

Submission

2016 National Research Infrastructure Roadmap

Capability Issues Paper

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This submission is addressed to questions 18 and 20 in the issues paper:

Question 18: Are the identified emerging directions and research infrastructure capabilities for Environment and Natural Resource Management right? Are there any missing or additional needed?

Question 20: Is there anything else that needs to be included or considered in the 2016 Roadmap for the Environment and Natural Resource Management capability area?

Point 1: The top priority ought to be consistent data streams about Australia's ecosystems continuing over 50 years or more. This is the so-called "observatory" role of TERN and iMOS. People in Australia 50-100 years from now will surely not forgive us if we fail to hand down to them some sort of solid evidence about how ecosystems have changed over time. Imagine if climate change were being discussed now and we did not have records of temperature and rainfall going back 100 years or more? Or if we did not have a record of live coral cover on the GBR over the past three decades?

In this context it's of the highest importance to continue measurements in a consistent manner over decades. Naturally there is continuing debate about exactly what measurements should be taken and where. (My personal preference would be for changing geographical distributions of species to be the highest priority.) But the existing mixture of monitoring measurements in TERN and iMOS is the product of community-wide discussion, it is not an unreasonable mixture, and the need for consistency over time should trump other arguments. In particular, the core measurements should not necessarily be expected to be of immediate use to management agencies. It's likely many of them will indeed be of great value, and more so as they accumulate over time. But the focus of management agencies changes frequently in response to political winds, and the value of consistency over decades should not be subordinated to short-lived fashions in management.

It's worth noting that to track ecosystem change over decades to centuries, yearly measurements are not necessarily needed, much less seasonal cycles within years. It's to be expected that bidding organisations will prefer to have enough funding to support continuous measurements at their favourite sites. Nevertheless, in principle a well-designed system to track decadal changes can be continent-wide without being hugely expensive.

Point 2: The issues paper is not correct to say that alpine, tropical and desert ecosystems represent clear gaps in the existing coverage. These are actually covered just about as well as the rest of Australia's ecosystems. The least-covered ecosystem types are freshwaters and coasts, in reality. And the least-covered measurement types are animals in general, and linkages between wild ecosystems and those managed for production.

But also, it's important to say that the phraseology of "gaps" is not very helpful here. A truly comprehensive or gap-free monitoring system would cost at least 10-100 times as much as current funding, and that seems unlikely to be forthcoming. There are several directions where real national benefit could flow from moderate expansion to the existing TERN and iMOS systems. But at any realistic funding level, some hard but well-informed choices will need to be made, and there will be plenty of things that someone believes important that will not be included.