Editorial

Thinking like a Human: social science and the two cultures problem

This much we know: most people active in conservation are trained as biologists, yet most of the problems of conservation are to do with people. Ask a room full of conservationists, young and excited or old and world-weary, where the biggest threats to biodiversity and the success of conservation lie, and they will point to the workings of society, economy and politics. People, they always say, are the problem.

And yet we mostly recruit biologists into conservation, not social scientists. There is a Society for Conservation Biology (SCB), but no society for conservation sociology, or conservation anthropology or conservation political science. These disciplines do not exist as such in universities. They have no journals. They train no graduates. Of course, social scientists have made major contributions to conservation (Brosius, 2006) and the SCB has a very active Social Science Working Group. However, it remains a fact that the core expertise needed to solve the problems of global conservation has to be painstakingly learned by people trained in quite different ways of thinking.

Conservation biologists know they need to reach out beyond their base in the core science disciplines. Thus Michael Mascia and his colleagues argue that 'to preserve the earth's natural heritage, the social sciences must become central to conservation science and practice' (Mascia *et al.*, 2003). Amen to that. The question is, how do we do it?

There are numerous barriers to integrating social science and conservation, both in the real world and the minds of conservationists (Fox *et al.*, 2006). What we do reflects what we think, and if we are not trained to understand how society works it is quite likely that what we do about society's demands on nature will be crude, unpopular and ineffective. This is pretty much how conservation's critics describe them (Chapin, 2004).

I believe that conservation suffers from a version of the 'two cultures' problem outlined by the British scientist, novelist and civil servant C.P. Snow in his Rede Lecture in 1959 on *The Two Cultures and the Scientific Revolution*. Snow's purpose was to draw attention to the importance of science and technology in the improvement of the human condition. Scientists, he thought 'had the future in their bones' (Snow 1998, p. 10). He argued that two distinct cultures were emerging, 'scientists' and 'literary intellectuals'. The latter he described as 'natural luddites' (p. 22), and he mocked their ignorance of the Second Law of Thermodynamics: 'the great edifice of modern physics goes up, and the majority of the cleverest people in the western world have about as much insight into it as their neolithic ancestors would have had' (p. 15).

Snow's lecture stimulated an extensive debate across the world (Collini, 1998). It is clear in retrospect that his concepts of 'literary intellectual', and indeed 'scientist', were straw people, and his rhetorical structure was too slight for the weight of argument subsequently hung upon it. But he captured something important about the power of science in the aftermath of the Second World War, the ignorance of science on the part of the British elite (and the education system that nurtured it), and the lack of mutual comprehension across disciplines.

These factors remain relevant, not least to conservation. Its leaders are mostly highly educated in the biology of organisms and ecosystems. But what do they know of social theory, political economy, and the economics of institutions? As conservationists we mostly lack the knowledge and language to be able properly to understand and talk about the most significant problems we face, and we lack the language to have an effective conversation with those who claim (on the basis of their social science training) they have the understanding we need.

Arun Agrawal and Elinor Ostrom (2006) describe the 'dialogue of the deaf' between political science and conservation biology. This problem stretches right across the social sciences, and has at least three dimensions. Firstly, issues of language and terminology prevent effective communication: much social science is unintelligible to natural scientists because of the complexity of language and concepts; many terms used by conservationists (e.g. 'community', 'tradition', 'household') and many assumptions (e.g. that people will always do what makes material economic sense) are profoundly simplistic and often misleading and misunderstood. Secondly, there are distinct communities of knowledge between the natural and social sciences, and different traditions of theoretical and historical understanding: without taxonomy, Tardigrades are just 'bugs'; without anthropology, ethnicity is just 'tribe', and any intelligent detailed discussion of biodiversity and society is stillborn. Thirdly, there are issues of epistemology, differences in

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how we know what we think we know, between the safe reductionist conventions of statistical methods and modelling (shared by social science disciplines such as macroeconomics and spatial human geography) and the complexities of qualitative analysis.

Conservation biologists often express bewilderment at the way social scientists revel in theory as something diverse to argue about, and see such argument as a way to enrich understanding of complex questions rather than to reduce them to their essential constituents; many social scientists seem confused over the role of statistical analysis and quantitative techniques, and have an inexplicable reluctance to speak in terms of evidence, facts and proof. On the other hand, social scientists often wince at the clunking number-crunching, the dependence on quantitative questionnaires and the arbitrary definitions involved in conservation scientists' attempts to understand people, and they express amazement at natural scientists' willingness to analyse society without reading relevant literature outside their discipline.

These differences can be expressed in academic terms, but they are also intensely practical. Lisa Campbell (2005) describes the plight of the social scientist on interdisciplinary teams in conservation: typically brought in late, working alone, and assigned a lowly position and confined to tackling tasks pre-specified by natural science colleagues. Social scientists are often asked 'what's the answer to this question?', when they want themselves to ask 'why is that the question you are asking?'.

If we are to make real progress in conservation we have to take the challenges of the communication between different academic ways of understanding the world seriously. Deep inter-disciplinary chasms are maintained by the apartheid of many university education curricula, and entrenched by the different disciplinary publication requirements and academic reward systems (Fox *et al.*, 2006). There is a prejudice within many academic institutions in favour of issues at the core of disciplines against those at the margins, and in favour of pure and against applied work. Conservation biology, as a 'mission-driven discipline' (Meine *et al.*, 2005), already suffers from this, in a world where science funding and career advancement reward highly specialized work. Yet to meet the needs of conservation we need thinking and education that reaches further, outside the natural and applied sciences altogether.

We have to recognize that what we need in conservation are not inter-disciplinary teams, but inter-disciplinary people. Certainly, we must learn about one another's methods, and be prepared to understand and use effectively one another's tools, as the SCB's Catalog of Conservation Social Science Tools encourages (http://www.conbio.org/workinggroups/sswg/catalog/, or see White *et al.*, 2005). However, our challenge is not to take biologists and equip them with the skills to get by in social surveys. Our real task is to create conservationists for whom these skills are innate, for whom the disciplinary boundaries so beloved of academic researchers are no constraint.

Aldo Leopold starts his essay *Thinking like a Mountain*, by describing the death of a wolf that he has shot, and through it builds to his famous appeal for wildness as an antidote to 'safety, prosperity, comfort, long life, and dullness'. In the course of it he dismisses the rancher who exterminates wolves without realizing he must take on their job of controlling grazing herd numbers. That cowman has not, he says, learned to 'think like a mountain'. Leopold's point is that unless we think differently, we will not understand our task. Unlike the rancher, the conservationist must learn to think like a mountain if they are to achieve anything worthwhile.

We all know this story, and for my money Leopold is right about wildness. But I would argue that the essay is as important for what it says about the rancher as about the wolf. To me the real challenge for today's conservationist is to learn to think like a human.

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References

Agrawal, A. & Ostrom, E. (2006) Political science and conservation biology: a dialogue of the deaf? *Conservation Biology*, **20**, 681–682.

Brosius, P. (2006) Common ground between anthropology and conservation biology. *Conservation Biology*, **20**, 683–685.

Campbell, L.M. (2005) Overcoming obstacles to interdisciplinary research. *Conservation Biology*, **19**, 574–577.

Chapin, M. (2004) A challenge to conservationists. *World Watch*, **17**, 17–31.

Collini, S. (1998) Introduction. In *The Two Cultures* (C.P. Snow), pp. vii–lxxi. Cambridge University Press, Cambridge, UK.

Fox, H., Christian, C., Nordby, J.C., Pregams, O.R.W., Petersen, G.D. & Pyke, C.R. (2006) Perceived barriers to integrating social science and conservation. *Conservation Biology*, **26**, 1817–1820.

Mascia, M., Brosius, J.P., Dobson, T.A., Forbes, B.C., Horowitz, L., McKean, M.A. & Turner, N.J. (2003) Conservation and the social sciences. *Conservation Biology*, **17**, 649–650.

Meine, C., Soulé, M. & Noss, R.F. (2005) ''A mission-driven discipline'': the growth of conservation biology. *Conservation Biology*, **20**, 631–651.

Snow, C.P. (1998) *The Two Cultures*. Cambridge University Press, Cambridge, UK. (First edition 1959)

White, P.C.L., Vaughan Jennings, N., Renwick, A.R. & Barker, N.H.L. (2005) Questionnaires in ecology: a review of past use and recommendations for best practice. *Journal of Applied Ecology*, **42**, 421–430.

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