective of their position in the community. When the users themselves are genuinely engaged in making decisions about rules affecting forest use, the likelihood of their following the rules and monitoring others is much greater than when an external authority (whether the government or an NGO) imposes rules on the community.

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Human activities have been implicated in the vast majority of contemporary environmental problems. Thus, it might be expected that research into those activities, and the attitudes from which those activities stem, would be of central interest to environmental scientists and land managers, and would be strongly supported by funding agencies. Nonetheless, the Australian experience, as reflected, for example, in the federal government's national research priorities, is that environmental research is conceptualised predominantly in scientific terms. Our reading suggests that this is the case in many other countries as well.

There has been significant engagement between the natural and social sciences in two areas of environmental research, however.

First, archaeology, palaeoecology and environmental history have converged to study long term human-landscape interactions. Second, the quantitative social sciences tradition of large-scale survey sampling aims to understand environmental attitudes by correlation with quantifiable variables such as age and social class, often with a view to changing behaviour via education.

While recognising the value of these collaborative trends, we focus here on the other major paradigm that has informed the humanities and social sciences. This is the qualitative method of interpretive understanding that produces historical and ethnographic studies of culture and society. Specifically, we are interested in cultural analysis of the beliefs, practices, and often un-articulated assumptions that underlie human-environmental relations. Our aims are

(1) To show how socio-cultural processes are central to environmental attitudes and behaviours

Australia provides a fascinating diversity of examples and questions. What are the implications of Aboriginal knowledge of place, nature and landscape, developed over millennia of intimate subsistence occupation of the continent? How have British settler cultural traditions changed through interaction with diverse Australian environments? Are there identifiable influences brought from Asia through the historical arrival of migrants and visitors from such countries as China, Vietnam and Indonesia? We are not presenting a fixed view of culture transmitted as a total package through generations.

Rather we approach it as a dynamic mix of practices, beliefs, and symbols that is actively made and remade in time and space.

(2) To illustrate the sorts of contributions research on culture can make to the practical challenges of environmental sustainability

Examples include the clarification of land use conflicts among different cultural groups, such as between rural landholders and National Parks Services over fire regimes, or between large immigrant groups of picnickers and managers over appropriate behaviour in national parks. Comparative approaches between Aboriginal and other people's (scientists, bushwalkers, fishers, parks managers) relations to land are an important component of successful joint management arrangements. Influential cultures requiring analysis include those of environmental management organisations themselves, and a number of Australian scholars are making contributions in this area.

(3) To stimulate dialogue between researchers in the humanities/social sciences and the natural sciences

A range of approaches has been suggested, from better communication across traditional disciplinary boundaries to their total collapse. It is not our intention to advocate any one approach, nor are we unaware of the difficulties involved. Rather, we aim to stimulate discussions between culturally-oriented researchers in the environmental humanities and related areas of the natural sciences. As these are international issues, we hope our Australian examples will be supplemented by comparisons from other parts of the world.

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Culture as Concept and Influence in Environmental Research and Management

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