



New European Bauhaus
Winner

Changemakers
Finalist

Renewables
Grid Initiative

Nature Restoration
Good Practice



Technology Catalog
Portfolio



MycoNest

Let Nature nestle in!



Challenge

According to WWF's 2022 *Living Planet Report*, monitored wildlife populations have declined by **73% on average** since 1970, an alarming signal of ecosystem collapse. In biodiversity-rich regions like Latin America, the drop is even more dramatic. The leading causes include land-use change, habitat loss, pollution, and climate disruption—forces that continue to accelerate as infrastructure and energy networks expand globally. These trends threaten not only ecosystems but also food security, climate resilience, and long-term human wellbeing.

Ironically, the same infrastructure driving ecological degradation may also offer one of the most **underutilized opportunities for nature restoration**. **Solar parks**, grid corridors, roadsides, and urban peripheries now span millions of hectares, yet most are **ecologically sterile**—covered in gravel, fenced-off, or routinely mown for maintenance. They serve a **single-use function** (e.g. energy generation or logistics) and are rarely integrated into conservation or land stewardship strategies.

Meanwhile, conventional greening interventions—such as artificial nest boxes or long-term habitat installations—often prove **incompatible** with these sites. They require **frequent maintenance**, may become **ecological traps**, and rarely offer scalable, seasonal solutions.

How might we reverse biodiversity collapse by reimagining infrastructure as a driver of ecological regeneration?

The challenge lies in designing tools that are **modular, measurable, maintenance-free**, and adaptable to the realities of industrial and post-industrial landscapes—transforming ecological dead zones into hubs of biodiversity, soil recovery, and climate resilience.





Shifting backdrop

17 July 2024

Implementing minimum nature conservation criteria for solar parks in practice

A guideline from the Federal Ministry of Economics and Climate Protection (BMWK) on implementing the minimum nature conservation criteria in...

EU moves to include biodiversity among criteria for renewable energy auctions

Published 17:17 on April 14, 2025 / Last updated at 17:17 on April 14, 2025 / Sergio Colombo / CO2 Management (CCUS), EMEA (Europe), Nature & Biodiversity, Net Zero Transition (Power/Electrification, Transport & Heating Fuels)

Nature & Biodiversity Pulse 

EU member states have agreed to include biodiversity protection among the criteria that should be considered in renewable energy auctions under the bloc's Net Zero Industry Act (NZIA).

An EU Biodiversity Market by 2027? The new EU's Roadmap towards Nature Credits

By Bart Van Vooren, Yuliya Gevrenova & Zoé Bertrand on July 8, 2025

Nature Credits Roadmap to reward nature-positive action and boost private finance

Brussels, 7 July 2025

Today, the European Commission launched a '[Roadmap towards Nature Credits](#)', to incentivise private investments into actions that protect and preserve nature, and reward those who undertake these actions and invest in them.



Solution

MycoNest is a regenerative habitat system made from **modular, biodegradable forms** using mycelium-bound agricultural waste like hemp hurd and biochar. It includes a nature-based tool designed for overlooked infrastructure landscapes:

- **MycoNest habitat units** provide lightweight, seasonal shelters for birds, insects, and small animals. These mimic natural cavities and **biodegrade in place** after use, enriching soil with organic matter, fungal biomass, native wildflower seeds, and optionally **biochar** for long-term carbon sequestration.

Optimized for **infrastructure-scale deployment**, MycoNest offers a **plug-and-play, compliance-ready solution**:

- Maintenance-free, ideal for remote or scattered sites
- **Designed for at least one breeding season**, then decomposes naturally
- **Installed by routine staff** without tools or training
- **Single-trip logistics**, each unit weighs only 300g

A **mobile app** is under development to scan QR codes, upload habitat photos, and track usage—enabling **biodiversity monitoring, impact reporting**, and ESG integration.

MycoNest transforms industrial zones into living systems—delivering scalable restoration where nature is often absent.





Differentiation

Maintenance-free

Plug-and-play

On-site disposal



upcycled bio-waste



mycelium-bound



carbon neutral

Solution: MycoNest forms



adaptive design



lightweight



woodless



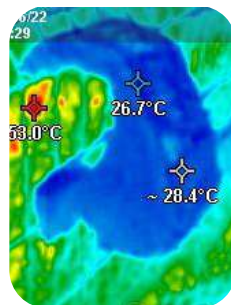
insulating



fire-retardant



water repellent



Context

The project is led by [Alex Toth](#) (Hungary), a nature enthusiast with an academic background in **International Political Economy (MSc, NTU Singapore)**, focusing on **circular economy** and **biomimicry**. MycoNest was inspired by Alex's first-hand exposure to the **visible ecological potential of solar parks** in his hometown, his introduction to **mycelium-based design** through Prof. Le Ferrand at NTU Singapore, and his experience working on **nature credit pilots** during a traineeship at the European Commission — aiming to spark a “quiet revolution” in a legacy market: the artificial habitat niche.

MycoNest has received early-stage backing through several prestigious recognitions:

- **Finalist** – IUCN World Conservation Congress *Changemakers Programme 2025* (15 selected out of 1500+ global applicants)
- **Winner** – *EIT Jumpstarter* in the **New European Bauhaus Cohort 2025**, supporting circular bioeconomy startups
- Selected as a **2025 Good Practice** by the *Renewables Grid Initiative* (RGI) in the Nature Conservation & Restoration category
- **Affiliated** – *FAB at TUM Venture Labs* (Munich), part of **Europe's #1 start-up hub** (Financial Times 2025 ranking)

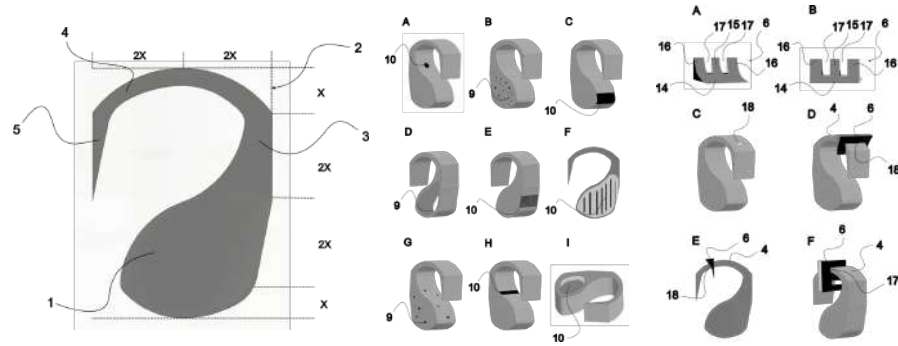
MycoNest is protected by **European patent** (EP 25163874.8) and **design registrations** in the **EU, USA, UK, China, and Switzerland**.

In 2026, the forms will be scaled up to at least **1000 units** across **11 countries** from Colombia to Australia through **19 pilots**. The forms were designed for **universal deployment**: adaptable to most common infrastructure types including pillar structures, 2D/3D industrial fences, and even tree branches.

MycoNest proposes a new ecological logic for infrastructure — what we call “**Quadrivoltaics**”: the integrated delivery of **energy production, biodiversity restoration, soil regeneration, and carbon sequestration** in one scalable, nature-based solution.



Funded by the European Union



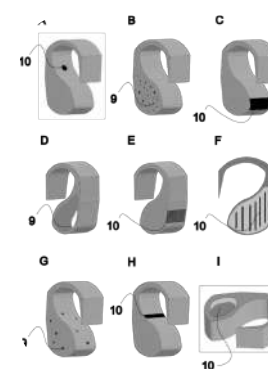
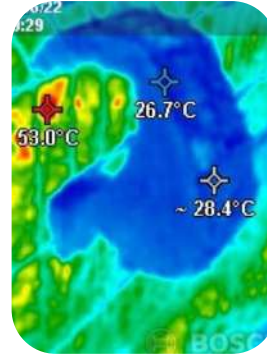
Competitive advantage

Patent (EP 25163874.8)

- soil-enriching biodegradable base
- dynamic outsourcing possibilities
- **lightweight** and flexible structure
- unique additives such as **biochar** or **seeds**
- creating '**quadrivoltaics**':
 - besides energy production,
 - biodiversity enhancement for nature credits,
 - agrivoltaic potential by increased soil fertility, carbon sinking capacity via biochar

Design registration (EUIPO 015100183)

- practical form for **simple installation**
- customizable for different species
- functional for future **monitoring** by apps
- logistically efficient design



Potential deployments..



... later in other green/grey infrastructure?





Confirmed pilots
2026



19 pilots



11 countries

1000 units





MycoNest

Turning Infrastructure *into Habitat.*
No Excuses left not to be *Nature-Positive.*



 myconest.earth



*“Reaching all
overlooked spaces
to restore Nature”*

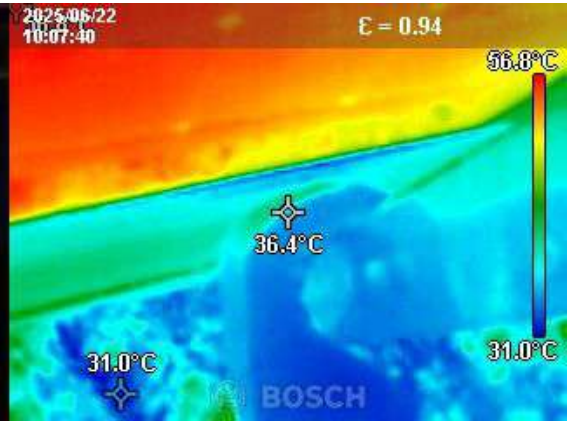
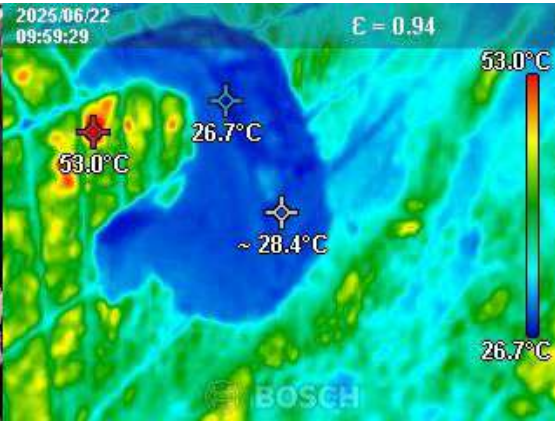


Illustrations



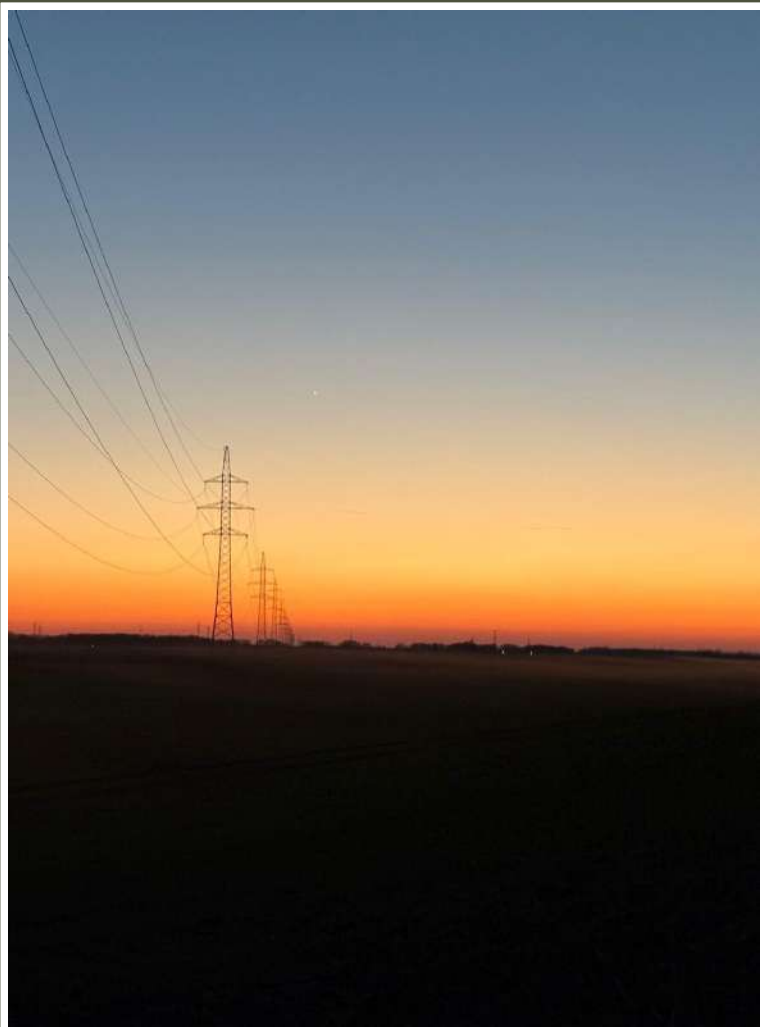




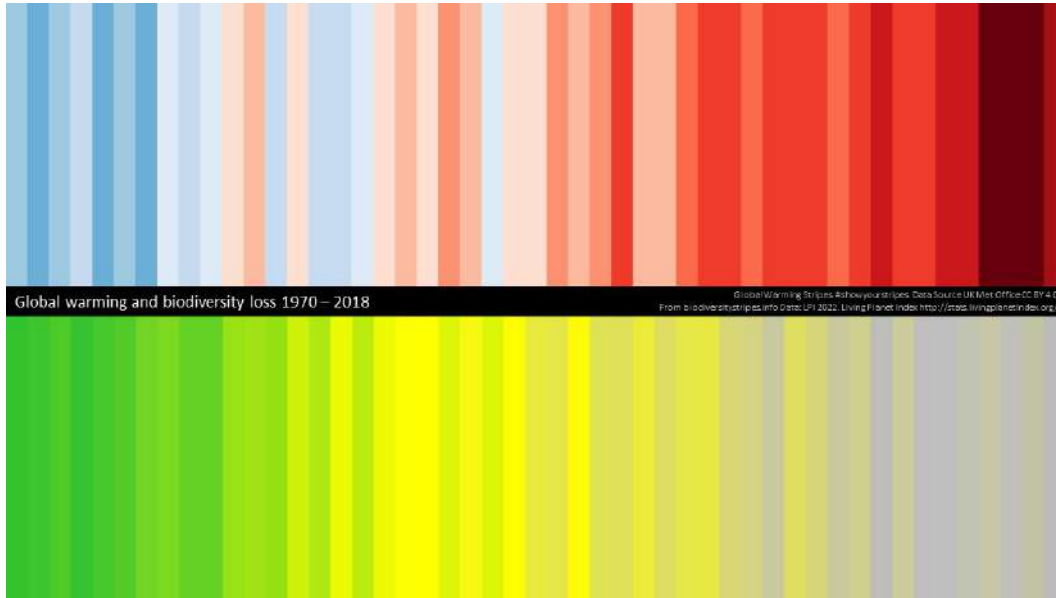






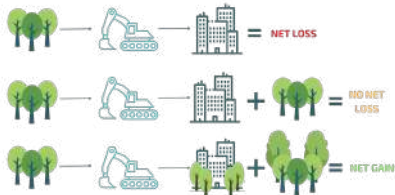


Background



“Glocal” solutions wanted

- the triple planetary crisis—climate change, pollution emissions, and biodiversity decline—requires urgent solutions
- improving biodiversity aligns with corporate ESG strategies, integrating sustainability and environmental responsibility
- the UK's Biodiversity Net Gain scheme mandates biodiversity enhancements in development projects, inspiring the EU to introduce biodiversity credits soon
- biodiversity credits could incentivize companies to achieve conservation goals and realize financial benefits at the same time



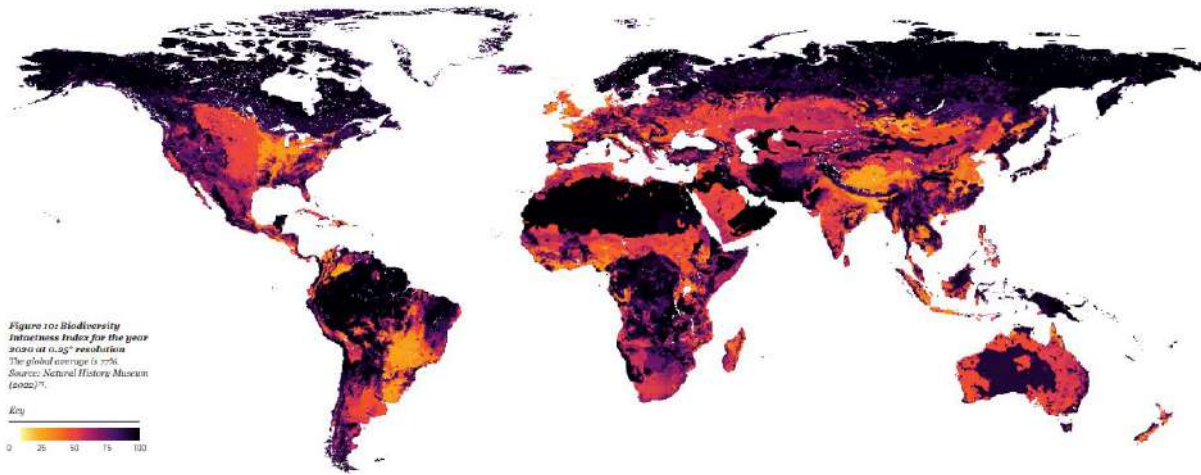
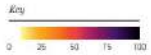
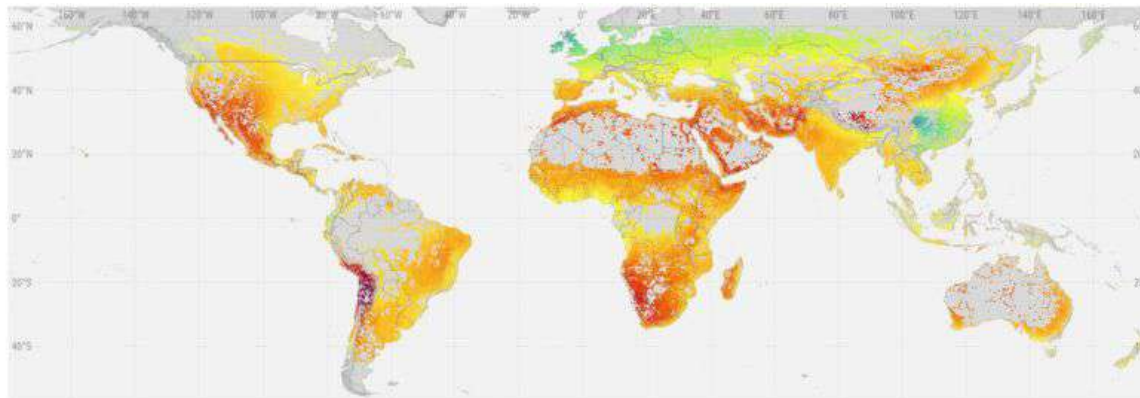


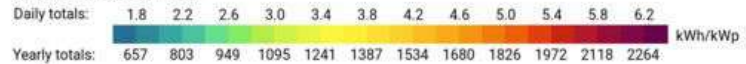
Figure 10: Biodiversity Intactness Index for the year 2020 at 0.25° resolution. The global average is 77%. Source: Natural History Museum (2022)⁷.



Biodiversity Intactness Index (2020)
(WWF - Natural History Museum, UK)



Long-term average of PVOUT



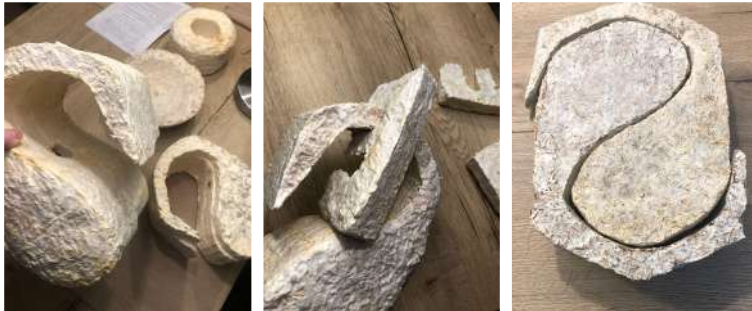
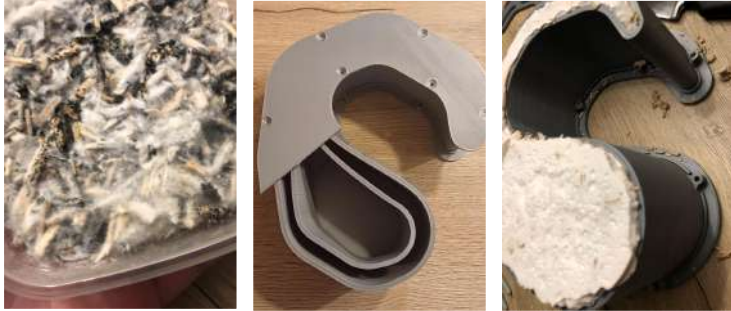
Excluded zones

Practical photovoltaic power potential (PVOUT):
Long-term yearly average of daily and yearly totals (Global Solar Atlas)



Potential wildlife havens?

- large-scale solar parks offer renewable energy potential and could support nature's regeneration
- over 30-35 years of operation, solar parks remain undisturbed, enabling the gradual return of flora, fauna, and fungi
- accelerating natural restoration can complement climate change mitigation with local ecosystem recovery
- biodiversity hotspots in solar parks can positively impact surrounding agricultural areas by boosting pollinator populations and birdlife, which also aids in pest control



Circularity with biomaterials

- made from renewable bio-based residues
- mainly straw, hems or chop
- fully biodegradable
- decomposing within a year
- could be sourced locally
- with easy on-site disposal



Biodiversity regeneration

- enriches soil with mycelium nutrients, enhancing local flora
- embedded native flower seed capsules to support grassland rehabilitation
- provides habitats for birds, avian and terrestrial insects, ground-dwelling mammals and possibly bats, contributing to local ecosystem services
- *large and relatively undisturbed solar parks could serve as **biodiversity hubs** for surrounding areas, supporting both conservation goals for future biodiversity credits and agricultural production*

