

Mobilising community science in Australia

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Community science is alive and well in Australia contributing to significant scientific advances in a large, sparsely populated continent with significant ecological diversity. The Australian Meteorological Observation Network and the Australian Bird Atlases involve thousands of volunteer observers. Across the continent people are undertaking community science and gaining an understanding of the environment by measuring weeds or whales, dolphins and dung beetles. I have estimated that 300,000 volunteers regularly participate in environmental monitoring programs like Frogwatch, Saltwatch, and Streamwatch/Waterwatch demonstrating a rich third sector science. The movement's importance, strength, and diversity of this continue to grow, since I documented it in "Listening to the Land - the first Directory of Community Environmental Monitoring" (1996). Government agencies now routinely recognise and support the valuable work of the community. However, further mobilisation and coordination of citizen or community science represents a major opportunity. There is massive community willingness to engage in science but only limited resources devoted to the coordination and support necessary for scientifically robust environmental assessments, including of climate change impacts.

Citizen science has potential to accumulate ecological data across unprecedented scales and with considerable economy. New approaches to data gathering, ground truthing, trend assessment and model testing across enormous scales are possible.

A reinvigoration of community science is required, if the national research effort is capable of utilising both community and expert input in to large scale assessments, such as determining the impacts of climate change on Australia's unique biota.

The paper will present ideas on how systems could be developed, collaboratively in Australia, by NGO's and scientist agencies that will support peoples' greater involvement.

Our current understanding of the impacts of landuse and climate change on species and ecosystem is limited, so methods for engaging the public in data collection need to be systematically organised. Original and novel approaches to involving citizens in the challenges of natural systems science need to be actively explored. Coordinated national systems for linking dispersed observer networks with national datasets and ecological researchers need to be developed systematically and urgently. Ideally, this will result in advances in community involvement in systematic ecosystem assessment and research. It will allow a wide range of researchers to work and run experiments which involve people and networks in specific regions or involved with specific issues – eg weed and feral animal control, surveillance for new incursions of invasive species, changes in distribution, range or abundance of species of interest, assessing biotic response to climatic events, other triggers or climate change etc.

The explicitly social processes of involvement in the observations of nature and their use for larger systems of data collection have numerous benefits derived from the "democratisation" of science. Dispersed observer networks have the potential to generate information relevant to terrestrial ecosystem research and management at scales and over timescales that conventional research projects can not easily achieve. This ability makes them excellent candidate tools for monitoring regional and national patterns such as those caused by climate change. Furthermore, by using the public (schools, community, farmers and organisations etc) networks can play an important role in education and natural resources management, thus increasing overall societal capacity to understand, manage and respond to change.

Changes in human relationships with country manifest in the physical landscapes in many ways. At the beginning of the 21 century, profound changes are occurring. Sustainable natural resource management demands major cultural, structural and technological change. In Australia there is a pressing need to learn land literacy, from systematic, strategic and repeated observations of nature, in order to collectively become better adaptive managers. Community science and knowledge generation will play an important role.