



Nature Strategy in Real Estate

Site Prioritization, Scenario Analysis and
Biodiversity Action Plans with XNatura

What is this Guide?

Understanding the environmental and climate impact of construction and real estate assets is essential in a world where development must align with sustainability objectives. Today, the built environment faces growing exposure to both physical and transition risks driven by climate change, biodiversity loss, and ecosystem degradation. At the same time, evolving European and global regulations are setting higher standards for environmental performance and corporate transparency. This white paper examines these topics while highlighting how XNatura's data-driven approach enables developers, designers, and ESG professionals to meet requirements, validate performance, and make informed decisions. With expert insights and real-world case studies, this guide provides practical tools to drive the sustainability transition.

This white paper is a tool for:

- ESG Managers
- Facility managers
- Consultants for the real estate
- Architects/civil engineers
- Municipalities
- Urban planners
- Investors in real estate

"Sustainability is no longer a cost: it's a value driver. We believe that combining regulatory compliance with robust environmental data empowers real estate players to value their assets while contributing to nature-positive growth."



Simone Mazzola
Chief Growth Officer

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Real Estate Sector: a continuous growth

Real Estate represents the largest asset class in the world, surpassing even global equities and fixed income markets.

With an estimated total value exceeding \$370 trillion, real estate is a key driver of employment and GDP in most countries, leading urban development, demographic transformation, and the transition to sustainable infrastructure. Following a difficult period marked by rising interest rates, inflationary pressures, and geopolitical uncertainty, in 2024 the total investment activity reached US\$703 billion, marking a 14% increase compared to the previous year.

Investor focus is increasingly directed toward asset classes that demonstrate **long-term adaptability**, such as logistics, data centers, multifamily housing, healthcare, and mixed-use developments. At the same time, shifts in demographics, post-COVID urban reconfiguration and the rapid integration of digital technologies are reshaping the investment landscape. **ESG performance** has become a central pillar of value creation, influencing both strategy and asset management.

For this reason, the sector will face critical issues that will shape its near future. Despite the optimistic growth outlook, the industry is highly exposed to **climate-related and environmental risks**. The path forward depends on the sector's ability to **decarbonize, digitize, and adapt**, not only to align with regulatory and investor demands, but also to ensure long-term resilience and relevance in an increasingly climate-conscious world.



Real Estate Sector faces significant Risks related to Climate

Climate change has moved to the top of the agenda for many real-estate players.

Climate Risks

The sector faces two types of risk related to climate:

- **physical threat:** extreme weather events such as hurricanes, floods, and wildfires increasing in frequency and severity (table 1).
- **transition risk:** declining market attractiveness, increasing regulation, and public pressure.

	Temperature-Related	Wind-Related	Water-Related	Solid mass-Related
Chronic	Increase	Changing patterns	Changing precipitation pattern and type	Coastal erosion
	Heat stress		Ocean acidification	Soil degradation
	Variability		Saline intrusion	Erosion
	Permafrost thawing		Sea level rise	Solifluction
Acute	Heat wave	Cyclone/hurricane/typhoon	Drought	Avalanche
	Cold wave/frost	Storm/sandstorm	Flood	Landslide
	Wildfire	Tornado	Glacial lake outburst	Subsidence

Table 1: Categorized list of physical climate risks impacting the real estate sector, organized by temporal action and by relation with the physical agent.

Key Numbers - Risks

- Real estate assets could face **devaluations** between **15% and 35% by 2050** due to their inability to mitigate or adapt to medium- and long-term climate risks.
- In the U.S. alone, real estate markets are projected to **lose up to \$1.5 trillion over the next 30 years**. In the most exposed regions, property values could drop by up to 100%.
- **Insurance premiums** on residential properties in the U.S. have more than doubled between 2013 and 2022, rising from 7–8% to nearly **20% of total housing-related costs**.



Not only Climate: Environmental Risks

Seismic hazards, pollution, air quality, and proximity to sensitive areas can compromise asset safety, increase costs, and limit development potential.

Organizations in the real estate industry face a wide range of environmental risks:

- **Seismic and Geophysical Hazards:** properties in earthquake-prone areas are exposed to structural risks and may face challenges related to building code compliance, insurance coverage, and the financial viability of development or retrofitting.
- **Soil Contamination:** sites located on or near former industrial zones, landfills, or brownfields may suffer from legacy pollution, limiting land use, reducing property value, and triggering costly remediation obligations.
- **Groundwater and Surface Water Pollution:** contaminants can infiltrate aquifers or surface water systems, posing risks to health and ecosystems, affecting property operations and long-term viability.
- **Air Quality:** assets near high-traffic or industrial areas are vulnerable to outdoor air pollution, while indoor pollutants can harm occupant health and reduce asset performance and desirability.
- **Hazardous Building Material:** older buildings may contain asbestos or lead-based paint, which pose health and legal risks during renovation or demolition, leading to delays and increased compliance costs.
- **Proximity to Sensitive Natural Areas:** developments near protected or biodiversity-rich areas may face tighter permitting, land-use restrictions, and stakeholder opposition, impacting project timelines, feasibility, and long-term attractiveness.

"Climate and environmental risks are immediate realities in real estate. By leveraging data-driven tools, we can mitigate these risks and build more resilient, sustainable projects."



Virginia Castellucci
Head of Sustainability

Why focusing on ESG aspects?

The real estate sector significantly impacts climate and land use, while simultaneously relying on healthy ecosystems to ensure long-term value, resilience, and performance.

Impacts on Nature and Biodiversity

- **Climate Change:** the real estate sector is responsible for nearly 39% of global CO₂ emissions, split between operational emissions (about 28%) and embodied carbon (roughly 11%), which includes emissions from construction materials and processes.
- **Land Use & Habitat Loss:** Development often clears natural areas, causing habitat fragmentation, biodiversity loss, and weakened ecosystem functions like carbon capture and water cycles.
- **Soil Sealing:** Concrete and asphalt surfaces block natural soil processes, reduce groundwater recharge, and heighten flood risks.
- **Pollution:** Construction and building use cause soil, water, and air pollution through runoff, emissions, and poor waste management.
- **Light and Noise Pollution:** Urban growth introduces artificial light and noise, disrupting wildlife behavior and degrading ecosystem quality.
- **Resource Overuse:** High demand for raw materials (e.g., sand, timber, metals) leads to resource depletion and habitat damages.

Key Numbers - Impacts

- Real estate is responsible for approximately **30% of global biodiversity loss**, primarily due to habitat destruction from new developments.
- Over **68% of artificial land cover** worldwide is allocated for housing.
- Annual construction **waste** is expected to reach **2.2 billion tons** globally by 2025.
- C&D waste accounted for **30–40% of the total solid waste stream** globally in 2022.

A complex Framework

The real estate sector is increasingly shaped by a complex and evolving regulatory framework, encompassing EU directives, sustainability principles, and corporate transparency requirements.

The following scheme provides an overview of the framework, which will be examined in more depth in the next slides.

National Regulations	Regulations	EU Directives	Frameworks	Private Certifications
Building Codes EIA (EU Directive in Europe)	EU Taxonomy ↓ DNSH BNG Principle	CSRD ↓ ESRS Standards EPBD	TNFD	LEED BREAM
Mandatory	Mandatory	Mandatory	Voluntary	Voluntary

Building Codes

Building Codes are critical tools for ensuring the safety, functionality, and sustainability of the built environment, addressing technical specifications ranging from structural strength and fire safety to energy performance and environmental impact.

Once adopted by a public authority, building codes gain legal force and must be followed to obtain construction permits and approvals. They evolve in response to technological advances, emerging safety risks, and changing environmental considerations. Their adoption and enforcement often reflect the unique legal and governance structures of each jurisdiction.

Building Codes are used by:

- Architects and engineers
- Construction firms and subcontractors
- Urban planners and regulators
- Interior designers and developers
- Safety inspectors
- Real estate developers
- Manufacturers of materials and components
- Insurance companies
- Facility managers and property owners

Definition

Building codes, also known as building regulations or building control, are **sets of legally enforceable standards** that **govern the design, construction, alteration, and maintenance** of buildings and structures.

Building Codes help mitigate risks

At their core, building codes are designed to safeguard public interests through a clear, enforceable set of criteria which allows to standardize data.

- **Life safety**: ensuring structural stability, safe escape routes, and fire prevention.
- **Health and hygiene**: managing air quality, water systems, lighting, and sanitation.
- **Accessibility**: enabling inclusive design for people with disabilities and diverse needs.
- **Energy efficiency**: reducing energy consumption and carbon footprint in line with sustainability goals.
- **Resilience**: incorporating protections against earthquakes, floods, hurricanes, and other environmental hazards.
- **Functionality**: regulating space usage, occupancy types, ventilation, parking, and more.

International Perspectives

Globally, the development and enforcement of building codes vary widely. In some countries, national governments establish unified codes with mandatory application across all regions.

In others, especially federal or decentralized systems, model codes are developed by independent bodies and adopted (sometimes with modifications) by local jurisdictions. For instance, while the US predominantly uses the [International Building Code \(IBC\)](#) framework, its application differs across states and cities. Countries like India use a national code as a foundation but delegate enforcement to municipal authorities. In Europe, the [Eurocodes](#) harmonize structural design across member states, with local annexes tailoring the standards to national contexts.

Goals

Mitigate risks and strengthen liability, help preserve property value, enhance user comfort, and standardize quality across the real estate market. In an era of rapid urbanization and environmental challenges, building codes represent a critical interface between design innovation and public policy.

EIA is Necessary for most of Real Estate Projects

EIA (Environmental Impact Assessment) is a systematic process to assess the environmental impacts of a project prior to its approval. Its objective is to identify, predict and mitigate potential adverse effects on soil, water, air, biodiversity and local communities.

The EIA assesses the **direct and indirect significant impact of a project** based on a wide range of environmental factors, including population and human health, biodiversity, land, soil, water, air, climate, landscape, material assets, cultural heritage.

An EIA is required for projects such as:

- Urban development
- Shopping centres and car parks
- Industrial Facilities Integrated into Urban Expansion
- Tourism and leisure projects (holiday villages, hotels)
- Waste and water infrastructure in large housing or commercial areas

The project developer must provide the approval authority with a **report containing a description** of the project (location, design, size), **potential significant effects**, reasonable **alternatives, features** of the project and/or **measures to avoid, prevent, reduce or offset likely significant impacts** on the environment.

Goals

The objective of the EIA procedure is to **ensure environmental protection and transparency in decision-making** for both public and private projects. It aims to integrate environmental considerations from the outset of new developments or modifications to existing projects, while also providing an opportunity for public involvement in the process.

EIA Procedure: How to Create a Strategic Advantage

Performing an EIA helps identify environmental risks early, reducing costs, avoiding delays, and ensuring regulatory compliance, supporting the long-term sustainability of real estate projects.

- 1 Screening - Determining whether EIA is required**
Assess whether a project requires a full EIA or a case by case examination considering the project's nature and location.
- 2 Scoping - Defining the scope of the assessment**
The developer can request the competent authority to define the scope and level of detail for the EIA Report, helping to identify the significant environmental impacts to assess.
- 3 Preparation of the Report**
The project developer prepares the EIA report analyzing significant environmental impacts, including on soil, air, water, biodiversity, and human health, while also considering project alternatives and mitigation measures for potential impacts.
- 4 Public Consultation and Authority Opinions**
The project and EIA report are made available to the public, allowing interested parties and environmental authorities to submit comments and feedback.
- 5 Decision-making**
The competent authority reviews the EIA report and considers the received comments before making a public decision.
- 6 Monitoring & Compliance**
Implementation of an Environmental Monitoring Plan (EMP): requires to monitor the actual environmental impacts of the project once it is operational, verifying compliance with environmental requirements and promptly identifying unforeseen negative effects, allowing the competent authority to take corrective measures.



EU Taxonomy & Real Estate: Framework for Sustainability

The EU Taxonomy is a regulatory classification system that defines which economic activities can be considered environmentally sustainable under EU law. Introduced by Regulation (EU) 2020/852, it aims to guide capital toward sustainable investments, enhance market transparency and support the EU's climate neutrality targets by 2050.

The Taxonomy identifies **seven specific real estate-related activities**:

1. Construction of new buildings
2. Renovation of existing buildings
3. Installation of energy efficiency equipment
4. Installation of EV charging stations
5. Measurement and control of energy performance
6. Installation of renewable energy technologies
7. Acquisition and ownership of buildings

Each activity has **Technical Screening Criteria (TSC)** for determining eligibility and alignment under Climate Change Mitigation and Adaptation.

EPBD is key to reach carbon neutrality



The Energy Performance of Buildings Directive sets out a framework for reducing energy consumption in buildings, promoting renewable energy integration, decarbonizing the building stock, improving indoor environmental quality and ensuring transparent energy performance disclosure across the real estate market

Key elements

- **NZEB and ZEB Standards:** since 2021, all new buildings must be Nearly Zero-Energy Buildings (NZEB). The 2024 revision provides that from 2030 all new buildings must be Zero Emission Buildings (ZEBs), meaning very low energy demand, fully covered by renewable energy, and zero on-site carbon emissions from fossil fuels.
- **Energy Performance Certificate (EPC):** the 2024 recast introduces a standardized A-G scale for EPCs across the EU, a central registry for consistency and traceability and improved data granularity and digitalization.
- **Renovation Obligations and Performance Standards:** Member States must introduce Minimum Energy Performance Standards (MEPS). By 2030, all non-residential buildings must reach EPC class E, and class D by 2033. National Renovation Plans must include a trajectory to decarbonize the stock by 2050 and address energy poverty and ensure just transition support.
- **Smart and Digital Requirements:** introduction of Smart Readiness Indicators (SRI) for buildings, requirement for building automation systems in large non-residential buildings, promotion of digital building logbooks for lifecycle documentation.

Legislative Framework

Cornerstone legislation of the European Union regarding the energy efficiency of buildings. It was first adopted in 2002 (Directive 2002/91/EC), revised in 2010 (2010/31/EU), and again in 2018 (as part of the Clean Energy for All Europeans package). The most recent and significant revision, adopted in March 2024, is part of the Fit for 55 package aimed at aligning EU law with the European Green Deal and carbon neutrality by 2050.

It applies to new constructions, major renovations, and increasingly also to existing buildings through long-term renovation strategies.

Taxonomy alignment requires DNSH implementation

The Do Not Significant Harm (DNSH) principle is a fundamental pillar in the real estate sector for defining the sustainability of an activity. It ensures that the activity does not significantly compromise any of the environmental objectives outlined in the EU taxonomy.

For an activity to be taxonomy-aligned, it must:

- Make a **substantial contribution to at least one objective**
- **Do No Significant Harm (DNSH)** to the others
- **Comply with minimum social safeguards** (e.g., OECD and UN human rights standards)

Companies that fall under the scope of the CSRD have to **report** annually **to what extent their activities are covered by the EU Taxonomy** (Taxonomy-eligibility) **and comply with the criteria** set in the Taxonomy delegated acts (Taxonomy-alignment). Other companies that do not fall under the scope of CSRD can decide to disclose this information on a voluntary basis to get access to sustainable financing or for other business-related reasons.

DNSH Application

- **Vulnerability Assessment:** identify relevant environmental risks and exposures.
- **Evidence of Solutions:** document and implement adaptation measures in place at asset level (e.g., green roofs).
- **Monitoring and Reporting:** using performance indicators.
- **Scope of Impact**
- **Alignment Across Objectives**

To make an example, if a building contributes to CCA, the DNSH check must ensure no harm is done to climate mitigation by:

- Avoiding assets linked to fossil fuels
- Meeting EPC requirements

BNG: the next requirement to be integrated in EU taxonomy?

Biodiversity Net Gain is an emerging policy requirement, currently formalized in the UK and increasingly discussed in EU contexts, that mandates real estate and infrastructure projects to deliver measurable biodiversity improvements compared to pre-development levels.

- While not yet enshrined in EU Taxonomy criteria, BNG is conceptually **aligned with the Taxonomy's** sixth environmental objective: Protection and Restoration of Biodiversity and Ecosystems.
- **Future Delegated Acts** under the EU Taxonomy **are expected to include TSC for biodiversity** that may incorporate BNG principles, especially for large developments in ecologically sensitive areas.
- BNG approaches often include habitat mapping, ecological metrics, and offset mechanisms, all tools that are **compatible with the DNSH principle** when evaluating land use impacts of construction.

Why does it matter for real estate companies?

Incorporating BNG into real estate planning anticipates **future taxonomy expansion**, enhances **nature-positive disclosures**, and aligns with the growing investor and regulatory focus on **biodiversity as a material ESG factor**.

"By quantifying nature impacts, real estate companies can align with Biodiversity Net Gain criteria and lead the shift toward a truly regenerative development."

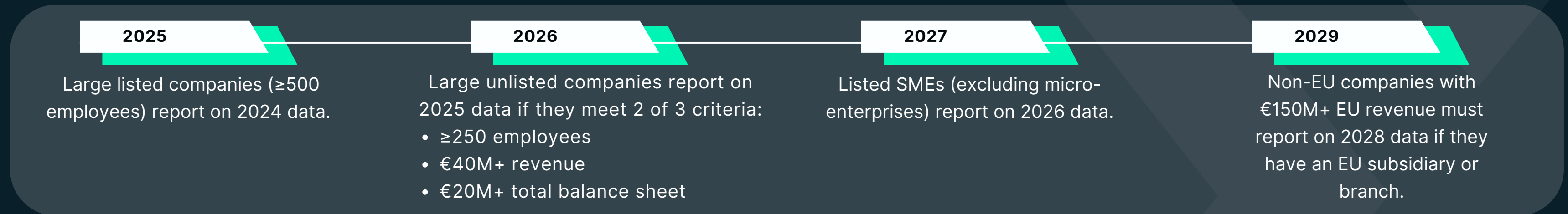


Riccardo Balzaretti
Head of Science

CSRD Requires the Integration of Nature in ESG Reporting

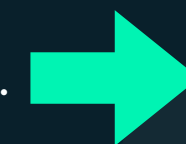
The main European regulation, the Corporate Sustainability Reporting Directive (CSRD), requires big real estate companies to integrate nature and biodiversity into their operational strategies.

For many real estate companies, report on nature is a mandatory requirement and can also be a **strategic advantage**. In the EU, the reference regulation is the CSRD, which has the following deadlines:



Omnibus updates:

- 80% of companies currently subject to the CSRD will no longer have to report. The limit rises to **1,000 employees**, aligning with the CSDD.
- **SMEs** will only have to provide **voluntary data**, limiting the pressure on the supply chain.
- Drastic cut to ESRS standards: less data required, **no more sector-specific standards**.
- **Postponement** of implementation **by two years** for many companies.



Currently, the CSRD is still in force and will remain the **reference for reporting on nature** -> companies should continue on their path towards sustainability, considering nature as a material topic.



ESRS Requires Business to Consider Double Materiality

ESRS (European Sustainability Reporting Standards) are a set of standardized guidelines introduced by the EU to provide transparency on a company's ESG impacts, responding to the CSRD's requests.

The ESRS standards introduce the concept of double materiality, requiring businesses to consider two perspectives:

- **Impact Materiality** – How the company's activities affect biodiversity and ecosystems.
- **Financial Materiality** – How biodiversity loss and ecosystem degradation create risks and opportunities that can financially impact the company.

To help your company in this purpose, XNatura provides a clear and solid visualization of risks, impacts and dependencies on nature, classifying them using science-based metrics following the ESRS set of standards and aligning with the TNFD's LEAP framework.



Why using ESRS in a business context?

- **Impact Assessment:** evaluate and quantify environmental and social impacts, such as carbon footprint and effects on biodiversity.
- **Disclosure Requirements:** creating reports using clear indicators and performance metrics on sustainability.
- **Integration into Strategy:** manage and report risks and opportunities related to ESG factors effectively.
- **Stakeholder Communication:** communicate sustainability efforts to stakeholders enhancing their credibility and improving access to capital.

Sector Specific TNFD's Metrics

The Taskforce on Nature-related Financial Disclosures (TNFD) has developed specific guidelines for the real estate sector, aiming to support organisations in identifying, assessing and disclosing nature-related dependencies and impacts, and in managing related risks and opportunities.

Core Sector Metrics for the Real Estate:

- RE.A1.0 – **Change in Fragmentation due to Linear Infrastructure:** measures the extent of habitat fragmentation caused by construction of roads, railways, fences, pipelines, etc., especially in sensitive ecosystems. Includes data on infrastructure length, footprint, and wildlife crossing structures (e.g. overpasses, underpasses) with verified animal use.
- RE.C2.0 – **Volume of Spills:** measures the volume of environmentally harmful spills (e.g. diesel, paints, solvents, wastewater) that exceed regulatory or internal thresholds. Data is disaggregated by substance type, classification scheme, and affected ecosystem.
- RE.C3.0 – **Manure and Compost Use:** tracks the input (in tonnes) of manure and compost used in landscaped areas of real estate assets, reflecting practices around organic soil enhancement and sustainable land management.

The LEAP Approach

- **Locate:** map sites of construction, renovation, and land development, identifying areas of ecological significance
- **Evaluate:** examine how operations depend on and affect ecosystem services
- **Assess:** nature-related risks and opportunities
- **Prepare:** incorporate nature-related data into reports

Additional Sector Metrics:

- RE.A1.1 – **Green Space Creation**
- RE.A2.0 – **Light Pollution**
- RE.A23.0 – **Circular Economy Indicators**
- RE.A24.0 – **Water Reuse**
- RE.A23.1 – **Invasive Alien Species Management**
- RE.A2.1 – **Noise Pollution**

Why using TNFD's Metrics

Using specific indicators help companies in evaluating their risks and communicate their environmental performance in a transparent and comparable way.

To sum up the main concepts, real estate companies should implement indicators covering:

- Impact on land cover and fragmentation
- Ecosystem services disruption
- Green infrastructure integration

Why are they important for real estate companies?

- **Risk exposure mapping:** identify location-specific vulnerabilities that may compromise asset performance or value under climate stress.
- **Regulatory readiness:** Nature-related disclosures are increasingly being incorporated into land use and building regulation. TNFD metrics support compliance and risk mitigation.
- **Market differentiation:** Transparent communication of ecological performance can improve reputation and attract ESG-focused investors and tenants.
- **Strategic development:** Nature-based data enables better planning of resilient, climate-adapted urban environments.

Implementation of the TNFD Guidelines

- **Embed nature impact analysis into urban planning:** Integrate nature-related data at early stages of land acquisition and project design.
- **Adopt disclosure metrics systematically:** Use sector-specific indicators to guide and report performance.
- **Educate internal teams and partners:** Promote understanding of nature impacts across design, construction, and asset management functions.

Environmental Certifications

In the real estate, environmental certifications allows to enhance building value, reduce environmental impact and meet ESG goals.



LEED (Leadership in Energy and Environmental Design)

International voluntary certification programme that can be applied to any type of building and covers the entire **life cycle of the building**. LEED promotes a **sustainability-oriented** approach, recognising **building performance** in key areas such as energy and water savings, CO2 emissions reduction, improved indoor ecological quality, materials and resources used, design and site selection. Developed by the U.S. Green Building Council (USGBC), the system is based on awarding 'credits' for each requirement. The process to obtain the certification involves documentation of sustainable strategies, third-party verification, and final certification, requiring detailed data.

BREEAM® BREEAM (Building Research Establishment Environmental Assessment Method)

BREEAM is a globally recognized certification system used in over 2.3 million buildings worldwide to assess sustainability. It provides a set of **strategic principles and requirements** for the design, construction, management, and certification of buildings, focusing on ESG impacts throughout their life cycle. Applicable to both new constructions and renovations, BREEAM's flexible standards evaluate performances across categories such as **Energy, Water, Health and Wellbeing, Waste, and Innovation**. The certification process involves working with a licensed assessor, registering the project, conducting assessments at different stages, and ensuring quality assurance before final certification. BREEAM is increasingly used in real estate to improve building value, reduce environmental impact, and achieve ESG goals.



WELL Building Standard

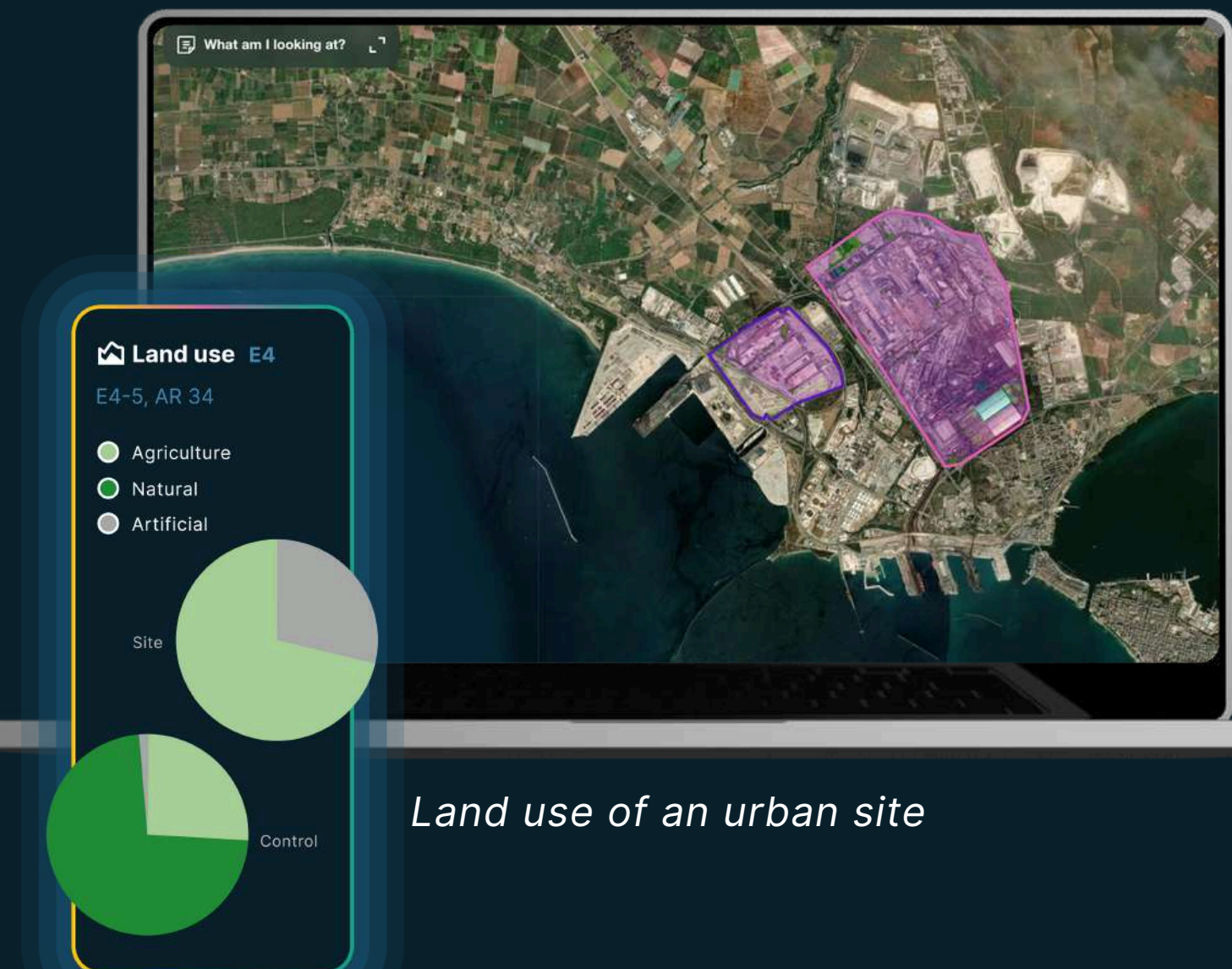
WELL is a global certification that prioritizes human health and environmental quality. Grounded in scientific research, it focuses on how physical and social environments influence **well-being and performance**. Developed over 10 years, WELL provides strategies across 10 categories, such as air, water, light, materials, and thermal comfort, to promote **low-impact design and operations**.

How XNatura Can Help You Developing a Nature Strategy

XNatura is the first integrated platform for defining and implementing a comprehensive **biodiversity, nature** and **climate strategy**, fully compliant with **ESRS** standards and following the TNFD's **LEAP approach**. It allows you to assess risks, impacts, opportunities, and dependencies, set clear goals, and monitor metrics, all in one tool.

Locate

XNatura uses **satellite imagery** to analyze land use, detect biodiversity hotspots, and identify areas at risk, providing a **data-driven foundation** for **strategic decision-making**.



Land use of an urban site

Evaluate

The platform assesses **nature-related impacts and dependencies**, helping businesses understand their reliance on ecosystem services and the effects of their activities on biodiversity.

The screenshot displays a 'Dependencies' table for E4-Biodiversity. The table lists various ecosystem services and their dependencies for two industrial processes: 'Manufacture of basic iron and steel' and 'Repair of fabricated metal products, machinery and equipment'. The dependencies are categorized by impact level: M (Medium), VL (Very Low), H (High), and L (Low).

Impact	Dependencies	ALL	E1	E2	E3	E4 - Biodiversity	E5
PRODUCTION PROCESS	FLOOD MITIGATION SERVICES						
	STORM MITIGATION SERVICES						
	NOISE ATTENUATION SERVICES						
	WATER SUPPLY						
	RAINFALL PATTERN REGULATION SERVICES (AT SUB-CONTINENTAL SCALE)						
	WATER FLOW REGULATION SERVICES						
	AIR FILTRATION SERVICES						
	SOIL AND SEDIMENT RETENTION SERVICES						
Manufacture of basic iron and steel		M	M	VL	H	M	H
Repair of fabricated metal products, machinery and equipment		M	M	VL	M	VL	M

Dependencies for E4- Biodiversity

Assess

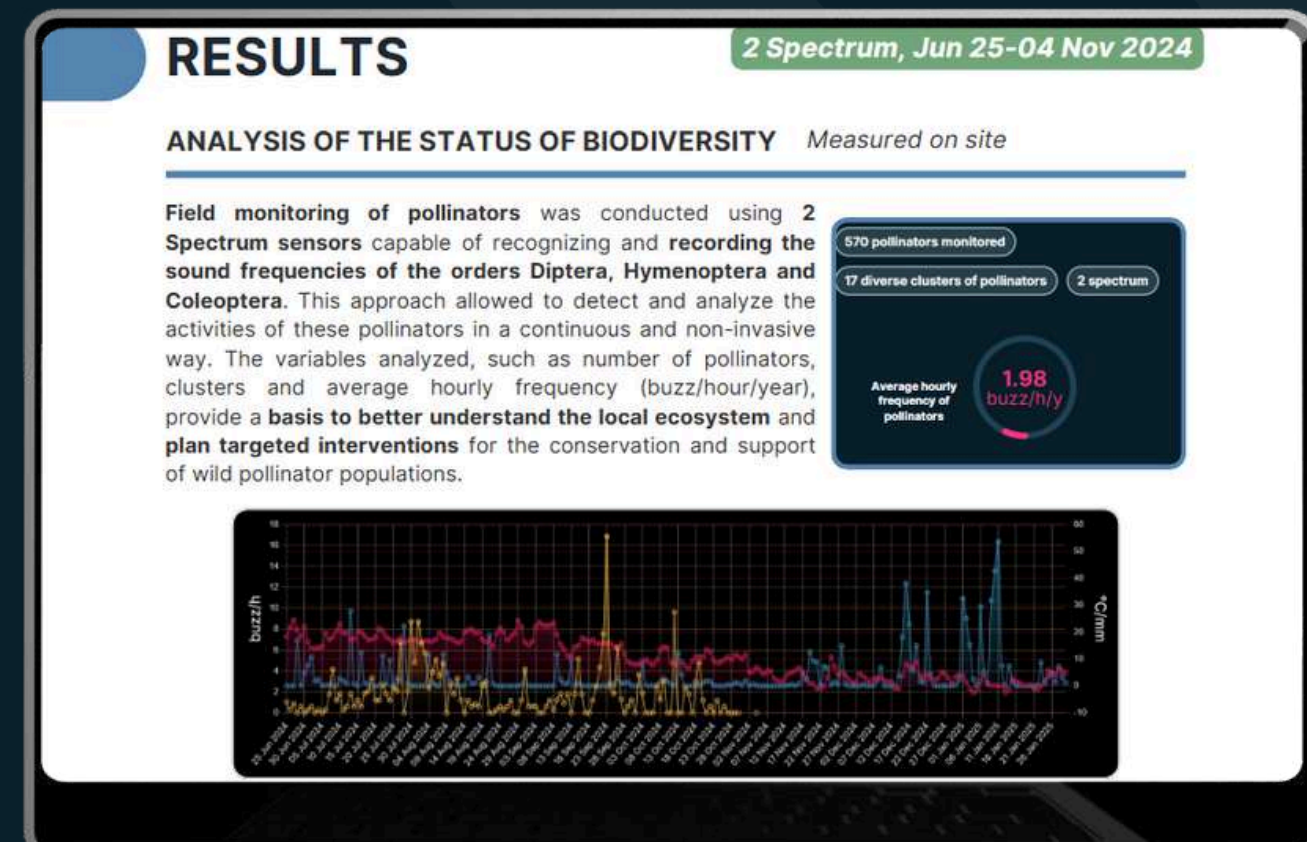
XNatura quantifies nature-related risks and opportunities by integrating **key indicators** such as MSA Land Use and MSA Control. It evaluates financial, regulatory, and operational risks, helping companies **align** their **strategies** with CSRD and TNFD requirements.



MSA evaluation with control area and targets

Prepare

The platform supports **target setting** based on industry benchmarks, control areas, and regulatory goals (e.g., Half Earth, Regenerate 30%). It also automates ESRS-compliant reports, ensuring **transparent** and **traceable biodiversity reporting**.



Example of a report - Results section

Actions we can do together

Data collection

Optimize Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) processes for informed decision-making with transparent and comparable data. XNatura also provides essential tools and data to support the acquisition of environmental certifications, enhancing market value and credibility of your assets.

Risk Analysis and Site Prioritization

XNatura helps identify sites that are most under climate risk or heavily reliant on natural resources, enabling you to prioritize actions effectively; monitor if assessments reveal large-scale critical issues; generate complete scenario analyses with future KPI projections to effectively plan the implementation and growth of construction sites.

Strategy development

Define whether the plant meets environmental targets, such as Biodiversity Net Gain, and perform benchmark comparisons within the real estate sector to help define strategic goals and position your company as a market leader. XNatura assists in the creation of tailored Biodiversity Action Plans (BAPs) and performs scenario analysis, ensuring that your projects support biodiversity conservation, comply with regulations, and enhance ecological resilience at each site.





Disclose: Reporting

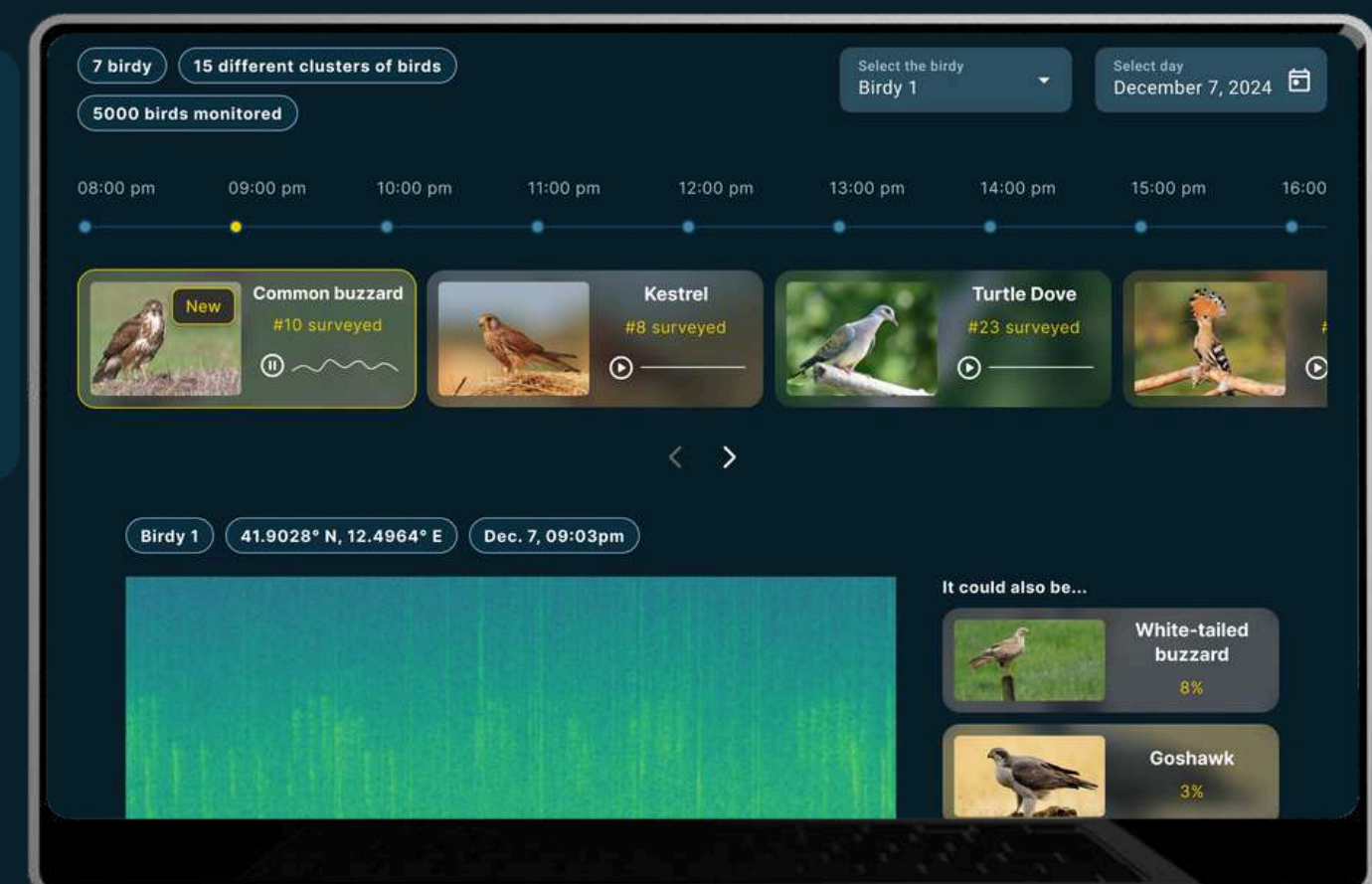
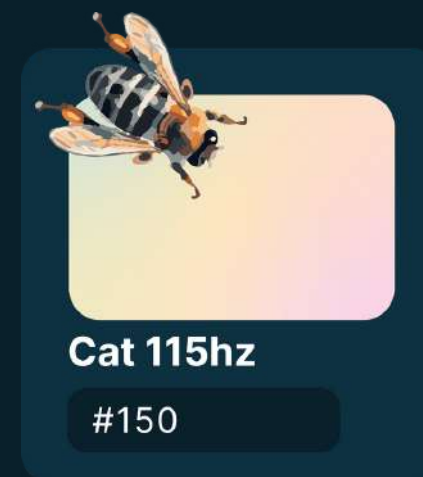
Get a comprehensive report, compliant with CSRD and TNFD, tailored to meet the specific needs of consultants and company managers.

Data Collection

The platform gathers precise environmental data through advanced remote sensing and sensors, crucial for obtaining certifications like LEED and BREEAM, as well as for meeting the requirements of EIA and EMP. In particular, XNatura is designed to address climate risk by providing real-time data on environmental factors that influence site vulnerability to climate change, helping real estate developers assess how these factors could impact their projects.

The data are collected through:

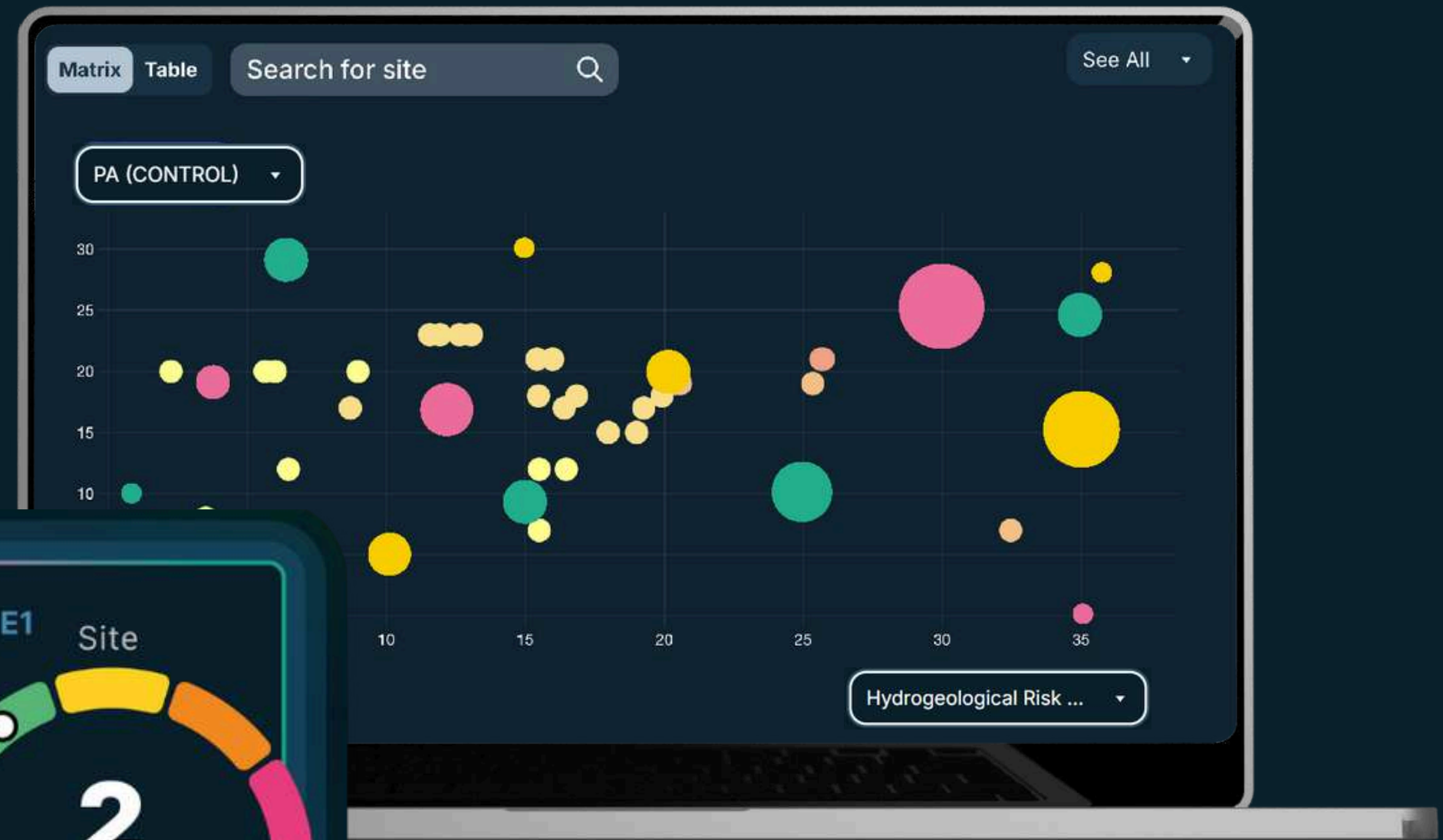
- 
Remote sensing Land cover and derived indexes
Public datasets
- 
Sensors Bioacoustics (*Pollinators, Birds*)
Camera Traps
Biomonitoring (*Beehive*)
- 
On-field Surveys Flora and Invasive species (*Biodiversa*)
On-field Survey Manager
- 
Lab Analysis Pollutants and Heavy Metals
eDna



Risk Analysis and Site Prioritization

The goal is to organize high-quality, transparent and integrated data to understand which site must be prioritized. This data-driven approach helps real estate developers make informed decisions, ensuring that actions are directed towards sites that require immediate attention for exposure to climate or environmental risks, or offer the greatest opportunity for sustainable development.

- Generic Climate Risk
- Encore Impacts and Dependencies
- Water & Climate Risk
- Landslide and Erosion Risk
- State of Biodiversity
- Proximity to Protected Areas
- Urbanization and Demography



Strategy Development

XNatura supports decision-makers by providing scenario analysis and predictive modeling to evaluate environmental impacts. It simulates various scenarios and compares the project's effects with regulatory thresholds, while the Nature Strategists can also plan strategies to mitigate risks. By integrating environmental data with legal frameworks, XNatura ensures compliance with standards, helping decision-makers choose whether to proceed, modify, or reject the project.

Actions we can do together:

Biodiversity Strategy, which comprehends:

- Target Identification and Definition
- Business Plan E-Strategy
- Scenario Analysis

Biodiversity Action Plan for each specific site, comprehending:

- Monitoring
- Regeneration
- Engagement

"We help decision-makers turn environmental insights into action, evaluating impacts and risks and building biodiversity strategies through advanced scenario analysis."

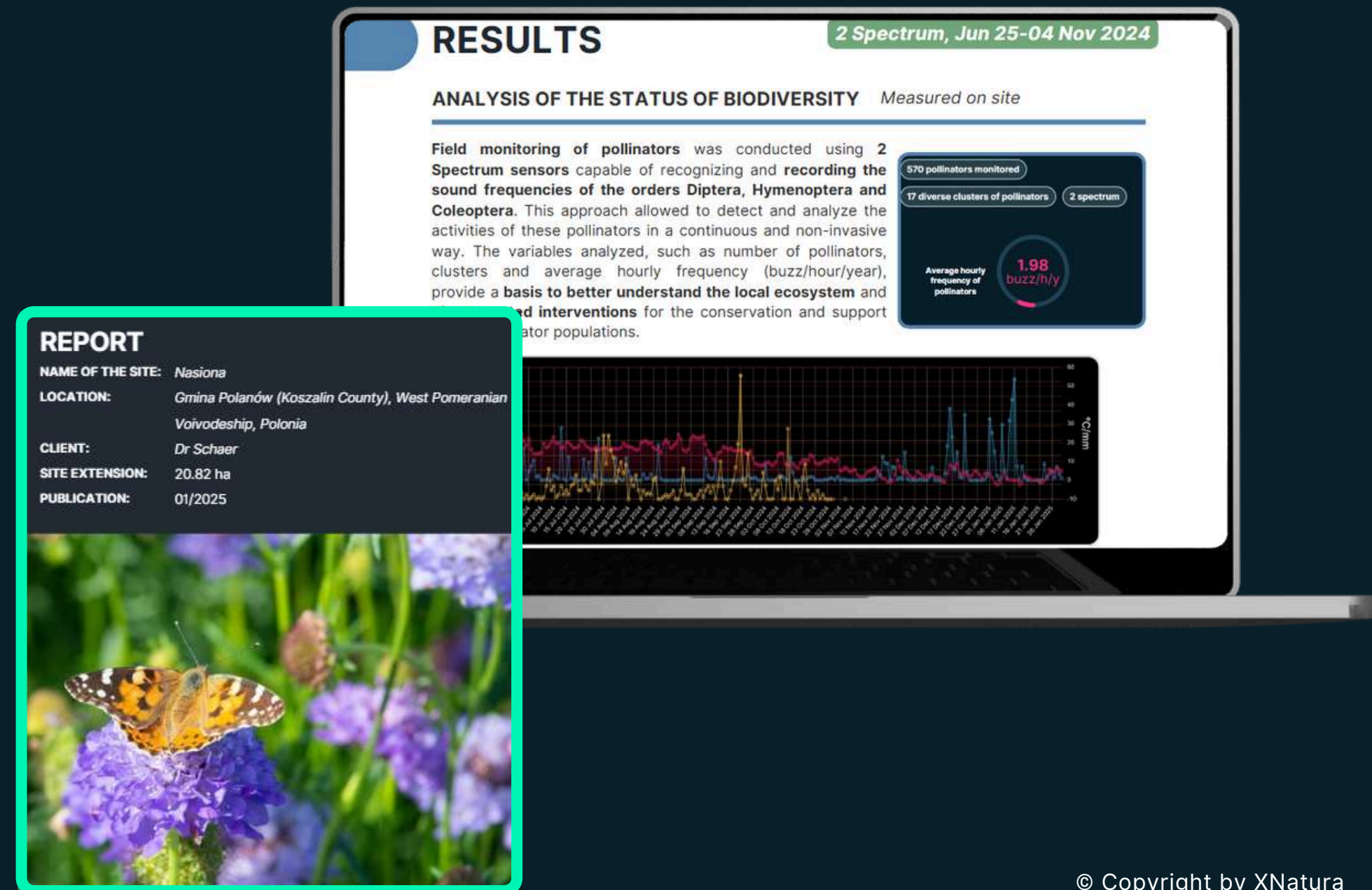


Silvia Moser
Nature Strategist

Disclose: Report

Sustainability reporting isn't just about compliance: it's proof of your commitment. XNatura outputs an annual report powered by AI and reviewed by an expert Nature Strategists for better accuracy and impact. Clear, transparent and scientific data are provided to track progresses in your sites.

- **AI-Generated Reports** – Annual biodiversity reports powered by AI, reviewed by expert Nature Strategists for accuracy and impact.
- **CSRD Compliance** – Ensure reporting meets regulatory requirements and aligns with sustainability standards.
- **Aligned with the main international standards** – Reports follow the LEAP approach and integrates TNFD and SBTN.
- **Data for environmental certifications** – Data can be used to obtain certifications like LEED and BREEAM, reinforcing your assets.
- **Data for EIA and EMP** - The provided data can be used to prepare EIA and EMP reports.





Platform Benefits for the Real Estate

Develop a comprehensive assessment, monitor and census biodiversity, nature and climate with XNatura. We turn complex data into strategic insights for your business, measuring impacts, risks, dependencies and opportunities and ensuring compliance with ESRS standards.

- 1 Risk analysis and prioritization
- 2 Scenario analysis for construction sites
- 3 Benchmark and target verification
- 4 Develop a Biodiversity Action Plan
- 5 EIA and EMP compliance
- 6 Support for obtaining certifications
- 7 Click to generate report

Does XNatura meet the reporting requirements?				
ESRS Data Points (modified from EFRAG)	ESRS	TNFD	Useful for EIA Report?	XNatura platform
Actions & Resources				
Business Model Resilience and Biodiversity Strategy	E4-1	P	✓	Nature Strategist; Gen AI
Transition Plan for Strategic Alignment	E4-1	P	✓	Nature Strategist
Transition Plan Implementation, Monitoring and Governance	E4-1	P	✓	Nature Strategist
Biodiversity Policies				
Identification of impacts on biodiversity sensitive areas	E4.SBM-3	E	✓	Database; Gen AI
Corporate policies on biodiversity and natural resource management	E4-2	A	✓	Nature Strategist
Standards of conduct and uniformity to best practices	E4-2	P	✓	Nature Strategist
Adoption of policies for biodiversity and sustainability	E4-2	P	✓	Nature Strategist
Biodiversity Strategy				
Biodiversity Strategy	E4-1	P	✓	Nature Strategist
Financial Risk				
Estimation methodologies and financial assumptions	E4-6		✓	Nature Strategist; Gen AI
Financial risks and opportunities linked to biodiversity	E4-6	A	✓	Database; Gen AI
Impact and dependencies from biodiversity and ecosystems	E4-6	E	✓	Database; Gen AI
Risk assessment for products and services	E4-6	A	✓	Nature Strategist; Gen AI
Impact metrics				
Geography, Ecosystem type, Microclimate, Sensitivity	E4 IRO-1	L	✓	Database
Land use and land use changes	E4-5	E	✓	Remote Sensing; Gen AI
Structure and connectivity of ecosystems	E4-5	A	✓	Remote Sensing; Sensors
Invasive species and extinction risk	E4-5	A	✓	Database; eDNA; Sensors; Biodiversa
State and quality of ecosystems	E4-5	E	✓	Remote Sensing; Sensors; eDNA; Biodiversa
Targets				
Mitigation goals, strategies, and tools	E4-4	P	✓	Nature Strategist
Definition and application of ecological thresholds	E4-4	P	✓	Database; Nature Strategist
Regulatory compliance and substantive criteria	E4-4		✓	Nature Strategist

Case Studies

Hereafter, some case studies in the real estate sector will be presented. With XNatura, you can suit each project's specific needs using the best and most complete data for nature assessment, ensuring accurate climate risk evaluations, compliance with environmental standards, and effective mitigation strategies for sustainable development.

These are our technologies for collecting science-based data:

- **FLORA (Remote Sensing)**: satellite imagery and indexes, in collaboration with ESA.
- **Spectrum**: IoT bioacoustic sensor that assesses the diversity and frequency of pollinating insects/avifauna.
- **Hive Tech**: IoT system that, when applied to a beehive, analyzes the health status of the bee colony and, indirectly, assesses the surrounding environmental conditions.
- **PollyX**: wild pollinator shelter equipped with IoT sensors to monitor air quality.
- **Birdy**: acoustic sensor designed to recognize bird species through their vocalizations.
- **Camera Traps**: motion-activated devices that capture passing animals.
- **eDNA**: lab analysis of samples of environmental DNA taken from soils or water.
- **Biodiversa**: our app for citizen-powered biodiversity data collection.

Gardaland

Assessment

At XNatura, we're supporting Gardaland in developing a long-term biodiversity strategy. Using remote sensing and ecological mapping, we're assessing the park's natural assets tracking biodiversity, identifying heat islands and guiding regeneration efforts. Our goal is to design ecological corridors, promote nature-based solutions, and help align the park's actions with CSRD requirements, all while enhancing its environmental and educational value.

"We chose XNatura to conduct an assessment of the park using remote sensing technologies, with the goal of developing a strategy to enhance and promote biodiversity. This includes creating ecological corridors, implementing mowing management practices that respect pollinator blooms, installing green roofs, introducing perennial herbaceous plants instead of annual flowers and meadows, and adopting forms of controlled 'abandonment' to allow natural evolution."

Andrea Giacomello
Head of Environment,
Sustainability and
Landscape



XNatura is an integrated **nature-tech environmental platform** designed to define and implement a **comprehensive strategy** for biodiversity, nature, and climate. By leveraging satellite imagery, bioacoustic sensors, and eDNA analysis, we help businesses understand their **impact** and **dependencies** on nature, fully compliant with **ESRS** standards and major international frameworks (**TNFD**, **SBTN**). Using **MSA** (Mean Species Abundance) and other Key Performance Indicators, we guide companies, natural parks, and municipalities in improving their nature performance.

MEET OUR TEAM



Simone Mazzola
Chief Growth Officer



Virginia Castellucci
Head of Sustainability



Riccardo Balzaretto
Head of Science



Silvia Moser
Nature Strategist

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