

DECISION POINT

Connecting conservation policy
makers, researchers and practitioners

Issue #77 / March 2014

Now you
see me...

...now you don't!

Imperfect detection
and species
distribution modelling



Introducing *Eremaea ebird*



In the marshes of
Madagascar



Aiming for SMART targets
for NRM plans

Decision Point

Decision Point is the monthly magazine of the Environmental Decisions Group (EDG). It presents news and views on environmental decision making, biodiversity, conservation planning and monitoring. See the back cover for more info on the EDG. *Decision Point* is available free from <http://www.decision-point.com.au/>

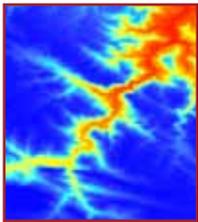
Plus

Conservation in a 'wicked' world
Offsetting seagrass meadows
Cost-effective restoration for birds
Urban biodiversity talk

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How do you account for hard-to-find species like the Alaotran gentle lemur (pictured here) when modeling its distribution. See page 6 for the answer. (Photo by Gurutzeta Guillera-Arroita).

On the point

It takes all sorts

Effective conservation involves the engagement of multiple players. It is not the sole preserve of any single discipline, say ecology for example, and it's often through partnership that some of our biggest conservation breakthroughs are made. This issue of *Decision Point* highlights this very fact in spades.

Up front we discuss a collaboration between ecologists and lawyers (Offsetting coastal development, pages 4,5) in which the concept of marine offsets is put under a legalistic lens. It's discovered that provisions for offsets on land don't work so well under the high-tide mark.

Dean Ansell explores the notion of cost-effectiveness of restoration plantings from the farmer and the ecologist's point of view (Getting more bird for your buck, pages 12,13). He suggests that cost-effectiveness depends on how you frame the question, and it's not just how much money you spend or even how many species you bring back.

Economists working with agricultural extension officers question just how SMART (Specific, Measurable, Achievable, Relevant and Time-bound) our NRM performance goals are (Taking on NRM performance goals, p8). They do a census of planning goals in Victoria and NSW and the results suggest we need to be way SMARTer in the way we assign targets.

Of course, when it comes to multiple players, citizen science leaves most other conservation efforts well behind. We've done several stories in the past on the value of citizen science and how it can be better harnessed. In this issue, the EDG is proud to announce a new association with two of the world's biggest online citizen science bird atlases – Eremaea and eBird (Two online birds in the hand, pages 10,11).

When you think about it, conservation needs multiple inputs and perspectives because the world is a complex place. Eddie Game and Eve McDonald-Madden make the case that conservation stands to learn a lot from the science of complex systems (see page 9).

Which just goes to show, effective conservation takes all sorts. 🐦

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DECISION POINT

Decision Point is the monthly magazine of the Environmental Decision Group (EDG). The EDG is a network of conservation researchers working on the science of effective decision making to better conserve biodiversity. Our members are largely based at the University of Queensland, the Australian National University, the University of Melbourne, the University of Western Australia, RMIT and CSIRO.

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Taking resilience back to its ecological roots

A CEED NERP workshop (Rottneest Island, December 2013)

By Rachel Standish (UWA), Nancy Shackelford (Victoria University, Canada) and Jane Catford (Uni of Melb)

Resilience is a foundational concept of ecology and, more recently, has become central to conceiving how ecosystems might cope—or not—with environmental change. Despite its potential importance to decisions for conservation and environmental management, confusion about how to define and measure resilience has impeded its application to decision making.

Resilience was first introduced to the ecological literature with a clear and concise definition: the capacity of an ecosystem to absorb change and disturbance, and still maintain the same relationships between populations or ecosystem variables. By this definition, resilience informs ecosystem management because it helps to predict the rate and extent of ecosystem recovery after disturbance. The aim of our workshop was to assemble experimental data to compare the extent and speed of recovery from disturbance across different ecosystems and types of disturbances. In doing so, we intend to learn more about resilience and improve its practical application to ecosystem management.

We identified 20 community ecologists with experimental data describing the recovery of ecosystems to disturbance, and invited them to our workshop at Rottneest Island in December 2013. Ecologists came from Sweden, Japan, North America, Canada and Australia with datasets from boreal forest, Mongolian rangelands, grasslands, coral reefs and temperate streams to name a few. Plant

“The aim of our workshop was to assemble experimental data to compare the extent and speed of recovery from disturbance across different ecosystems and types of disturbances.”



Brandon, Natasha, Takehiro, Richard and Lauren discuss explanatory variables on the second day of the workshop. (Photo by Mandy Trueman).

communities are well represented among the datasets but we also have data describing the recovery of communities of liverworts, soil microbes, kelp and fishes to disturbances that range from fire, drought, mining, livestock grazing and hurricanes.

The first day of the workshop was devoted to a brief discussion of concepts and to familiarizing people with the datasets (and, importantly, the wonders of Rottneest Island—namely beaches, bikes, beers and quokkas). The second day of the workshop was split between a discussion of options for response and explanatory variables and, critically, how to make these comparable across the different ecosystems and disturbance types for use in a meta-analysis.

As a group, we agreed on a response variable to use in the first instance based on the Bray-Curtis index of similarity between communities before and after disturbance. Discussions regarding explanatory variables are ongoing; the final variables are likely to include metrics describing the nature of the disturbance, connectivity and the relative importance of abiotic and biotic filters to community recovery. Having made solid progress by the end of day two, the group broke for a cycle around the island followed by a meal at the local pub.

The final day of the workshop was devoted to an overview of progress on the main project and to discussion of ideas for additional projects. Analysis for the main project is underway with the aim of preparing a manuscript by mid-2014. Additional projects include an exploration of the link between biotic and abiotic recovery, the contribution of species richness to resilience and the contribution of scaling theory to the measurement of resilience. We extend our thanks to the participants for actively engaging in the aims of the workshop and helping to make our first workshop a success.

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Gunning for resilience at Rottneest Island: (from right to left) are Brandon Bestelmeyer (New Mexico State Uni, New Mexico), Andrew Denham (Office of Environment & Heritage, NSW), Jane Catford (Uni of Melb), Jodi Price (UWA), John Dwyer (Uni of Qld), James Gilmour (AIMS, Western Australia), Takehiro Sasaki (Uni of Tokyo, Japan), Natasha Banning (UWA), Brian Starzomski (Uni of Victoria, Canada), Chuck Price (UWA), Rachel Standish (UWA), Nancy Shackelford (Uni of Victoria, Canada), Lauren Hallett (Uni of California Berkeley, USA), Loretta Battaglia (Southern Illinois University, USA), Richard Hobbs (UWA) and Mats Dynesius, (Umea University, Sweden). (Photographer and workshop assistant: Mandy Trueman, UWA).