

Published: 6 February 2012

Using logic to stretch the conservation dollar further

Eve McDonald-Madden

If you were to ask a room full of managers, policy makers, or even scientists, if they should be monitoring the outcomes of their conservation actions, the answer from most would be a resounding ‘yes’. They would argue that if we don’t understand the benefits of our investment, how can we possibly know if we are doing the right thing and if our investment is worth it?



Credit: KeresH

But in a resource-constrained world, it’s worth taking a moment to consider what you’re hoping to achieve through such monitoring.

When we did this and attempted to formalise the logic behind when to monitor, it quickly became clear that in many situations, monitoring is inappropriate.¹

To begin with, governments do not have enough money to manage the threatened biodiversity that people care about. That’s why governments need to make good decisions about where to spend their limited resources. The same is true for monitoring. Further, biodiversity loss occurs independently of monitoring timelines; we may not have enough time to apply monitoring findings to improve our decision making before we lose what we are trying to protect.

That’s not to say those who answer ‘yes’ to monitoring are not thinking about money. One of the most common questions I get asked is, ‘How much of our program budget should we spend on monitoring – is there a set percentage you can tell us to put aside to monitor our conservation actions?’

This question led The Nature Conservancy (TNC) – the world’s largest conservation nongovernmental organisation – to initiate the workshop that led to our research paper. Unfortunately, the answer to their question turned out to be, ‘no, there is no generic benchmark for monitoring: it’s situation-dependent’.

Determining how much to spend on monitoring depends heavily on the problem at hand. Even for a well-defined problem, finding the answer is not easy: not very satisfying advice for those organisations, such as TNC, that need to make daily decisions about their investment in monitoring! But while we may not have been able to give TNC a one-size-fits-all percentage, we decided we could provide a framework to improve decision making concerning when to invest in monitoring and what type of monitoring to undertake.

Working with TNC's key monitoring scientists, we constructed a simple decision tree that guides managers stepwise through a series of basic questions. This guides the user to an explicit and transparent decision regarding their investment in monitoring to improve management.

The decision tree includes five key elements that must be considered when making a decision about monitoring in conservation.

What are you hoping to achieve in your conservation endeavours? What is the goal of the program you are planning to implement? Essentially, this question asks managers to specify the objectives of their conservation program. Without an objective, they do not have a benchmark by which to evaluate their actions.

Once the objective is defined, it's crucial to ask about the threats to the system. By understanding the threats, managers can formulate a list of potential actions that may reduce their impact.

Once a set of plausible management alternatives has been formulated, managers can begin to consider whether monitoring is necessary. At this point, they must consider the reasons for implementing monitoring. Is it to improve their knowledge of how the system works to modify future management decisions (adaptive management)? Or is to guide implementation in terms of the state of the environment we are managing (state-dependent management)?

Managers should ask the question, 'do we know which management actions are the best to implement?' If this is unclear, they will need to assess their ability to implement adaptive management. Do they have the money and time to be adaptive? Do they have suitable monitoring strategies to detect changes in the system?

Apart from having an objective to improve outcomes, there are, of course, other reasons to monitor conservation actions. It might be a legal or audit requirement, or it might be for publicity. Managers should clearly identify their needs before implementing such monitoring.

There has been a surge in research looking at the design of monitoring programs in recent years, as well as a growing number of calls for the establishment of long-term biodiversity monitoring.

At its heart, however, effective monitoring rests fundamentally on a clear justification for acquiring information in the first place. What we strive to know should be driven by what we need to know.

And, if we take a structured approach to decisions about monitoring, we find that the answer to whether we should monitor is not always yes. Sometimes, monitoring can be a waste of time and money.

Dr Eve McDonald-Madden is a Key Researcher with the [National Environmental Research Program \(NERP\) Environmental Decisions Hub](#) and the [Centre for Excellence in Environmental Decisions \(CEED\)](#), both funded by the Australian government. Dr McDonald-Madden is based with the Environmental Decisions Group at the University of Queensland, a NERP/CEED research node and has also been a Visiting Scientist at [CSIRO](#).

¹ McDonald-Madden E, Baxter PWJ, Fuller RA, Martin TG, Game ET, Montambault J and Possingham HP (2010) Monitoring does not always count. *Trends in Ecology and Evolution* 25, 547–550.

From **ECOS** online <http://www.ecosmagazine.com/?paper=EC12174>