

Community Science and Social Resilience

Recently, I was part of two expert committees—one about strategic planning for future farming and the other about the impact on biodiversity associated with land use and climate change. As scientists on one committee and as practitioners on the other, our task was to predict the kind of changes that face Australia in the 21st C. The core principle in ‘normal’ scientific practice is that experimental design tests one known variable at a time with all other components of the experiment controlled. It is about facts and not about values. As ‘experts’ we drew on our experiential knowledge and on our understanding of what was happening on the ground in comparison with what we could ‘expertly’ predict. But the variables were multiple, not single and the policy documents that would emerge as a consequence were for government decision-making rather than for science. We had left the realms of conventional scientific practice and entered the world of ‘post-normal science’¹. The recommendations were based on our best scientific evidence, our predictions, our understanding of risk and our understanding of society—including government’s—ability to act.

The boundary between ‘normal’, ‘sound’ science has been crossed. We recognize the increasing uncertainty and risk associated with the need to make decisions now to safeguard species or protect our landscapes for the future. Safeguard and protect sound more defensive than this position really can be because we don’t know all the information we need about the interactions of elements in the future; and we need to keep living in these landscapes. To make decisions now that account for the known risks and the unknown unknowns we must accept the idea that we will negotiate the future in adaptive and innovative ways developed from experience and from post-normal science. To do this we need more information about what is happening ‘everywhere’ and a wider understanding of how all these elements of change interconnect. It is like a giant mapping project of the continent—not just its physical changes but also the social interaction with those changes as culture and practice demonstrate new ‘norms’ of adaptation. We need community scientists everywhere on the ground.

Landcare members contribute to biophysical science, and in particular—but not only—to conservation biology and biogeography. Members are active agents in the observation, collection and tabulation of data across the landscape. Historically, scientists have welcomed some levels of ‘amateur’ engagement. There have been rainfall tally-ers, bird and butterfly counters, plant identification sleuths and the heritage of the Enlightenment’s naturalists has led to clubs associated with ‘knowing’ nature in particular places—grasslands, wetlands, and alpine reaches. These helped to construct both the images we have of Australian biodiversity and its relationship to ourselves and, some of the ‘facts’ used in scientific research and practice. Studies in ecological restoration, for example, have frequently derived from the everyday landscape experiences of Friends groups and Landcare groups.

Normal science is still required. The meticulous attention to the particular and the integration of ideas for example, in understanding large scale trends like ocean warming or continental migrations helps orient

¹ Funtowicz, S. O. and J. R. Ravetz. 1993. Science for the post-normal age. *Futures* 25(7): 739-755.

community science monitoring programs. The robustness of community science data can be assessed². Mainstream scientists need to be involved in training community scientists to monitor and evaluate local events and trends.

Recently governments have adopted the phrase 'resilient communities' to cover all manner of responses to future shocks, be they economic, environmental or social. Community science is a step in recognizing and supporting local environmental knowledge. Resilience is not a mantle we can assume. It needs to be co-constructed. Legitimizing the role of community science so we better understand biophysical changes in our ecosystems, is a step on the path to social resilience.

² LePage, D. and Francis, C.M. 2002. Do feeder counts reliably indicate bird population changes? 21 years of winter bird counts in Ontario, Canada. *Condor*, 104:255-270.