STANDARDS OF PRACTICE AND CERTIFICATION SYSTEMS TO PROMOTE BEST PRACTICES AND IMPROVE THE QUALITY OF RESTORATION ACTIONS

Summary

Ecological restoration can help reverse current environmental crises and develop sustainable growth for the wellbeing of European citizens. Policies must ensure that restoration projects deliver ecological, cultural, and socioeconomic benefits, including a land/seascape approach and land/seascape connectivity, and are consistent with other European regulations. Restoration policies should address all phases of restoration projects, allowing for timescales that are socially and ecologically meaningful, engaging society, and contributing to fair growth, sustainable development and social justice. Standards-based restoration will be essential to achieve these goals, as they define principles and criteria to be used consistently to ensure that restoration programs and projects are most likely to achieve their intended objectives and outcomes. European and Member state administrations should promote the adoption and uptake of standards for all activities carried out under the European regulation on nature restoration, including that national restoration plans use the best available scientific evidence to reap the full ecological, cultural, and socio-economic benefits that it can deliver.

Rationale

The onset of the UN Decade on Ecosystem Restoration and global concerns on the state of nature have prompted increasing commitments to, and interest and investment in **global restoration efforts**. The European Commission responded to this challenge by presenting a proposal for a new European Regulation on Nature Restoration, the Nature Restoration Law. Ecological restoration is key to respond to global environmental crises (e.g., climate change, biodiversity, desertification) and achieve the global Sustainable Development Goals and other related multilateral environmental agreements. Ecological restoration contributes to reestablishing the balance between nature and culture, restoring nature, and allowing sustainable and healthy growth and development. The slow progress of ecological restoration in Europe is largely caused by insufficient political compromise, and governance, planning and financing barriers.

To deliver the benefits that ecological restoration can provide, restoration projects must be planned considering the **landscape scale and multiple socio-ecological dimensions**. Past efforts to address single priorities (e.g., carbon storage, short-term crop productivity, water storage) that are not designed to simultaneously address other benefits (e.g., food security, human health, soil protection, pollination) not only fail more frequently, but they can also cause collateral damage. For example, carbon-storage oriented tree-planting efforts might use non-native, fast growing trees that outcompete local species, or they might be implemented in native grassland ecosystems; in both situations, such carbon storage efforts would cause direct harm to biodiversity and may also cause negative impacts to local communities. Furthermore, restoration projects must adjust to socio-ecological time scales and engage society.

Best practices, standards of practice, and certification schemes are necessary tools to implement ecological restoration in a manner that reduces ecological, social, and financial risk while enhancing outcomes and return on investment for both people and nature. A **best practice** is a method or technique that has been generally accepted as producing effective results consistent with intended objectives. **Standards of practice** are documented agreements or frameworks that outline consistent, and accountable criteria, guidance, and definitions for the effective delivery

or application of a service or process. Standards are thus founded on best practices, and they should be designed to recognize that best practice evolves over time. A **certification system** is the provision by an independent body or third party of written assurance (a certificate) that the product, service, or system in question meets specific requirements (standards).

Standards and certification systems have been used in many sectors, including public health, environmental management, and forest management. In ecological restoration, they can be used as guidelines to design the most effective restoration projects, train practitioners, raise social awareness on the multiple benefits of ER, and report and assess the outcomes of restoration projects. They are thus relevant for practitioners, policy and decision-makers, and financing agencies.

International organizations have developed standards for the practice of ecological and ecosystem restoration, including the Society for Ecological Restoration (SER) International Principles and Standards for the Practice of Ecological Restoration, 2nd Edition (published in 2019), and the UN Decade on Ecosystem Restoration Standards of Practice (FAO, SER, and IUCN, published in 2023). Principles and guidance have also been published for rewilding, nature-based solutions, and other adjacent and relevant topics. Generally speaking, ecosystem restoration is the broad category under which other more specific forms of restoration fall (e.g., ecological restoration is a subset of ecosystem restoration). International bodies (CBD, IUCN, UNFCC, UNCCD) and funding agencies (World Bank, Global Environmental Facility, Inter-American Development Bank, Asian Development Bank, African Development Bank) are increasingly recognizing the value of standards in ecosystem and ecological restoration. For example, the upcoming guide to implementing Target 2 (the restoration target) of the Kunming-Montreal Global Biodiversity Framework (KM-GBF) is expected to define “effective restoration” as standards-based restoration. As interest in standards-based restoration grows, the accessibility of these standards is increasing. For example, the SER Standards have been translated into French, Spanish, Chinese, Portuguese, and Ukrainian with several other languages to be released soon. SER has also developed standards for the restoration of mining sites, standards for seed management and, together with WWF-Spain, standards for the restoration of Mediterranean forests. Standards for other sectors (e.g., marine restoration, wetland restoration) are under development.

SER principles for the practice of ecological restoration are aligned with the European Commission proposal for an EU regulation on nature restoration (e.g., Art. 4.4-4.7, 5.4-5.7, 7.3) and the contents of National Restoration Plans (Art. 11, Art. 12):

1. Engaging stakeholders, providing ecological and social benefits leading to improved social-ecological resilience, providing short-term and long-term employment opportunities for local stakeholders, creating positive ecological and economic feedback loops, and integrating social and human wellbeing goals.

2. Drawing on different types of knowledge, including traditional, local and scientific knowledge, and overcoming gaps through adaptive management, linked to focused, outcome-based monitoring.

3. Identifying the native ecosystem to be restored and developing reference models for planning and communicating a shared vision of project targets and goals. Reference models should be based on the specific ecosystem attributes to be recovered, and account for both ecological

complexity and temporal change. Reference models may include semi-natural ecosystems, such as chalk grasslands, wet and dry heathlands, woodland pastures, seasonal mountain pastures, grazed salt marshes, Mediterranean shrublands and *dehesas*, and mesotrophic fishponds.

4. Supporting ecosystem recovery processes.

5. Assessing ecosystem recovery against clear goals and objectives, using measurable social and ecological indicators from the baseline (degraded state) to the desired state.

6. Achieving the highest level of ecological recovery possible.

7. Developing integrated large-scale restoration programs, including planning and prioritizing site-level activities, fostering synergies and amplifying restoration impact.

Recommendations

Ecological and ecosystem restoration standards should help improve the quality of delivery and the associated outcomes, for both people and nature, of ecological restoration projects under National Restoration Plans.

- The new European regulation on nature restoration should recommend that **Member States adopt existing recognized standards of practice** to elevate the quality of the projects, improve restoration outcomes for people and nature, assist in developing comprehensive evaluations of restoration projects, and facilitate reporting and accountability, especially for global environmental obligations such as Target 2 of the KM-GBF.
- Member states should **integrate standards in their National Restoration Plans** and develop more specific sectoral standards when needed, taking into account the particular requirements and socioecological contexts of these sectors.
- Standards should be **disseminated by European and Member state administrations** to raise social awareness on the benefits of ecological restoration, increase the transparency of National Restoration Plans, restoration programs and projects, and engage citizens in ecological restoration, and European nature policies.
- **Funding entities should apply standards** and, when available, certification systems, as additional assets to rank ecological restoration projects and actors and to reduce risk and uncertainty for their investments while increasing the likelihood of achieving intended outcomes.
- Standards should be **elevated as the expected norm for both private and publicly implemented restoration at all scales** (including smallholders and private lands) in order to achieve not just the ambitious objectives of the new law, but the ambitious outcomes of overall net ecological and social gain as a result of these restoration efforts.

Glossary

- **Ecological restoration** is the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed. Ecosystem restoration is sometimes used interchangeably with ecological restoration, but ecological restoration always addresses biodiversity conservation and ecological integrity, whereas some approaches to ecosystem restoration

may focus solely on the delivery of ecosystem services (SER International Principles and Standards for the Practice of Ecological Restoration; Gann et al., 2019).

- **Ecosystem restoration** is the process of halting and reversing degradation, resulting in improved ecosystem services and recovered biodiversity. Ecosystem restoration encompasses a wide continuum of practices, depending on local conditions and societal choice (UN Decade Launch report, 2021).
- **Restoration** means the process of actively or passively assisting the recovery of an ecosystem in order to improve its structure and functions, with the aim of conserving or enhancing biodiversity and ecosystem resilience, through improving an area of a habitat type to good condition, re-establishing favourable reference area, and improving a habitat of a species to sufficient quality and quantity in accordance with Article 4(1), (2) and (3) and Article 5(1), (2) and (3), and meeting the targets and fulfilling the obligations under Articles 8 to 12, including reaching satisfactory levels for the indicators referred to in Articles 8 to 12 (European Nature Restoration Law, 2024).

Sources

Cohen-Shacham, E., et al. (2019). Core principles for successfully implementing and upscaling Nature-based Solutions. *Environmental Science & Policy*, 98: 20–29 [online]. https://doi.org/10.1016/j.envsci.2019.04.014, https://www.iucn.org/news/europe/202007/iucn-global-standard-nbs

Cortina-Segarra, J., et al. (2021). Barriers to ecological restoration in Europe: expert perspectives. *Restoration Ecology*, 29(4), e13346. https://onlinelibrary.wiley.com/doi/pdfdirect/10.1111/rec.13346

Gann, G. D. et al. (2019). International principles and standards for the practice of ecological restoration. *Restoration Ecology*, 27(S1), S1-S46. https://www.ser.org/page/SERStandards/International-Standards-for-the-Practice-ofEcological-Restoration.htm

Nelson, C. R. et al. (2024). Standards of practice to guide ecosystem restoration: A contribution to the United Nations Decade on Ecosystem Restoration 2021–2030. Food & Agriculture Org. https://openknowledge.fao.org/server/api/core/bitstreams/5e7b8830-e2c0-4718-a23e-80f3961ba1a3/content

UNEP/FAO/IUCN/SER (2021). Principles for ecosystem restoration to guide the United Nations Decade 2021–2030, https://www.fao.org/documents/card/en/c/CB6591EN

Contacts

Jordi Cortina-Segarra. Chair European Chapter Society for Ecological Restoration. Department of Ecology and IMEM, University of Alicante. Alicante (Spain). info@ser-europe.org

Kris Decleer. SERE policy-science interface leader. Research Institute for Nature and Forest, Belgium. info@ser-europe.org