

## Symposium: "Developing restoration standards at national and international levels"

### ABSTRACT

In April 2016 a partnership of Australian restoration groups launched the *National Standards for the Practice of Ecological Restoration in Australia*, which then led to SER developing Standards at an international level. This symposium brings together speakers from three Australasian nations and representatives of the regional and international bodies of the Society for Ecological Restoration to review the content and the value of standards and current progress with SER's international standards. While each nation has different needs and contexts, a common ground appears to be the recognition that a range of practices are aligned along a spectrum that includes both full recovery (the most desirable aim wherever it is possible) and partial recovery (the most desirable fall-back position where full recovery is not possible). Is this common understanding sufficient to provide a cogent framework upon which to progress the mission of substantially recovering ecosystems across our region and elsewhere?

### Convenors

**Kingsley Dixon**, Society for Ecological Restoration Australasia and

**Tein McDonald**, Society for Ecological Restoration Australasia

Direct all correspondence to:

Tein McDonald, P.O. BOX 42, Woodburn 2472, NSW Australia

Tel: +61 2 6682 2885 and Email: [teinm@ozemail.com.au](mailto:teinm@ozemail.com.au)

**Session Chair:** David Hancock

### Speakers:

1. **Bethanie Walder** – Executive Director, Society for Ecological Restoration, Washington DC, USA - Turning a vision of international standards into reality
2. **Bruce Clarkson** – University of Waikato, New Zealand and SERA - Raising the bar – the potential of national standards for ecological restoration in New Zealand
3. **Bruno Fogliani** – IAC, New Caledonia - Potential application of international standards in New Caledonia: with particular focus on restoration of degraded mine sites
4. **Vern Newton** – Hanson Group, WA Australia - Relevance of international standards for the mining sector in Australasia
5. **Tein McDonald** (SERA Board) and **George Gann** (SER) - Seeking frameworks and terminology that could be universally applied
6. **Kingsley Dixon** (SERA Chair), **George Gann** (SER) and **Tein McDonald** (SERA) - Where to next?

## **Abstracts**

### **1. Turning a vision of international standards into reality**

Bethanie Walder, Executive Director, Society for Ecological Restoration, Washington DC, USA

The Society for Ecological Restoration has long focused on providing tools and resources to advance the field of restoration, including our 2004 Primer on Ecological Restoration. In addition, we partnered with Parks Canada and the International Union for the Conservation of Nature to develop and distribute another important guide, “Ecological Restoration for Protected Areas: Guidelines and Best Practices.”

While these and other SER documents remain important contributions to the field, they do not fill a significant and increasingly important need: to provide international standards for the practice of ecological restoration. Ecological restoration is increasingly promoted and funded as an important solution for environmental degradation and climate change throughout the world. However, international agreement on what constitutes restoration does not exist, resulting in inconsistency with the type and quality of projects being delivered. Developing and achieving international adoption of scientifically and socially sound ecological restoration standards can help improve the delivery of ecological restoration projects on the ground. When adopted, international standards will ensure that global commitments and financial investments for restoration achieve desired ecological and social goals. SER-Australasia’s standards provided an excellent foundation for new, soon to be released, international standards for ecological restoration.

### **2. Raising the bar – the potential of national standards for ecological restoration in New Zealand**

Marie A Brown, Environmental Defence Society of New Zealand, Bruce D Clarkson, University of Waikato

New Zealand’s natural heritage has endured a thousand years of human impacts, and the degradation arising from this is inarguable. A dubious record of the highest proportion of threatened species in the world and significant modification of land cover, freshwater and marine ecosystems has imperilled our biodiversity. In response, ecological restoration has become something of a national sport.

Both mandatory and voluntary restoration is undertaken in New Zealand. Mandatory restoration is often a condition of approval of development or resource extraction, while voluntary restoration is carried out by a wide range of agencies and organisations for public good reasons. In some cases, these types occur together. Activities in common include pest control or eradication, hydrological reinstatement, planting and other habitat provision.

Common to all types also is a lack of generally accepted national standards for ecological restoration, clarity on terms and methods to robustly measure and evaluate regulatory and ecological outcomes. We consider various contexts in which ecological restoration is carried out and how national standards could contribute to better outcomes. We compare the status quo of no

standards with a range of scenarios commonly accounted to demonstrate the potential value add of this initiative.

### **3. Potential application of international standards in New Caledonia: with particular focus on restoration of degraded mine sites**

**Bruno Fogliani** – IAC, New Caledonia -

New Caledonia is a French overseas authority in the Pacific ocean; 1/3 of its emerged lands is covered by peridotite, an ultramafic rock which contains nickel, representing up to 20 to 30% of the worldwide resources of this metal. This kind of soil is covered by several vegetation, the “maquis minier” and the forest being the most important. The latter is also developed on the other soils, which also include dry forest and savannah. New Caledonia’s flora (more than 3300 species, highest endemic richness by surface of the world) is directly threatened by human activities such as fire, urbanization, farming and mines. Local stakeholders aim to develop methods in order to restore the original vegetation cover. The history of mining in New Caledonia starts in 1873 by the establishment of underground galleries having nearly no impact on the environment. Actually the mining companies extract the ore in open mines and the impacts on terrestrial and marine ecosystems are quiet consequent. The first trial of revegetation started in 1971 using exotic species. Most of these experiments didn’t succeed except for 2 indigenous species, *Acacia spirorbis* and *Casuarina collina*, which showed a good development but had the inconvenient to have a gregarious behavior, blocking the initiation of plant successions. New methods lean on native ultramafic vegetation considering only these plants can survive on these soils and lead to a sustainable restoration. However, the legislation is not uniformed depending on the considered province whereas there is a mining scheme at the territory scale that imposes the obligation to restore mine at closure. Methods used still heterogeneous depending on the mining company as well as the mining site including within the same company. The use if international standard appears then essential to improve methods and application. Comparison will be made on what is well or poorly done in view of the Australian standards and also to evaluate if there is specificities that can be taking into account in the redaction of international standards.

### **4. Relevance of international standards for the mining sector in Australasia**

**Vern Newton** – Hanson Group, WA Australia -

This presentation will highlight some of the key advances in planning and restoration/rehabilitation implementation that have resulted in industry leading recovery outcomes. This point is illustrated by the case study involving restoration of *Banksia* woodland vegetation after sand extraction on the Swan Coastal Plain, Perth Western Australia where a major priority of the company is to restore the post-sand extracted sites with a plant community closely resembling the pre-sand extracted *Banksia* woodland plant community.

Collaboration between the sand extraction company, Hanson, and Kings Park and Botanic Garden over the past 22 years has enabled to development of procedures to ensure 75% of species return in Hanson’s restoration sites, despite sand extraction reducing the resultant sand profile depth by at least 20m.

We show that Hanson's policy of 'doing it right and beyond compliance' has substantially improved outcomes from any other approach we might have taken. We discuss how National Standards for the Practice of Ecological Restoration in Australia (which draw on lessons learned from this and many other projects) will assist other companies achieve best practice restoration/rehabilitation into the future and comment on how international standards might lead to improved practices and outcomes in other countries in Australasia.

## **5. Seeking Frameworks and Terminology that could be universally applied**

Tein McDonald (Society for Ecological Restoration Australasia, Board member) and George Gann (Chief Conservation Strategist, The Institute for Regional Conservation, Florida USA)

Adaptation of the Australian standards to an international context has required a high degree of flexibility and tenacity to find broad agreement on what constitutes restoration. Views are disparate. At one extreme the 'inclusive at all costs' camp feels that if a very broad range of environmental repair efforts are not included in the definition of restoration, restoration will fall into the yawning pit of irrelevance at a time when all efforts surely count. At the other extreme the 'Raise the bar at all costs' camp seeks to conserve the intrinsic standard of the term to avoid it losing its capacity to inspire and therefore make a difference. Our efforts to come up with a universally acceptable framework and terminology showed us quite quickly that both camps were absolutely right. So the only practical solution was to create a 5-star 'recovery' scale against which a project could measure and communicate the degree to which it is achieving recovery compared to a local native reference ecosystem - and call any project that aimed to achieve at least substantial recovery an 'ecological restoration project'. This balance between inclusivity and raising standards has so far achieved support from key reviewers around the world.

## **6. Restoration standards: Where to next?**

Kingsley Dixon (Society for Ecological Restoration Australasia, Chair) George Gann (Chief Conservation Strategist, The Institute for Regional Conservation) and Tein McDonald (SER Australasia, Board member)

The creation and adoption of international standards in ecological restoration and rehabilitation is potentially a major step forward and 'game-changer' for the discipline. In the 30 years since restoration became a mainstream science and activity, we have seen great strides but also various interpretations and in some cases, flaws have appeared in what is understood as 'sound restoration'. The standards now being adopted as a global benchmark provide a mechanism and approach to guide all levels of activity - from practitioners to large scale disturbance industries such as the mining and extractive industries. Thus for regulators, funders of restoration and importantly, political decision makers standards provide a means for evaluating just how and when funding has delivered progress and positive outcomes. The next steps are two pronged - ensuring global reach of the standards across all sectors with a focus on national regulatory processes and secondly seeking ISO accreditation. Importantly the standards are a living document and thus future editions will develop the concept of ecological restoration as new science, practice and adaptive management expands the horizons of opportunity.