CRANBERRY BOG RESTORATION, USA. PHOTO BY ALEX HACKMAN.

SER SOCIETY FOR ECOLOGICAL RESTORATION

INTERNATIONAL PRINCIPLES AND STANDARDS FOR THE PRACTICE OF ECOLOGICAL RESTORATION

SECOND EDITION SUMMARY

GRASSLAND (CERRADO) RESTORATION, BRAZIL.
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This summary provides an abbreviated outline and introduction to the full SER International Principles and Standards for the Practice of Ecological Restoration, Second Edition. We encourage you to download the full document at www.ser.org/standards to:

- better understand how the principles and standards relate to each other;
- apply these concepts at all stages of a restoration project, from planning to post-project monitoring; and,
- access the full glossary of restoration terms.

We hope that using the tools and ideas in these Standards will help you design and implement more effective restoration projects.

INTRODUCTION

Ecological restoration, when implemented effectively and sustainably, contributes to protecting biodiversity; improving human health and wellbeing; increasing food and water security; delivering goods, services, and economic prosperity; and supporting climate change mitigation, resilience, and adaptation. It is a solutions-based approach that engages communities, scientists, policymakers, and land managers to repair ecological damage and rebuild a healthier relationship between people and the rest of nature. When combined with conservation and sustainable use, ecological restoration is the link needed to move local, regional, and global environmental conditions from a state of continued degradation, to one of net positive improvement.

This graphic represents the **Eight Principles for Ecological Restoration.** *Each principle is fully developed in the text.*

INTRODUCTION (CONT)

The International Principles and Standards for the Practice of Ecological Restoration (the Standards):

- Present a robust framework to guide restoration projects toward achieving intended goals
- Address restoration challenges including:
    - effective design and implementation
    - accounting for complex ecosystem dynamics (especially in the context of climate change)
    - navigating trade-offs associated with land management priorities and decisions
- Highlight the role of ecological restoration in connecting social, community, productivity, and sustainability goals
- Recommend performance measures for restorative activities for industries, communities, and governments to consider
- Enhance the list of practices and actions that guide practitioners in planning, implementation, and monitoring activities, including:
    - appropriate approaches to site assessment and identification of reference ecosystems
    - different restoration approaches including natural regeneration
    - the role of ecological restoration in global restoration initiatives
- Include an expanded glossary of restoration terminology
- Provide a technical appendix on sourcing of seeds and other propagules for restoration.

SER and its international partners produced the Standards for adoption by communities, industries, governments, educators, and land managers to improve ecological restoration practice across all sectors and in all ecosystems, terrestrial and aquatic. The Standards support development of ecological restoration plans, contracts, consent conditions, and monitoring and auditing criteria. Generic in nature, the Standards framework can be adapted to particular ecosystems, biomes, or landscapes; individual countries; or traditional cultures. As the world enters the UN Decade on Ecosystem Restoration (2021-2030), the Standards provide a blueprint for ensuring ecological restoration achieves its full potential in delivering social and environmental equity and, ultimately, long-lasting economic benefits and outcomes.

RESTORATION IN ACTION. SOUTH AFRICA. PHOTO BY KELVIN TRAUTMAN

PRINCIPLE 1

ENGAGES STAKEHOLDERS

Ecological restoration projects recognize and acknowledge the interests and contributions of diverse stakeholders, particularly local stakeholders, and actively seek their direct involvement to provide mutual benefits to both nature and society.

PRINCIPLE 2

DRAWS ON MANY TYPES OF KNOWLEDGE

The practice of ecological restoration benefits from a combination of acquired practitioner knowledge, Traditional Ecological Knowledge, Local Ecological Knowledge, and scientific discovery.

PRINCIPLE 3

IS INFORMED BY NATIVE REFERENCE ECOSYSTEMS, WHILE CONSIDERING ENVIRONMENTAL CHANGE

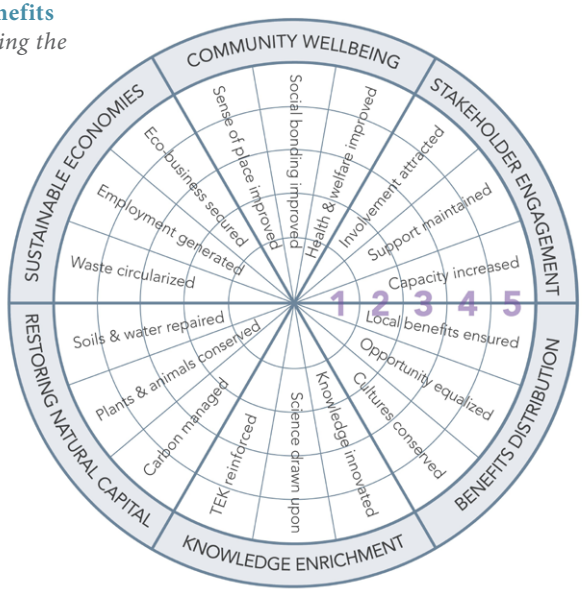
The use of reference models enhances the potential for native species and communities to recover and continue to reassemble, adapt, and evolve.

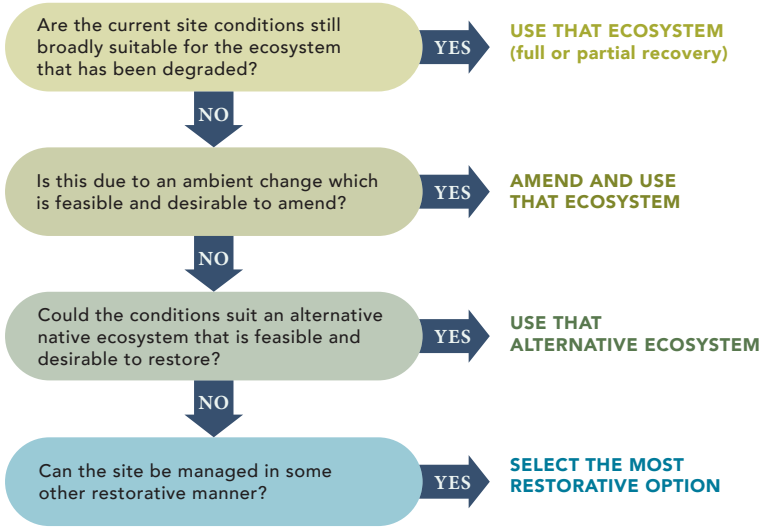
PRINCIPLE 4

SUPPORTS ECOSYSTEM RECOVERY PROCESSES

Practitioners enhance the natural recovery carried out by plants and animals in interaction with each other and their shared environment.

Example of a **Social Benefits Wheel** *to assist in tracking the degree to which an ecological restoration project or program is attaining its social development targets and goals. See Principle 1.*





This **Decision Tree** *can assist selection of appropriate native reference ecosystems for restoration projects. See Principle 3.*

PRINCIPLE 5

IS ASSESSED AGAINST CLEAR GOALS AND OBJECTIVES, USING MEASURABLE INDICATORS

In the planning phase of restoration projects, the project vision, targets, goals, and objectives are clearly identified, along with specific indicators used to measure progress.

PRINCIPLE 6

SEEKS THE HIGHEST LEVEL OF ECOSYSTEM RECOVERY POSSIBLE

Ecological restoration aims for the highest practicable level of recovery appropriate to the circumstances.

Baseline *10 years later*

The **Ecological Recovery Wheel** *is part of the Standards' five-star system for designing and implementing restoration, and for assessing progress as compared to a reference model. See Principle 6.*

PRINCIPLE 7

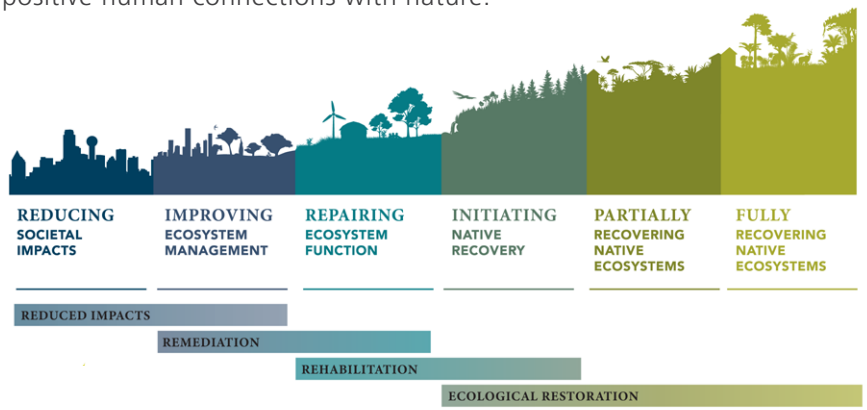
GAINS CUMULATIVE VALUE WHEN APPLIED AT LARGE SCALES

Ecological restoration projects can have beneficial outcomes regardless of their spatial scale. However, many ecosystem processes operate at larger spatial scales, such as the watershed or basin level, and scaling-up restoration actions is required to address some ecological and global sustainability needs.

PRINCIPLE 8

IS PART OF A CONTINUUM OF RESTORATIVE ACTIVITIES

Ecological restoration is one of many strategies that can, to varying degrees, contribute to biodiversity conservation, increase carbon sequestration and the delivery of other vital ecosystem services, improve human health, wellbeing, and livelihoods, and enhance positive human connections with nature.



The **Restorative Continuum** *illustrates how the implementation of restorative activities at all levels can optimize broadscale ecological and social outcomes. See Principle 8.*

STANDARDS OF PRACTICE FOR PLANNING AND IMPLEMENTING ECOLOGICAL RESTORATION PROJECTS

The International Standards provide a comprehensive set of standard practices across four categories:

- planning and design
- implementation
- monitoring documentation, evaluation, and reporting
- maintaining ecological restoration projects

The standards of practice can be adapted to the size, complexity, degree of degradation, regulatory status, and budget of any project. As outlined in the full document, they are intended to provide guidance and recommendations for how to design, implement, and assess ecological restoration projects while recognizing that not all activities are applicable to all projects.

CONCLUSION

The world is entering an era of ecological restoration with governments across the globe making impressive commitments to restore degraded lands and landscapes through a wide range of restorative activities including ecological restoration at both the ecosystem and landscape scale. Ecological restoration is increasingly recognized as a critical tool for mitigating and adapting to the effects of environmental disasters and the impacts of climate change. It supports a process that improves human wellbeing at the individual, community, and national levels. When implemented effectively, ecological restoration can achieve profound ecosystem services benefits, ranging from the most basic needs like improving food and water security, to reducing the spread of disease, and improving individual physical, emotional, and mental health. Ecological restoration must also be integrated with conservation and sustainable production, especially at the landscape level. Restoration can help us move, globally, from centuries of cumulative environmental damage, to land degradation neutrality, and eventually to net ecological improvement. Ecologicial restoration therefore promises net gain in the extent and functioning of native ecosystems, together with the delivery of critical human wellbeing benefits. Achieving this requires that restoration investment be based on a strong, defensible, and understandable scientific foundation as outlined within these restoration principles and standards.

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