Third Global Forum on Ecological Restoration

Achieving Net Gain for Biodiversity and Human Wellbeing:
Integrating Ecological Restoration with Other Nature-based Solutions

Preliminary Report
9 June 2021

Introduction

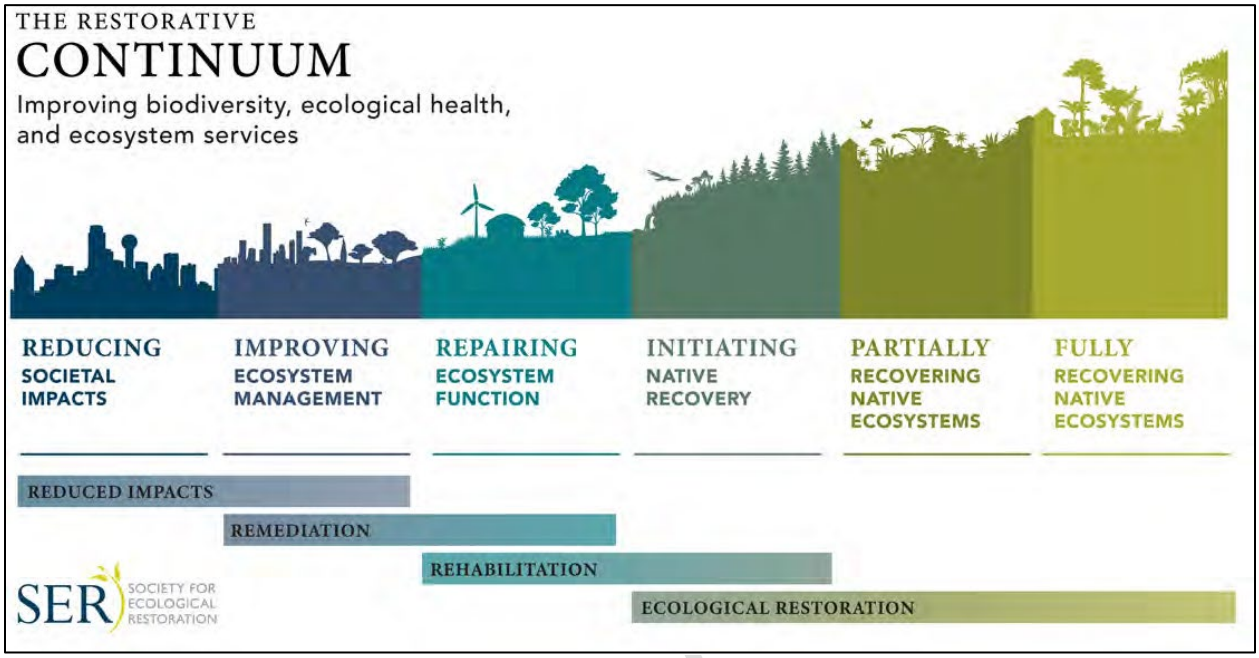
In 2016 at the IUCN World Conservation Congress in Hawaii, the Society for Ecological Restoration (SER) and IUCN's Commission on Ecosystem Management (CEM) and its Ecosystem Restoration Thematic Group began a partnership to convene world experts to provide guidance on timely issues in ecological restoration. Since 2017, the Global Forum on Ecological Restoration has been held as a side event at SER's biennial world conferences, beginning at SER2017 in Iguassu Falls, Brazil, moving to Cape Town, South Africa at SER2019, and then going virtual for the third Global Forum in conjunction with SER2021. The Third Global Forum was held as a series of virtual workshops in April 2021

The Forum brought together 58 invited experts in restoration science, practice, and policy to support the implementation of the UN Decade on Ecosystem Restoration by developing a shared vision of key concepts for ecosystem restoration. Specifically, Forum participants contributed to:

- (Theme 1) defining the concept of "net gain" or net benefit from restorative activities, including how net gain or improvement can be measured, prioritized, and standardized;
- (Theme 2) creating a framework for prioritizing restorative activities and interventions (not "where" to restore, but "what" restorative action to implement, especially as considered along the restorative continuum (Fig. 1); and
- (Theme 3) developing a set of common principles for ecosystem restoration, including all restorative activities as defined by SER, as well as common standards of practice that can be applied across the entire restorative continuum. In addition to SER and IUCN CEM-ERTG, the UN Decade on Ecosystem Restoration's Best Practices Task Force joined as a partner on Theme 3.

The three thematic discussions were integrated and iterative. For example, the proposed definition of net gain fed into the development and discussion of the framework and principles, and vice versa. Participants agreed that the final products from the Forum would be delivered collectively as discussion drafts, therefore consensus was not required to move forward. Minority or opposing views to the general consensus were captured and incorporated into the follow up activities.

Figure 1: The Restorative Continuum[1]



After the virtual workshops were completed, we convened small working groups (with members of the organizing team and participants) to continue the process and to finalize discussion drafts for each of the three themes in order to launch a more significant global consultation in June and July.

This preliminary report summarizes the activities of the Forum workshops, and post-Forum follow up through 4 June 2021, when the discussion drafts were released for formal consultation. The organizing team intends to release final products from each of the three themes at the IUCN World Conservation Congress (September 2021) and the Convention on Biological Diversity COP15 (October 2021). Some of these products, like the SER International Principles and Standards for the Practice of Ecological Restoration, may be released as living documents and thus be open for improvement and update over time.

Theme 1: Defining net gain across the Restorative Continuum

April 6 & 13, 2021

Forum organizing team: Brock Blevins, Sarah Cotter, George Gann, Jim Hallett, Cara Nelson
Participants: Angela Andrade, Garo Batmanian, Consuelo Bonfil, Karma Bouazza, Benjamin Caldwell, Simona D'Amico, Karen Holl, Sanggeet Mithra Manirajah, Stephanie Mansourian, Maya Nehme, Ludmila

[1] Gann GD, McDonald T, Walder B, Aronson J, Nelson CR, Jonson J, Hallett JG, Eisenberg C, Guariguata MR, Liu J, Hua F, Echeverría C, Gonzales E, Shaw N, Decleer K, Dixon KW (2019) International principles and standards for the practice of ecological restoration. Second edition. *Restoration Ecology* 27(S1): S1–S46.

Pugliese de Siqueira, Carlos Saavedra, Nancy Shaw, Vicky Temperton, Pieter van der Gaag, Bethanie Walder

Participants for this theme collaborated on 1) a draft definition of net gain; 2) a set of metrics for evaluating net gain across the restorative continuum and 3) guidance for what one should do or avoid for an activity to be restorative.

Definition of net gain

Net gain is a measurable positive change in ecosystem integrity, native biodiversity, and human wellbeing that results from a combination of sustainable resource use, conservation, and restoration. Net gain should be measurable at any scale, including the ecosystem and land/seascape scales, and sustained over time.

Net gain (also potentially called net benefit or net improvement) can be measured at the project or program scale and at the individual site, ecosystem or land/seascape levels, by assessing changes as compared to the conditions before the project or program began. Net gain should be measured at relevant timescales for the project or program, recognizing that restorative actions may lead to short-term adverse effects and that some components of ecological integrity and human wellbeing are slower to respond than others. Ideally, net gain is defined by the goals of stakeholders (prioritizing vulnerable communities and those living within the landscape), but in the context of the public interest (e.g. using the Sustainable Development Goals, Nature's Contributions to People, the Global Biodiversity Framework, or other broader public interest objectives to set context). Stakeholder agreement is essential for a broad range of reasons, including managing trade-offs where one stakeholder group may benefit more than another from a given project. Net gain should be easily applicable and understandable, and should be able to be measured regardless of where a project or restorative action falls on the restorative continuum.

Potential metrics to evaluate net gain

Metrics for net gain should incorporate key aspects of native biodiversity, ecosystem integrity (e.g. soil and physical environment, composition, structure, function, complexity, and connectivity to larger landscape), and human wellbeing (e.g. ecosystem services delivery, return of productive landscapes, reduction in the prevalence of zoonotic diseases). Projects and programs will not qualify as achieving net gain if the management of trade-offs results in significant ecological or social harm.

The discussion of metrics for net gain initially focused on criteria for/considerations regarding the types of metrics that could be used to evaluate net gain in ecosystem integrity, native biodiversity, and human wellbeing at the project or landscape level. Incorporating minority opinions, example ideas contributed included:

- Temporal elements
    - E.g. improvements sustained over time
    - E.g. Recognizing short term impacts vs. long term gains

- Trade offs need to be acknowledged and managed to create net gain
    - Ecological: e.g., increase/decrease for different species
    - Social: e.g. power relations between stakeholders
- Thresholds of harm
    - E.g., no displacement of indigenous peoples and local communities (IPLCs)
- Scale
    - General metrics needed that can be measured at all scales and anywhere on the restorative continuum
    - Specific metrics needed for specific scales or specific segments of the restorative continuum
        - E.g. metrics that can be measured by local communities
    -
- Interdisciplinary approach
    - E.g., meeting human needs (Nature's Contributions to People (NPC) while still assessing ecological function and biodiversity
    - E.g., combining the SER social benefits and ecological recovery wheels would provide a more integrated approach and illustrate that both should be addressed equally in planning, design and implementation

It was challenging to identify metrics that would be specifically for net gain, as opposed to metrics used, in general, to assess restoration effectiveness. After the initial workshop, SER partnered with the Global Restoration Observatory (GRO) to host a separate workshop to develop common global biome-specific indicators for ecosystem restoration. The work from the Global Forum was fed into the GRO workshops and vice versa, furthering the development of potential net gain metrics.

Initial ideas that could be used to develop net gain metrics included (green is focused on ecological; blue combines ecological and human wellbeing; purple is focused on human wellbeing)

- Ecosystem functions and services are restored and sustained.
- Biodiversity is restored.
- Disaster risk reduced (ties with Nature-based Solutions).
- Activities take a multi-dimensional approach (e.g. human needs and habitat/ecological conditions are improved simultaneously).
- Net gain in native species and habitat that have cultural/social value (as tied to overarching frameworks such as UN Sustainable Development Goals (SDGs), Convention on Biological Diversity's Global Biodiversity Framework (GBF), Nature's Contributions to People or other appropriate sideboards).
- Communities have incentives to improve ecosystems (e.g. greater access to sustainable resources).
- Communities and livelihoods, especially in vulnerable communities, are more self-sustained; do not rely on large inputs from outside the community.
- Benefits are shared equitably.
- Local stakeholders are engaged.

What do we need to do and avoid to make activities restorative

The question of "what is a restorative activity" continues to be challenging and subjective. Participants in the Forum brainstormed initial ideas of things "to do" and things "to avoid" that would help determine if any given activity is or is not restorative, regardless of where it falls on the continuum. This list, provided in Appendix 1, informed the standards of practice for restorative activities developed by participants in Theme 3.

Theme 2: Prioritizing restorative interventions

April 7 & 14, 2021

Forum organizing team: Brock Blevins, Sarah Cotter, George Gann, Cara Nelson, Bethanie Walder
Participants: Jamal Annagylyjova, Clarissa Augustinus, Ermias Betemariam, Blaise Bodin, Zoe Brocklehurst, Juliana Castano-Isaza, Jordi Cortina, Don Falk, Alexis Gibson, Jim Hallett, Paola Isaacs, Mariah McIntosh, Luiz Moraes, Nidhi Nagabhatla, Liette Vasseur

Participants for this theme began to work towards a draft framework (see Fig. 2) intended to help practitioners, decision-makers, funders, and others prioritize restorative and Nature-based Solution (NbS) activities, especially along the restorative continuum. One particular objective for several participants was ensuring that ecological restoration is considered as a high rather than a low priority when choosing what restorative activity to implement (in other words, how do we promote the most restorative activity that is appropriate for the particular circumstance). This question of prioritization was not about where to conduct restoration (many frameworks already assist with determining "where" or "what" to restore), but rather prioritizing "how" or "how much" to restore at a given site. This framework would increase the potential for achieving net gain as described by the participants in theme 1, and will likely include the standards of practice for restorative activities developed by the participants in theme 3.

The participants began with an assessment of what decision-makers need to prioritize activities along the restorative continuum, including a discussion about how to prioritize ecological restoration when possible, and how a framework could meet those needs. A small group of organizers took those considerations and developed a decision tree that the participants then discussed at the second workshop. While there may be some utility to a decision tree, it was ultimately determined to be an inappropriate tool. The input from the second session then led to creation of a small volunteer group (Nidhi Naghabatla, Don Falk, Blaise Bodin, Liette Vasseur, Alexis Gibson, Bethanie Walder, Jim Hallett) who considered all of the input and developed a draft framework for discussion.

The initial activities in the draft framework are common to most existing standards of practice for restoration activities writ large. Beginning at Step 5, however, the framework then focuses on how restorative activities can be prioritized across the restorative continuum (and over time) to maximize benefits for both people and nature. The prioritization should consider what is acceptable for the stakeholders and representatives keeping in mind the vision, the importance for getting the most

restorative process, while at the same time, understanding the various constraints and short versus long term processes. It would be important for participants to truly understand the importance of enhancing Nature's Contributions to People (NCPs) as well as achieving as many SDGs or other international objectives (e.g. the GBF), as possible.

Figure 2: A draft framework for prioritizing restorative activities

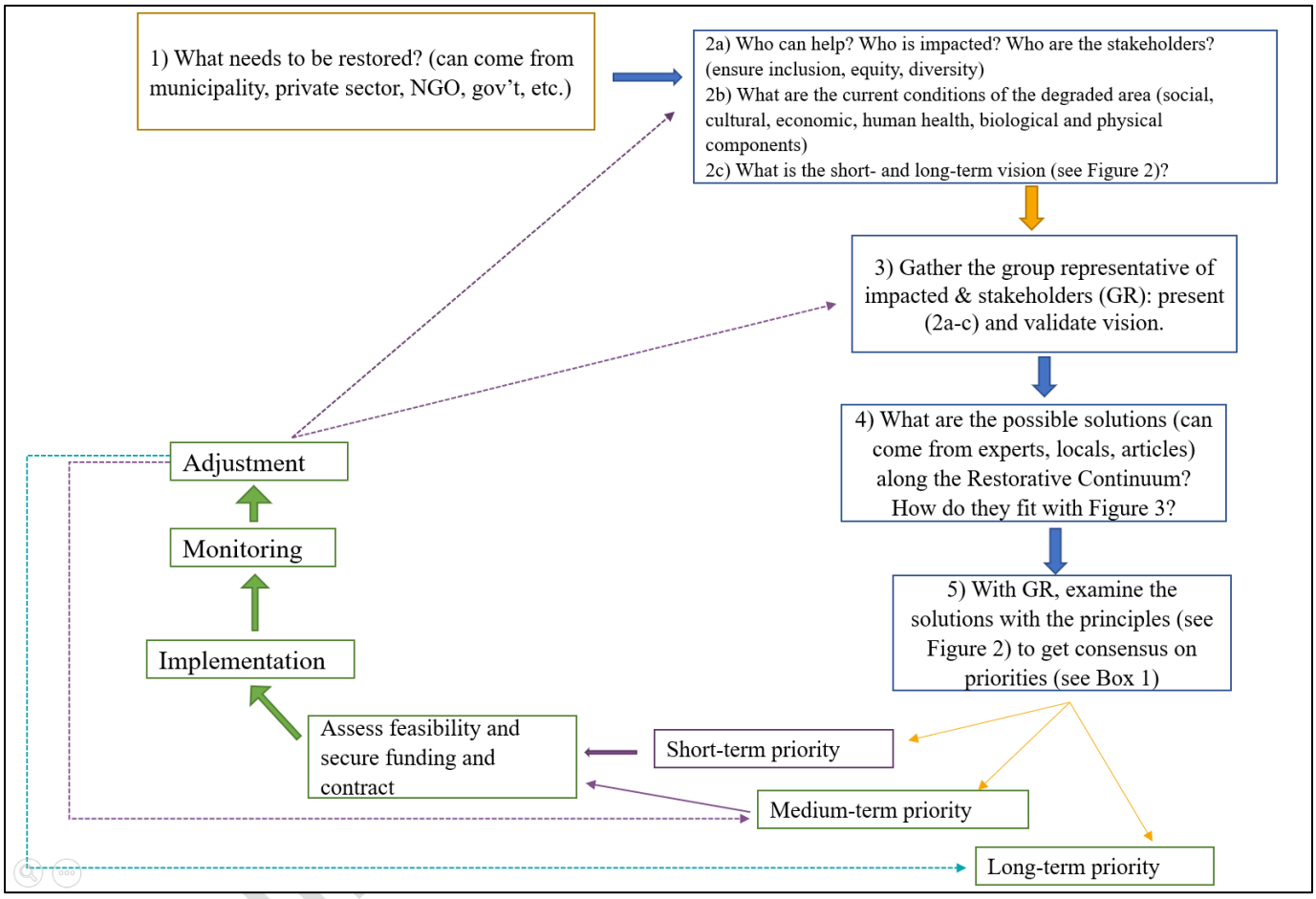
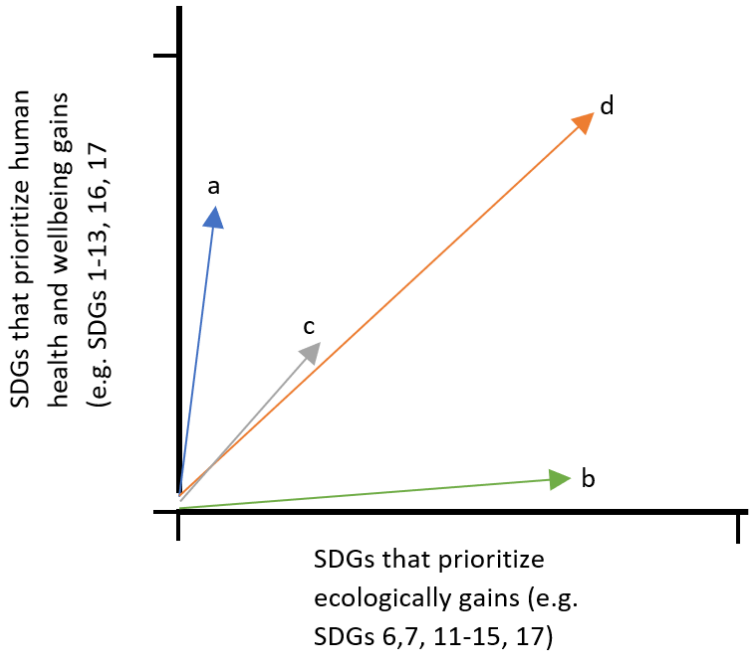


Figure 2: Please see Figure 3 and Box 1 for additional guidance for Steps 4 and 5. This framework is still in development.

Figure 3: Balancing ecological and human wellbeing gains when prioritizing restorative activities



In conjunction with Step 4 of the draft framework: Scenario a) Restorative activities are implemented based on those SDGs that prioritize human health and wellbeing gains over those SDGs that prioritize ecological gains, thus resulting in achieving a limited number of NCPs; Scenario b) Restorative activities are implemented based on those SDGs that prioritize ecological gains over those SDGs that prioritize human health and wellbeing gains, (e.g. a strict Category I conservation area), thus NCPs related to natural environment are the primary outcomes; and; Scenarios c-d) Restorative activities are implemented to achieve both human health and wellbeing and ecological SDGs, thus maximizing NCPs and overall outcomes for people and for nature. Scenarios c and d could fall anywhere on the continuum as long as both ecological and human health and wellbeing gains are both improved; however scenario c would likely achieve fewer SDG accomplishments in both social and ecological aspects (e.g. short term gains could be lower), whereas Scenario d would achieve greater gains. In certain situations Scenario c may expand into Scenario d over time. Some interventions may be intentionally designed to benefit human health and wellbeing more than ecological or vice versa.

Box 1. Decision-making process for prioritizing restorative activities framework

In conjunction with Step 5 of the proposed framework: To actually prioritize restorative activities requires assessment and comparison of pros and cons of the different possible approaches. This section of the framework still requires more development, but at this point includes the following considerations for that assessment:

- Consensus and inclusion of all ways of knowing and perceptions
- Multicriteria decision making process that is transparent:
    - human health, ecological integrity and biodiversity,
    - technology (availability and feasibility),
    - financial costs (costs-benefits analysis),
    - social acceptability (inclusive and adaptive governance),
    - time frame (how long), and
    - potential impacts on surrounding ecosystems

This stage of the framework could potentially incorporate a decision-tree of some sort. It will be expanded and solidified during the consultation process.

Theme 3: Developing common principles and standards of practice across scales and disciplines

April 9 & 16, 2021

Forum organizing team: Brock Blevins, Sarah Cotter, Jim Hallett, Liette Vasseur, Bethanie Walder
Participants: Raquel Agra, James Aronson, Christophe Besacier, Vera Boerger, Mieke Bourne, Robin Chazdon, Emmanuelle Cohen-Shacham, Anita Diederichsen, Richard Donovan, George Gann, Manuel Guariguata, Vicky Gutierrez, Kate Hardwick, Lisa Janishevski, Najeeb Khan, Paula Meli, Cara Nelson, Maria Julia Oliva, Silviu Petrovan, Andrea Romero, Kirsty Shaw, Omayra Toro, Daniel Vallauri, Leigh Winowiecki

This Forum theme was conducted in partnership with the UN Decade on Ecosystem Restoration Best Practices Task Force (BSTF). Participants provided feedback on draft principles developed by the BSTF (see Box 1), discussed the substance of each principle, gaps and needs, and assessed whether the principles were universal or sector specific. A small team of volunteers (James Aronson, Emmanuelle Cohen-Shacham, Anita Diederichsen, Manuel Guariguata) then joined members of the Forum organizing team (Cara Nelson and Jim Hallett) and the BSTF (Andrea Romero Montoya, Vera Boerger, Christophe Besacier) to work with all of the feedback provided and to develop a next round of principles. That round of principles was shared with all Forum participants from all three themes and with several other external parties and was further refined into a draft of 9 principles for ecosystem restoration (see Box 2). These 9 principles were included in the UN Decade Launch Report and will undergo global consultation in June and July with the intent to release a final version in September 2021.

Box 2. General principles identified by the Good Practices Sub-task Force in April 2021 (unmodified)

P1: Foster participatory governance
P2: Foster inclusive and mutual learning, informed decision-making, and information and knowledge exchange
P3: Support ecosystem recovery processes based on reference ecosystems and through spatial prioritization and planning relying on multiple criteria selected by stakeholders
P4: Assess ecosystem recovery against clear goals and objectives, using measurable indicators and applying adaptive management for long-term resilience
P5: Design restoration interventions at large scale, tailoring approaches to the local context
P6: Conserve and enhance natural ecosystems
P7: Comprise a continuum of allied activities to restore multiple functions for multiple benefits, and address the drivers of ecosystem degradation
P8: Use policies to enhance and scale up and out successful approaches for ecosystem restoration

Box 3. Draft principles for ecosystem restoration as of 1 June 2021

P1: Promotes inclusive and participatory governance, social fairness, and equity from the start and throughout the process and outcomes
P2: Includes a continuum of restorative activities
P3: Aims to achieve the highest level of recovery possible for ecosystem health and human wellbeing
P4: Addresses drivers of ecosystem degradation
P5: Incorporates all types of knowledge and promotes their exchange throughout the process
P6: Is tailored to the local context, while considering the larger landscape or seascape, and social-ecological and cultural settings
P7: Is based on well-defined short- and long-term ecological and socioeconomic objectives
P8: Plans and undertakes monitoring, evaluation, and adaptive management throughout the lifetime of the project or program
P9: Integrates policies and measures to ensure longevity, maintain funding, and, where appropriate, enhance and scale up interventions

Standards of Practices (SOPs) for Restorative Activities

Using the principles identified by the BPTF and work from Theme 1, the participants began to generate a draft list of related standards of practice for restorative activities that would be applicable across sectors and disciplines. The full draft list of standards of practice is still undergoing modification and revision. When more fully developed, the proposed Standards of Practice will be shared more broadly.

Participants discussed the following considerations about the SOPs:

- Elements from the SER International Principles and Standards for the Practice of Ecological Restoration[2] (especially Section 3) should be included where appropriate.
- There should be emphasis placed on setting goals.
- The design of principles should include temporal scale and other dimensions as well as spatial scale.
- Attention should be given to a project's capacity to scale up as necessary.
- It is possible that "human health" should be emphasized in addition to "human wellbeing"
- SOPs for ecosystem restoration may not be entirely linear, and should be presented in a manner that shows the different types of linkages between them
- The focus of ecosystem restoration SOPs should remain within the context of ecosystem restoration, not general development or conservation practices.

Conclusion

The third biennial Global Forum on Ecological Restoration, co-hosted by SER, IUCN CEM, and the BPTF (Theme 3), was designed to support the implementation of the UN Decade on Ecosystem Restoration and to provide a strong ecological and community foundation for the delivery of activities, funding, and assessment associated with the UN Decade. The Global Forum accomplished those goals by developing discussion drafts of:

- A definition of net gain
- Metrics for measuring net gain
- A framework for prioritizing restorative activities
- Principles for implementing effective and engaging ecosystem restoration projects and programs
- Standards of Practice for implementing restorative activities across the entirety of the Restorative Continuum

These discussion drafts will undergo continued consultation in June and July 2021, with the intent to synthesize, modify, and update the content in order to release final versions at the World Conservation Congress in September 2021. These resources are important additive products to the SER International Principles and Standards for the Practice of Ecological Restoration, in that they expand on that work to make it more applicable to the broader field of ecosystem restoration. They also expand on the IUCN Global Standard for Nature-based Solutions[3] and further integrate them into the UN Decade. The final resources and guidance developed from the Forum may be released as living documents and re-assessed in the future as the Decade progresses and restoration work scales up (following the important principle of adaptive management).

[2] Ibid

[3] IUCN (2020). Global Standard for Nature-based Solutions. A user-friendly framework for the verification, design and scaling up of NbS. First edition. Gland, Switzerland: IUCN.

The Forum organizing team thanks all participants, all members of the BPTF, and everyone who has contributed to the consultation so far and who will contribute over the next few months. The Forum team looks forward to hosting the fourth Global Forum on Ecological Restoration in conjunction with SER2023, the 10th World Conference on Ecological Restoration, in the 3rd quarter of 2023.

The Global Forum organizing team:

- *Society for Ecological Restoration*: Bethanie Walder (Contact), George Gann, Alexis Gibson, and Jim Hallett
- *IUCN Commission on Ecosystem Management*: Cara Nelson (Contact), Brock Blevins, Steve Edwards, and Liette Vasseur
- *Facilitator*: Sarah Cotter

Appendix 1: List of approaches/actions to implement or avoid for restorative activities

Restorative	Not restorative
• Ground your approach in best possible science - both western and Indigenous.	
• Use a wide variety of native species where appropriate or species that are adapted to local conditions.	• Using invasive species (including native species)
• Ensure genetic diversity in farming fields and well established crop cycles.	• Using hybrids or GMOs • Decreasing overall biodiversity • Planting/sustaining monocultures
• Manage soil to ensure appropriate conditions (e.g. stability, fertility). • Minimize use of agrochemicals	• Using harmful agrochemicals
• Use water efficiently and restore/maintain the water cycle (e.g. improve water retention etc).	• Using water extractive solutions that can degrade a system adjacent to the one being restored
• Ensure regeneration over time of species collected from the wild (e.g. respect recommended collection frequency and quantities).	• Overharvesting native and local propagules from inside or outside the recovery area
• Protect/restore relevant habitats (e.g. creation of buffer zones, set aside areas for vegetation to grow spontaneously • Promote interconnectivity where appropriate.	• Destroying intact, native ecosystem habitats • Increasing fragmentation
• Encourage natural regeneration and assist natural regeneration when consistent with project goals.	• Removing naturally-establishing native organisms • Degrading or destroying rare habitats
• Manage waste from projects appropriately.	• Contaminating other sites with waste from projects
• Distribute financial, livelihood, and other social benefits equitably across the community	• Increasing social inequality
• Respect cultural values of the communities.	• Disregarding local cultural values and needs
• Engage local communities in developing the activity. • Consider the needs of all stakeholders.	• Implementing top-down restorative projects

• Build trust with the local community and stakeholders.	
• Have a scientific/expert-reviewed plan in place prior to starting the project.	
• Address land, tenure, rights, governance, and power relationships.	• Increasing power inequality
• Incentivize having a monitoring and maintenance plan in place prior to the starting project.	
• Tailor the restorative activities to the degree of land degradation and the state on the restorative continuum that is desired.	
• Find innovative ways of financing larger scale restoration and out-of-the-box ideas.	
• Align actions with nationally or regionally important strategies.	
• Apply incentives at national and regional scales via policy that will increase restorative actions. • Ensure policies are in place to support long term success of restoration.	• Using perverse incentives and policies.
• Focus beyond carbon, to bundles of ecosystem services.	• focusing on only one group (such as flora and not fauna) or only one ecosystem service (carbon storage or water)
• Take an integrated approach to restoration that considers multiple factors/components.	
• Recognize that adaptive management will be necessary over time (feedback loops from monitoring).	• Having a rigorous and inflexible approach
	• Displacing ecological and social costs