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Contact:
Ecosystem Restoration Standard
25 Rue de Frémicourt
75015 Paris, FRANCE
info@ers.org

GUIDELINES

Field Assessment Guidelines

SUMMARY

This document is designed to help Developers assess the state of the Reference Site and the Restoration Site, and inform their capacity to recover. It is also intended to help the Developer understand the ERS App questionnaire, which aims to determine the state of specific ecosystem attributes through several indicators.



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Introduction

This Field Assessment approach builds on the work of the Society for Ecological Restoration (SER)¹ and has been adapted to meet the requirements and tools of ERS.

The data collected will support the identification of interventions for the [Restoration Plan](#). Indicators will be used to monitor progress over time as a proxy for ecosystem recovery, habitat capacity and biodiversity uplift.

This document contains guidelines, and should not be used as a template. The Field Assessment must be performed using the ERS App. After completing the Field Assessment, the analysis will be done on the [Ecological Recovery Assessment Tool](#).

¹ McDonald T., Jonson J. and Dixon K.W. (eds) (2016) National Standards for the Practice of Ecological Restoration in Australia. Restoration Ecology S1: 1-340.]



Field Assessment *Guidelines*

The Ecological Recovery Assessment is to be completed using the ERS App. The assessment has to be completed first at the Reference Site and then at each of the intervention zones as defined during the [Zonation](#) of the Project.

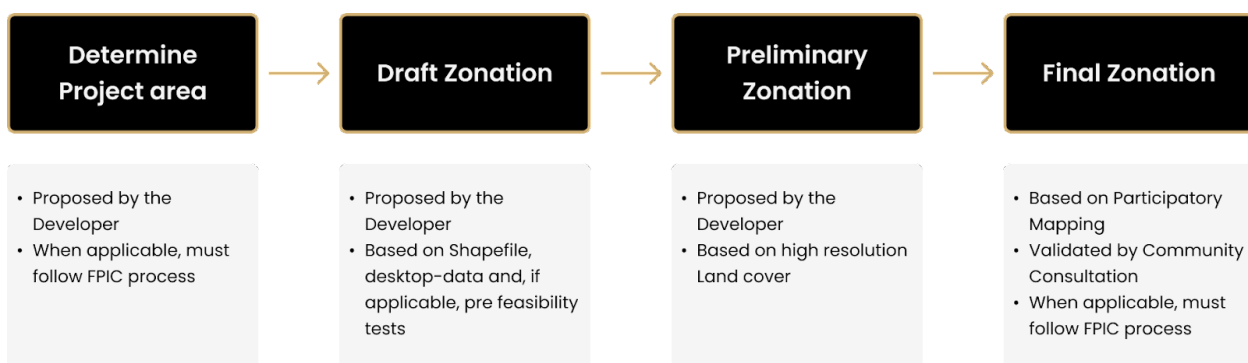
Where undesirable species are present and their removal is forecasted as part of the Restoration Plan, they must be indicated during the Field Assessment, and the Developer must provide a picture of each of the species together with their scientific name, allowing for its confirmation by the ERS Certification Agent.

For each attribute, two to three indicators are assessed. The Developer may add indicators at the end of the assessment, based on the specifics of the ecosystem and Intervention zones.

Each sub-attribute must be rated on a scale from one to five using a rating guideline that is provided for both the Reference Site and the Intervention zones. A general description and guiding questions are included to help the rating. If elements to rate a sub-attribute are not available, it can be skipped.

Once the field assessment has been completed at the Reference Site and each Intervention zone, the responses are accessible in the back office. Once the responses are submitted, an ERS Certification Agent will transfer the information to the [Ecological Recovery Assessment Tool](#), in the baseline tab. The Recovery Wheel will be generated, for better data visualisation during the [Community Consultation on Ecological Recovery](#).

This Assessment must be performed every four years to track the progress of the Project and update the [Restoration Plan](#) and [Project budget](#) accordingly.





Content of the *Field Assessment*

💡 This is **not** a template to be filled. The content of the Field Assessment is included in this Guideline so Developers can familiarise themselves with it, and ensure the qualification of the person who will perform the assessment on the field.

The field assessment **must be** completed exclusively using ERS' Mobile Application.

ABSENCE OF THREATS

Over-utilization

Rating:

- **Description:** Excessive exploitation or unsustainable use of natural resources that surpass the ecosystem's capacity to regenerate, leading to ecological imbalances and potential harm to biodiversity and ecosystem functions.
- **Guiding questions:** Is there substantial habitat degradation or loss that has led to the decline of populations of key species or impaired ecological functions?

Active contamination

Rating:

- **Description:** Ongoing introduction or presence of pollutants into the environment.
- **Guiding questions:** Are there sources of contamination within the Project zone or nearby?



Rating guideline

1★	2★★	3★★★	4★★★★	5★★★★★
Some direct degradation drivers (e.g. over-harvesting, overgrazing, active contamination) absent and conservation status secured, but others remain high in number and degree.	Direct degradation drivers (including, e.g. sources of invasive species, absence of appropriate natural disturbances) intermediate in number and degree.	Number of direct degradation drivers low but some may remain intermediate in degree.	Direct degradation drivers, both external and onsite, low in number and degree.	Threats from direct degradation drivers minimal or effectively absent.

PHYSICAL CONDITIONS

Substrate

Rating:

- **Description:** The bottom layer or surface on which organisms live and interact within an ecosystem
- **Guiding questions:** How is the texture, composition and structure of the substrate in comparison to the Reference Ecosystem? What is the water-holding capacity? Is there evidence of erosion?

Hydrology

Rating:

- **Description:** Refers to the availability, quality, movement and all water-related processes in the ecosystem



- **Guiding questions:** How can hydrology be compared to that of the Reference Ecosystem? Are there biological indicators of water quality? Are there evident indicators of nutrients or pollutants?

Rating guideline:

1★	2★★	3★★★	4★★★★	5★★★★★
Most physical properties of the site's substrates and hydrology (e.g. soil structure, nutrients, and hydrological conditions) are still highly dissimilar to reference ecosystem, but some showing improved similarity.	Physical and chemical properties of substrates and hydrology, remain at low similarity levels relative to reference ecosystem but capable of supporting some biota of reference	Physical and chemical properties of substrates and hydrology stabilised within intermediate range of reference ecosystem and capable of supporting growth and development of many characteristic native biota.	Physical and chemical conditions of substrates and hydrology within high range of reference ecosystem and suitable for ongoing growth recruitment of most characteristic native biota.	Physical and chemical conditions of substrates and hydrology highly similar to that of the reference ecosystem with evidence they can indefinitely sustain all characteristic species and processes.

SPECIES COMPOSITION

No undesirable species

Rating:

- **Description:** Invasive or non-native species that could negatively impact the native biodiversity and ecological balance.



- **Guiding question:** Can you observe undesirable or invasive species, or evidence of their presence, that are absent in the Reference Ecosystem?

Desirable animals

Rating:

- **Description:** Native or introduced organisms that are considered beneficial or valuable for the ecological balance, biodiversity, or human well-being within the ecosystem.
- **Guiding question:** What is the diversity of native species groups? How similar is it to the Reference Ecosystem?

Desirable plants

Rating:

- **Description:** Native or introduced organisms that are considered beneficial or valuable for the ecological balance, biodiversity, or human well-being within the ecosystem.
- **Guiding question:** What is the diversity of native species groups? How similar is it to the Reference Ecosystem? Evidence (to be filled in by developer):

Rating guideline:

1★	2★★	3★★★	4★★★★	5★★★★★
Some colonising native species present (e.g. ~2% of the reference ecosystem). Very high levels of non-native invasive or	A small subset of characteristic native species present (e.g. ~10% of the reference ecosystem) across site. High to moderate	A subset of key native species present	Substantial diversity of characteristic biota (e.g. up to 60% of reference) present on the site and representing a	High diversity of characteristic species (e.g. > 80% of reference) across the site, with high similarity to the reference



undesirable species.	levels of non-native invasive or undesirable species.		wide diversity of species groups. No inhibition by undesirable species	ecosystem; improved potential for colonisation of more species over time.
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STRUCTURAL DIVERSITY

All vegetation strata

Rating:

- **Description:** Vertical layers or levels of vegetation within the particular zone
- **Guiding questions:** What are the different vertical layers? What is the dominant vegetation at each stratum? What is the similarity to the Reference Ecosystem? Are there specific ecological roles associated with each strata, do they influence habitat complexity?

Faunal trophic levels

Rating:

- **Description:** Hierarchical positions in the ecosystem's food chain (producers, primary consumers, secondary consumers, tertiary consumers)
- **Guiding questions:** How can the trophic system be described? Is trophic complexity similar to the Reference Ecosystem?

Spatial mosaic

Rating:

- **Description:** Spatial arrangement and distribution of different habitat types, vegetation communities, or ecological features within the ecosystem.



- **Guiding questions:** What is the spatial arrangement, pattern and distribution of different habitat types, vegetation patches or land cover types? Is it similar to that observed in the Reference Ecosystem?

Rating guideline:

1★	2★★	3★★★	4★★★★	5★★★★★
One horizontal stratum of the reference present but spatial patterning and community trophic complexity still largely dissimilar to reference ecosystem.	More than one stratum of the reference present but some similarity of spatial patterning and trophic complexity, relative to the reference ecosystem.	Most strata of the reference present and intermediate similarity of spatial patterning and trophic complexity relative to the reference ecosystem.	All strata of the reference present and substantial similarity of spatial patterning and trophic complexity relative to the reference ecosystem.	All strata present and spatial patterning and trophic complexity high. Further complexity and spatial patterning are able to self-organize to highly resemble the reference ecosystem.

ECOSYSTEM FUNCTION

Productivity

Rating:

- **Description:** Rate at which the ecosystem produces biomass or organic matter through photosynthesis or other biological processes. It is a measure of the ecosystem's capacity to sustain various organisms and to understand the energy flow and nutrient cycling.



- **Guiding questions:** What is the productivity and nutrient availability of the zone relative to the Reference Ecosystem?

Habitat & interactions

Rating:

- **Description:** Refers to the diverse habitats that support different species and how these organisms interact with one another and their environment, influencing ecological processes and biodiversity patterns.
- **Guiding questions:** What types of habitats are present? What is the extent and conditions of the habitats that are present? What is the degree of fragmentation and connectivity? What is the similarity of ecological interactions and functions with the Reference Ecosystem?

Resilience

Rating:

- **Description:** Ability of the ecosystem to resist disturbance, recover from disturbances, and return to its original state or adapt over time
- **Guiding questions:** What is the capacity of the ecosystem to resist and recover from disturbances? Is there a variety of species groups with different ecological traits? Is there functional redundancy among species groups? Are there similarities with the Reference Ecosystem?

Rating guideline:

1★	2★★	3★★★	4★★★★	5★★★★★
Processes and functions (e.g. water and nutrient cycling,	Low numbers and levels of physical and biological	Intermediate numbers and levels of physical and	Substantial levels of physical and biological	All functions and processes (including appropriate



habitat provision, appropriate disturbance regimes and resilience) are at a very foundational stage only, compared to the reference ecosystem.	processes and functions, relative to the reference ecosystem (including growth, decomposition, soil processes), are present	biological processes and functions, relative to the reference ecosystem (including reproduction and dispersal) are present.	processes and functions, relative to the reference ecosystem (including return of appropriate disturbance regimes) are present.	disturbance regimes) are on a secure trajectory towards the levels of the reference ecosystem and are showing evidence of being sustained.
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EXTERNAL EXCHANGES

Landscape flows

Rating:

- **Description:** Movement of energy, materials and organisms across habitats and landscapes. How ecological processes, such as nutrient cycling, water flow, and species dispersal, shape the connectivity and interactions across the landscapes.
- **Guiding questions:** How do organisms move within the project area and surrounding environment? How do landscape flows contribute to ecological processes?

Habitat links

Rating:

- **Description:** Connectivity between different habitats within the ecosystem contributing to landscape flows.
- **Guiding questions:** Are there barriers or corridors (e.g. roads, ponds, rivers, habitat fragmentation) influencing connectivity between habitats? Are they similar to the Reference Ecosystem?



Rating guideline:

1★	2★★	3★★★	4★★★★	5★★★★★
Positive exchanges and flows with surrounding environment (e.g. of species, genes, water, fire) in place for only very low numbers of species and processes.	Positive exchanges with surrounding environment in place for a few characteristic species and processes.	Positive exchanges between site and surrounding environment in place for intermediate levels of characteristic species and processes.	Positive exchanges with surrounding environment in place for most characteristic species and processes and likely to be sustained.	Evidence that exchanges with the surrounding environment are highly similar to the reference ecosystem for all species and processes and likely to be sustained.

OTHERS

- **Description:** Are there any other indicators to assess the state of the ecosystem and the progress of ecosystem recovery over time, relative to the Reference Ecosystem? If yes, describe which ones.



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info@ers.org | www.ers.org