Ecosystem Restoration Standard

A Social and Environmental Standard for Field Verification of Restoration

Version 3.1

Forest Ecosystem Restoration – Field Verification Standard

Title:	Ecosystem Restoration Standard– A Social and Environmental Standard for Field Verification of Restoration Initiatives
Scope:	Global
Status of document[1]:	Final version 3.1
Date:	May 2022
Consultation period:	N/A
Approval body:	As an independent Standard, approval of a version to be used for verification audits will need to be approved by Preferred by Nature. However future versions may be used or approved by other bodies.
Contact person:	Mateo Cariño Fraisse and Richard Zell Donovan
Contact email:	mcarino@preferredbynature.org and pelicanzell@gmail.com

---

[1] Iterative or continuous improvement of this Standard will happen at least once every five years, though if warranted based on use and practice, other changes should happen sooner.

Contents

Acronyms

AFi: Accountability Framework initiative

ANR: Assisted Natural Regeneration

BBOP: Business and Biodiversity Offsets Programme

CATIE: Tropical Agricultural Research and Higher Education Center

FAO: Food and Agriculture Organization

FPIC: Free, Prior and Informed Consent

FRA: Forest Resources Assessment

FLR: Forest Landscape Restoration

FSC: Forest Stewardship Council

GPFLR: Global Partnership on Forest and Landscape Restoration

HCSA: High Carbon Stocks Approach

HCV(s): High Conservation Value(s)

ITTO: International Tropical Timber Organization

NTFPs: Non-timber Forest Products

PEFC: Programme for the Endorsement of Forest Certification

PPE: Personal Protective Equipment

RM: Restoration Manager

ROAM: Restoration Opportunities Assessment Methodology

RRI: Rights and Resources Initiative

RSPO: Roundtable for Sustainable Palm Oil

SAS: Sustainable Agriculture Standard

SER: Society for Ecological Restoration

SH&C: Smallholder and Community (projects)

SMEs: Small and Medium Enterprises

UNDRIP: United Nations Declaration on the Rights of Indigenous Peoples

WHO: World Health Organization

WRI: World Resources Initiative

Glossary

Affected stakeholders*[2]: Any person, group of persons or entity that is or is likely to be subject to the effects of the activities of a Management Unit. Examples include, but are not restricted to (for example in the case of downstream landowners), persons, groups of persons or entities located in the neighbourhood of the Management Unit. The following are examples of affected stakeholders:

- Local communities
- Indigenous peoples
- Workers
- Forest dwellers
- Neighbours
- Downstream landowners
- Local processors
- Local businesses
- Tenure and use rights holders, including landowners
- Organisations authorised or known to act on behalf of affected stakeholders, for example social and environmental NGOs, labour unions, etc.

Agroforestry: a dynamic, ecologically based, natural resource management system that, through the integration of trees on farms and in the agricultural landscape, diversifies and sustains production for increased social, economic, and environmental benefits for land users at all levels (Source: FAO, http://www.fao.org/forestry/agroforestry/80338/en/)

Alien species (exotic): A species, sub-species, or lower taxon, introduced outside its natural past or present distribution; includes any part, gametes, seeds, eggs, or propagules of such species that might survive and subsequently reproduce. (Source: Convention on Biological Diversity (CBD), Invasive Alien Species Programme. Glossary of Terms as provided on CBD website.)

Assisted Natural Regeneration (ANR): ANR is a simple, low-cost restoration method that can effectively enhance the productivity and ecosystem functions of deforested or degraded lands. The method aims to accelerate, rather than replace, natural successional processes by removing or reducing barriers to natural regeneration such as soil degradation, competition with weedy species, and recurring disturbances (for example fire, grazing and wood harvesting). (Source: FAO, http://www.fao.org/forestry/anr/en/)

Chemical: In the Sustainability Framework Chemicals are broadly defined as distinct compounds or substances, which have been artificially prepared or purified. Chemicals in this context may include different types of agro-chemicals, such as pesticides, herbicides, insecticides, fungicides, as well as fertilisers. It may also include other chemicals used in processing and manufacturing of agricultural or forest products. (Also see the definition of *Prohibited chemicals* in this document.)

Child: Any person under 15 years of age, unless the minimum age for work or mandatory schooling is higher by local law, in which case the stipulated higher age applies in that locality.

(Source: Social Accountability Standard 8000- 2014.)

Child Labour: The term "child labour" is often defined as work that deprives children of their childhood, their potential and their dignity, and that is harmful to physical and mental development.
It refers to work that:
- is mentally, physically, socially or morally dangerous and harmful to children; and

---

[2] All terms covered by the asterisk (*) are sourced or adapted from the FSC Glossary of Terms (FSC-STD-01-002, updated 19 October 2017)

- interferes with their schooling by:
  - depriving them of the opportunity to attend school;
  - obliging them to leave school prematurely; or
  - requiring them to attempt to combine school attendance with excessively long and heavy work.

In accordance with international labour standards, a minor, between the age of 12 and 15 may work, in parallel with studying, on a farm owned or operated by that parent or person standing in place of their parents [a guardian] if the following conditions are met:

- The minor freely reports their wish to help and learn at the family farm if interviewed outside the farm

- Work takes place outside of schooling

- Work is supervised always by a parent or guardian

- Work does not take place at night, does not consist of heavy lifting duties or hazardous work conditions, defined as:

  - Operating or assisting to technically operate any type of machine, including tractor and power engines

  - Working from a ladder or scaffold (painting, repairing, or building structures, pruning trees, picking fruit, etc.) at a height of over 2 metres

  - Working in a confined space (example silo or a storage designed to retain an oxygen deficient or toxic atmosphere)

  - Handling or applying any type of agricultural chemicals

The above requirements apply as well to agricultural schools – apprentices and students that can be present on farms.

Not all work done by children should be classified as child labour that is to be targeted for elimination. Children's or adolescents' participation in work that does not affect their health and personal development or interfere with their schooling, is generally regarded as being something positive. This includes activities such as helping their parents around the home, assisting in a family business or earning pocket money outside school hours and during school holidays. These kinds of activities contribute to children's development and to the welfare of their families; they provide them with skills and experience and help prepare them to be productive members of society during their adult life. (Source: International Labour Organization)

Child labour, worst form of: Whilst child labour takes many different forms, a priority is to eliminate without delay the worst forms of child labour as defined by Article 3 of ILO Convention No. 182:

(a) all forms of slavery or practices similar to slavery, such as the sale and trafficking of children, debt bondage and serfdom and forced or compulsory labour, including forced or compulsory recruitment of children for use in armed conflict;
(b) the use, procuring or offering of a child for prostitution, for the production of pornography or for pornographic performances;
(c) the use, procuring or offering of a child for illicit activities, in particular for the production and trafficking of drugs as defined in the relevant international treaties;

work which, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety or morals of children. (Source: Worst Forms of Child Labour Convention, 1999 (No. 182).)

Culturally appropriate engagement*: Means/approaches for outreach to target groups that are in harmony with the customs, values, sensitivities, and ways of life of the target audience.

Customary rights*: Rights which result from a long series of habitual or customary actions, constantly repeated, which have, by such repetition and by uninterrupted acquiescence, acquired the force of a law within a geographical or sociological unit.

Discrimination: any distinction, exclusion or preference made on the basis of race, national or territorial or social origin, caste, religion, disability, gender, sexual orientation, family responsibilities, marital status, union membership, political opinions, age or any other issue.

(Source: ILO Convention 111)

Examples include discrimination based on:

a) Race, colour, sex, age, sexual orientation, gender, caste, religion, political opinion, national extraction or social origin;

b) Nationality or migratory status;

c) Civil status;

d) Medical condition;

e) Family condition, including pregnant women and parents with children, or any other protected status as included in applicable laws;

f) Worker organisation membership or being an organiser;

g) Having filed complaints within the complaints or grievance mechanisms;

(Source: Sustainable Agriculture Standard)

Ecological restoration: 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.) (Source: International Principles and Standards for the Practice of Ecological Restoration. Second Edition: September 2019. Society for Ecological Restoration.)

Fertiliser: organic or inorganic substances containing chemical elements that improve the growth of plants and the fertility of the soil. In inorganic or mineral fertilizers, the nutrients are inorganic salts, obtained by extraction and/or physical and chemical processes. The three primary plant nutrients are nitrogen, phosphorus and potassium. (Source: OECD. https://stats.oecd.org/glossary/detail.asp?ID=947)

Ecosystem restoration[3]: Ecosystem restoration means assisting in the recovery of ecosystems that have been degraded or destroyed, as well as conserving the ecosystems that are still intact. Healthier ecosystems, with richer biodiversity, yield greater benefits such as more fertile soils, bigger yields of timber and fish, and larger stores of greenhouse gases. Restoration can happen in many ways – for example through actively planting or by removing pressures so that nature can recover on its own. It is not always possible – or desirable – to return an ecosystem to its original state. We still need farmland and infrastructure on land that was once forest, for instance, and ecosystems, like societies, need to adapt to a changing climate[4]. (Source: UN Decade on Restoration, https://www.decadeonrestoration.org/frequently-asked-questions)

Forest: Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use.

---

[3] The Accountability Framework definition was also considered (*The process of assisting the recovery of an ecosystem, and its associated conservation values, that has been degraded, damaged, or destroyed*) but it's understood that it relates to environmental harm and thus the broader UN scope was used.

[4] NB: as stated in the United Nations Decade on Ecosystem Restoration Strategy, the complexity of ecosystem restoration has prevented global organisations and governments reaching consensus on a definition of ecosystem restoration, what terminology to consistently use, and what scientific principles to adopt for restoring ecosystems effectively. This has prevented the global community mapping out a clear ecosystem restoration vision for the future, with detailed goals and targets for individual ecosystems. It has also prevented leaders working on different global challenges that would benefit substantially from large-scale ecosystem restoration initiatives (such as climate change, biodiversity, food security, water security, poverty and human health) speaking about the global ecosystem restoration opportunity in an integrated manner.

In the context of the Ecosystem Restoration Standard differentiation is made between *natural forest* and plantation. (Source: [Food and Agriculture Organization of the United Nations)](#)

Forest degradation: forest degradation is defined as the result of human activity that cause a reduction or loss of the biological or economic productivity and complexity of forest ecosystems, resulting in the long-term reduction of the overall supply of benefits from forest, which includes wood, biodiversity and other products or services. (Source: EU. [https://ec.europa.eu/environment/publications/proposal-regulation-deforestation-free-products_en)](https://ec.europa.eu/environment/publications/proposal-regulation-deforestation-free-products_en)

Free, Prior and Informed Consent (FPIC): A legal condition whereby a person or community can be said to have given consent to an action prior to its commencement, based upon a clear appreciation and understanding of the facts, implications and future consequences of that action, and the possession of all relevant facts at the time when consent is given. Free, prior and informed consent includes the right to grant, modify, withhold or withdraw approval. FPIC is required prior the approval and/or commencement of any project that may affect the lands, territories and resources that Indigenous Peoples customarily own, occupy or otherwise use in view of their collective rights to self-determination and to their lands, territories, natural resources and related properties.

Understanding the terminology associated with FPIC can help companies to effectively contribute to, facilitate, lead and assess FPIC processes:

- Free: Consent is given by the affected indigenous people or local communities voluntarily without coercion, duress, and intimidation.

- Prior: The consent is given before the specified activity is authorised or commenced.

- Informed: The consent is given after the indigenous people or local communities has received the relevant, timely and culturally appropriate information necessary to make a fully informed decision.

- Consent: The IP/LC take a collective decision to grant or withhold approval of the specified activity.

(Source: [United Nations Office of the High Commissioner for Human Rights)](#)

Greenhouse Gas (GHG): A gas that contributes to the natural greenhouse effect. The Kyoto Protocol covers a basket of six greenhouse gases (GHGs) produced by human activities: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride. Annex I Parties' emissions of these gases taken together are to be measured in terms of carbon dioxide equivalents on the basis of the gases' global warming potential.

(Source : [https ://www.eea.europa.eu/help/glossary/eea-glossary/greenhouse-gas)](https://www.eea.europa.eu/help/glossary/eea-glossary/greenhouse-gas)

Indigenous Peoples: People and groups of people that are characterised by all of the following points:

- The key characteristic or criterion is self-identification as Indigenous Peoples at the individual level and acceptance by the community as their member;

- Historical continuity with pre-colonial and/or pre-settler societies;

- Strong link to territories and surrounding natural resources;

- Distinct culture and beliefs;

- Form non-dominant groups of society, and;

- Resolve to maintain and reproduce their ancestral environments and systems as distinctive peoples and communities.

(Sources: ILO, Indigenous and Tribal Peoples Convention, 1989 (No. 169), United Nations Permanent Forum on Indigenous Issues, Factsheet 'Who are Indigenous Peoples' October 2007;

United Nations Development Group, 'Guidelines on Indigenous Peoples' Issues' United Nations 2009, United Nations Declaration on the Rights of Indigenous Peoples, 2008.)

ILO fundamental Conventions: The eight ILO fundamental Conventions are: the Forced Labour Convention, 1930 (No. 29) , the Abolition of Forced Labour Convention, 1957 (No. 105) , the Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87) , the Right to Organise and Collective Bargaining Convention, 1949 (No. 98) , the Equal Remuneration Convention, 1951 (No. 100) , the Discrimination (Employment and Occupation) Convention, 1958 (No. 111) , the Minimum Age Convention, 1973 (No. 138) , and the Worst Forms of Child Labour Convention, 1999 (No. 182) .

(Source: ILO)

Insetting projects: interventions along a company's value chain that are designed to generate Greenhouse Gas (GHG) emissions reductions and carbon storage, and at the same time create positive impacts for communities, landscapes and ecosystems. (Source: International Platform for Insetting)

Integrated pest, weed, and diseases management: careful consideration of all available pest, weed, and diseases control techniques and subsequent integration of appropriate measures that discourage the development of pest, weed, and diseases populations, encourage beneficial populations and keep pesticides and other interventions to levels that are economically justified and reduce or minimize risks to human and animal health and/or the environment. It emphasizes the growth of a healthy ecosystems with the least possible disruption and encourages natural control mechanisms. (Source: Based on FAO International Code of Conduct on Pesticide Management & http://www.fao.org/pesticide-registration-toolkit/information-sources/terms-anddefinitions/terms-and-definitions-s).

Invasive species: Species that are rapidly expanding outside of their native range. Invasive species can alter ecological relationships among native species and can affect ecosystem function and human health. (Source: Based on World Conservation Union (IUCN). Glossary definitions as provided on IUCN website.)

Land Tenure: Land tenure is the relationship, whether legally or customarily defined, among people, as individuals or groups, with respect to land. (For convenience, "land" is used here to include other natural resources such as water and trees.) Land tenure is an institution, i.e., rules invented by societies to regulate behaviour. Rules of tenure define how property rights to land are to be allocated within societies. They define how access is granted to rights to use, control, and transfer land, as well as associated responsibilities and restraints. In simple terms, land tenure systems determine who can use what resources for how long, and under what conditions.

(Source: Food and Agriculture Organization of the United Nations)

Landscape: A geographical mosaic composed of interacting ecosystems resulting from the influence of geological, topographical, soil, climatic, biotic and human interactions in a given area. (Source: Based on World Conservation Union (IUCN). Glossary definitions as provided on IUCN website.)

Leakage: emissions of greenhouse gases outside the area of the project as a result of its implementation. (Source: UNFCC)

Living wage: The remuneration received for a standard workweek by a worker in a particular place sufficient to afford a decent standard of living for the worker and her or his family. Elements of a decent standard of living include food, water, housing, education, health care, transportation, clothing, and other essential needs including provision for unexpected events. (Source: Global Living Wage Coalition)

Local communities*: Communities of any size that are in or adjacent to the Management Unit, and also those that are close enough to have a significant impact on the economy or the environmental

values of the Management Unit or to have their economies, rights or environments significantly affected by the management activities or the biophysical aspects of the Management Unit.

Native species: Species, sub-species, or lower taxon, occurring within its natural range (past or present) and dispersal potential (that is, within the range it occupies naturally or could occupy without direct or indirect introduction or care by humans). (Source: Convention on Biological Diversity (CBD), Invasive Alien Species Programme. Glossary of Terms as provided on CBD website.)

Natural ecosystem: An ecosystem that substantially resembles—in terms of species composition, structure, and ecological function—one that is or would be found in a given area in the absence of major human impacts. This includes human-managed ecosystems where much of the natural species composition, structure, and ecological function are present.

Natural ecosystems include:

- Largely "pristine" natural ecosystems that have not been subject to major human impacts in recent history

- Regenerated natural ecosystems that were subject to major impacts in the past (for instance by agriculture, livestock raising, tree plantations, or intensive logging) but where the main causes of impact have ceased or greatly diminished and the ecosystem has attained species composition, structure, and ecological function similar to prior or other contemporary natural ecosystems

- Managed natural ecosystems (including many ecosystems that could be referred to as "semi-natural") where much of the ecosystem's composition, structure, and ecological function are present; this includes managed natural forests as well as native grasslands or rangelands that are, or have historically been, grazed by livestock

- Natural ecosystems that have been partially degraded by anthropogenic or natural causes (e.g., harvesting, fire, climate change, invasive species, or others) but where the land has not been converted to another use and where much of the ecosystem's composition, structure, and ecological function remain present or are expected to regenerate naturally or by management for ecological restoration

(Source: [Accountability Framework definitions)](#)

Natural forest*: A forest area with many of the principal characteristics and key elements of native ecosystems, such as complexity, structure and biological diversity, including soil characteristics, flora and fauna, in which all or almost all the trees are native species, not classified as plantations. 'Natural forest' includes the following categories:

- Forest affected by harvesting or other disturbances, in which trees are being or have been regenerated by a combination of natural and artificial regeneration with species typical of natural forests in that site, and where many of the above-ground and below-ground characteristics of the natural forest are still present. In boreal and north temperate forests which are naturally composed of only one or few tree species, a combination of natural and artificial regeneration to regenerate forest of the same native species, with most of the principal characteristics and key elements of native ecosystems of that site, is not by itself considered as conversion to plantations.
- Natural forests which are maintained by traditional silvicultural practices including natural or assisted natural regeneration.
- Well-developed secondary or colonising forest of native species which has regenerated in non-forest areas.
- The definition of 'natural forest' may include areas described as wooded ecosystems, woodland and savanna.

Natural forest does not include land that is not dominated by trees, was previously not forest, and that does not yet contain many of the characteristics and elements of native ecosystems. Young regeneration may be considered as natural forest.

Non-conformity: This term refer to non-fulfilment of a requirement. In simple words this means that some part of the standard has not been correctly fulfilled. Non-conformity is the term in ISO documents, while generally non-conformance and non-compliance are assimilated to mean the same. Similar options are used for positive fulfilment of requirements (conformance, conformity, compliance).

Non-conformity report (NCR): is the term used to describe the documentation of a non-conformance.

Non-permanence: Refers to the temporary nature of the removals, given that carbon contained in the biomass of trees is at a continuous risk of being emitted into the atmosphere. (Source: UNFCC)

Non-timber forest products* (NTFPs): All forest products except timber, including other materials obtained from trees such as resins and leaves, as well as any other plant and animal products. Examples include, but are not limited to seeds, fruits, nuts, honey, palm trees, ornamental plants and other forest products originating from a forest matrix.

Pesticide*: Any substance or preparation used to protect plants or wood or other plant products from pests; in controlling pests; or in rendering such pests harmless. This definition includes insecticides, rodenticides, acaricides, molluscicides, larvicides, fungicides and herbicides.

Plantation: defined as forest stands established by planting or/and seeding in the process of afforestation or reforestation. They are either of introduced or indigenous species. In addition, the structure and diversity of plantations are generally uniform with same-age stands of the same species, and does generally not have the characteristics and functions of a natural forest.

(Source : FAO, FRA2000. http ://www.fao.org/3/y1997e/y1997e08.htm)

Rare species: Species that are uncommon or scarce, but not classified as threatened. These species are located in geographically restricted areas or specific habitats or are scantily scattered on a large scale. They are approximately equivalent to the IUCN (2001) category of Near Threatened (NT), including species that are close to qualifying for, or are likely to qualify for, a threatened category in the near future. They are also approximately equivalent to imperilled species. (Source: Based on IUCN (2001). IUCN Red List Categories and Criteria: Version 3.1. IUCN Species Survival Commission. IUCN. Gland, Switzerland and Cambridge, UK.)

Reference ecosystem: a representation of a native ecosystem that is the target of ecological restoration (as distinct from a reference site). A reference ecosystem usually represents a non-degraded version of the ecosystem complete with its flora, fauna, and other biota, abiotic elements, functions, processes, and successional states that might have existed on the restoration site had degradation not occurred and adjusted to accommodate changed or predicted environmental conditions. (Source: Based on the International Principles and Standards for the Practice of Ecological Restoration. Second Edition: September 2019. Society for Ecological Restoration.)

Reforestation: Re-establishment of forest through planting and/or deliberate seeding on land classified as forest. (Source: FAO, FRA 2020 Terms and definitions, http://www.fao.org/forest-resources-assessment/en/)

Restoration Manager*: Person or organisation that has been given the responsibilities by land or forest owners for the management or utilisation of their land or forest resources, including operational planning and restoration projects.

Rewilding: comprehensive, often large-scale, conservation effort focused on restoring sustainable biodiversity and ecosystem health by protecting core wild/wilderness areas, providing connectivity

between such areas, and protecting or reintroducing apex predators and highly interactive species (keystone species). (Source: rewilding.org.)

Rights holders: Any person, group of persons or entity (typically Indigenous Peoples or other local communities) who holds customary or legal use rights, in accordance with UNDRIP and national laws or traditions.

Smallholder and Community Projects: This term covers both the Small Size Projects (under 100 ha) and the Projects managed at communal level by Indigenous or Traditional peoples.

Successional forests: Forests in the process of regenerating towards a more mature state, including early, mid or late successional states.

Threatened species: Species that meet the IUCN (2001) criteria for Vulnerable (VU), Endangered (EN) or Critically Endangered (CR), and are facing a high, very high or extremely high risk of extinction in the wild. (Source: Based on IUCN. (2001). IUCN Red List Categories and Criteria: Version 3.1. IUCN Species Survival Commission. IUCN. Gland, Switzerland and Cambridge, UK.)

Traditional peoples: Traditional peoples are social groups or peoples who do not self-identify as Indigenous and who affirm rights to their lands, forests and other resources based on long-established custom or traditional occupation and use. (Source: Forest Peoples Programme, Marcus Colchester, 7 October 2009.)

Traditional Knowledge: Information, know-how, skills and practices that are developed, sustained and passed on from generation to generation within a community, often forming part of its cultural or spiritual identity (Source: Based on the definition by the World Intellectual Property Organization (WIPO). Glossary definition as provided under Policy / Traditional Knowledge on the WIPO website.)

Validation: In the case of a restoration project for which management activities have only recently started and conformance compliance with this Standard cannot yet be fully demonstrated, confirmation by a validation/verification body through evaluation that the project complies with all other applicable requirements of this Standard and has a credible plan that is likely to lead to verification in the next evaluation (Source: Adapted from Glossary: CDM Terms, Version 09.1. Clean Development Mechanism; https://cdm.unfccc.int/Reference/Guidclarif/glos_CDM.pdf)

Verification: The evaluation and ex-post determination by a validation/verification body that the project is in compliance with this Standard (Source: Adapted from Glossary: CDM Terms, Version 09.1. Clean Development Mechanism; https://cdm.unfccc.int/Reference/Guidclarif/glos_CDM.pdf)

Waste: Waste means any substance or object which the holder discards or intends or is required to discard.

(Source: EU Waste Framework Directive. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L0851&from=EN)

Workers: All employed persons including public employees as well as 'self-employed' persons. This includes part-time and seasonal employees, of all ranks and categories, including labourers, administrators, supervisors, executives, contractor employees as well as self-employed contractors and sub-contractors. (Source: ILO Convention C155 Occupational Safety and Health Convention, 1981.)

Young worker: Any worker under the age of 18 but over the age of a child (15), as defined above.

(Source: Social Accountability Standard 8000- 2014)

Introduction

The focus of this Standard is performance assessment of ecosystem restoration at the field level. Numerous frameworks or foundational documents lay out the key aspects, principles or elements of restoration (see Annex I), whether driven by ecological, economic or social concerns. This document provides a practical Standard for field verification of performance in implementing ecosystem restoration – where the restoration is technically, environmentally, socially and economically appropriate.

Intent in terms of scale and application of the Standard

This Standard was designed to audit performance at any scale (small to large) and any time point in an ongoing restoration process or project (i.e. implementation of restoration interventions has started) in tropical, temperate and boreal biomes. Small projects are considered those restoring fewer than 100 ha (either a single property or multiple properties in a group), large are defined as being greater than 10,000 ha, and medium are the projects in between[5]. Projects managed by Communities[6] are also grouped with small projects and together referred to as Smallholder and Community projects (SH&C). Ecosystem restoration may include use of techniques such as management of natural forest succession, grazing management, agroforestry, conservation agriculture, tree planting through reforestation, participatory management, reduced impact logging, rewilding... Priority is placed on use of native species, but also allowing the use of alien species where such species provide "nursing" or similar qualities, leading towards the re-establishment of natural forest cover or ecosystem function. The Standard can be used for first-party, second-party or third-party evaluations or audits of performance.

- **First-party evaluations** are carried out by restoration project implementers or managers themselves (for example staff who are directly implementing actual restoration activities).

- **Second-party evaluations** are done by advisors, auditors, consultants, contractors, buyers, forestry associations, etc. who are a step away from actual implementation and are focused on providing a performance review. Normally, second-party evaluators also provide recommendations for implementation improvement.

- **Third-party evaluations** are performed by auditors who are independent, meaning they are not directly involved in implementing restoration; and nor do they provide recommendations or technical guidance for restoration implementation. Third-party auditors typically must ensure that they are free from conflict of interest – i.e. they have no direct financial or other economic interest in the restoration effort they are auditing. Although third-party auditors are expected to be open to the concerns or observations of other stakeholders, they are expected to make independent decisions based on the evidence observed or provided (documents, field observations, stakeholder comments in writing or in person, etc.). Third-party auditing is a common characteristic of stewardship certification programs such as the Forest Stewardship Council (FSC®), the Programme for the Endorsement of Forest Certification (PEFC), the Roundtable for Sustainable Palm Oil (RSPO), the Rainforest Alliance Sustainable Agriculture Standard (SAS), etc.[7]

---

[5] The hectare thresholds for large and smaller operations may be adjusted based on geography or corresponding size limits/requirements in certification systems or other accountability tools which may be used in parallel with this verification tool.

[6] There is scientific evidence connecting more effective forest stewardship with Indigenous/Traditional Peoples and local communities, usually attributed to their active participation in forest governance, their direct benefits from forest products, and their desire to maintain the resource for future generations.

[7] This Standard was originally drafted with no formal connection to a certification program. Version 0.3 was reviewed internally by Preferred by Nature staff and advisors, plus approximately 45 confidential technical reviewers and restoration practitioners

Use of `Core´ and `Continuous Improvement´ Indicators

The proposed approach creates a series of "core" and "continuous improvement" indicators.

- **Core** means those which shall be assessed/verified in every situation, with positive performance at the field level considered crucial/required in all cases.

- **Continuous improvement** means partial success in implementation is acceptable if credible field level progress is evident.

This approach builds on the implementation of several other approaches to verification, including third-party certification. For example, the Sustainable Agriculture Standard (SAS) of the Rainforest Alliance program for certifying sustainable agriculture has used, for many years, core criteria (and related indicators under each criterion) as an approach. The FSC "New Approaches" effort, based on FSC experience over the past 25+ years, is currently exploring doing the same – through a Working Group of which Preferred by Nature is a member. Such approaches are driven by a desire for more efficient/effective auditing "outcomes or results" (i.e. to avoid the phenomenon of "audit fatigue" wherein farm and forestry operations are subject to multiple auditing systems); or to focus the resources and thus be more inclusive as to who can benefit from certification.

Although sometimes seeking such efficiency might be considered as a desire for more 'streamlined' approaches, the challenge is to ensure that 'streamlining' is not accomplished at the cost of rigour. In the approach proposed here we have not included principles or criteria; but instead have moved straight to identifying auditable indicators under various subject areas. We have based that and the present designation of "core" and "continuous improvement" indicators on our over 25 years of international auditing experience as well as on the comments provided by other experts and practitioners around the globe. The key factors for this include scale, intensity, and risk. We suggest here it is possible to reduce reliance on issues which have proven to be non-critical – and enhance the attention (time and effort by auditors, field managers and stakeholders) spent on issues that we believe are critical. Within the Standard, unless an indicator is specifically defined as 'continuous improvement', it is considered 'core'.

During future processes of interacting with various stakeholders and through field testing, we will be re-examining the 'indicators only' approach, as well as the content of the indicators, and the proposed core versus continuous improvement status for each indicator.

Cautionary Notes

1) This verification Standard is not a planning nor design guide for the implementation of forest or landscape or ecosystem restoration efforts. Multiple other documents either already do or plan to provide that, with these produced by organisations such as the World Resources Institute (WRI), the International Tropical Timber Organization (ITTO), the Food and Agriculture Organization of the United Nations (FAO), the International Union for Conservation of Nature (UICN), and the Society for Ecological Restoration (SER).
This Standard is not a restoration design document. It is an attempt to provide a practical, consistent, rigorous and efficient approach for assessing and monitoring the environmental, social, economic and technical performance of ongoing ecosystem restoration field efforts at all scales, and thus be able to demonstrate performance and adaptive management.

2) We consider that protecting and responsibly managing existing ecosystems should always be the first option, before undertaking further restoration. Also, this verification approach does
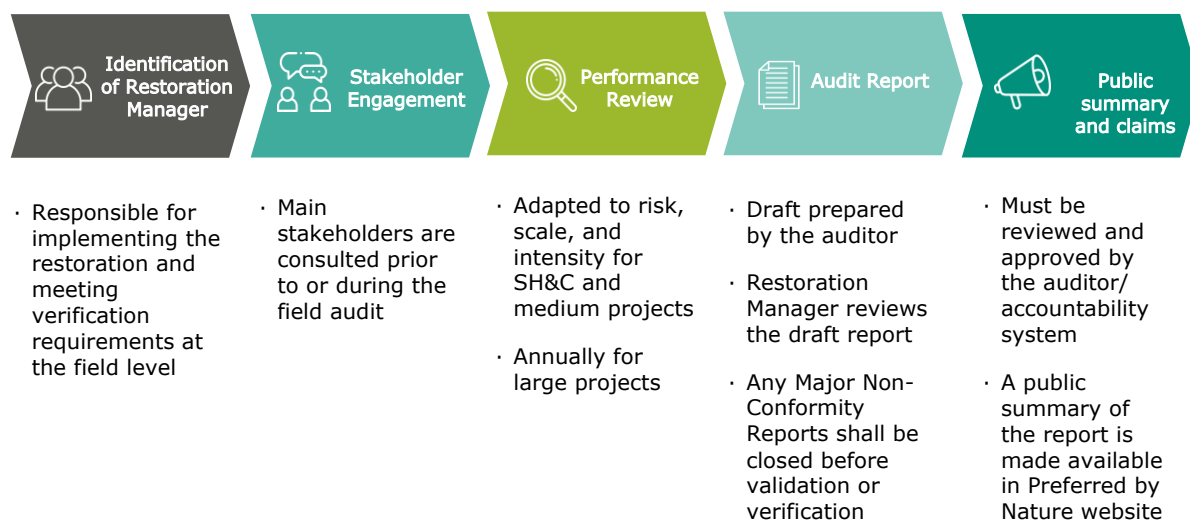
---

globally, and comments from those reviews used to enhance the Standard to Version 1 (V1.0). This version was then sent to public consultation, subjected to seven field tests plus a targeted experts workshop, leading to the current version.

not attempt to assess the sufficiency of mitigation, remediation or compensation efforts as remedy for past unacceptable actions or practices; for example, large-scale forest conversion to non-forest land use, or abuse of social or Indigenous rights. These subjects are being addressed and negotiated in numerous forums and certification systems, including the Accountability Framework initiative (AFi), FSC, Rainforest Alliance SAS, and RSPO. There are also existing examples through wetland, ecosystem, or social remediation as implemented by international multilateral organisations (for example World Bank or International Finance Corporation); national or sub-national governments in the USA, Australia and other countries; or mining or infrastructure development companies. In 2018–2019 the NGO-led AFi – for which Rainforest Alliance and the Meridian Institute provide the Secretariat – has begun to address the challenges of remediation and compensation, as previously has the Business and Biodiversity Offsets Programme (BBOP) of Forest Trends. The Standard can nevertheless be used in those frameworks to verify the quality of the restoration after a procedure has been agreed in other multistakeholder frameworks.

Proposed Approach

The following approach recognises the evolving nature of restoration and related due diligence efforts around the globe, and the fast-paced development of information technology or remote sensing that can be used to assess such efforts.

Proposed Approach

Identification of Restoration Manager	Stakeholder Engagement	Performance Review	Audit Report	Public summary and claims
· Responsible for implementing the restoration and meeting verification requirements at the field level	· Main stakeholders are consulted prior to or during the field audit	· Adapted to risk, scale, and intensity for SH&C and medium projects · Annually for large projects	· Draft prepared by the auditor · Restoration Manager reviews the draft report · Any Major Non-Conformity Reports shall be closed before validation or verification	· Must be reviewed and approved by the auditor/ accountability system · A public summary of the report is made available in Preferred by Nature website

Project governance and stakeholder engagement

In every case, a specific Restoration Manager (RM) shall be identified. Although there may be other organisations or individuals who have a partial responsibility in terms of implementing restoration, auditing experience indicates that it is crucial to be clear on the individual (typically in a specified organisation) who has lead responsibility for the restoration and accountability for follow up on audit results. As such, there shall always be an individual named as the RM.

Engaging with stakeholders provides a unique opportunity to get specific input, but also ensure that any initiative keeps expanding its impacts as the community that learns and benefit from it matures and expand.

Restoration activity

This verification approach does not presuppose that one technical restoration intervention is the best for obtaining results. As has happened through certified forest practices in the FSC and other systems, multiple interventions are not constrained if they result in responsible management derived from a range of technical, social, economic and environmental practices. So, in practice, the intention is that the same would hold true in this case for restoration approaches. Alternatives may range from e.g. tree plantations, to agroforestry, natural forest management, improved pastoralism, or regenerative agriculture. In some cases, a combination or matrix of techniques may be appropriate in a specific area.

It should also be noted that "just letting ecosystems regenerate" through conservation or eliminating the drivers for degradation is in our opinion "management" and an explicit, very workable (perhaps even the cheapest) alternative, depending on location and other factors (availability of wildlife seed distributors or pollinators, closeness to remnant natural forests as seed sources, degree of soil and water availability disturbance, *etc.*), and the combination of timber and non-timber values that may be present. As research at CATIE, the FLoRES collaboration, the PARTNERS[8], and other organisations or research groups have demonstrated, the economic and environmental values of successional natural forest have all too often been undervalued (see references). Thus, this Standard is meant to respond to any viable restoration technique, from tree planting to natural regeneration.

Socio-economic aspects

This approach does recognise that it is critical to consider economic and social factors beyond the original or reference ecosystems. Successful "ecological" restoration cannot ignore economic and social factors or community needs. This may lead to blended approaches that initially – or even later in the restoration cycle – include actions to produce products or ecosystem services of value to communities or companies. Typically, such economic and social outputs ensure the longevity of the restoration intervention. However, as articulated in the checklist, pure plantations of alien species (or "off-site" species that may be native to a country but not the geographical location where they are being planted) are not considered acceptable as a final target ecosystem in this verification approach.

Smallholders and Communities (SH&C):

Placing SH&C at the centre is a key principle of this standard, as we acknowledge that these groups get involuntarily marginalized by the schemes as they get to complex and thus costly to comply with when they are the ones that want to use the standard to improve their practises or communicate about their efforts. In that spirit, and understanding that the standard will need to keep evolving most likely to meet that objective, the key considerations taken, on top of the Continuous Improvement approach, are summarized below for clarity:

- The documentation required is reduced to a minimum (see below).

- The audit frequency is reduced wherever possible depending on the assessed risk.

- The use and training of local experts is promoted to empower the local organizations and communities and reduce the cost of audits[9].

- The use of Information and Communication Technology is given a special emphasis to reduce the cost of the audits.

Documentation

This verification approach places emphasis on field performance versus documentation.

---

[8]   https://partners-rcn.org/publications/

[9] The use of Participatory Guarantee Systems is being explored as well in this same objective.

- For larger-scale efforts, more documentation is expected and would be used to address some verification requirements.

- For smaller-scale or community led efforts, less documentation may be required.

For smaller-scale or community led efforts it is expected that the verification report by the audit team will document, in writing, key information that is required and that will become part of the due diligence record for determining conformance to the Standard. As designed, the verifier would always be expected to provide an opportunity for the RM to review a draft verification report, correct factual errors and provide feedback on verification results before report and verification decision finalisation. This approach is intended to "lighten the documentation load".

Non-Conformity Reports (NCRs)

Any Major Non-Conformity Reports shall be closed before validation or verification (and public claims) are achieved.

Minor Non-Conformity Reports shall be closed by at latest the following field visit.

Observations[10] might also be noted and can be maintained as areas of focus for the organisation and the subsequent audits or progress reviews.

Project validation

In the case of a proposed restoration for which management activities have only recently started and can be only partially demonstrated, confirmation that the organisation complies with all applicable requirements of this procedure and has a credible plan that is likely to lead to successful verification is an option, referred to here as validation[11]. Validation of the restoration design (per what has happened in some accountability systems) may be an appropriate step, particularly for large projects to get up to speed or for any project to secure or attract finance. To be validated, the project shall provide a plan that complies with all applicable requirements in sections 1 (Planning) and 2 (Tenure, Rights, and Security), with credible performance indicators, and evidence provided depending on the size, as described in indicator 1.6.7.

Audit cycle and Continuous Improvement (CI)

There are multiple options for audit cycles, depending on the scale and risk of the restoration initiative. The typical independent audit cycle is 5 years, starting with the first verification audit.

Prior to independent third-party audits, a Self-Assessment is suggested (i.e., optional) to inform the Action Plan, which is required at the first verification in year 1 to determine the "Continuous Improvement" approach.

Timing for the first third-party independent audit is optional. Usually, we suggest they take place after some field activities have occurred. Periodic audits after that may happen on an annual or multi-year basis, based on scale, risk or investor/supporter needs. Five years after the first audit, a re-verification audit is required if the independent approval (and related public communications) by Preferred by Nature are requested.

All indicators in the Standard are checked at the first verification. However, only the "core indicators" need to be met for obtaining a restoration performance certificate from Preferred by Nature, and mutually agreed upon public reports or statements. Indicators are satisfied (i.e., performance is approved) based on the specific project circumstances and performance per the standard.

---

[10] Minor problems or the early stages of a problem which do not constitute a non-conformance, but which the auditor considers may lead to a future non-conformance if not addressed.

[11] The terms "validation" and "verification" are specifically defined in the glossary.

The table below presents the minimum audits required[12]. NCRs are identified by the auditors when the field performance does not fully meet the indicator(s) in the standard. RMs <u>always</u> have an opportunity to review and comment on audit report findings prior to finalization.

Project scale & risk	First verification YEAR 1	YEAR 2	YEAR 3	YEAR 4	Re-verification YEAR 5
Smallholders and communities (SH&C)	• Action Plan to be provided. • "Core" Indicators to be met	• No audit required	• Desk audit to review the updated Action Plan and progress to meet continuous improvement indicators. Confirmation of auditing schedule	• No audit required (unless differently concluded at year 3 review)	• Re-verification, with all indicators of the standard to be met.
Medium	• Action Plan to be provided. • "Core" Indicators to be met	• Audit required only if outstanding NCRs exist (desk audit may be allowed, depending on the nature of the NCR)	• Field audit required, with verification of any outstanding NCRs and the Action Plan, including progress to meet continuous improvement indicators	• Audit required only if outstanding NCRs exist (desk audit allowed, depending on the nature of the NCR)	• Re-verification, with all indicators of the standard to be met.
Large	• Action Plan to be provided. • "Core" Indicators to be met	Field audit required	• Field audit required, with all indicators of the standard to be met.	• Field audit required	• Re-verification, of all indicators of the standard.

Public information

All public claims would normally have to be reviewed and approved by the verifier and/or the accountability system.

A public summary of the projects that have been verified/validated are posted in Preferred by Nature website so that the broader stakeholder community can keep engaging and providing feedback as the projects evolve. Preferred by Nature welcomes collaboration or coordination with other verification or certification bodies using this standard, particularly to ensure consistent rigorous application of the standard and credible claims after application.

---

[12] More frequent audits may be carried out, either as requested by the RM (or their organization), or potentially due to risks identified by the third-party auditing body.

Verification Checklist

1 Planning

1.1 **Restoration Manager –** Restoration Manager (RM) (or, where applicable, organisation) is identified.

1.2 **The management system and governance** for the restoration initiative is based on best practices for benefit sharing, transparent, non-discriminatory, accountable, responsive to participants, and effectively implemented.

1.3 **Geographical location -** Identification of the geographical location of the restoration effort, including jurisdiction (country, sub-national jurisdiction, local jurisdiction, legal address) and the specific restoration sites with specific boundaries clearly identified in both hard copy map form and digital shapefiles. **(Digital shapefiles are Continuous Improvement for SH&C and medium projects)**

1.4 **Landscape context -** RM shall undertake an analysis of the landscape in which restoration is occurring, using local information and relevant applicable approaches (such as e.g. ROAM, HCV or HCSA), to identify:

    1.4.1 Baseline conditions and land use of the ecosystems of which the restoration area may be a part, including:

        a. Environmental conditions, including the relative state of the ecosystem and ecosystem recovery to be used to identify least cost, most effective restoration approach with for example conditions relating to water and soil (properties and condition), diversity of natural ecosystems (for example grasslands or wetlands), species (presence of rare or threatened species or their habitats, and other important biological communities), remnants of native vegetation, prior impacts, etc.

        b. Social conditions, for example land tenure characteristics (see Section 2: Tenure, Rights, and Security), presence of Indigenous Peoples, community watershed areas, cultural heritage sites, policy and governance practices, engagement, prior land use, prior conservation or restoration efforts in the area, income level and other socio-economic parameters or needs, etc.

    1.4.2 **Threats and degradation drivers** that destroyed the ecosystem or created a degraded ecosystem to begin with and may be a factor in the future (for example: invasive species, fire, encroachment, or land-use change).

    1.4.3 Significant physical or ecological **functional relationships** to either adjacent or nearby[13] protected areas (for example biological corridors, watersheds, fire considerations).

    1.4.4 Affected **stakeholders or rights holders** to be consulted during planning, implementation, and monitoring.

    1.4.5 Customary use rights or other tenure rights by local people (Indigenous[14] or otherwise), for example water supply areas, cultural heritage sites, biodiversity, etc. **(Continuous Improvement for SH&C projects)**

---

[13] Relative to the scale, intensity, and risk of the project

[14] As per the UN Declaration on the Rights of Indigenous Peoples, https://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf and the Indigenous and Tribal Peoples Convention: https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C169

1.4.6   Other critical environmental, social or community **resources** that require protection in or adjacent to the restoration area.

1.4.7   **Traditional Knowledge**, systems, and/or practises related to restoration for potential inclusion during planning, implementation, and monitoring.

1.4.8   Suitable native **reference sites** to provide target values for establishing recovery metrics in restoration sites (for example, successional forests of known age for gauging time required to reach acceptable levels of vegetation structure and diversity within the study area).

1.5   **Restoration Plan** shall:

1.5.1   Align to effectively reverse the degradation condition and recognise, manage or restore characteristics and values identified through 1.4 above.

1.5.2   Identify target using both the reference ecosystem and environmental, social and economic goals and objectives[15], including desired restoration outcomes over an initial 5-year period and a longer term, 20-year period (description of intermediate and longer-term outcomes is welcomed, for example 50 years) **(Continuous Improvement for SH&C)**

1.5.3   When applicable, describe the **plant selection** process so that:

a.   Species, genotypes, and densities are well-matched to climate, soils and water availability, with clear consideration given to climate change resiliency, pests and other risks (e.g. local availability), and technically well-aligned with desired restoration target identified.

b.   The "by default" option to be considered first would be natural regeneration, and then planting with local species. When alien species are used, their use is justified, typically as a nurse crop and/or directly contributing as a tool for achieving restoration of the targeted ecosystem identified in 1.6.2 (for example, protecting early natural regeneration or creating habitat for seed dispersers or pollinators) and/or initially establishing tenure security or addressing clearly identified communities needs meeting both natural ecosystem restoration and human-derived end uses (particularly where land-use conversion pressures are high).

c.   Invasive alien species are not used.

d.   Populations of alien species are not acceptable as a final restoration target.

1.5.4   Include the **lessons learnt** from the analysis of restoration projects in nearby or similar settings and conditions **(Continuous Improvement for SH&C)**

1.5.5   Describe the expected environmental and social impacts of the project, including potential harm/unintended consequences, and how the restoration effort is addressing them; for example, how local communities will benefit in terms of NTFPs use, water resource conservation and use, pollination of crops, soil stabilisation, climate stabilisation, social justice, poverty alleviation, community empowerment[16], or education about the project activities and benefits is provided to project implementers, affected stakeholders and rightsholders to ensure continuity.

---

[15] It is legitimate to have restoration goals that do not seek to return to reference ecosystems since e.g. the social and economic context are also to be considered to maximize ecological, social, and economic benefits while ensuring protection of existing resources.

[16] Including how local people gain capacity to manage the project after the project leaves, if locals are hired in various positions of leadership, if resources stay in the community in the form of salaries, education, critical infrastructure such as generators, water systems, medical care, community centres, etc.

1.5.6   Demonstrate that the RM has the **financial resources** to ensure implementation of the Restoration Plan over a 5-year period and plan for a longer term (20 years).

1.5.7   Be **documented** in writing (except for SH&C projects, for which alternative documentation options are acceptable – for example an abbreviated plan, or information provided verbally by the RM and evaluated by the verification body, or confirmed through observations and stakeholder consultation).

1.5.8   Include the **continuation strategy** for cases where the RM has a limited time horizon to manage the project, with the strategy to include resource and financial investments, training, infrastructure, etc. **(Continuous Improvement for SH&C and medium projects)**

1.6   **Restoration techniques –** A description is available of the restoration techniques or practices to be used, and sufficient to understand how desired targets, goals and/or objectives will be achieved and to assess the adequacy of performance from technical and field perspectives.

1.7   **Monitoring Plan –** A documented monitoring plan exists, appropriate for the scale and impact of the project (see Section 4: Monitoring and Reporting for detailed requirements). **(For SH&C projects see 1.6.7 for documentation requirements)**

2 Tenure, Rights, and Engagement

2.1   **Clear and legal land tenure –** Management rights of the property or properties where restoration occurs are legally documented and/or recognised by government authorities.

2.2   **Boundaries** are respected by adjacent landowners and other parties. Where necessary, due to encroachment or other risks, boundaries are marked in the field and resource protection interventions are in place and consistently implemented. Management rights are secured for 5 years and preferably 20-year restoration time horizons. **(Continuous Improvement for SH&C projects)**

2.3   **Customary rights and tenure –** The customary rights and Traditional Knowledge have been formally recognised, or disputes are being resolved in a manner deemed acceptable by affected stakeholders following principles of good practice for Free, Prior and Informed Consent (FPIC)[17]. **(Continuous Improvement for SH&C projects)**

2.4 **Stakeholder engagement**:

2.4.1   The RM shall use culturally sensitive engagement taking into consideration the social and economic dynamics (including gender, age, and other power dynamics) to ensure that affected stakeholders are transparently and effectively consulted and engaged with in an inclusive manner in the restoration planning, implementation, and monitoring and aware of the expected actions and benefits.

2.4.2   The RM shall support transparent and inclusive participation of the affected parties when making decisions on actions that would have impact or clear implications on the landscapes beyond the project boundaries. **(Continuous Improvement for SH&C and medium projects)**

2.4.3   The relevant parts of the engagement process should be documented[18], including all agreed commitments of resources, labour, and responsibilities for actions by all involved individuals and parties/organisations **(Continuous Improvement for SH&C)**

---

[17] See FPIC guidelines, tools and guidance developed by the Accountability Framework initiative (AFi), the Rights and Resources Initiative (RRI), the FSC or other certification and accountability systems.

[18] Relative to the scale, intensity, and risk of the project

2.5 Dispute resolution–

2.5.1 For large and medium projects, a dispute resolution **mechanism**[19] is documented. For SH&C projects, the dispute resolution mechanism can be explained by the RM and documented through the verification process.

2.5.2 Dispute resolution has occurred prior to implementation of restoration activities on the ground and/or the parties affected have agreed upon the dispute resolution process and agree with ongoing dispute resolution and restoration processes and results. **(Continuous Improvement for SH&C projects)**

3 Field Implementation

3.1 Project Implementation:

3.1.1 **Restoration practices –** Restoration practices and/or results are visible on the ground (including soil, water, and biodiversity management and conservation) and in accordance with Restoration Plan[20].

3.1.2 **Species selection and use –** Species and densities used are well-aligned with the Restoration Plan (i.e. technically and ecologically sound). Species provenance is known and demonstrated.

3.1.3 **Alien species –** Where alien species are used, their use is justified in line with the Restoration Plan.

3.1.4 **Seedling/planting/regeneration survival –** Where seedling/planting establishment or natural regeneration is unsuccessful, gaps are being addressed in less than one (1) year or, as justified, within a different timeframe (e.g. for low production boreal contexts), through follow-up planting and/or improved natural regeneration techniques.

3.1.5 **Restoration threats controlled –** Protection against threats, as identified in planning or monitoring, is in place (fire, land-use change, grazing, pressures on the resource, etc.) and effective in protecting the ongoing restoration.

3.2 Environmental aspects:

3.2.1 **Natural ecosystems and species protection** – Natural ecosystems and rare or threatened species in the restoration area as presented in the Restoration Plan are not damaged or degraded by restoration activities (for example overcollection of seed or wildings, harvesting of wood to build nursery, or construction of access roads or temporary buildings).

3.2.2 **Pollinator/propagator protection –** Wildlife species that play an important role in pollination/propagation within the regenerating ecosystem are identified and protected (for example bats, butterflies, birds, rodents, etc.). **(Continuous Improvement for SH&C and medium projects)**

3.2.3 **Chemical use –**

3.2.3.1 Integrated pest, weed, and diseases management and cultural, mechanical, biological methods are used to avoid, or aim at eliminating, the use of chemical pesticides. Synthetic pesticides/ chemicals are used as the last resort.

---

[19] I.e. system, procedure.

[20] See the "Planning" section

3.2.3.2 Where chemical use (including fertilisers and pesticides) is justified, chemicals used must be legal, stored in secure locations (including child-proof), and used at minimal levels (by volume or toxicity) necessary to achieve desired outcomes prohibited under the following indicators[21]:

3.2.3.2.1   Listed in Annex A or B of the Stockholm Convention on Persistent Organic Pollutants (POP) and/or recommended for inclusion in Annex A or B of the Stockholm Convention by the POPs Review Committee (POPRC);

3.2.3.2.2   Listed in the Montreal Protocol on Substances that Deplete the Ozon Layer;

3.2.3.2.3   Listed in Annex III of the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (PIC) or recommended for inclusion in Annex III by the Chemical Review Committee (CRC);

3.2.3.2.4   Listed in classes Ia and Ib under the World Health Organisation's Recommended Classification of Pesticides by Hazard;

3.2.3.2.5   Classified as reproductive toxicity category 1 or carcinogenic toxicity category 1 or mutagenic toxicity category 1 or Carcinogenic toxicity category 2 and reproductive toxicity category 2, according to the Globally Harmonized System (GHS) of Classification and Labelling of Chemicals as implemented/applied by the European Union (Regulation 1272/2008 and Regulation 1107/2009) and by Japan.

It should be noted that some pesticides or chemicals on the prohibited list may be used in certain instances specific circumstances that limits the risk from said ingredients. As an exception, it is allowed to use rodenticides with active ingredients in the prohibited list, for control or rodents, but only if the chemical is contained in dedicated bait boxes, thus preventing access for other than the intended purpose.

3.2.3.3 Where chemicals are used, a list of the products used and the accompanying purchase documentation is provided **(Continuous Improvement for SH&C projects)**

3.2.3.4 If highly hazardous chemicals are used (per WHO, above), risks to people and environment shall be assessed and mitigated.

3.2.3.5 Chemical drift, run-off or spills shall be effectively avoided and controlled (for example with vegetative barriers, non-application zones next to aquatic ecosystems, etc.).

3.2.3.6 Chemicals with known risks to pollinators shall be used only if:

a) Less toxic pesticides are not available;

b) Exposure to natural ecosystems is minimised; and

c) Contact of pollinators with these substances can be minimised.

3.2.4   **Waste –** Waste storage, treatment and disposal practices shall not pose health or safety risks to people or natural ecosystems.

---

[21] The list including chemicals with active ingredients classified according to at least one of these indicators has been developed by Preferred by Nature, and it's available at the Sustainability Framework, https://preferredbynature.org/services/sustainability-framework

3.3 **Social aspects:**

3.3.1 **Local labour –** Implementation prioritises use of local labour or contractors, with alternative labour options possible if they are subject to controls to ensure that they do not undermine employment opportunities for local communities.

3.3.2 **Workers' rights[22]**, as implemented, include:

3.3.2.1 No child labour

3.3.2.2 No forced or compulsory labour

3.3.2.3 Right to organize, freedom of association and collective bargaining

3.3.2.4 No discrimination

3.3.2.5 Equal remuneration

3.3.2.6 No abusive practises or undue disciplinary procedures

3.3.2.7 Legal and decent working hours

3.3.3 **Working conditions –** Working conditions for all staff, contractors, service providers, and volunteers, meet legal requirements and at or above the norm for a comparably scaled business in the region, including access to clean/affordable housing, safe transport, functional sanitary facilities and access to potable water.

3.3.4 **Occupational work, health and safety –** Work occurs in accordance with local legal and permit requirements, including safe use of equipment and consistent use of personal protective equipment (PPE) appropriate for work being performed in nurseries or the field (for example steel-toe boots, eye and hearing protection, hard hats, ventilator masks, aprons, etc.).

3.3.5 **Workers' remuneration –**

3.3.5.1 Staff and contractors are paid legal wages at or above the norm for the jurisdiction (national and sub-national) and written records kept as evidence. **(Written records are Continuous Improvement for SH&C projects)**

3.3.5.2 Remuneration is achieving or working towards a living wage. **(Continuous Improvement at all sizes)**

3.3.6 **Local communities:**

3.3.6.1 Social benefits and impacts to the local communities are identified, aligned with the Restoration Plan, and documented. **(Written records are Continuous Improvement for SH&C projects)**

3.3.6.2 Harm or unintended consequences to local communities are prevented or dealt with to minimise such consequences.

4 Monitoring and Reporting

4.1 Field monitoring occurs regularly in line with **Restoration and Monitoring Plans** (particularly targets, goals and objectives, including social and environmental). **(Continuous Improvement for SH&C projects)**

---

[22] Aligning with other workers' rights instruments, including the Universal Declaration on Human Rights, the International Labour Organization (ILO) fundamental Conventions, the UN Sustainable Development Goals (SDGs – particularly SDG 8), and the UN Guiding Principles on Business and Human Rights (UNGP)

4.2 **Monitoring of the implementation –** At a minimum monitoring will be annual although, during early phases, monitoring will likely be more often (for example daily, weekly, monthly or quarterly) as necessary to address risks and foster success.

4.3 **Monitoring of the outcomes[23] –**

4.3.1 Metrics for monitoring are developed in relation to the Restoration Plan, covering threats/degradation drivers, social aspects (for example governance, income, equity, health and safety, rights, gender, stakeholder engagement) and environmental aspects (for example soil, water, biodiversity and conservation). **(Continuous Improvement for SH&C projects)**

4.3.2 Plantings/seedlings or natural regeneration are **monitored annually**, including survival rates, health (for example pests and diseases, and growth) in a technically sound fashion (including practical, consistent, transparent, replicable, repeatable); and actions are taken for continuous improvement based on monitoring outcomes evident at the field level.

4.4 **Resources for monitoring** exist to ensure implementation of the Monitoring Plan over a 5-year period (description of intermediate and longer-term resources is welcomed, for example 20-50 years).

4.5 **Monitoring results** – Results are documented, accurate and easily available to managers and verifiers. **(Continuous Improvement for SH&C projects)**

4.6 **Adaptative management**:

4.6.1 Monitoring results are compiled annually and used to enhance achievement of the restoration targets, goals and objectives. **(Continuous Improvement for SH&C)**

4.6.2 Monitoring results are used to inform revisions to the Restoration Plan, providing identification of and direction towards enabling conditions that will ensure the restored ecosystem remains after establishment. **(Continuous Improvement for SH&C and medium projects)**

---

[23] For guidance and examples on monitoring restoration, see for example the WRI guide"THE ROAD TO RESTORATION", https://files.wri.org/d8/s3fs-public/road-to-restoration.pdf

Annex I: Climate Change Module (OPTIONAL) [24] [25]

5.1 Baseline GHG emissions – RM shall document the quantification of total GHG emissions inside the project area under prior the restoration project activities using a robust methodological approach[26] **(Continuous Improvement for SH&C projects)**.

5.2 Restoration project GHG emissions – RM shall provide the quantification of total GHG emissions inside the project area using a robust methodological approach.

5.3 Leakage – RM shall demonstrate that leakage does not occur. If this cannot be demonstrated, then RM shall determine the types of leakage that are expected and estimate offsite increases in GHG emissions due to project activities using an approved or defensible methodological approach. Measures taken to mitigate leakage shall be described **(Continuous Improvement for SH&C projects)**.

5.4 Quantification of net GHG emissions – RM shall provide evidence to demonstrate that the net climate impact of the project is positive. The net climate impact of the project is: Restoration project GHG emissions minus Baseline GHG emissions and minus Leakage (in tCO_2e).

OPTIONAL, FOR INSETTING PROJECTS:

5.5 Restoration activity start date and GHG accounting period – The project shall define an implementation schedule including the start date and GHG accounting period

5.6 Ownership –RM shall document the right to control and manage GHG removals as legally documented and/or recognized by government authorities.

5.7 Buffer pool and non-permanence risk assessment – In the insetting calculation, a discount of 15% to the net climate impact of the project is documented. This discount will not be considered or used as an insetting result: rather, it is maintained as insurance against the risks of non-delivery and reversal of positive climate impacts.

5.8 Monitoring of net project GHG removals –The Monitoring Plan (see Section 1.8.) includes the monitoring of changes in relevant carbon pools, emissions sources and leakage using an approved or defensible methodological approach and following the defined frequency of monitoring of defined parameters. The information to be collected during the monitoring process necessary for the justification of climate change indicators 5.1 to 5.4 in this module shall be described in the Monitoring Plan.

OPTIONAL, FOR ADDITIONALITY DEMONSTRATION:

5.9 Baseline scenario and additionality[27] – The baseline scenario and Additionality are documented and shall be determined in accordance with the requirements set out in the methodology applied to the project.

---

[24] Sources include: Verified Carbon Standard (VCS) Program, Climate, Community & Biodiversity (CCB) Standards and Sustainable Development Verified Impact Standard (SD VISta).

[25] This module is used to demonstrate net positive climate benefits of the Ecosystem Restoration practices, and not for claiming GHG emissions reductions and removals units that may be used as offsets. Nevertheless, if "OPTIONAL FOR INSETTING" criteria are met, then RM can claim for insets. This section is not required for projects that are verified/validated against the requirements of a robust methodological approach.

[26] A robust methodological approach shall consider 1-The six Kyoto Protocol GHGs, reported in tCO2e, 2-All potential emission sources and carbon pools, unless its exclusion can be justified as conservative, 3-These 6 principles: relevance, completeness, consistency, accuracy, transparency and conservativeness. Examples of such approaches include the Verified Carbon Standard, the Climate, Community, and Biodiversity Standards, and the Plan Vivo Standard.

[27] The baseline scenario represents the activities and GHG emissions that would occur in the absence of the project activity. A project activity is additional if it can be demonstrated that the activity results in emission reductions or removals that are in excess of what would be achieved under a "business as usual" scenario and the activity would not have occurred in the absence of the incentive provided by the carbon markets.

Annex II: Illustrative Elements or Principles from Existing Frameworks for Restoration Design, Monitoring or Implementation

Substantial review of restoration-related references has occurred during preparation of this Standard. As mentioned above – in an effort to facilitate integration into other accountability schemes (certification systems) and also focus on indicators – the Standard does not repeat the practice of identifying principles or criteria, the critical required element for field audits.

The following are examples of key elements or principles (presented in a tabular format for easy reading but with no categorisation by row or other feature) derived from reference initiatives or documents that provide useful illustrative examples of key restoration-related aspects (listed in order as they appear in each reference).

Chazdon *et al.*, 2020[28]	AFR100 Voluntary Guidelines[29]	Bonn Challenge Principles[30]	SER Principles, 2019[31]	UN Decade on Ecosystem Restoration[32][33]
Focus on landscapes	Restoring multiple ecosystem functions	Restore functionality	Ecological restoration engages stakeholders	Promotes inclusive and participatory governance, social fairness, and equity from the start and throughout the process and outcomes
Engage stakeholders and support participatory governance	Integrated management of landscapes	Focus on landscapes	Ecological restoration draws on many types of knowledge	Includes a continuum of restorative activities
Restore multiple functions for multiple benefits	Restoration strategies supporting multiple functions	Allow for multiple benefits	Ecological restoration practice is informed by native reference ecosystems, while considering environmental change	Aims to achieve the highest level of recovery possible, for ecosystem health and human well-being
Maintain and enhance natural ecosystems within landscapes	Participatory decision making	Leverage suite of strategies	Ecological restoration supports ecosystem recovery processes	Addresses drivers of ecosystem degradation
Tailor to local context using a variety of approaches	Protection of natural ecosystems to enhance resilience	Involve stakeholders	Ecosystem recovery is assessed against clear goals and objectives, using measurable indicators	Incorporates all types of knowledge and promotes their exchange throughout the process

---

[28] Chazdon, R. L., V. Gutierrez, P. H. Brancalion, L. Laestadius, and M. R. Guariguata (2020). Co-Creating Conceptual and Working Frameworks for Implementing Forest and Landscape Restoration Based on Core Principles. Forests 11: 706.

[29] AFR100 (2017). Voluntary Guidelines for Forest Landscape Restoration Under AFR100. AFR100, 28 August 2017.

[30] IUCN (2017). Bonn Challenge Barometer of Progress: Spotlight Report 2017, IUCN.

[31] SER (2019). International Principles and Standards for the Practice of Ecological Restoration. Society for Ecological Restoration, Second Edition, September 2019.

[32] This reference was under global consultation (as Proposed principles for Ecosystem Restoration) when this document was being finalized, see https://drive.google.com/file/d/1AbS_wFDiYuMRn89fYfoRw6Jbu2w8BGiZ/view

[33] Preferred by Nature is collaborating, as invited by the FAO, UICN, and SER, to the development of the "Standards of Practice for the UN Decade on Ecosystem Restoration", which we expect will be a useful document to help guide the projects on the specific aspects when undertaking a restoration project.

Manage adaptively for long-term resilience	Monitoring, learning and adapting	Tailor strategies to local conditions	Ecological restoration seeks the highest level of recovery attainable	Is tailored to the local ecological and socio-economic context, while considering the larger landscape or seascape
	Policy coherence around national commitments and land use	Avoid further reduction of natural forest cover or other natural ecosystems	Ecological restoration gains cumulative value when applied at large scales	Is based on well-defined short- and long-term ecological and socio-economic objectives and goals
	Nationally owned and driven	Adaptively manage	Ecological restoration is part of a continuum of restorative activities	Plans and undertakes monitoring, evaluation, and adaptive management throughout the lifetime of the project or programme
				Integrates policies and measures to ensure longevity, maintain funding and, where appropriate, enhance and scale up interventions

The above table does not cover an additional example of the comprehensive "principles" (total of 49 principles and 160 recommended actions) included in the 2013 ITTO guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests, which were updated in 2020. When combined with the other examples, such guidelines provide an excellent reference on the implications/challenges of restoration, the need for careful assessment and planning of each restoration situation, and the use of various techniques to achieve restoration, for example forest refinement, liberation thinning, enrichment planting, use of native and alien species. The 2020 ITTO guidelines have been formulated to assist stakeholders in the development and monitoring of national policies aimed at creating enabling conditions for successful FLR implementation and outcomes, and they are based in the six internationally recognised principles of FLR, further developed by Guiding Elements (GE):

- P1 Focus on landscapes:
    - GE1 Undertake inclusive, gender-responsive landscape-level assessment and land-use planning
    - GE2 Gain recognition that FLR must transcend sector policies
    - GE3 Conduct FLR at an appropriate scale
    - GE4 Address tenure and access rights
- P2 Engage stakeholders and support participatory governance:
    - GE5 Build adequate governance capacity for decentralized FLR
    - GE6 Obtain strong stakeholder engagement
    - GE7 Conduct joint stakeholder analysis of the drivers of degradation
    - GE8 Strive for social equity and benefit sharing
    - GE9 Conduct participatory FLR planning, decision-making and monitoring
    - GE10 Build stakeholder capacity for sharing responsibility for FLR
    - GE11 Address long-term financing for FLR initiatives
    - GE12 Establish a favourable investment environment for FLR
- P3 Restore multiple functions for multiple benefits:
    - GE13 Generate multiple functions and benefits
    - GE14 Conserve biodiversity and restore ecological functions
    - GE15 Improve livelihoods

- GE16 Make full use of locally based knowledge
- P4 Maintain and enhance natural forest ecosystems within landscapes
    - GE17 Avoid the conversion of natural forests
    - GE18 Restore degraded forests and rehabilitate degraded forest land
    - GE19 Avoid forest fragmentation
    - GE20 Conserve natural grasslands, savannas and wetlands
- P5 Tailor to the local context using a variety of approaches:
    - GE21 Assess local context and restrictions
    - GE22 Allow for future changes in conditions
    - GE23 Tailor FLR interventions to the local context and generate local benefits
    - GE24 Achieve the financial and economic viability of FLR investments
    - GE25 Identify opportunities to increase local incomes
    - GE26 Develop sustainable supply chains
- P6 Manage adaptively for long-term resilience:
    - GE27 Take an adaptive management approach
    - GE28 Continually measure the biophysical dimensions of the landscape
    - GE29 Periodically assess vulnerability to climate change
    - GE30 Develop participatory monitoring of FLR
    - GE31 Encourage open access to, and the sharing of, information and knowledge
    - GE32 Report on FLR outcomes

This verification Standard does NOT require the use of any specific design methodology for restoration. However, there are several tools and methods that are supported by NGOs and technical experts. Following are three examples.

- **ROAM** – Restoration Opportunities Assessment Methodology was developed by IUCN and WRI (2014) to provide a flexible framework for identifying social, economic, and ecological opportunities for forest landscape restoration and designing diversified landscape-scale restoration approaches. For more information see https://www.iucn.org/theme/forests/our-work/forest-landscape-restoration/restoration-opportunities-assessment-methodology-roam.

- **HCV** – The High Conservation Value Resource Network (or HCVRN) manages the global approach and practice of HCV assessment around the world, after the HCV approach was originally developed by the FSC. Of critical importance is that HCVs refers to a series of key values for protection, conservation and restoration, including social and environmental, plus licensing of HCV assessors, and required processes for community engagement and Free, Prior and Informed Consent (FPIC). For more information, see High Conservation Value Resource Network at https://hcvnetwork.org.

- **HCSA** – The High Carbon Stock Approach has been formed to implement assessments of forest areas (degraded, primary, secondary, etc.) and determine what areas still contain enough forest structure, composition and process that they should just be improved through silviculture (refinement, liberation thinning, reforestation or enrichment planting) or whether such areas are so degraded that movement to another land use (for example intensive agriculture, etc.) is acceptable. However, as per the HCV approach, and as consistently recommended under ROAM and the 2002 ITTO guidelines cited below, the approach requires engagement with local and affected communities, FPIC and protection of HCVs. For further information see High Carbon Stock Approach at http://highcarbonstock.org.

Rather than require use of these approaches, the verification Standard attempts to cover most, if not all, of the values they provide. It should be noted that for such approaches, various organisations are also focused on improving the applicability of these tools for smallholders, Indigenous Peoples and Small and Medium Enterprises (SMEs).

Annex III: References (not already cited)

Accountability Framework, Operational Guidance on Environmental Restoration and Compensation, Draft for Workshopping, December 2018, www.accountability-framework.org.

Besseau, P., Graham S., and Christopherson, T. (eds) (2018). Restoring Forests and Landscapes: The Key to a Sustainable Future. The Global Partnership on Forest and Landscape Restoration, Vienna, Austria.

Bradley, A. and Fortuna, S. (2019). Collective Tenure Rights: Realizing the Potential for REDD+ and Sustainable Development. Information brief. FAO, Rome.

Chazdon, Robin and Lars Laestadius (2016). Forest and landscape restoration: Toward a shared vision and vocabulary. American Journal of Botany, 103 (11): 1869 – 1871.

Chazdon, Robin L. and Manuel R. Guariguata (2016). Natural regeneration as a tool for large-scale forest restoration in the tropics: prospects and challenges, Biotropica 48(6): 716–730.

Conniff, Richard (2015). The False Promise of Ecological Restoration Projects, in online Take Part series. July 17, 2015.

Cook-Patton, S.C., Leavitt, S.M., Gibbs, D. *et al*. (2020). Mapping carbon accumulation potential from global natural forest regrowth. *Nature* 585, 545–550.

Dandy, Norman and Sophie Wynhe-Jones (2019). Bangor University, Wales, Rewilding Forestry, Forest Policy & Economics 109: 101996.

FERN (2017). Company promises, How businesses are meeting commitments to end deforestation. March 2017.

FLoRES (2019). Co-creating Conceptual and Working Forest and Landscape Restoration Frameworks Based on Core Principles, A White Paper for the Forest and Landscape Restoration Standard (FLoRES) Taskforce. Robin L. Chazdon, Victoria Gutierrez, Pedro Brancalion, Lars Laestadius and Manuel Guariguatas 8 February 2019.

FSC (2015). Forest Stewardship Council Principles and Criteria for Forest Stewardship, FSC-STD-01-001, Version 5-2, 22 July 2015.

FSC (2010). Briefing Paper on Restoration. Bonn, 4 November 2010.

Fundación Biodiversidad and WWF España (2019). Estándares para la Certificación de la Restauración de Ecosistemas Forestales.

Fundación Biodiversidad and WWF España (2019). Anexo de contenidos de la Memoria para Proyecto de REF.

Gregorio, Nestor *et al*. (nd). Evidence-based best practice community-based forest restoration in Biliran: Integrating food security and livelihood improvements into watershed rehabilitation in the Philippines.

Higgs, Eric *et al*. (2018). Response Article, The Evolution of Society for Ecological Restoration's principles and standards – counter-response to Gann *et al*., Restoration Ecology Vol. 26, No. 3: 431–433.

ITTO (2002). International Tropical Timber Organization (in collaboration with CIFOR, FAP, IUCN and WWF International), ITTO guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests, ITTO Policy Development Series No. 13.

ITTO (2020). Guidelines for forest landscape restoration in the tropics. ITTO Policy Development Series No. 24. International Tropical Timber Organization, Yokohama, Japan.

IUCN and WRI (2014). A guide to the Restoration Opportunities Assessment Methodology (ROAM): Assessing forest landscape restoration opportunities at the national or sub-national level. Working Paper (Road-test edition). Gland, Switzerland: IUCN. 125pp.

Janzen, Daniel (2013). Restoration on a Grand Scale: Finding a Home for 350,000 Species, Chapter 10, pages 256–286, Strand Two, On the Ground, Around the World: Restoration After Radical Changes, in Our Once and Future Planet – Restoring the World in the Climate Change Century, University of Chicago Press.

Janzen, Daniel H. (1988). Management of Habitat Fragments in a Tropical Dry Forest: Growth, Annals of the Missouri Botanical Garden 75(1): 105–116.Rainforest Alliance (2018). Sustainable Agriculture Standard, Applicable for Medium-Large Farms, Draft Standard V1.0 – for public consultation, November 2018.

Robin L Chazdon, David Lindenmayer, Manuel R Guariguata, Renato Crouzeilles, José María Rey Benayas and Elena Lazos Chavero, Fostering natural forest regeneration on former agricultural land through economic and policy interventions (2020 Environ. Res. Lett. 15 043002)

RRI (2018). A Global Baseline of Carbon Storage in Collective Lands. September 2018.

RSPO (2018). Principles and Criteria for the Production of Sustainable Palm Oil 2018, Endorsed by the Roundtable on Sustainable Palm Oil Executive Board and adopted at the 15th Annual General Assembly by RSPO Members on 15 November 2018.

SERA (2018) Standards Reference Group, National standards for the practice of ecological restoration in Australia, Edition 2.1. Society for Ecological Restoration Australasia, September 2018.

Suganuma, M., Torezan, J.M. and Durigan, G. (2017). Environment and landscape rather than planting design are the drivers of success in long-term restoration of riparian Atlantic forest. Applied Vegetation Science.

Viani, Ricardo A.G. *et al*. (2018). Protocol for Monitoring Tropical Forest Restoration: Perspectives from the Atlantic Forest Restoration Pact in Brazil, Conservation Letter, Tropical Conservation Science21, 1, (76-84)

WRI (2019). The road to restoration, A Guide to Identifying Priorities and Indicators for Monitoring Forest and Landscape Restoration.

![Preferred by Nature logo]

About us

Preferred by Nature (formerly known as NEPCon) is an international non-profit organisation working to support better land management and business practices that benefit people, nature and the climate. We do this through a unique combination of sustainability certification services, projects supporting awareness raising, and capacity building.

For more than 25 years, we have worked to develop practical solutions to drive positive impacts in production landscapes and supply chains in 100+ countries. We focus on land use, primarily through forest, agriculture and climate impact commodities, and related sectors such as tourism and conservation. Learn more at www.preferredbynature.org

Contact

Mateo Cariño Fraisse
Land Use Program Manager
Email: mcarino@preferredbynature.org
Phone: +34 682 88 53 10

Stay up-to-date with our latest news & events

Subscribe to our newsletter

www.preferredbynature.org/newsletter

www.preferredbynature.org