Ecological Management of Sites

Enhancing Biodiversity and Resilience to Climate Change Impacts and Natural Risks

October 2025

FOREWORDS

Extinction rate is 10s to 100s time higher than it has averaged over the past 10 million years: 1 million species is threatened (1 out of 8). Biodiversity is declining at an unprecedented rate. In the short term, this situation is of deep concern for the maintenance of our agri-food, health and supply systems. Thus, biodiversity loss, together with climate change, will undermine the ability of most countries to achieve most of their sustainable development goals. Drivers of loss are underpinned by societal values and behaviors: production and consumption patterns, human population, dynamics and trends, trade, technological innovations… Although the current dynamics will not allow us to respond to the urgency of this biodiversity crisis, we can still opt to protect and restore nature.

ENGIE is on its way to lead the zero-carbon transition. Our ambition is to make zero-carbon transition possible for Companies and Local authorities through "as a service" integrated zero-carbon transition solutions. To meet with a sustainable transition, we need to pay attention to the Group impacts on biodiversity and ecosystems and therefore, as early as 2010, ENGIE committed to mitigate its impact on biodiversity by providing each of its priority sites with a biodiversity protection action, and by supporting act4nature and extending the scope of its biodiversity objectives to all its activities, as soon as July 2018. Since February 2019, ENGIE has also been committed to assessing the potential impact of new projects on UNESCO World Heritage sites (natural or mixed) and to avoiding the development of projects with negative impacts.

This is a two-way interaction: Group activities are partly dependent on ecosystem services in terms of biomass resources, water and climate, and our activities also impact directly on biodiversity while the fragmentation and disruption of habitats caused by the footprint occupied by our facilities represent the main impact of Group activities. Furthermore, poor consideration or anticipation of regulatory changes ever stronger or stakeholder expectations may in particular cause delays or stoppages in our business, and therefore significant financial costs.

ENGIE made biodiversity an integral part of its strategy, business lines and its new product development as early as 2010. The protection of biodiversity is fully involved in environmental and social responsibility of the Group and constitutes a strong challenge to the territorial base of its activity. As a part of its commitments to act4nature renewed in 2023, to "Introduce ecological site management for all the Group's industrial activities" and in compliance with its biodiversity strategy "Strengthen the Group's commitment to preserve biodiversity", the ESG Department is pleased to present this guide to ecological management of sites.

ENGIE, committed to

act4nature international

ENTREPRISES ENGAGÉES POUR LA NATURE

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WHY IS ENGIE CONCERNED WITH BIODIVERSITY

Biodiversity is the variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

Implanted in biodiversity hotspots or having sites with a large spatial footprint, ENGIE sites impacts both emblematic and ordinary biodiversity.

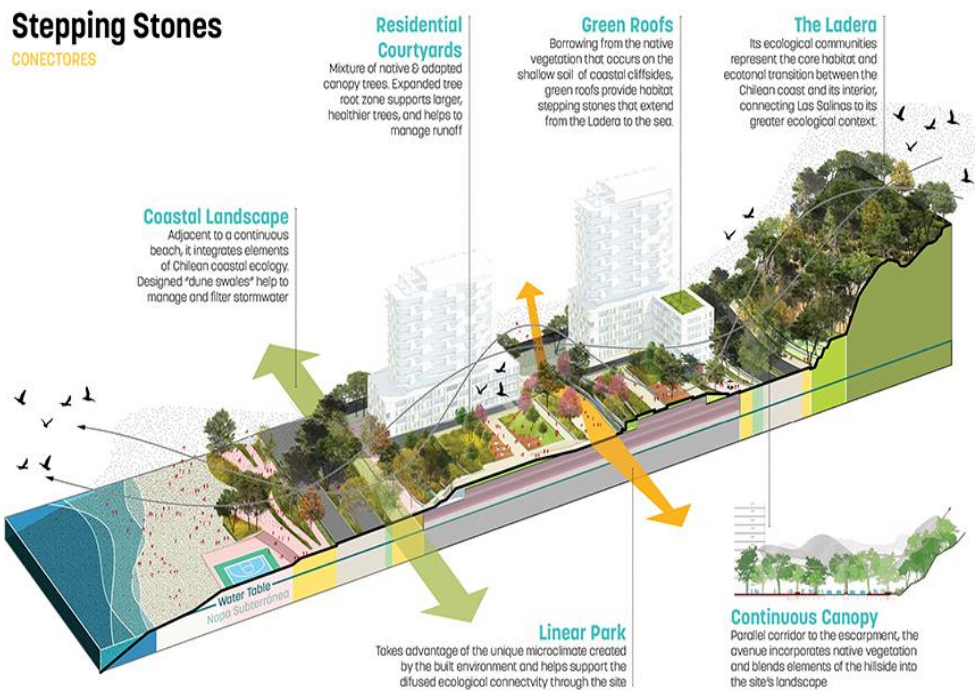
In what forms is biodiversity present on sites ?

ENGIE's sites are artificialized areas, or partially artificialized, which shelter biodiversity. Even if some of them are located on urbanized or industrial zones, the area used by sites includes different habitats: natural spaces with various functions that allows species to achieve their entire life cycle.

Species and their interactions compose ecosystems. Today, biodiversity is highly threatened by the destruction of habitats, overexploitation, climate change, pollution and invasive alien species. As a complex structure, the loss of a few species or entity can lead to the collapse of vast ecosystems. It is important that the site does not disturb or causes as little disturbance as possible to their functioning and allows the connectivity between habitats, as human activities fragment and destroy these ecosystems. We seek to reduce and erase this fragmentation, in both urban and rural areas, and create ecological connectivity through our sites.

ECOLOGICAL CONNECTIVITY

It is essential to the movement, spread and genetic exchange between populations. Ensuring this ecological connectivity through the preservation of corridors allows the functionality of ecosystems in a more effective way. Hedges and riparian forests are well known examples of these corridors, but patch habitats such as green roofs act as stepping stones allowing species movement too.



How ENGIE's sites impact biodiversity ?

ENGIE's main impact on biodiversity is due to the spatial footprint of its sites (like gas storage facilities and pipelines, renewable energies facilities and the reservoirs used for hydropower generation for instance) by fragmenting terrestrial, aquatic and aerial corridors. Environments favorable to the development of invasive alien species can be fostered during construction works (e.g. through the use of imported soils). Then, indirect impacts relate to the Group's sourcing of supplies, especially coal and biomass.

HOW ENGIE IS ACTING

To protect biodiversity with efficiency, ENGIE frames its commitment with targets specifically dedicated to its industrial sites - among all the commitments in act4nature - and implements a biodiversity strategy.

ENGIE BIODIVERSITY STRATEGY

Lead a biodiversity network of internal experts through internal training and awareness raising

Strengthen the Group's commitments to preserve biodiversity by integrating biodiversity and implementing a specific management of biodiversity thanks to Environmental Plans and ecological guidance

Develop innovative solutions to preserve biodiversity at Group sites by improving our knowledge of the ecological potential of sites with appropriate mapping tools and developing Nature-based Solutions

Ensure that the Group opinions and practices are transparent for outside stakeholders thanks to local participation and national and international partnerships (with the IUCN French committee and UNEP-WCMC)

MAIN COMMITMENTS

Introduction of ecological site management[1] for all the Group's industrial activities. A scale of maturity is proposed to the sites, with at least the elimination of the use of phytosanitary products and maintenance of green spaces in line with the local ecosystem.	2025: 50% sites 2030: 100% sites 2030: use of a minimum of 40% local/endemic plants and no use of invasive exotic species for all revegetation operations
Continued development of action plans[2] for sites qualified as priority sites[3] , whatever the activity, located in or near a biodiversity-sensitive area.	2025: 80% priority sites with an action plan drawn up in consultation with the relevant stakeholders[4] 2028: 100% priority sites
Financial or technical contribution to the implementation of Nature-based Solutions (NbS) in local areas.	2025 : Implementation and monitoring of 10 identified projects aligned with the IUCN Global Standard for Nature-based Solutions.
Application of the «avoid-reduce-compensate» sequence to the Group's development projects worldwide, in consultation with stakeholders, avoiding negative impacts in biodiversity-sensitive zones and protected areas, and aiming for a net gain for biodiversity.	2023 and 2024: 100% of projects submitted to Group and Global Business Unit Investment Committees are subject to an analysis of biodiversity issues in consultation with the stakeholders concerned. Fin 2025: All Group projects are subject to a biodiversity analysis

[1] Industrial sites included in the Group's environmental reporting perimeter.
[2] The action plans follow a model defined at Group level and are verified on site by the statutory auditors on an annual basis.
[3] A priority site is an industrial site located within 15 km of a protected area or a biodiversity-sensitive zone. The protected areas and sensitive zones taken into account are : IUCN categories I to VI, Ramsar, UNESCO (natural and mixed), KBA, MAB, Natura 2000
[4] For each site or project, the various stakeholders are identified and a dialogue is established to better understand local issues and avoid exerting too much pressure on biodiversity and ecosystems.

MATERIAL PRIORITY SITES

To meet the global challenges and to begin its alignment with Corporate Sustainability Reporting Directive (CSRD) requirements, the Group has identified its material priority sites using the LEAP Methodology. The materiality of sites is based on the assessment of the intensity of their impacts on biodiversity considering the type of their activity and the level of their geographical proximity to sensitive biodiversity areas (according to IBAT data).

For these material priority sites, the implementation of an Ecological Management Plan is mandatory. These sites must apply reinforced ecological management measures as the Mature Level described in the 3. **LEVELS OF PRACTICES** section below.

OBJECTIVES OF THE ECOLOGICAL MANAGEMENT GUIDE

In 2021 ENGIE decided to increase the proactive actions regarding biodiversity in concertation with local stakeholders on sites. For this purpose, the ESG Department has created this guidance for the ecological management of sites.

Thus in 2023, as part of the ENGIE's Nature 2023-2030 roadmap and strategy, the Group has renewed its Act4nature International commitments in terms of footprint and ecological continuity (include biodiversity analysis) and it is in this context that the current guide has been updated.

In 2025, in order to accompany operational sites into the Group compliance with global nature regulation evolutions, ENGIE has enhanced and enlarged the objectives of this guide to address by an ecological management:

- Material priority site requirements
- Native/Local Plant Use
- Invasive Alien Species Management
- Nature based Solutions contribution
- Nature management as solution to Climate Adaption

This tool is one among others to contribute to biodiversity protection and restoration to contribute to align ENGIE with Nature Positive global trend.

DEFINITION AND IMPLEMENTATION PHASES

1. ECOLOGICAL MANAGEMENT PLAN

Ecological management is a way to maintain green areas bearing in mind the environment and biodiversity, in such a way that ecological services and biological resources are conserved while appropriate human uses and benefits are sustained. It is based on differentiated spaces that do not require the same management or management intensity.

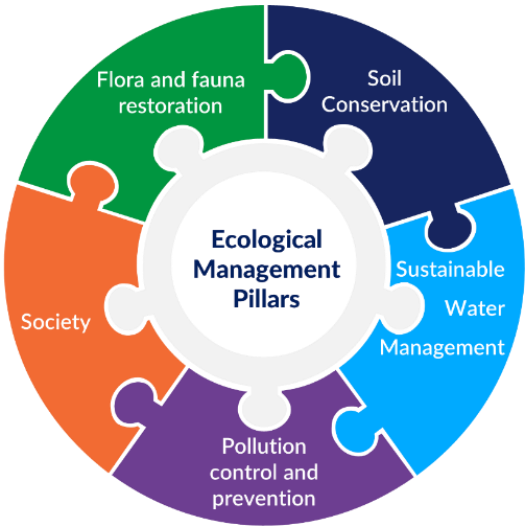
Ecological management of sites means protecting and restoring the environment through actions such as lowering the pressure level induced by phytosanitary products, repeated mowing, soil artificialization, respecting spontaneous (no-invasive) as well as prioritizing endemic flora and fauna, reducing waste, protecting water resources, etc.

The management plan is an ENGIE's strategic document designed to formalize objectives and maintenance procedures of green areas in industrial sites. It also integrates a long-term vision of the landscape and socio-ecological aspects of the site, as well as a short- and medium-term strategic planning taking stock of past management practices by incorporating changes according to the uses of each space.

It is useful for all stakeholders and helps to:

- organize and plan the role/actions of the site manager;
- ensure long-term consistency;
- communicate with the territory;
- make the results of the action readable and exploitable
- facilitate the implementation of act4nature engagements of the Group.

2. FIVE PILLARS



Sites can have two types of areas: artificialized areas i.e. highly impacted by human activities, and agricultural or natural areas. Please note that ecological management refers to green artificialized areas only (including gardens) and that other ones, as natural or protected areas, require another specific management.

Sites are likely to get affected by self-induced or externally occurred natural disasters. Natural risk adaptation shall be mainstreamed in every phase of project, with priority given to the planning stage when decisions are most flexible and impactful.

3. LEVELS OF PRACTICES

Three distinct levels of maturity have been established as part of the ecological management practices at ENGIE.

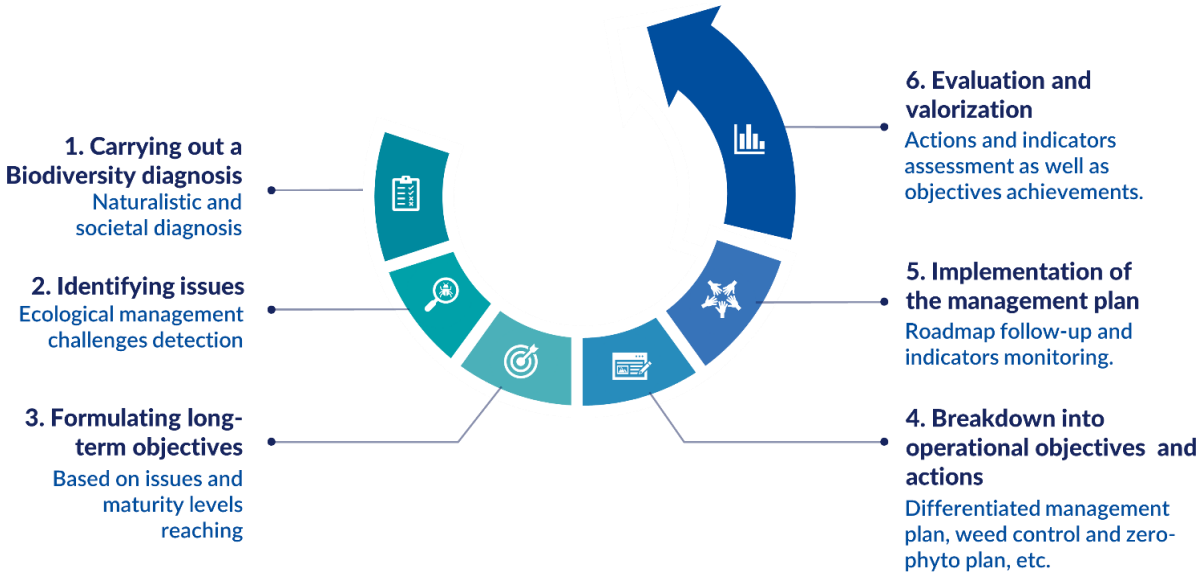
*	**	***
Basic (Essential)	**Medium** (Recommended)	**Mature** (Material Priority)

MATURITY LEVEL	REQUIREMENTS	DESCRIPTION
Basic* (Essential)	**No use of chemical phytosanitary products**	Avoid the use of any phytosanitary product such as herbicides, growth regulators, insecticides, miticides, bactericides and antibiotics, defoliant, fungicides, molluscicides, rodenticide, containing synthetic chemistry, dangerous for the environment and the auxiliary fauna (*c.f.* Appendix 3: Non-Chemical Alternatives to Phytosanitary Products)
	Management of green spaces differently than a systematic cutting of grass and trees, in order to restore biodiversity on site ("differentiated management").	Appropriate selection of alternative grass and weed control techniques: manual weeding, mulching, managed ground cover, differentiated (selective mowing to preserve remarkable spontaneous species) and late mowing, livestock grazing, etc.
	Use of a minimum of 40% of local/endemics plants and no use of invasive exotic species for all vegetation operations.	Green areas adaptation to local ecosystems and societies while emphasizing the selection of plants in harmony with the site conditions (soil, climate, exposure…). Prioritize the use of local or native species as well as no-invasive adapted species when renewing or replacing plants and preferably favoring the choice of endangered and/or cultural keystone species. Meaning 40% of the green area should be planted with local and/or endemic species
Medium (Recommended)**	**Mapping to identify the possibilities to contribute to the ecological corridors (green, blue and black)**	Integration of the site within ecological networks and ecosystems connection (such as green, blue or black corridors) at both territorial and local levels, while considering connections between different habitats within the Site.

	Regular inventories of fauna and flora done to assess the results of the actions on site and around	Biodiversity monitoring on the site to assess the progress made through practice changes: conduct an initial inventory of local floristic and faunistic biodiversity and establish regular monitoring (using spontaneous observation sheets with a frequency tailored to the tracked species).
	Internal committees dedicated to biodiversity	Biodiversity committees establishment in order to monitor indicators of green spaces, improve communication and interactions between stakeholders regarding site management, as well as encourage collective decision-making for continuous improvement and ecological management goals achievement. This will enable rapid exchange and integration of advancements in knowledge and practices.
Mature* (Material Priority)**	**Stakeholders (internal and external) involved in the ecological management of the site**	Implementation of projects and initiatives (both within the ENGIE Site and among employees, as well as between the Site and companies, local environmental associations, and any other identified stakeholder): establishment of a vegetable garden, involvement in landscaping projects, training on ecological management and responsible use of Site's green spaces, inventories and participatory science (flora, insects, etc.), garden competitions, and more..
	Actions extended to the territory (not only on site)	Establishment of collective rules to strengthen or even create social bonds, incorporating key recommendations of ecological management, including the prohibition of synthetic chemical phytosanitary products. These rules can be developed in consultation with various stakeholders for a better understanding of the issues and a greater ownership of improvement practices or to benefit from their expertise.
	Biodiversity management has become a business opportunity	Generate and voluntarily trade biodiversity our carbon units/offsets, analyzing the cost reduction resulting from reduced interventions, replacement or elimination of aggressive products, etc. Expand ecological management beyond the site -and in collaboration with various stakeholders- aligning initiatives with Nature-based Solutions IUCN criteria, in order to address one or multiple societal challenges.

The main actions are summarized into the environmental action plan of the site (ecological management section), and the indicator BIODIV1 collects the number of sites with ecological management in place must be completed in MDT.

4. ROLL-OUT OF AN ECOLOGICAL MANAGEMENT PLAN INCLUDES 6 PHASES



4.1 CARRYING OUT AN INITIAL BIODIVERSITY DIAGNOSIS

It is conducted in two inseparable parts: environmental and societal.

4.1.1 NATURALISTIC (OR ENVIRONMENTAL) DIAGNOSIS

Identify environmental challenges existing on different scales. There are at least two scales:

- **regional (radius of several kilometers or regional ecological plan scale or land use plan or territorial policy) for the identification of major issues like ecological corridors;**
- **site: identification of naturalist potential and ecological issues as well as ongoing maintenance techniques.**

This diagnosis helps find and adapt solutions to optimize the management of green areas (transformation of lawn into meadow, late mowing, wildlife refuge area, hedges, ecological engineering in general...).
Necessarily carried out by an expert in ecology at the site level, the naturalistic diagnosis must be cross-referenced with a competent entity on ecology at the regional level to avoid missing certain issues and to validate publicly good practices.

The following steps shall be implemented for its realization:

- **Conduct an inventory of the green spaces managed by the site based on its usage and user expectations as well as the characteristics of each area:**
  - those destinated to ornamental use,
  - those buffer zones surrounding operational facilities that must maintain specific security conditions,
  - those recreational or wellness spaces for employees (islands of freshness, outdoor training sessions...).
- **Categorize spaces by vegetation stratum based on the desired or necessary maintenance intensity for the Site's operation and security conditions.** This classification will help optimize the distribution of workload while avoiding uniform maintenance across all spaces. Some biodiversity tools like "eDNA" or BeeOdiversity" could be helpful at this stage.

- **Assess the ecological balance and the current maintenance practices of each area, which will serve as a baseline for evaluating, further down the line, the impact of implemented practices in relation to the site's biodiversity.** This balance could lean on ***Appendix 1. Self-assessment checklist on Ecological Management practices*** and/or be enhanced with other methodologies that would be considered relevant to the context of the site. Each practice takes into consideration the three maturity levels according to the following pillars of ecological management at ENGIE:
    - Flora and fauna restoration: Biodiversity, species monitoring and habitat preservation are some of the concepts inherently integrated into the principles of ecological management. The objective is to preserve and enhance flora and fauna, particularly by safeguarding endangered species as well as promoting ecological significance of certain species.
    - Soil conservation: Soils fulfill a multitude of essential ecological functions, such as water storage and purification, pollutant retention, carbon storage. Soils also serve as reservoirs of biodiversity and soil fertility, nutrient transformation as well as the quality of our food are ensured by the activity of these organisms. Preserving soils involves identifying soil risks (erosion, biodiversity loss, etc.) and implementing specific measures .
    - Sustainable water management: Ecologically managing water in green spaces involves understanding available water resources and monitoring consumption. Implementing a thoughtful irrigation strategy and mastering systems that optimize use. Exploring water alternatives and non-irrigation practices enhance ecological management and resource preservation.
    - Pollution control and preservation: Mitigating greenhouse gas emissions and other atmospheric pollutants, which begins with monitoring fuel consumption before progressing towards reduction, as well as mitigating and regulating noise and light pollution associated with maintenance operations or illumination of green spaces are also a significant concern on ecological management.
    - Society: Ecological management directly impact not only spaces but society and territories. This makes it a collective project and a strategic endeavor for business, involving employees on Site's biodiversity conservation actions or to communicate and respond to stakeholders inquiries if the case as well as to co-construct good practices and knowledge by using their local skills and expertise. Social issues will be addressed based on the "societal diagnosis" described below.

4.1.2 SOCIETAL DIAGNOSIS

Identify the players who will intervene in the process in order to gather their advice on local issues: players of the agricultural and forest sectors, nature conservation associations and experts. The diagnosis is carried out in support with the site manager and the person in charge of stakeholder relations and it shall be based on the *ENGIE's Stakeholder Engagement Referential* (20250204_Stakeholder Engagement Policy) : it is necessary to cross-reference to avoid controversies and to study all the possibilities of co-construction with the stakeholders. At this stage, synergies with on-site development projects are also monitored to assess the future of the plots.

- Do not hesitate to cross-reference the potential actions of the management plan with others with ESG aspects (art, integration, education).
- It is essential to create alliances and partnerships with local stakeholders for the expertise, valorization and good functioning of the project.
- Internally, prepare the project, present it and co-construct the procedures with the employees.

4.2 IDENTIFICATION OF ISSUES

Once the Biodiversity Diagnosis is completed, a list of improvement points might be identified as a result. These can then be prioritized and classified (e.g. taking into account the 5 pillars of ecological management) in order to have a focused set of "major issues". These will serve as a starting point for the next stage of setting long-term objectives.

4.3 FORMULATION OF LONG-TERM OBJECTIVES

At this stage, long-term objectives shall be established according to the management challenges and issues identified on the initial site's biodiversity diagnosis. Each objective is associated with each issue detected, which makes it possible to measure the effectiveness of management and to frame operational choices.
In addition, the different requirements of maturity levels of ENGIE's ecological management as well as the Act4nature commitments must be considered as a reference for site's objectives and goals setting and at least the "basic level of maturity" should be covered in this phase. Each long-term objective is quantified or qualified with a level of requirements.

4.4 BREAKDOWN INTO OPERATIONAL OBJECTIVES AND ACTIONS

At this stage, a management operation plan must be integrated. It encompasses actions and specific procedures related to practices, as suggested in ***Appendix 2: Ecological management practices and recommendations*** and in **LEVELS OF PRACTICES** section, that need to be implemented to tackle the site's ecological management challenges and to be aligned with ENGIE main commitments (***MAIN COMMITMENTS*** section).
The ecological management plan also includes various information such as intervention period and frequency, equipment used, control methods, a monitoring dashboard, etc.
The sites are under permanent work: operational staff must be involved in the governance of the projects. It allows the integration of operating constraints and prioritized as follows: 1) safety, 2) operation, 3) maintenance.

4.4.1 Key topics in Ecologic Management

The ecological management practices must take into account :

- Local Plant Species & Invasive Alien Species management

The choice of plants for ecological management should be adapted to local ecosystems and societal contexts, emphasizing the selection of plants in harmony with site-specific conditions (soil, climate, exposure, etc.), as described in ***Appendix 4: Advantages of local species use according to UICN French Committee***. So the use of local or native species, as well as non-invasive adapted species, should be prioritized during renewing or replacing vegetation on green/natural areas, as described in ***4.1.1 NATURALISTIC (OR ENVIRONMENTAL) DIAGNOSIS***. Endangered and/or culturally significant species should be favored whenever possible. These species are better adapted to local conditions, more resilient, and require less maintenance.

So the sites must have a minimum of 40% of local species (in terms of surface area or number) among all those planted (purchased from local nurseries or in contractual clauses signed with subcontractors) and must be careful not to plant invasive alien species.

Wherever possible, plants that grow spontaneously should be left in place, as they contribute to the development of a richer and more self-sustaining local ecosystem. However, special attention must be paid to the control of invasive alien species (IAS), which can outcompete native flora and hinder biodiversity goals.

- Zero-Phytosanitary

The use of chemical phytosanitary products or those having any classification based on physicochemical properties, toxicological effects, or effects on humans and the environment is prohibited, as it is not compatible with ecological management. However, derogations are possible in very specific cases, if it is demonstrated that there are any requirements imposed by safety reasons, local regulations or by the license to operate.

In the case of difficult-to-access areas for personnel, substitute products as phytosanitary products authorized in organic agriculture shall be applied. A list of alternative methods to herbicides for managing Invasive Alien Species is provided in ***Appendix 3: Non-Chemical Alternatives to Phytosanitary Products***.

4.4.2 Ecological Management can rely on Nature-based Solutions

Using Nature-based Solutions (NbS) in ecological management should be considered as a lever to enhance ecological performance and climate resilience. This approach supports local biodiversity, improves ecosystem services, co-benefits for local communities and human well-being and reduces maintenance needs.
As ENGIE is committed to implement projects identified as compliant with the IUCN Global Standard for Nature-based Solutions in its activities, 4 examples of ENGIE Nature-Based Solutions are listed in ENGIE Nature-based-Solutions.

Description of the Nature-based-Solution IUCN Global Standard

How to identify a Nature-based Solution?

Before implementing a Nature-based Solution, it is essential to ensure that the project meets the fundamental principles of NbS. To do so, three key questions should be able to answer :

- Is the project based on ecosystems and their functioning?

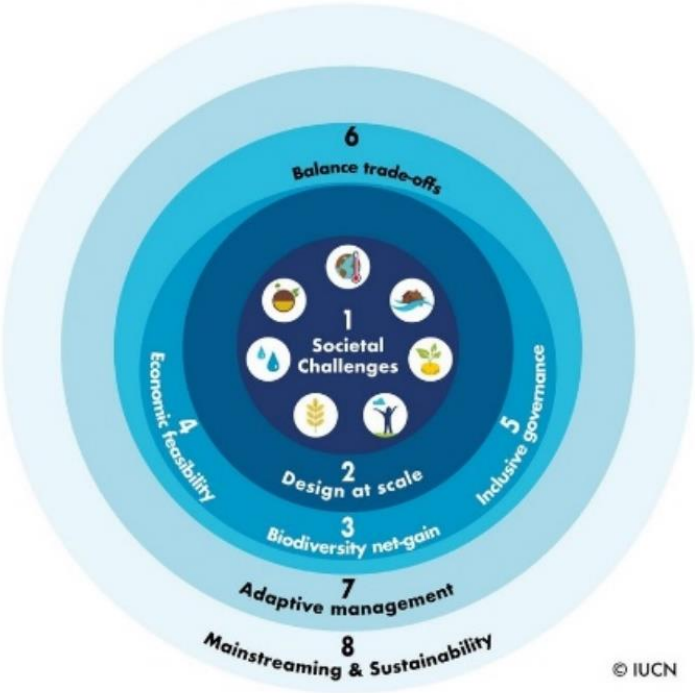
Which societal challenge does the project aim to address? (climate change mitigation and adaptation, disaster risk reduction, economic and social development, water security, food security or human health).

Is the project designed to generate biodiversity benefits?

If the answer to these three questions is yes, the project may qualify as a Nature-based Solution.

The 8 Criteria to meet

To ensure the quality and credibility of Nature based Solution (NbS), ENGIE refers to the IUCN Global Standard, - IUCN Global Standard for Nature-based Solutions | IUCN-, which defines 8 criteria that every NbS project should meet (see illustration on the right).



4.4.3 Ecological management can be used as Climate Adaptation Measures

Ecological management practices could play crucial role in risk reduction and adaptation measures. They simultaneously reduce natural risks and restore ecological functions, hence turning adaptation into an opportunity for long-term resilience.

The table below provides an overview of how ecological management can be implemented as a lever for adaptation by linking key risks to their operational impacts and the corresponding adaptation measures.

Key risks	Operational Impact Scenarios	Ecological Management Adaptation Measures
Landslides	Destruction of the installations	• Revegetation with local plants to reinforce soils in accordance with security conditions • Avoid unnecessary digging of soil • Create vegetation integrated terraces to stabilize steep slopes • Rainwater harvesting to reduce runoff
Wildfires	Damage to the infrastructure	• Trimming old vegetation using ecological management practices • Implementation and/or restoration of wetlands as a natural barrier/buffer zone and provider of easily accessible water source on the site • Creation and/or maintenance of fire protection strips (firebreaks) using low-flammability plants species • Promote mosaic vegetation patterns to reduce fire spread
Floods	General impact on the installation	• Create vegetative buffer zones to absorb water • Revegetation with local plants to manage rainwater • Promote porous paving and planted car parks • Revegetation of riverbanks with local plants to reduce floods • Establish natural water retention areas to avoid waterflow
	Marine corrosion damage to equipment due to submersion	• Recreate/restore coastal wetlands with local plants vegetation (ex. plantation of mangrove, …) • Reinforce dune systems with native grasses
Water stress	Non-compliance with crisis management obligations	• Revegetation using drought-resistant and fire-tolerant endemic species to create freshness areas favorable to biodiversity return in accordance with wildfire risks • Soil mulching and shading to reduce evaporation
Extreme winds	Damages on buildings and structure	• Implementation of natural windbreaks (forests/hedges act as natural barriers) in accordance with wildfires risks • Carry out appropriate vegetation management in areas close to access roads and critical infrastructure to avoid road blockages and equipment damage

4.5 IMPLEMENTATION OF THE ECOLOGICAL MANAGEMENT PLAN

Implementation is planned over the entire period of the management plan: all the actions to be carried out alongside their monitoring, budget and responsibility as well as the awareness and valorization aspects. An internal manager must be appointed; he relies on the experts or partners who must be proficient in their fields (specifications, equipment, training...) (see links to partners and resources)

Local skills should be promoted where possible and provide the means to combine expertise (i.e. different perspectives and specialties, taking care to address difficulties of understanding)- The management plan is reviewed at least once a year to respond to progress and changes in stakes: it must be challenged. It must also take into account economic uncertainties: ensure flexibility in actions and budgets to reassure but also to enter into the long-term.

THIRD PARTY MAINTENANCE:

In the case that the maintenance of green areas is managed by a third party (such as a landscaper, gardener, or contractor), the ecological management plan and technical specifications must be communicated to them and if necessary provide them with training. They could also be involved in the processes of results monitoring and ecological management goals review.

4.6 EVALUATION AND VALORIZATION

Evaluation assesses actions and operational objectives with SMART indicators and later determines the maturity level of the management: from "License to operate" to excellency i.e. an activity driven by ecology.

Valorization of the management plan can be carried out in terms of ecology, performance and territorial acceptability. This step requires the involvement of teams and supervisors.

Educational communication with the public should be conducted at this stage too. This involves, for example, installing explanatory panels describing how the site functions, its flora and fauna, or explaining the importance of safeguarding its ecosystem.

SMART targets

Specific – target a specific area for improvement

Measurable – quantify or at least suggest concrete criteria

Achievable – level of performance or requirement matches global strategy and resources

Realistic – state what results can realistically be achieved, given available resources.

Time-related – specify when the result(s) can be achieved

Ecology

The level of maintenance and restoration of ecosystem services, Site's integration into the ecological landscape and integration of natural risk adaptation measures

Performance

The contribution of the ecological transition to the energy and climate strategy as these two human-induced issues must be tackle together to be resolved effectively[5].Ecological management allows the rationalization of green areas maintenance costs

Acceptability

The territorial vision of the site gives meaning to the actions and highlights positive externalities.
Quality of work life: many social positive impacts have been identified in relation to the initiatives implemented for biodiversity

Appendix 1. Self-assessment checklist on Ecological Management practices

	Maturity Level	YES/NO/ PARTIAL
FLORA AND FAUNA RESTORATION		
Are there measures in place to establish ecological connections between this site and others?	**	
Are the landscape and objectives (including ambiences, esthetic and views) of the site's green spaces known/have they been identified?	*	
Is the biodiversity of the site (common and remarkable) known, and are specific preservation actions in place?	**	
Is there an initial inventory of the site's biodiversity?	*	
Is there an appropriate frequency for flora or fauna monitoring (annual or biannual), especially for indicator species (umbrella species, heritage species)?	**	
If present, is there management and monitoring of invasive species?	**	
If present, is there management of pest species (such rodents)?	*	
Is the environmental impact of the nuisance species control methods used taken into account?	*	
Are there any installations of ecologically beneficial plants (such as nectar-bearing plants) on the site?	**	
Is there a creation of specific micro-habitats on the site to promote certain species (excluding deadwood and insect hotels)?	**	
Have species designated with a particular protection status been identified, and have specific preservation measures been implemented?	*	
Are the species present on the site adapted to the environmental conditions?	*	
Do the species present on the site help reduce natural risks (e.g., native fire-resilient plants to control wildfire)?	*	
Is there a use of indigenous or endemic flora during renewal or replanting?	*	
Are the species considered for renewal proven to be non-invasive?	*	
Is there any requirements or specifications establishment for the procurement and production of plants and seeds?	*	
Is the health condition of flora diagnosed periodically?	**	
Do weed control operations solely rely on alternative methods to chemical-phytosanitary weed control?	*	
Are there preventive measures in place to avoid the need for weeding (mulching, ground cover plants, etc.)?	*	
Have the selected alternative methods been chosen based on the site's characteristics and resources available?	*	
Is reasoned pruning practiced on the site (pruning solely for safety reasons and/or preservation of the architectural form)?	**	
Are the interventions carried out outside of the nesting periods?	**	
Has a spatial distribution of the herbaceous layers (lawns, grasslands, meadows) been established based on differentiated management?	*	
Do mowing practices take into account the biological cycles of fauna and flora ?	*	
Do the mowing methods used take into account the preservation of fauna (presence of refuge islands for biodiversity, mowing from the center to the periphery, etc.)?	*	
Are there natural flowering meadows (expression of the soil seed bank) resulting from soil depletion techniques on the site?	**	
Is there a practice of pastoralism (livestock grazing) for the maintenance of natural grasslands/meadows?	*	
If intervention is necessary, is an alternative method used instead of chemical treatment derived from synthetic chemistry (phytosanitary chemical products)?	*	
Are treatments with phytosanitary products not authorized in organic agriculture or dangerous to human and environmental health prohibited?	*	
Are management auxiliaries used only when there is a proven and justified need for control?	*	
Is spontaneous colonization encouraged (relay plants, hosts for beneficial fauna)?	**	
If necessary, are there nest boxes and/or insect habitats on the site?	**	
SOIL CONSERVATION		

Are the soil characteristics known (nature, permeability, physico-chemical properties)?	***	
Is there a recent soil analysis (< 10 years) for the significant areas of the site: areas with soil additions, heritage to be preserved, risk zones, groundwater, etc.?	***	
Have major risks to the soils been identified (erosion, pollution, loss of biodiversity and organic matter, compaction, sealing and artificialization, salinization, floods), and corresponding preservation measures been implemented?	**	
Is manual hoeing and digging of the soil limited only to necessary operations (planting)?	*	
Are there preventive methods in place to avoid the need for weed control?	*	
Is fertilization solely based on organic matter?	**	
SUSTAINABLE WATER MANAGEMENT		
Is irrigation nonexistent on the site or only done on a sporadic basis (during new plantings)?	**	
Are you aware of the evolution of the total annual water consumption in the last three years for all the green spaces managed by the Site? (Differentiation by source if possible)	**	
Are water needs evaluated based on climate, soil type, and plant species?	**	
Are water inputs regulated (amounts to be applied, duration, frequency, and division)?	**	
Is irrigation carried out during hours of lower evaporation (early morning or nighttime)?	**	
Is the irrigation method adapted to the vegetated surfaces and their water needs ?	**	
Are preventive methods employed to limit irrigation (mulching, ground cover plants, water-efficient species, etc.)?	**	
Is there use of other water sources for irrigation (prioritizing rainwater or recycled water before resorting to drilling or pumping)?	**	
Does the Site accept the season yellowing of the herbaceous layer?	**	
Are biodiversity processes used to filter or limit the transfer of water pollutants on site ? (e.g. natural or artificial wetlands…)	**	
POLLUTION CONTROL AND PREVENTION		
Are there measures in place to reduce waste generation from green space maintenance?	**	
Do you valorize green waste on-site (sorting waste and using residual materials) or nearby?	**	
In case of internal compost production, is there a structured protocol in place?	**	
Are green waste exported off-site being valorized (composting facility, etc.)?	**	
Is there a tracking of consumption (fuel and oil) for machinery and vehicles?	**	
Are there measures in place to reduce the use of thermal engines?	**	
Is there an inventory of sources and levels of noise pollution related to maintenance activities of green areas of the site?	**	
Are there measures in place to limit these nuisances?	**	
Is the site lighting suitable for its uses (timing, users attendance)?	**	
Is the lighting rationalized (type of pole, orientation, timer, lighting cone, energy source, type of bulb, power supply mode)?	**	
Are vehicles prohibited on vegetated areas (no circulation outside of designated paths)?	**	
SOCIETY		
Is there internal communication about ecological management of the Site?	***	
Is there a training plan (annual or multi-year) for the staff that includes ecological management themes (introduction to differentiated management, understanding and monitoring soil quality, naturalist knowledge -flora and fauna-…)?	***	
Are educational information provided to users?	***	
Has a collective continuous improvement process been implemented (annual work meetings involving gardeners, team leaders, environmental officers, etc.)?	**	
Are there actions promoting employees involvement in green spaces (participation in planting/replacing and weeding campaigns, fauna-flora surveys, etc.)?	***	
Are there projects, initiatives or engagements between the Site and external stakeholders (companies, community, local environmental associations, ONG, etc.)?	***	

Appendix 2: Ecological management practices and recommendations

FLORA AND FAUNA RESTORATION	RECOMMENDATIONS
Biodiversity protection	- Selective mowing to preserve remarkable or local spontaneous species - If invasive plants or animals considered harmful are present on the site, regular monitoring must be conducted, and the implemented control methods should have limited environmental impacts (zero-phyto) - Identify and, if applicable, preserve the site's habitats and all species designated with special status (protected at national, regional, and departmental levels, unfavorable conservation status, heritage or uncommon species, etc.) - Create natural refuges for endangered fauna. This can be achieved by using elements of the site (leaving piles of dead leaves under hedges, logs and piles of branches, stones, etc.), or by installing wooden wildlife refuges (insect hotels, nesting boxes, hedgehog houses, etc.). - Encourages the arrival of pollinating insects, such as bees, and thus contributes to their preservation with a melliferous flower meadow. - Diversify habitats for fauna and flora: aim to extend edge effects and edge influences (vegetation transition between two habitats), develop ecotones, and preserve spontaneous species on the site.
Plants selection	- Use plants suitable for site conditions (soil, climate, exposure, pest pressure, etc.), hardy and less susceptible to diseases (especially fungal). -Use native fire resilient plants to control expansion of wildfire. - Preferentially use species of local origin when renewing or replacing plants. Endemic plant species are to be preferred, as they are specimens adapted to the local soil type and climate. They are therefore more resistant and require less maintenance. Wherever possible, plants that grow spontaneously should be left to contribute to the formation of a richer local ecosystem. - Installing and preserving nectar-producing plants, host plants, etc., as well as relay plants for beneficial fauna, with a preference for local native plants - Avoid exotic species suspected of being invasive by replacing them with proven non-invasive substitute species - Invasive plant species will require special treatment (generally manual removal). They must not be gyro-crushed, as this will strengthen them and cause them to grow back more strongly the following year. If they are to be removed permanently, they must be dug up and the root system removed as far as possible.
Biodiversity monitoring	- Conduct an initial inventory of local biodiversity: inventory dates, observers, faunistic and/or floristic data, site/habitat/environment descriptions, species involved, etc. - Implement regular biodiversity monitoring: establish observation sheets for spontaneous fauna and flora with a frequency adapted to the monitored species, etc.
Mowing	- If possible, prioritize late mowing to allow species (both fauna and flora) to complete their entire life cycle on-site - Carry out centrifugal mowing (from the center towards the periphery) to allow the escape of the present fauna, preferably using a mowing bar that is less aggressive for insects - Avoid clear-cutting - Left uncultivated areas not frequented such as the edges of fences, the foot of trees or roadsides. By maintaining these areas in their natural state, endemic plants can thrive and encourage the development of local biodiversity. - Promote the presence of refuge islands for biodiversity - Implement differentiated mowing (avoidance of species to be preserved) - Generally, the mowing products will be exported to promote both soil impoverishment and the expression of the soil seed bank, aiming to achieve greater plant diversity
Management of pests and health condition of plants	- Diversify the species of plants used (mixed hedges, etc.) and promote flora species associations to reduce pest pressure and thus limit plant health problems. - Encourage the presence of beneficial animals such as birds, bats and predatory insects in Site's environment. These animals feed on pests and help to regulate their population naturally. You can install suitable nesting boxes or shelters to attract them.

	- Pay attention to the health condition of plants upon receipt. If contamination by a pest or disease is observed, isolate infested or infected plants to prevent any spread. - In case of a phytosanitary problem requiring intervention, implement biological control methods: mechanical control (removal of infested plant parts), physical control (physical barrier - glue, net - between the plant and its pest), and biological control (use of predatory and parasitic fauna against harmful organisms). - The use of unauthorized phytosanitary products in organic agriculture or those with any classification based on physicochemical properties, toxicological effects, or effects on humans and the environment is prohibited.
SOIL CONSERVATION	**RECOMMENDATIONS**
Erosion	- Maintain a permanent vegetative cover of the soil (permeable mulches, plants…) - Create terraces for sloped soils. - Ensure stormwater management with retention basin. - Create rain garden to collect and filter rainwater from roofs and parking lots.
Pollution	- Monitor and control inputs and additions of exogenous substrate. -Preventive maintenance of pipelines and storage tanks to avoid leaks.
Biodiversity and Organic Matter Loss	-Promote soil biodiversity (soil fauna), particularly through the addition of organic matter. - Soils in green spaces are frequently supplemented with fertilization, however, the strategies employed must correspond to genuine needs and prioritize organic matter applications.
Compaction	- Avoid trampling. - Minimize machine traffic on vegetated surfaces - When soil is wet to very wet: wait until the moisture level is lower than field capacity before intervening, never use machines when conditions are unfavorable.
Artificialized/Impervious Surfaces, and Runoff	- Limit impermeable structures (covers, coatings) and prioritize porous surfaces, - Maintain a permanent vegetative cover of the soil (permeable mulches, ground cover plants, etc.).
Salinization	- Seek alternatives to the use of de-icing salts (such as sand), pay special attention to additives, and remain mindful of application areas (avoid salting near swales, etc.).
WATER MANAGEMENT	**RECOMMENDATIONS**
Water resources availability and consumption monitoring	-Understand, if applicable, the level of water stress exposure of the site and adjust action plans according to local provisions and context. - The existence and regular updating of as-built plans (plans describing the actual work completed at the end of a construction project) for water site infrastructure. - An evaluation strategy for consumption to optimize water use and track the effectiveness of alternatives to irrigation. - A rainwater collector can be combined with a rational irrigation system, such as drip irrigation. Mulching the garden also helps to maintain a good level of humidity in the soil and limits the water requirements of the ecological garden. - A leak detection procedure: including regular preventive checks and maintenance of installations.
Irrigation water	- Prioritize non-irrigation. - Assess needs based on climate (local climate and exceptional situations), considering potential evapotranspiration (ETP), soil type, and plants (growth stage, ground cover, etc.). - Regulate water inputs by calculating doses, duration, frequency, and dividing inputs. - Optimize watering times, irrigating only during hours of lower evaporation (early morning and nighttime) and avoiding windy periods. - Adapt irrigation to differentiated management, watering only floral layers, certain herbaceous layers during water stress, and trees and shrubs until vegetation recovers. - Accept seasonal yellowing of green spaces, especially lawns. - Prioritize the use of recycled water.
POLLUTION PREVENTION AND CONTROL	**RECOMMENDATIONS**
Green waste	- Establish green waste management based on principles of reduction, reuse, and recycling.

	- Reduce waste generation at the source (e.g., less frequent mowing, prudent pruning, leaving leaves and clippings on-site, etc.). - Optimize waste recovery on-site or nearby, focusing on sorting green waste and reusing residues (such as mulching). - Produce compost on-site or nearby if possible, following specific protocols, including addressing health risks associated with composting. - Export waste for valorization, using composting platforms for instance, if on-site valorization is not feasible.
Optimize lighting	- Conduct an assessment of usage to determine suitable lighting arrangements. - Develop a lighting plan addressing pole type, power, timer, and lighting cone orientation with the goal of optimizing lighting.
Fuels	- Understand and monitor fuel consumption of machinery and vehicles. - Changes in intervention methods often result in significant consumption reductions: reduced interventions, use of manual or electric tools, etc. - Maintenance of equipment is essential for proper functioning and avoiding excessive consumption; it will be regular and users will be trained in eco-friendly practices (for maintenance and driving) of vehicles and machinery.
Reduction of noise caused by maintenance operations.	- Understanding, through an inventory of internal and external sources of pollution on the site, and monitoring nuisances, provides an assessment of the site's practices to better plan and manage their reduction. - Prohibit vehicle circulation on vegetated areas (except for designated paths). - Implement guidelines limiting the use of machinery that can disrupt the tranquility of the site and its surroundings (noise, dust) to define preferred usage hours.

Appendix 3: Non-Chemical Alternatives to Phytosanitary Products

In line with ENGIE's commitment to eliminating the use of phytosanitary products, this section outlines a selection of physical, mechanical, and biological alternatives. These solutions aim to manage vegetation and pests effectively while preserving environmental and human health.

Alternatives to Herbicides for Bare and Uncultivated Soils	1. Mechanical Alternatives: Tillage: Using agricultural machinery to turn or loosen the soil in order to destroy weeds. Weeding (hoeing): Using weeders to cut weeds. Thermal weeding: Using heat to destroy weeds, for example with thermal weeders or flame weeders. 2. Biological Alternatives: Use of natural predators: Introducing animals or insect predators that feed on weeds and their seeds, such as ladybugs, nematode worms, or ducks in infested areas. Use of microorganisms: Using beneficial microorganisms to compete with weeds or suppress their growth. 3. Physical Alternatives: Mulching: Using organic mulches such as straw, hay, wood chips, or bark to cover the soil and smother weeds. Tarping: Covering the soil with opaque plastic tarps to block light and prevent weed growth. 4. Cultural Alternatives: Cover cropping: Sowing cover crops that compete with weeds for space, light, and nutrients (including allelopathic plants). 5.Natural Substances with Phytosanitary Authorization Pelargonic acid**:** A naturally occurring fatty acid derived from plants such as geraniums. Used as a contact herbicide, it is biodegradable and non-persistent. Authorized for use on cultivated soils before planting or in targeted applications, with caution to avoid contact with crop foliage. Listed as a biocontrol product under French regulation.
Alternatives to Herbicides for Planted and Cultivated Soils	1. Mechanical Alternatives: Manual weeding: Pulling weeds by hand or using tools such as hoes, weeders, or weeding knives. Hoeing: Using hoes or similar tools to cut weeds near the soil surface. Thermal weeding: Using heat to destroy weeds, for example with thermal weeders or steam. Smothering: Using tarps, cardboard, or similar materials to cover weeds and deprive them of light. 2. Biological Alternatives: Use of natural predators: Introducing animals or insect predators that feed on weeds and their seeds, such as ladybugs, nematode worms, or ducks in infested areas. Use of microorganisms: Applying bioherbicides containing specific bacteria or fungi that target weeds and inhibit their growth, for example: Bacillus thuringiensis, Pseudomonas fluorescens, Trichoderma harzianum, Beauveria bassiana, Metarhizium anisopliae. Use of allelopathic plants: Planting allelopathic species that release inhibitory chemicals into the soil to suppress weed growth, for example: Bay laurel, Eucalyptus, Cedar, Pine, Rosemary, Sage, Lavender, Thyme, Savory, Oregano, Mugwort, Santolina, Rockrose, Myrtle, Rue, Bluebeard, Hawkweed, Germander, Horehound, Catnip, Jerusalem sage. 3. Cultural Alternatives: Organic mulch: Using materials such as straw, hay, wood chips, or bark to cover the soil and prevent weed growth. Cover crops: Planting crops that cover the soil and compete with weeds for space, light, and nutrients. Crop rotation: Regularly rotating crops to disrupt the weed life cycle and reduce weed pressure. 4. Physical Alternatives: Use of plastic tarps: Installing plastic sheets on the soil to smother weeds by depriving them of light. Solarization: Exposing soil to intense sunlight by covering the area with a transparent tarp to heat the soil and kill weeds. 5.Natural Substances with Phytosanitary Authorization

	Pelargonic acid: A naturally occurring fatty acid derived from plants such as geraniums. Used as a contact herbicide, it is biodegradable and non-persistent. Authorized for use on cultivated soils before planting or in targeted applications, with caution to avoid contact with crop foliage. Listed as a biocontrol product under French regulation.
Alternatives to Fungicides for Planted and Cultivated Soils	1. Biofungicides: Trichoderma spp.: Certain strains of Trichoderma are used as biological control agents against soil-borne diseases. They can compete with fungal pathogens for resources and produce enzymes that degrade the cell walls of pathogenic fungi. Bacillus subtilis: Another microorganism used as a biofungicide to control soil and plant fungal diseases. It acts by colonizing plant roots and inhibiting pathogen growth. Bordeaux mixture: A traditional fungicide made from copper sulfate and lime, used to control fungal diseases such as downy mildew and rust. Use of natural substances: Some natural substances, such as essential oils, may have antifungal properties. 2. Soil Amendments: High-quality compost: Applying quality compost can improve soil health by promoting beneficial microbial activity that suppresses fungal pathogens. Biochar: Adding biochar to the soil can improve its structure and water retention capacity, while supporting a beneficial microbial community that may help suppress fungal diseases. 3. Crop Rotation: Crop rotation can help reduce soil-borne fungal disease pressure by disrupting the life cycle of specific pathogens and promoting beneficial microbial diversity in the soil. 4. Cultural Techniques: Irrigation management: Avoiding overwatering and adopting irrigation methods that limit soil moisture can help reduce conditions favorable to the spread of fungal diseases. Pruning practices: Regular pruning of plants and trees can promote good air circulation and reduce humidity, helping to prevent foliar fungal diseases.
Alternatives to Insecticides for Planted and Cultivated Soils	1. Biological Methods: Use of beneficial organisms: Introducing natural predators or parasitoids that feed on pests can help regulate their population naturally. For example, ladybugs, parasitic wasps, and predatory nematodes are commonly used to control harmful insect populations. Use of pheromones: Sexual or confusion pheromones can be used to disrupt pest behavior by attracting them to traps or preventing effective reproduction. Essential oils: Some oils have repellent or insecticidal properties and can be used against pests. 2. Physical Methods: Trapping: Using mechanical traps to capture insect pests. Various trap designs exist, including light traps, sticky traps, pheromone traps, and bait traps. Physical barriers: Installing nets or protective cages around plants to shield them from pests, or using insect-proof nets to prevent insects from laying eggs or feeding on crops. Black soap: Used to control aphids and other small harmful insects. Diatomaceous earth: An abrasive powder that can be used to control crawling insects. 3. Cultural Methods: Crop rotation: Alternating crops can disrupt pest life cycles by changing their habitat and reducing the availability of food sources. Landscape management: Using techniques such as crop diversification, companion planting, or creating habitats for beneficial organisms to encourage biodiversity and promote natural pest-predator balance. 4. Mechanical Methods: Manual removal: Physically removing insect pests from plants by hand (a very slow and rarely used method). High-pressure spraying: Using a high-pressure water jet to dislodge and remove insect pests from plants. 5. Plant-Based Products: Use of plant extracts: Some plant extracts, such as neem oil, garlic, chili, and pyrethrum, have natural insecticidal properties and can be used to repel or kill insect pests.

Regulations and Standard Frameworks on Phytosanitary Products uses

International Legislation on Plant Protection Products (PPPs):
https://food.ec.europa.eu/plants/pesticides/legislation-plant-protection-products-ppps_en#regulation-ec-11072009

List of databases on registered plant protection products in the European and Mediterranean Plant Protection Organization (EPPO) region:
https://www.eppo.int/ACTIVITIES/plant_protection_products/registered_products

Catalog of phytosanitary products and their uses, fertilizing materials, and growing media authorized in France: https://ephy.anses.fr/

List of biocontrol plant protection products, under articles L.253-5 and L.253-7 of the Rural and Maritime Fishing Code of France:
info.agriculture.gouv.fr/gedei/site/bo-agri/supima/2d320671-26c8-4970-abce-4e01755eae28

French Law aiming at a better frame on phytosanitary product use in France:
French Law - phytosanitary products use
Annexe NS liste biocontrole 2025-06.xlsx
10-_Guide_zero_pesticides.pdf

IPBES (2023). Summary for Policymakers of the Thematic Assessment Report on Invasive Alien Species and their Control of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Roy, H. E., et al. . (eds.). IPBES secretariat, Bonn, Germany.
https://doi.org/10.5281/zenodo.7430692

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Appendix 4: Advantages of local species use according to UICN French Committee

1. Adaptation to the local climate

Bioclimatic adaptation: Local plants are intrinsically adapted to local climatic conditions (soil type, temperature, precipitation), which makes them more efficient in terms of survival and growth in a given environment. This adaptation reduces their vulnerability to climatic fluctuations, such as droughts or frosts.
Water efficiency: The genetic diversity of local species allows them to adapt to the water conditions of their natural range, reducing dependence on artificial irrigation systems.

2. Biodiversity and ecosystem services

Strengthening local biodiversity: Introducing local plants supports local wildlife by providing habitats suited to their needs and maintaining balanced trophic interactions within the ecosystem. These plants are key to maintaining populations of pollinators, herbivores, and natural predators.
Contribution to ecosystem services: Local plants actively participate in various ecosystem services, such as carbon sequestration (through CO_2 absorption), soil quality improvement (through nitrogen fixation and erosion prevention), and hydrological cycle regulation (water filtration and runoff reduction).

3. Adaptation to climate change and ecological resilience

Increased ecological resilience: Due to their co-evolution with local climatic conditions, local plants are generally more resistant to climatic stresses, including prolonged droughts, heat waves, or temperature variations. The more diverse the range of plant species present at a site, the more resilient it will be to climate change and pests.
NB: Climate change raises questions about the relevance of replanting certain native species, as there is a risk that they will no longer be suited to climatic conditions in a few years' time. Nevertheless, it is important to note that climate is not the only determining factor in species resilience; other criteria such as site topology and land use must also be taken into consideration. It is therefore essential to carry out an initial assessment of the environment and seek the advice of an ecologist before making decisions about adapting species to climate change.
Climate regulation and carbon storage: These plants actively participate in the thermal regulation of urban spaces, helping to mitigate the urban heat island effect while storing carbon in plant biomass and soil.

4. Optimizing resource management and reducing inputs

Reduced use of phytosanitary and agrochemical inputs: Local species are often naturally resistant to pathogens and pests specific to the region, reducing the need for chemical phytosanitary products. This allows for more sustainable and environmentally friendly management.
Less morphological maintenance: Native plants require less pruning, fertilization, or soil modification, reducing maintenance costs and the ecological footprint associated with green space management.

5. Economic and societal sustainability

Reduced operating costs: Local plants, due to their low maintenance requirements and better adaptation, offer long-term management savings, particularly in terms of irrigation, phytosanitary treatments, and maintenance.
Local economic development: Sourcing local plants boosts the local economy, particularly by supporting local nurseries and producers specializing in local plants.

6. Landscape harmony and ecological integration

Consistency with the landscape heritage: Using local plant species ensures continuity with the natural landscape, thereby preserving local ecological characteristics and reinforcing the visual and cultural identity of the area.
Stability of local ecosystems: The presence of local species promotes the stabilization of ecosystems, minimizing the risk of disruption due to the intrusion of invasive alien species that can harm biodiversity and disrupt ecological functions.

Glossary

- Local plant: the term “local plants” should be understood here as “native species,” i.e., species that are naturally present within a territory, including the area they can reach and occupy using their own means of movement. Here we will refer to species that are native to a country[2].
- Endemic: a species, subspecies, or lower taxon whose geographic distribution is limited to a territory (an island, a mountain, a valley, a country, etc.) and is not found elsewhere in its natural state. Endemism can be observed on very variable scales. Here we will refer to endemic species at the country level.
- Invasive alien species (IAS): in accordance with the definitions of the IUCN, the Convention on Biological Diversity, the European Parliament, and the Council of European invasive alien species is a species introduced by humans outside its natural range (intentionally or accidentally) and whose establishment and spread have negative ecological and/or economic and/or health consequences.

  In certain regions of the world and certain countries, such as Europe and France, there are regulatory lists of IAS. These regulations are based on the implementation of lists of invasive alien species of concern to the regions or countries concerned. Species on these lists may not be imported, sold, used, or deliberately released into the environment in the territories concerned.

  In some cases, there are also scientific lists that do not have regulatory constraints but are generally better documented and include a larger number of species classified as invasive alien species. These lists thus enable those who use them to strengthen their ambition in terms of combating IAS.