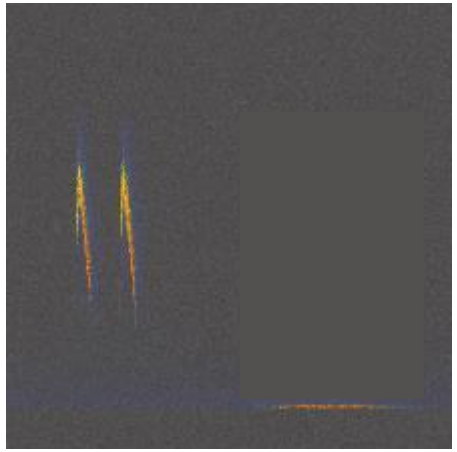
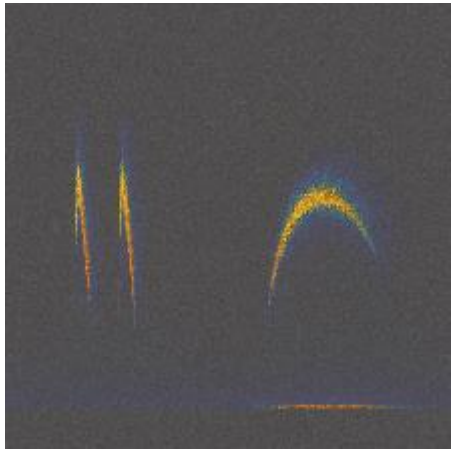
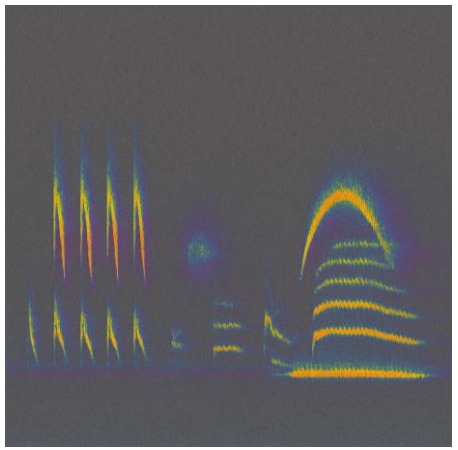
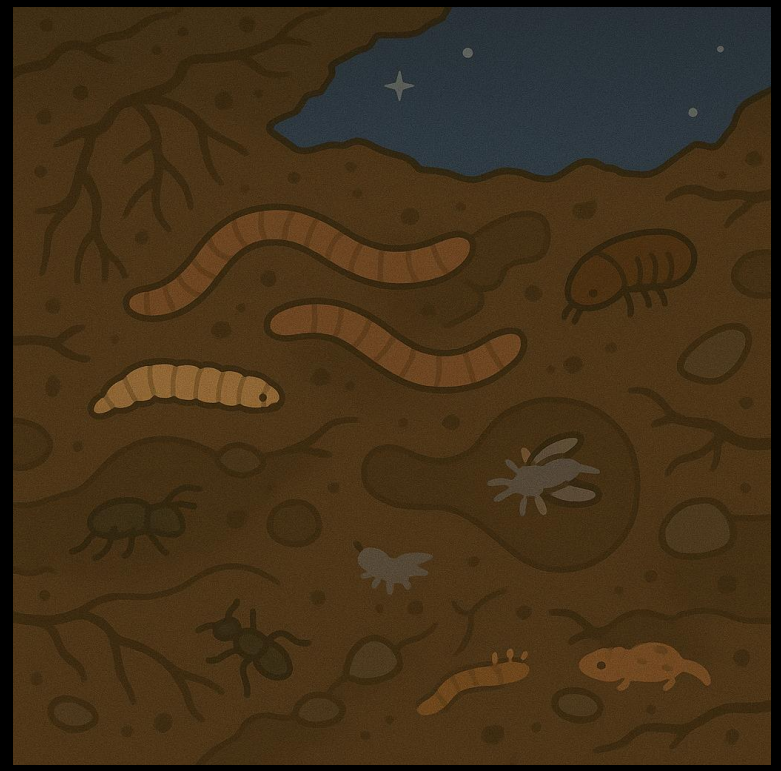
Rainforest Sounds

Baseline Biodiversity Monitoring and Change Detection

Soundscapes as proxies for species richness and ecosystem health


Nocturnal and Subterranean Soundscapes



Community Identity as a proxy for condition and resources

Habitat Generalists

- Low structural complexity
- Open spaces and High Light Availability
- Unstable Microclimate
- Edge Habitat
- Bare Soil and low Leaf Litter
- Seasonal and Opportunistic Food Sources

Woodland Specialists

- Structural complexity
- Moisture
- Microclimate stability
- Diverse year-round food resources
- Habitat continuity and connectivity

What is Wilder Sensing?

Wilder Sensing are a Software as a Service.
We process bioacoustic recordings with Machine Learning Artificial Intelligence.

What does that mean?

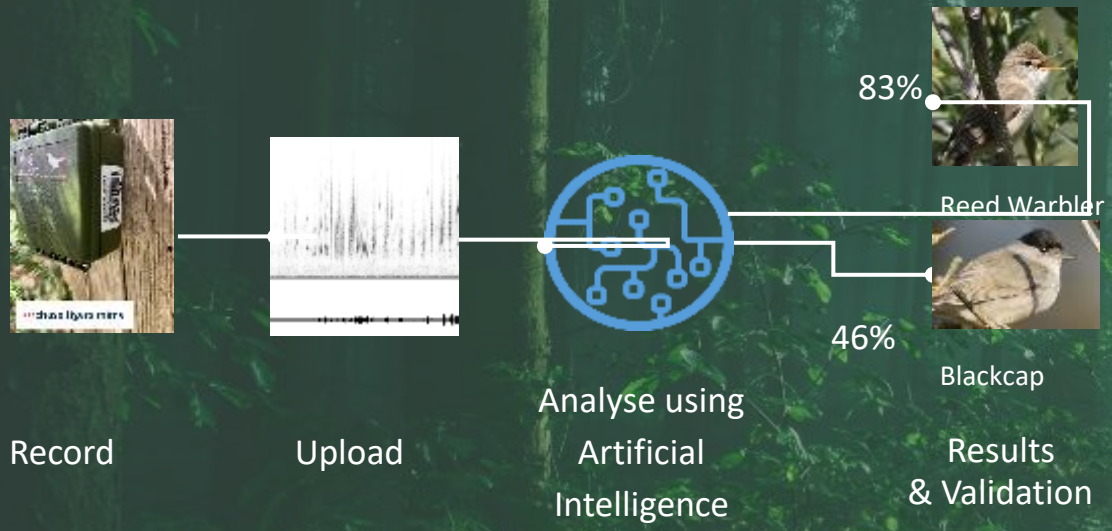
We take sound recordings and run them through a Deep Neural Network (DNN), think of it like a very large flow chart, and identify the species heard calling.

At the moment we identify Birds, to species level.

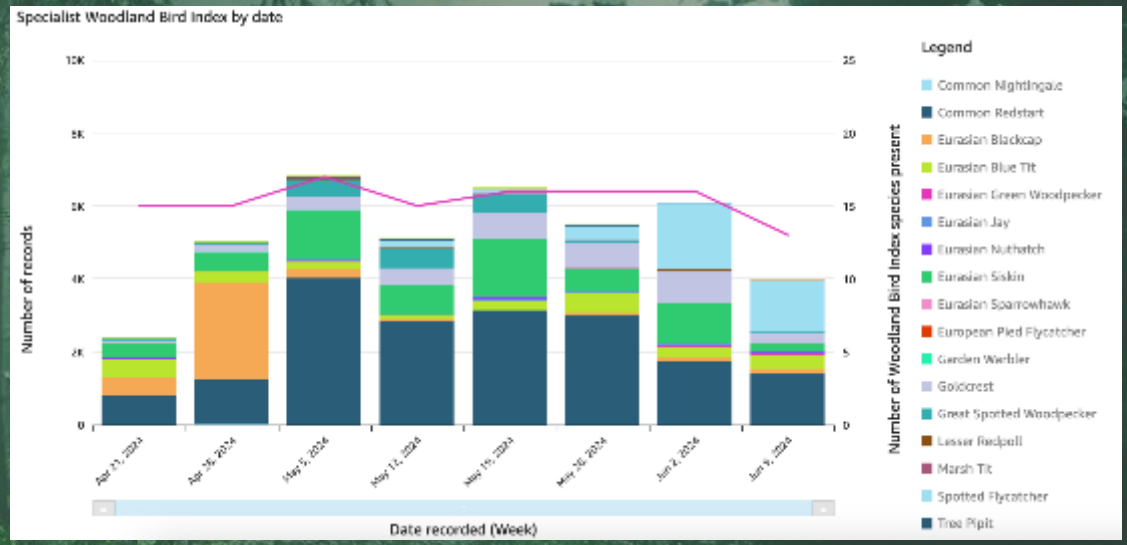
wilder sensing

Machine Learning and Indicators

Machine Learning:
Wilder Sensing - AI Machine Learning Bioacoustic Bird Identification



Indicator:
Temperate Rainforest Index



Identified Species

Temperate Rainforest Bird Index

Why This Research Matters

Current rainforest restoration monitoring focuses mostly on **visible, above-ground changes** like tree cover, but **misses hidden biodiversity** in the soil and wider ecosystem.

We are addressing this gap by developing a **non-invasive, scalable sound-based monitoring system** that captures both **above- and below-ground life**—providing a **more complete picture of ecosystem health**.

This gives land managers a **powerful new tool** to track restoration success, identify threats early, and make evidence-based decisions.

Study Sites

- Pembrokeshire – Early-stage restoration
- Gwynedd – Mid-stage restoration
- Powys – Advanced restoration
- Cardiff – Mature ancient woodland

Key Project Partners

What We Will Deliver

- A bioacoustic monitoring framework for tracking rainforest restoration progress.
- Biodiversity and soundscape indices that land managers can use to assess ecosystem health.
- New insights into both above- and below-ground biodiversity across restoration stages.
- Recommendations for scalable, non-invasive monitoring methods.
- Community engagement reports highlighting public involvement and learning.
- Practical guides and policy briefings for Wildlife Trusts and other conservation bodies.
- Academic publications and conference presentations to share findings widely.