INTERNATIONAL UNION
OF RAILWAYS

TRACKS OF HARMONY
NATURE & RAIL

SUSTAINABLE LAND USE DAY

UIC SUSTAINABILITY ACTION WEEK

13 March 2025

Welcome & Introduction

Thomas Schuh

Sustainability
Coordinator

ÖBB Infrastruktur AG

UIC Sustainable Land Use
Sector Chair

SUSTAINABILITY
Action Week

UIC Sustainable Land Use Sector Team

Pinar Yilmazer
UIC
Head of Sustainability Programme

Lorenzo Franzoni
UIC
Sustainability Advisor

Thomas Schuh
OBB Infrastruktur AG
UIC Sustainable Land Use Sector Chair

Neil Strong
Network Rail
UIC Sustainable Land Use Sector Co-Chair

World Cafés Moderator

Marjolein Evers
ProRail
LIFE NATURE-RAIL Project Coordinator

Andreas Seiler
Swedish University of Agricultural Sciences
Infrastructure and Ecology Network Europe Scientific & Expert Committee Chair
Safer Railways for Wildlife Working Group Chair

Monja Korter
International Organization for Standardization
Technical Program Manager TC 331 Biodiversity
TC 207 Environmental Management

Marek Gális
Raptor Protection of Slovakia
LIFE Danube Free Sky Project Scientific Coordinator

Speakers

Financing Nature Restoration: Opportunities for Railways

Christopher Harris
European Bank for Reconstruction and Development

Bertrand Goalou
Asian Development Bank

Integrating Ecosystem Services: From Urban Landscapes to Transport Networks

Michael Image
AtkinsRéalis

Marie-Claire Jalaguier
AtkinsRéalis

Pia Orthén
Jernhusen

Mainstreaming Biodiversity in Multimodal Infrastructure

Lorenzo Franzoni
UIC SYMBIOSIS Project

Elke Hahn
Austrian Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology

UIC Members' Environmental Challenges: Planning, Monitoring and Reporting

Simeon Eichelmann
Rhätische Bahn

Iveta Jēgere
RB Rail AS

8:30 – 9:00	**Welcome desk & networking coffee**
9:00 – 9:15	**Introduction and welcome remarks, Thomas Schuh, ÖBB** *Forging New Alliances: UIC's new collaborations, Pınar Yılmazer, UIC*
9:15 – 12:00	**World Café | Discussion Moderated by Neil Strong, Network Rail**

Topic	Moderator
Innovative Approaches to Vegetation Management	**Marjolein Evers,** ProRail, LIFE NATURE-RAIL Project
Enhancing Landscape and Reducing Wildlife Collisions	**Andreas Seiler,** Swedish University of Agricultural Sciences (SLU) IENE Safer Railways for Wildlife Working Group
Advancing Biodiversity Standardisation	**Monja Korter**, International Organization for Standardization (ISO)
Tackling powerline-related bird mortality: Effective Solutions	**Marek Gális**, Raptor Protection of Slovakia, LIFE DANUBE FREE SKY Project

12:00 - 13:00	**Lunch Break**
13:00- 13:45	**World Café Wrap up Presentations by Moderators** **UIC Sustainable Land Use Sector as Permanent UIC Activity: Way Forward from 2026**
13:45 – 14:30	**Financing Nature Restoration: Opportunities for Railways** • *Christopher Harris, European Bank for Reconstruction and Development (EBRD)* • *Bertrand Goalou, Asia Development Bank (ADB)* *Questions and Answers*
14:30 - 15:15	**Integrating Ecosystem Services: From Urban Landscapes to Transport Networks** • *Pia Orthén, Jernhusen* • *Michael Image and Marie-Claire Jalaguier AtkinsRéalis – Ecosystem Valuation for Railways (ECOV4R) Project* *Questions and Answers*
15:15 - 15:30	**Coffee Break**
15:30 - 16:15	**Mainstreaming Biodiversity in Multimodal Infrastructure** • *Lorenzo Franzoni, UIC, SYMBIOSIS Project* • *Elke Hahn, Austrian Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology* *Questions and Answers*
16:15 – 17:00	**UIC Members' Environmental Challenges: Planning, Monitoring and Reporting** • *Simeon Eichelmann, Rhätische Bahn* • *Iveta Jēgere, RB Rail AS* *Questions and Answers*
17:00-17:15	**Closing remarks, Neil Strong, Network Rail**

UIC Sustainability

Objectives

ADVOCATE

To build collaborative partnerships and be the voice of the global railway community to advocate for a multimodal vision of sustainable mobility with rail as the backbone

CONVENE

To provide a trusted platform for the railway sustainability community to connect

SOLVE

To provide practical solutions for sustainability challenges for a future railway

Sustainable Railways & Biodiversity 🌿

Memorandum of Understanding between IENE & UIC

Advance environmentally-friendly and resilient railways!

How We Work Together:

🔄 Active dialogue | 📑 Policy recommendations | 🌍 Global initiatives

🏞️ Joint projects | 📊 Annual reviews | 🎓 Training programs

INTERNATIONAL UNION OF RAILWAYS

IENE
Infrastructure & Ecology Network Europe

Scope

✅ Integrate biodiversity into infrastructure & operations

- Access to experts & learning from best practices
- Prioritise biodiversity & NbS for resilience

🔬 **Joint Research** – Science-driven solutions

🔗 **Data & Knowledge Sharing** – Collaborate for progress

📖 **Common Language** – IENE Glossary & Handbook

Strengthening Rail & Biodiversity 🌿

Category A Liaison

Timeline:

- 2017: Agreement signed in Istanbul for ISO/TC 269
- 2020: Standardisation in Biodiversity established → ISO TC331
- 2025: ISO TC 331 & UIC Sustainable Land Use

INTERNATIONAL UNION OF RAILWAYS

🎯 Key Benefits

- Stronger representation in global standards
- Access to sector-specific expertise
- Knowledge exchange & collaborate to develop sector-specific KPIs
- Stronger leadership in biodiversity conservation

🚀 Roadmap

- Short-Term: Share UIC frameworks & integrate EU-projects' insights
- Medium-Term: Collaboratively develop harmonised standards
- Long-Term: Enable global adoption of biodiversity KPIs in transport (training and workshops, COP activities)

UIC Sustainable Land Use Sector

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UIC
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UIC
Sustainability Advisor

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UIC Sustainable Land Use Sector Chair

Neil Strong
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World Cafes Structure & Timing

The 4 World Cafes Table will run in parallel

Timing	Activity
9:15 – 9:45	World Café Round I
9:45 – 9:55	Coffee Break
9:55 – 10:25	World Café Round II
10:25 – 10:35	Coffee Break
10:35 – 11:05	World Café Round III
11:05 – 11:15	Coffee Break
11:15 – 11: 45	World Café Round IV
11:45-12:00	Recap Visual Designers & Sponsors Announcement

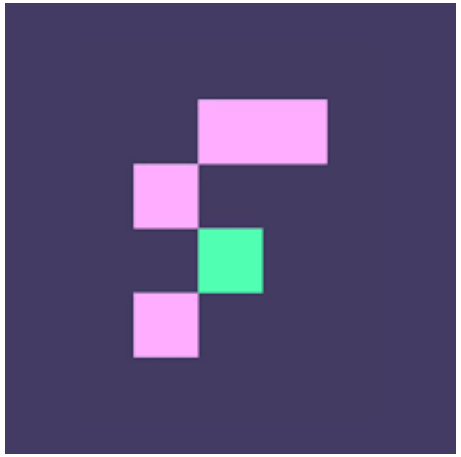
Moderators & Topics

Marjolein Evers, ProRail
Innovative Approaches to Vegetation Management

Andreas Seiler, SLU, IENE
Enhancing Landscapes, and Reducing Wildlife Collisions

Monja Korter, ISO
Advancing Biodiversity Standardisation

Marek Galis, RPS
Tackling powerline-related bird mortality: Effective Solutions



Let's
bring change
together

Visual Designers for better dissemination

NEEL®

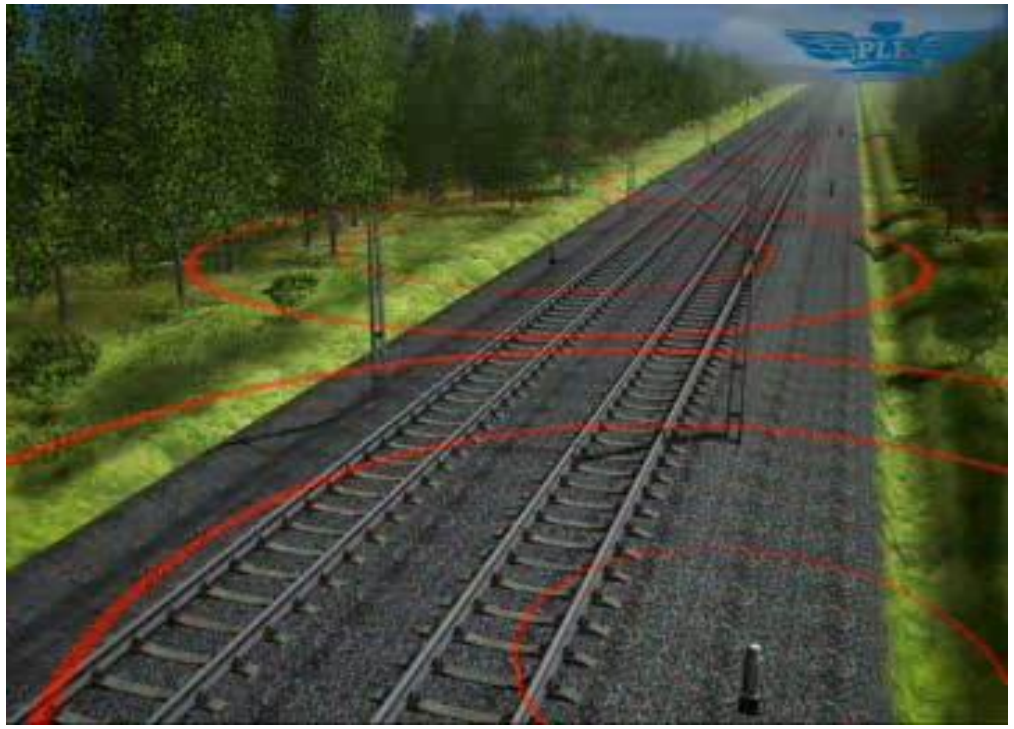
ANIMAL DETERRING DEVICE UOZ-1

DESIGNED FOR HIGH-SPEED RAILWAY LINES

The UOZ device

- **Result of cooperation of railway specialists and animal psycologist.**
- **Based on self-preservation instinct**
- **It uses natural sounds of animals**

Principle of operation



- Directly before a train is passing the UOZ-1 device emits the deterring sequence.
- Between passages of subsequent trains the devices remain silent.
- No barrier effect – animals are free to cross the tracks when no train is passing

Evaluation

10-year-long all-day video-monitoring conducted by the Warsaw University of Life Sciences (SGGW) confirmed high effectiveness of the system.

Thank you for your attention

www.neel.com.pl
neel@neel.com.pl


BUILDING RESILIENCE THROUGH BIODIVERSITY NET GAIN
ATKINSRÉALIS

LUNCH TIME

12:00-13:00

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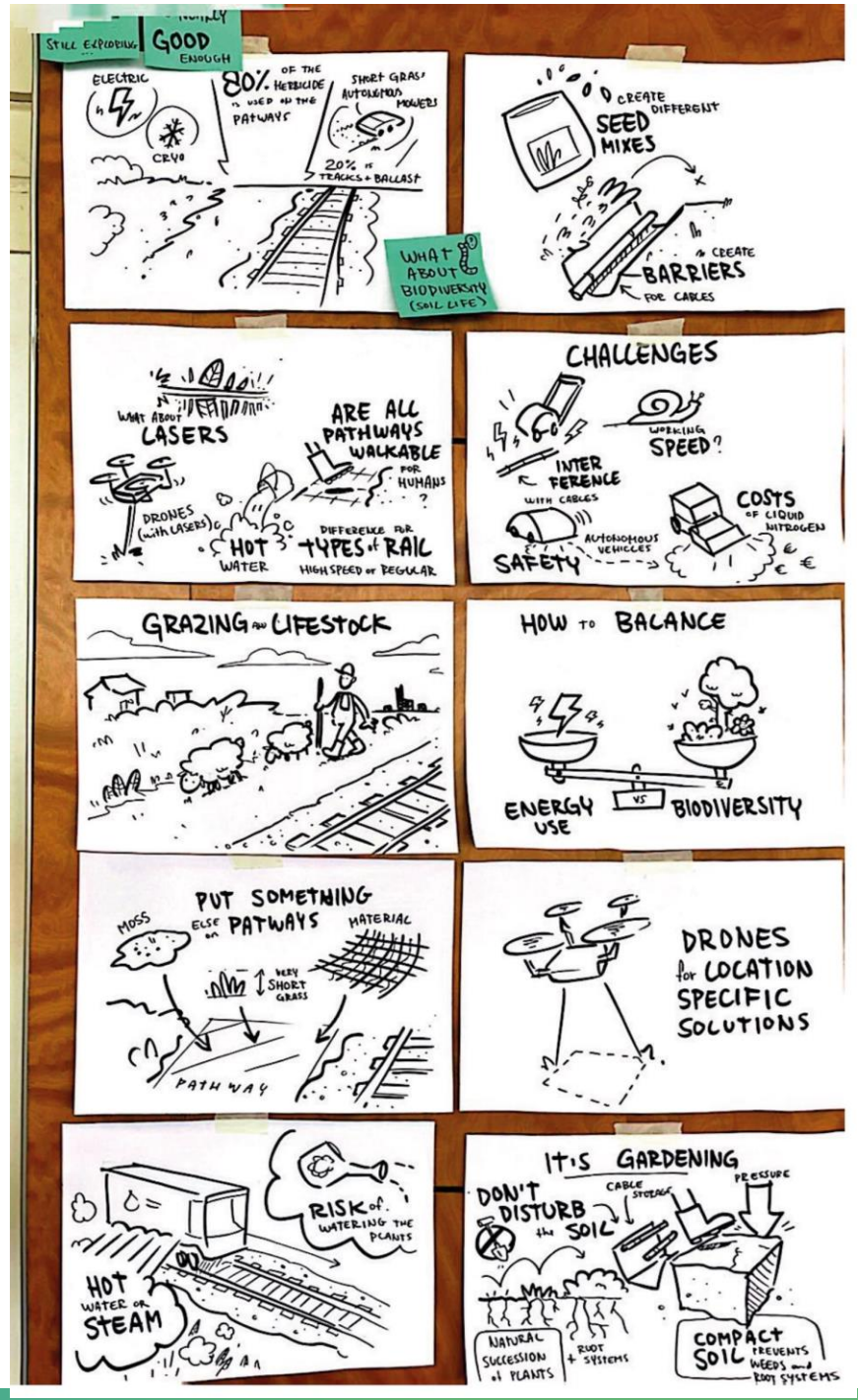
WORLD CAFÉS WRAP UP INNOVATIVE APPROACHES TO VEGETATION MANAGEMENT

- Ideas and thoughts for Nature Rail Project

- Different innovative techniques

- Collaboration in the sector: how to learn from each others

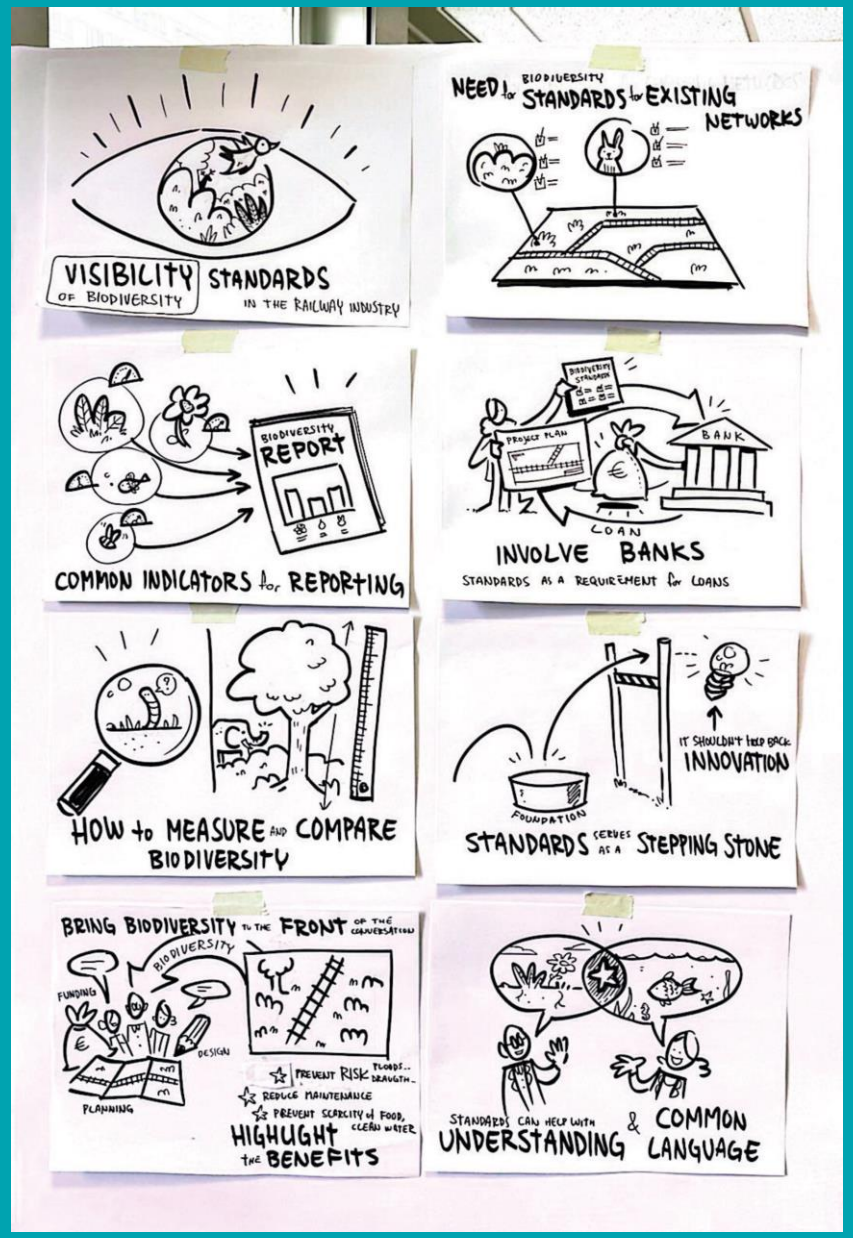
- Long term perspectives and future hopes:
  - Drones and Laser
  - Nature Based Solutions



WORLD CAFÉS WRAP UP
ENHANCING LANDSCAPES & REDUCING WILDLIFE COLLISIONS

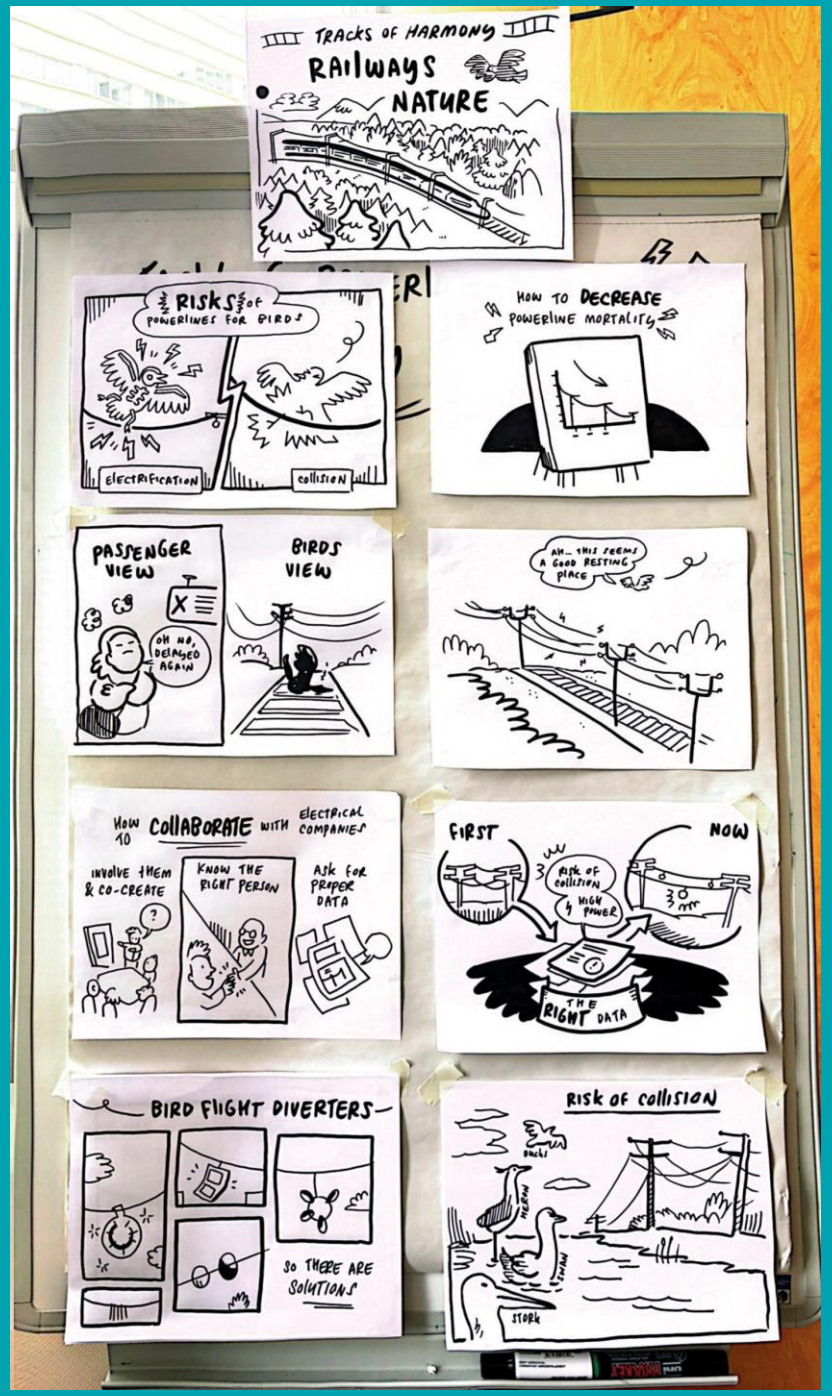
- Landscape integration and Multifunctional Infrastructure
- Permeability of infrastructure
- Co-existence or Separation of wildlife and traffic?

WORLD CAFÉS WRAP UP
ADVANCING BIODIVERSITY STANDARDISATION



WORLD CAFÉS WRAP UP
TACKLING POWERLINE-RELATED MORTALITY:
EFFECTIVE SOLUTIONS

- Systematic al Surveys and Data Collection
- Cross-Sector Cooperation
- Exchange of knowledge



INTERNATIONAL UNION
OF RAILWAYS

SUSTAINABLE LAND USE SECTOR AS PERMANENT ACTIVITY

FROM THE MEMBERS, FOR THE MEMBERS

Sustainable Land Use: A Global Commitment in Action

With ECOV4R ending in 2025, a **permanent** sector ensures **continued progress** in integrating sustainable land use into railway management.

Why Make It Permanent?

- ✅ **Long-Term Strategy & Stability** – Moving beyond short-term projects
- ✅ **Dedicated Workstreams & Expert Groups** – Focused action on key challenges
- ✅ **Stronger Global Engagement** – Expanding collaboration & knowledge-sharing
- ✅ **Targeted Support for UIC Members** – Addressing real operational needs

Proposed Workstreams

- 🌱 Alternative Methods for Vegetation Control & Invasive Species Management
- 🦌 Railway-Wildlife Collisions: Balancing Connectivity & Safe Operations
- 📊 Advancing Biodiversity Data Standardisation
- 🔥 Wildfire Risk Reduction & Mitigation Strategies
- 🌍 Biodiversity & EU Regulations: From Nature Restoration Law to CSRD Reporting
- 🐦 Bird Protection: Effective Solutions and Re-thinking Infrastructures

Shape the Future of Sustainable Railways – Join, Contribute, Lead!

Mentimeter link Click here → https://www.menti.com/alyoycoezde2

Join at menti.com | use code 6792 5093

Financing Nature Restoration: Opportunities for Railways

Christopher Harris

Principal

European Bank for Reconstruction and Development

Environment and Sustainability Department

Bertrand Goalou

Principal Transport Specialist

Asian Development Bank

SUSTAINABILITY Action Week

Financing nature restoration in the rail sector at the EBRD

Christopher Harris

Principal

European Bank for Reconstruction and Development

Environment and Sustainability Department

SUSTAINABILITY Action Week

Financing nature restoration in the rail sector at the EBRD

March 2025

European Bank
for Reconstruction and Development

What we do

European Bank
for Reconstruction and Development

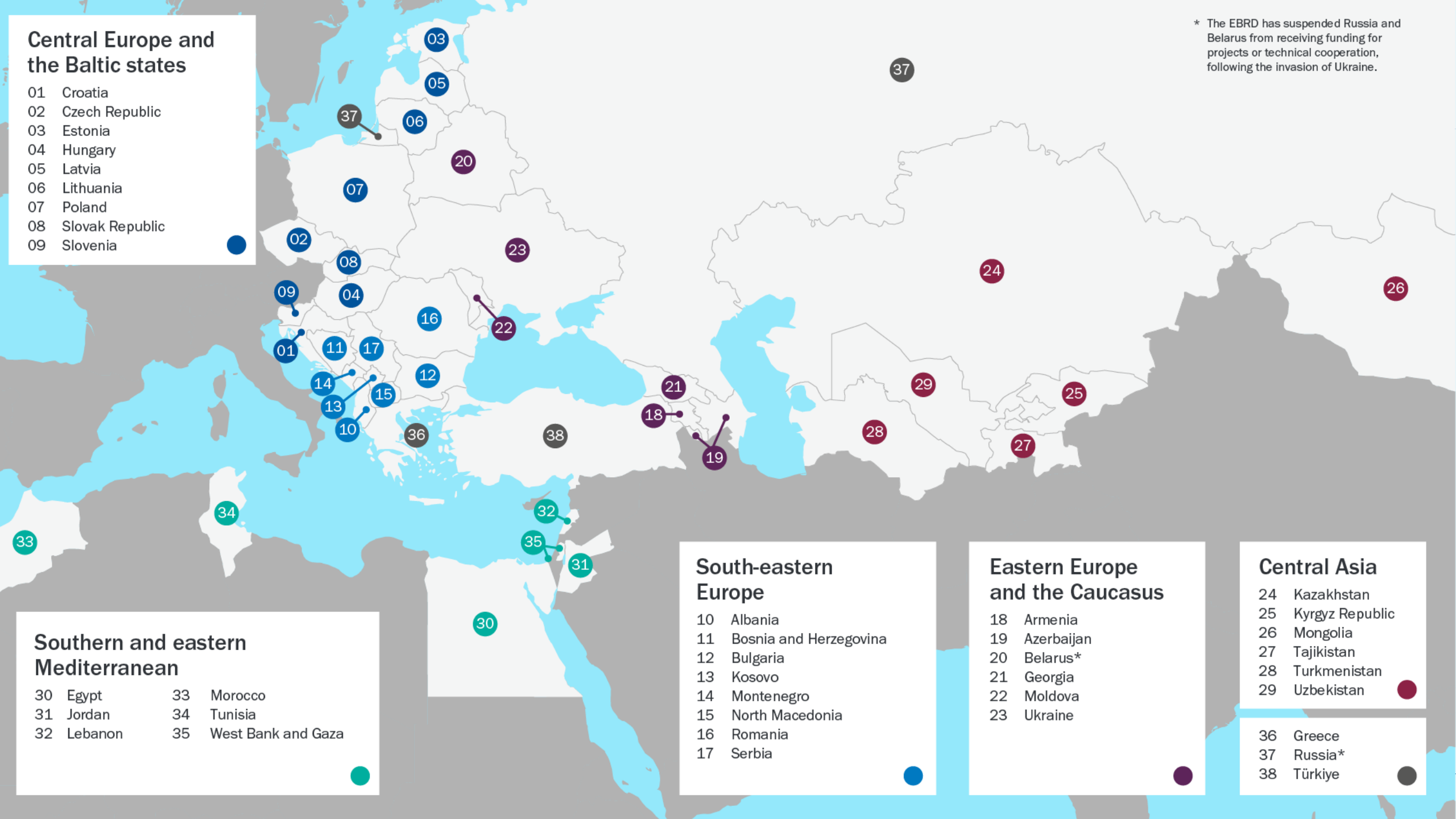
The European Bank for Reconstruction and Development (EBRD) promotes the development of sustainable, private sector-led economies in central and eastern Europe, Central Asia, the southern and eastern Mediterranean (SEMED), and sub-Saharan Africa regions. The Bank helps them to address 21st-century challenges and lends support to improve the lives and environments of citizens across society.

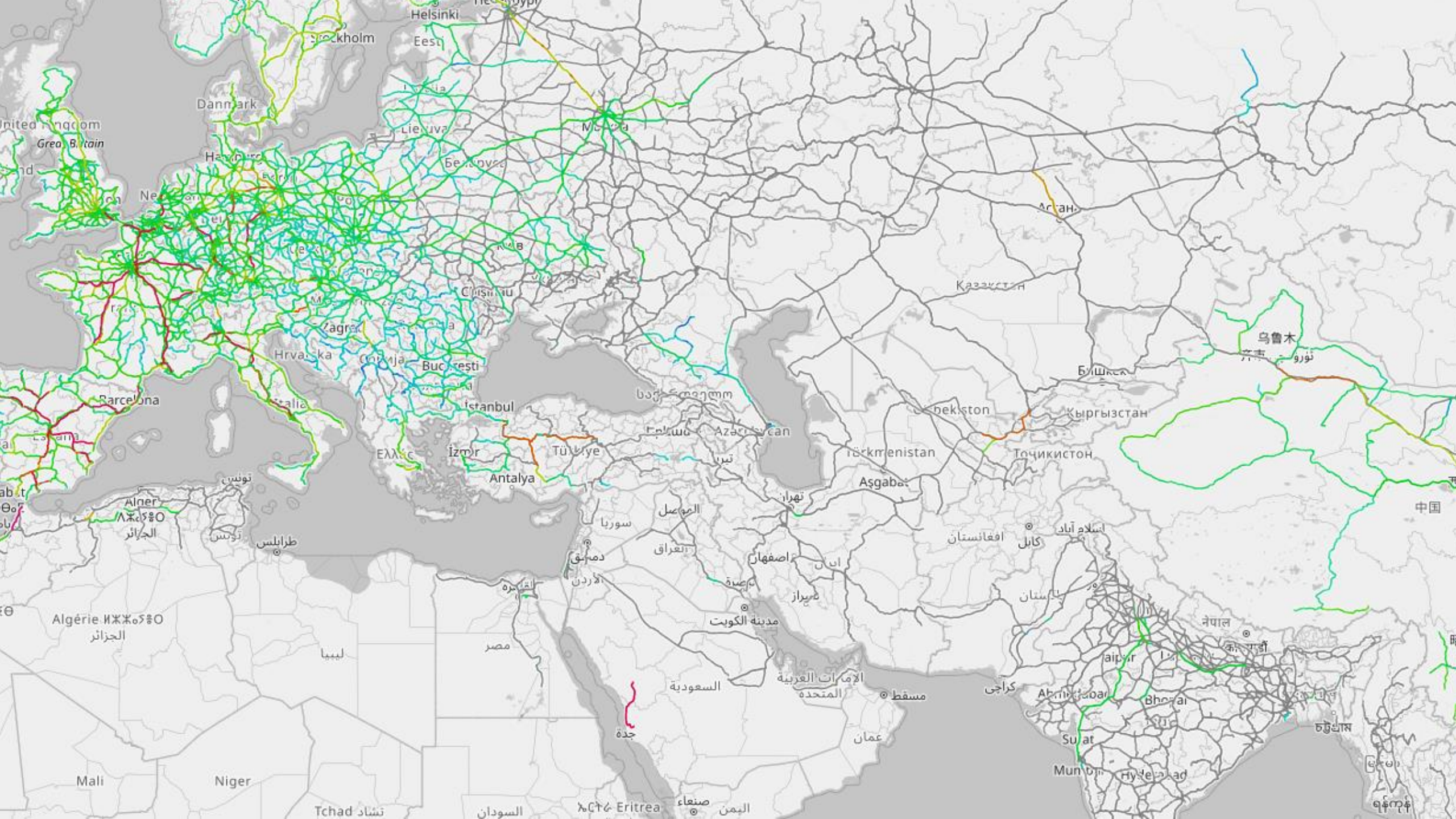
Through investment, policy reform and advisory projects, the Bank works to make economies more competitive, well governed, green, inclusive, resilient and integrated.

These “transition qualities” best equip countries for a prosperous and equitable future for all.

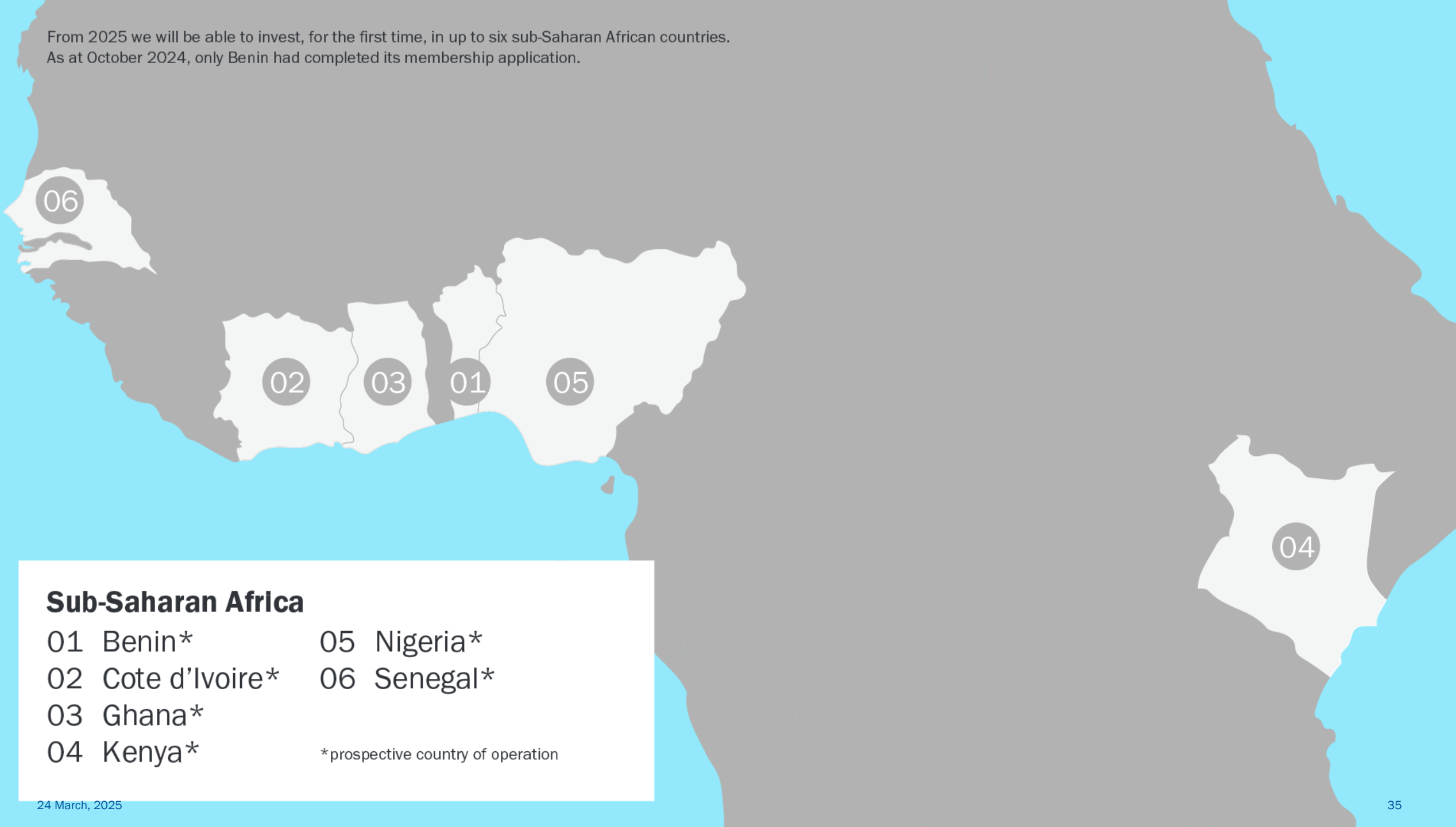
The EBRD continues to be a majority green bank.


القاهرة
Cairo St.


Central Europe and the Baltic states
01 Croatia
02 Czech Republic
03 Estonia
04 Hungary
05 Latvia
06 Lithuania
07 Poland
08 Slovak Republic
09 Slovenia
* The EBRD has suspended Russia and Belarus from receiving funding for projects or technical cooperation, following the invasion of Ukraine.
Southern and eastern Mediterranean
30 Egypt
31 Jordan
32 Lebanon
33 Morocco
34 Tunisia
35 West Bank and Gaza
South-eastern Europe
10 Albania
11 Bosnia and Herzegovina
12 Bulgaria
13 Kosovo
14 Montenegro
15 North Macedonia
16 Romania
17 Serbia
Eastern Europe and the Caucasus
18 Armenia
19 Azerbaijan
20 Belarus*
21 Georgia
22 Moldova
23 Ukraine
Central Asia
24 Kazakhstan
25 Kyrgyz Republic
26 Mongolia
27 Tajikistan
28 Turkmenistan
29 Uzbekistan
36 Greece
37 Russia*
38 Türkiye


Helsinki
Danmark
Barcelona
Antalya
İzmir
Algérie
الجزائر
Mali
Niger
Tchad
Eritrea
Казахстан
Кыргызстан
Тоҷикистон
Türkmenistan
Aşgabat
Azərbaycan
İstanbul
Bucureşti
Zagreb
Hrvatska
Ελλάς
Türkiye
سوريا
العراق
مصر
ليبيا
السعودية
الإمارات العربية المتحدة
عمان
اليمن
السودان
مسقط
مدينة الكويت
جدة
صنعاء
تهران
اصفهار
شيراز
كابل
افغانستان
پاکستان
کراچی
नेपाल
中国
乌鲁木
Ағаң
Бишкек
Tashkent
Surat
Bhopal
Hyderabad
Mumbai
Kolkata
Dhaka
Chennai
Colombo

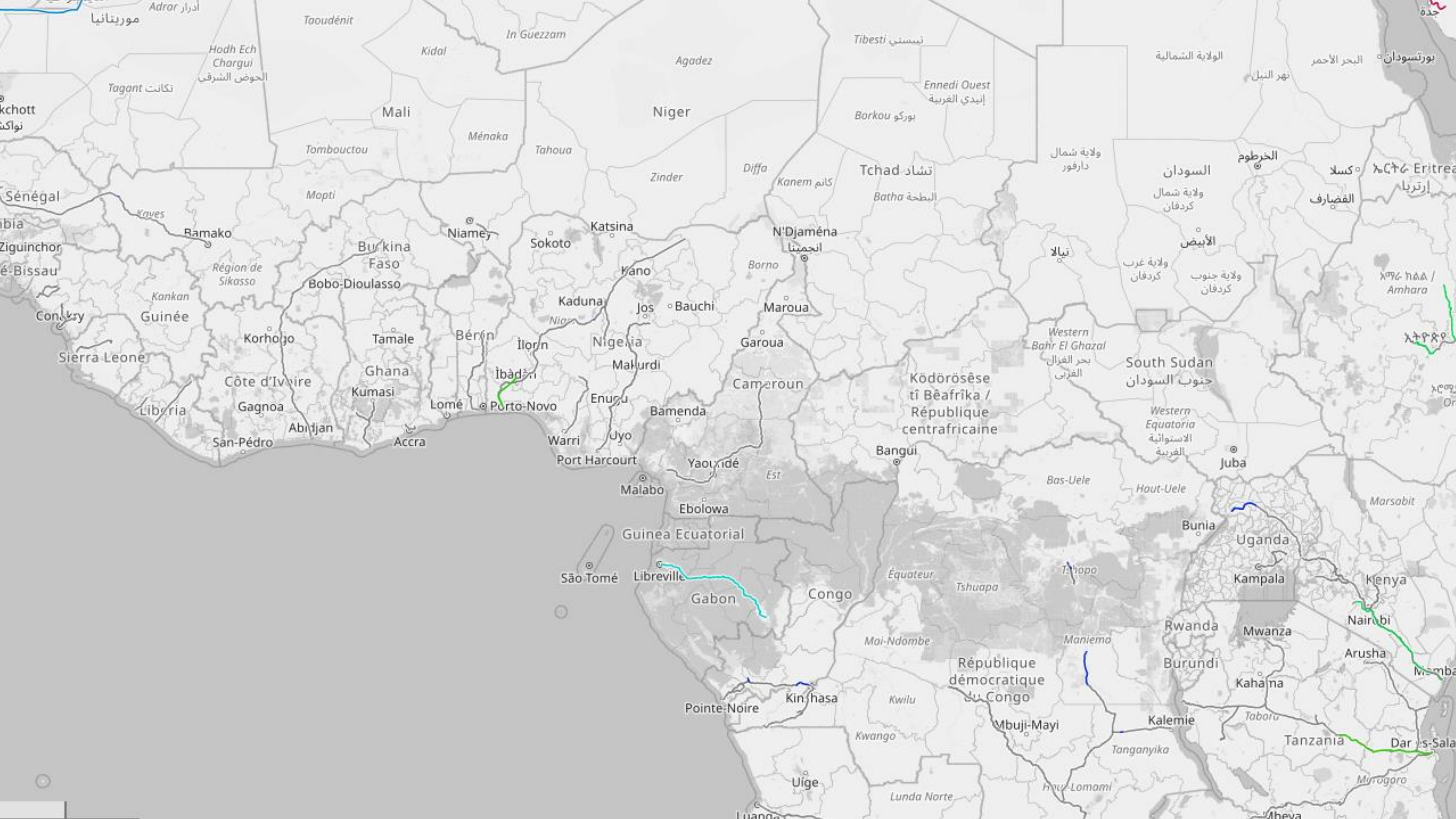
From 2025 we will be able to invest, for the first time, in up to six sub-Saharan African countries. As at October 2024, only Benin had completed its membership application.



Sub-Saharan Africa

01 Benin*
02 Cote d'Ivoire*
03 Ghana*
04 Kenya*
05 Nigeria*
06 Senegal*

*prospective country of operation



Adrar
Taoudénit
In Guezzam
Tibesti
Hodh Ech Chargui
Kidal
Agadez
Ennedi Ouest
Tagant
Borkou
Mali
Niger
Ménaka
Tahoua
Tombouctou
Diffa
Tchad
Zinder
Kanem
Sénégal
Mopti
Batha
Kayes
Bamako
Katsina
N'Djaména
Niamey
Sokoto
Burkina Faso
Borno
Région de Sikasso
Bobo-Dioulasso
Kano
Kaduna
Jos
Bauchi
Maroua
Kankan
Guinée
Korhogo
Tamale
Ilorin
Nigeria
Garoua
Western Bahr El Ghazal
South Sudan
Sierra Leone
Ghana
Makurdi
Cameroun
Côte d'Ivoire
Kumasi
Porto-Novo
Enugu
Bamenda
Gagnoa
Lomé
Abidjan
Accra
Warri
Uyo
San-Pédro
Port Harcourt
Yaoundé
Bangui
Western Equatoria
Juba
Malabo
Est
Bas-Uele
Haut-Uele
Marsabit
Ebolowa
Guinea Ecuatorial
Bunia
Uganda
São Tomé
Libreville
Équateur
Tshuapa
Kampala
Kenya
Gabon
Congo
Nairobi
Rwanda
Mwanza
Mai-Ndombe
Maniema
Burundi
Arusha
République démocratique du Congo
Kahama
Pointe-Noire
Kwilu
Kalemie
Mbuji-Mayi
Tabora
Tanzania
Kwango
Tanganyika
Uíge
Lunda Norte
Haut-Lomami
Morogoro
Amhara
Eritrea

European Bank
for Reconstruction and Development

Compliance

Why does the Environmental and Social Policy matter?

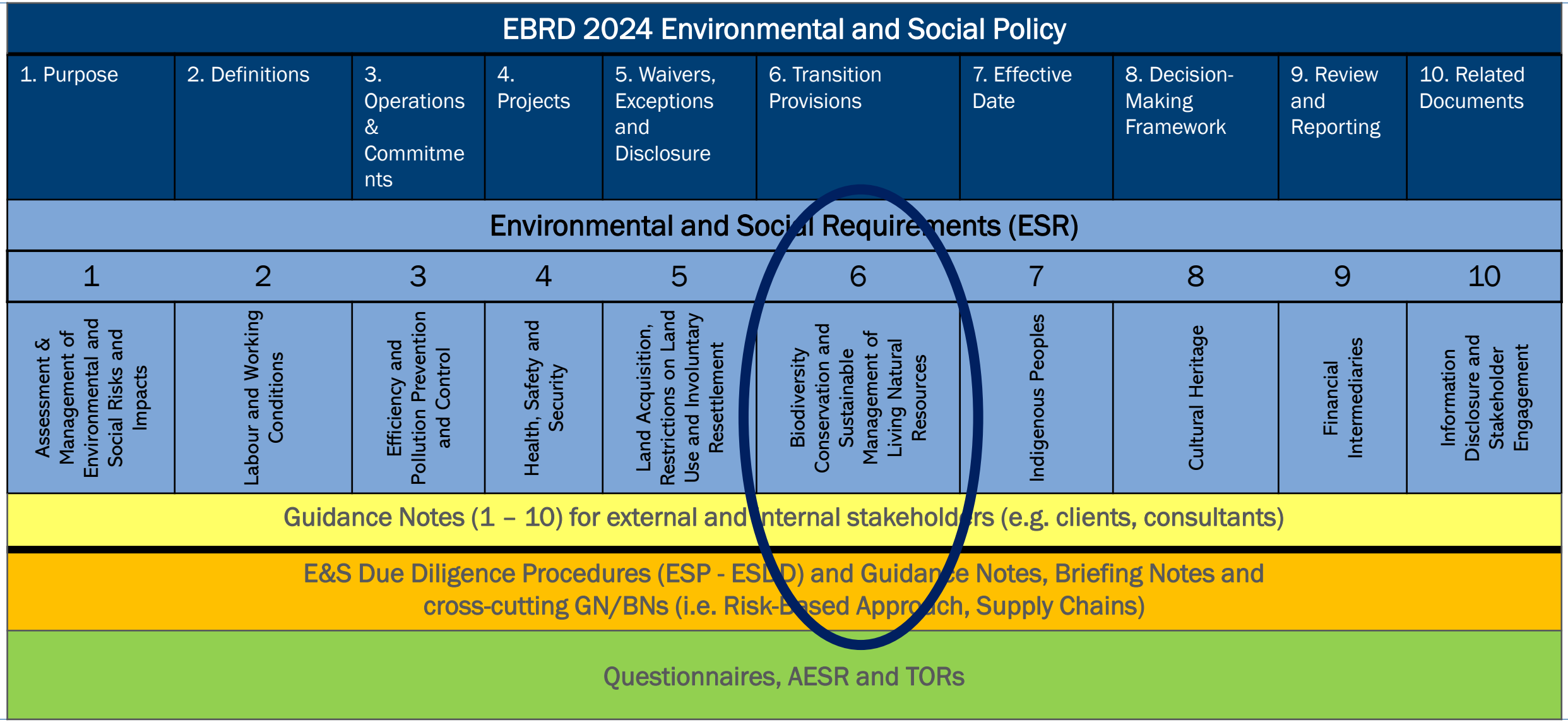
European Bank
for Reconstruction and Development

The EBRD's Environmental and Social Policy (ESP) is based on the concepts of mitigation hierarchy and this reflects the "Do-no-significant-harm" principle. It applies broadly to environmental (including climate, biodiversity etc.) and social issues

- Climate, environmental and social risks and impacts - safeguarding against practices that lead to biodiversity loss, environmental pollution; ensuring natural resource management, human rights including labour rights and gender equality
- Business impact – financial/operational:
  - **Delays or decline of permit applications**
  - **Construction delays due to permitting, stakeholder opposition**
  - **Additional expenditure on environmental abatement, new technologies or remedial needs**
  - **Social dialogue/license to operate**
- Reputational impact – human rights violations, greenwashing allegations, outsourcing E&S risks
- Shareholder and Stakeholder Requirements
- Regulatory compliance – future disclosure requirements (TCFD, EU Taxonomy, EU Green Bond), new supply chain due diligence requirements

2024 EBRD ESP & ESRs Architecture

European Bank
for Reconstruction and Development



ESP Review - Key Changes to biodiversity

European Bank
for Reconstruction and Development

Biodiversity

- Restricted use of off-sets.
- No-go areas added; more focus on avoidance of impacts.
- Net-gains for priority biodiversity features; overall biodiversity will require more data.
- Supply chain requirements related to deforestation

Ispartakule Cerkezkoy High Standard Railway Line (Türkiye)

European Bank
for Reconstruction and Development

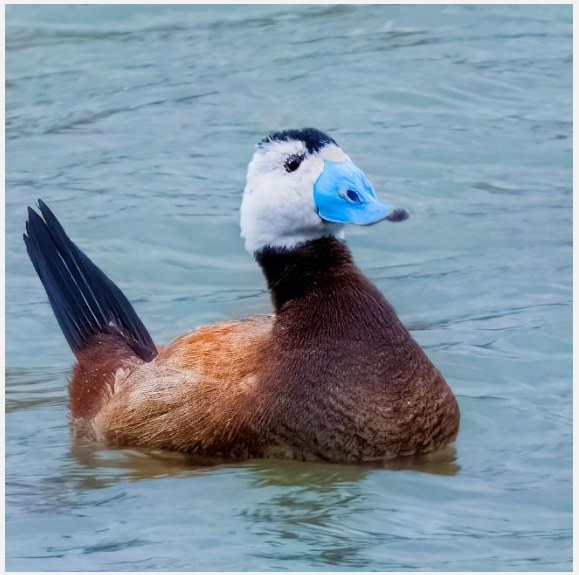
Major rail project west of Istanbul linking Turkiye's rail network with the Trans-European Transport Network (TEN-T) through Bulgaria.

67km of electrified double track with a 200km max design speed, using EU standard systems and standards.

Categorised 'A' under EBRD's ESP, partially due to biodiversity impacts of the project.

Currently in detailed design with some sections in construction

Project impacts



The project crosses significant extents of Critical Habitat (CH) and Priority Biodiversity Features (PBFs), with loss of habitat, disturbance, collision mortality, electrocution and invasive species all risks.

ESR 6 was triggered, requiring net gain for CH and no net loss for PBF.

The ESIA required a Biodiversity Management Plan to be elaborated, including habitat restoration, invasive species management, conservation efforts for the KBA, construction restrictions, etc.

Mitigation measures incorporated into design

- Ecological bridges
- Amphibian and mammal underpasses
- Adaptive culverts
- Bird diverters and adaptive fencing
- Compensatory planting
- Maintenance and monitoring
- Translocation of plants
- Postponement of construction during breeding seasons.

The design was inherited and upgraded to meet the Bank's biodiversity requirements.


European Bank
for Reconstruction and Development
Going beyond compliance

Our transition qualities

European Bank
for Reconstruction and Development

Competitive

Building dynamic and open markets that stimulate competition, entrepreneurship and productivity growth

Well governed

Promoting the rule of law, transparency and accountability, and encouraging firms to adequately safeguard and balance the interests of their stakeholders

Inclusive

Building inclusive market economies that ensure equal economic opportunity for all and leave no group behind

Integrated

Building geographically integrated domestic and international markets for goods, services, capital and labour

Resilient

Building resilient market economies that can withstand turbulence and shocks

Green

Building green, sustainable market economies that preserve the environment and protect the interests of future generations

Sustainable finance

European Bank
for Reconstruction and Development

Preserving and improving the environment are central features of a modern, well-functioning market economy and therefore key goals of the transition process the EBRD was set up to promote.

Building on a decade of successful green investments, the EBRD continues to be a majority green bank.

Sustainable finance

European Bank
for Reconstruction and Development

Finance in 2024 for climate mitigation

€8.8 billion

Finance in 2024 for climate adaptation

€1 billion

Finance for other environmental activities during the year

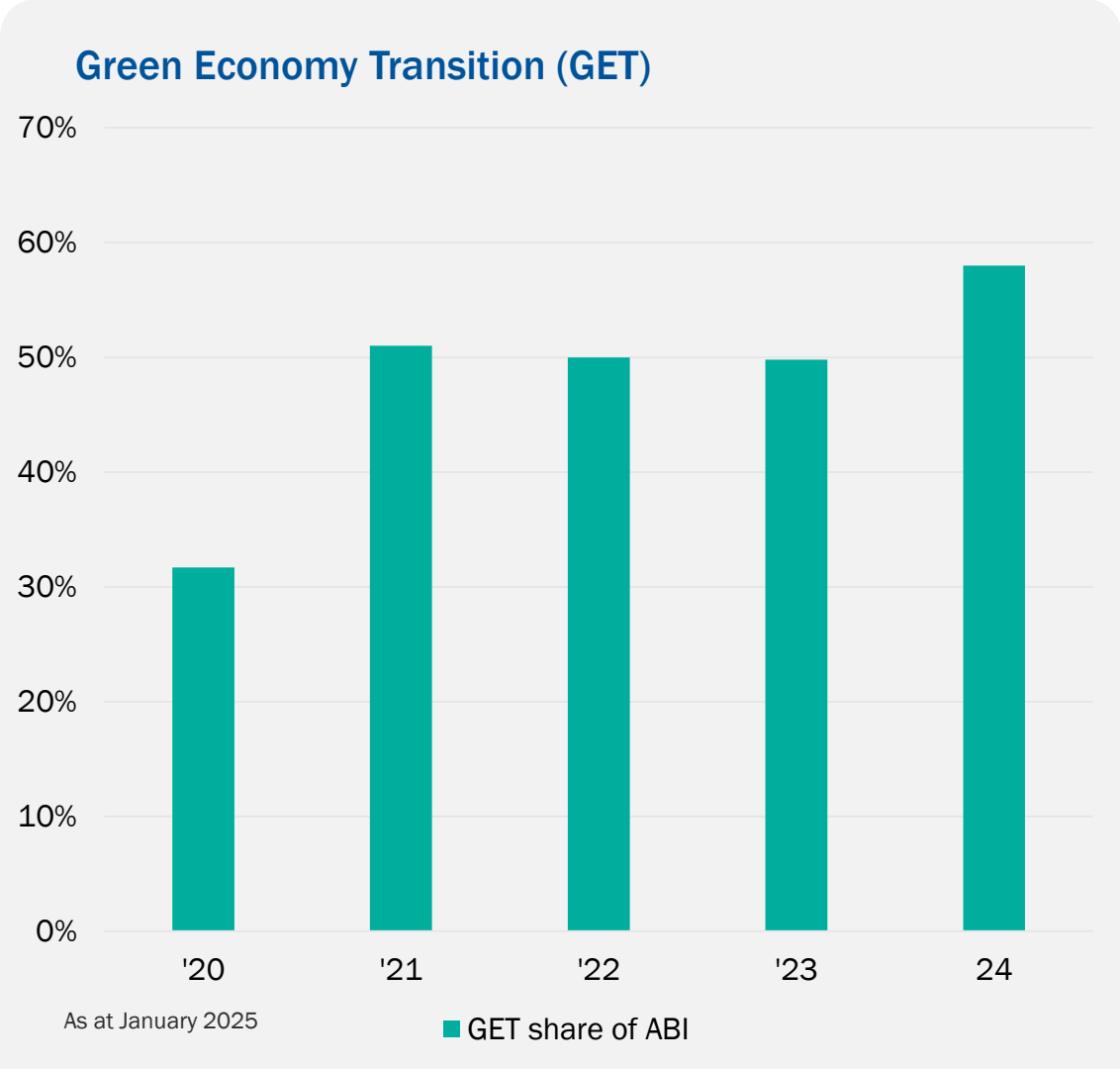
€1.1 billion

In 2024, renewable energy capacity that the EBRD committed to financing

7,862 MW

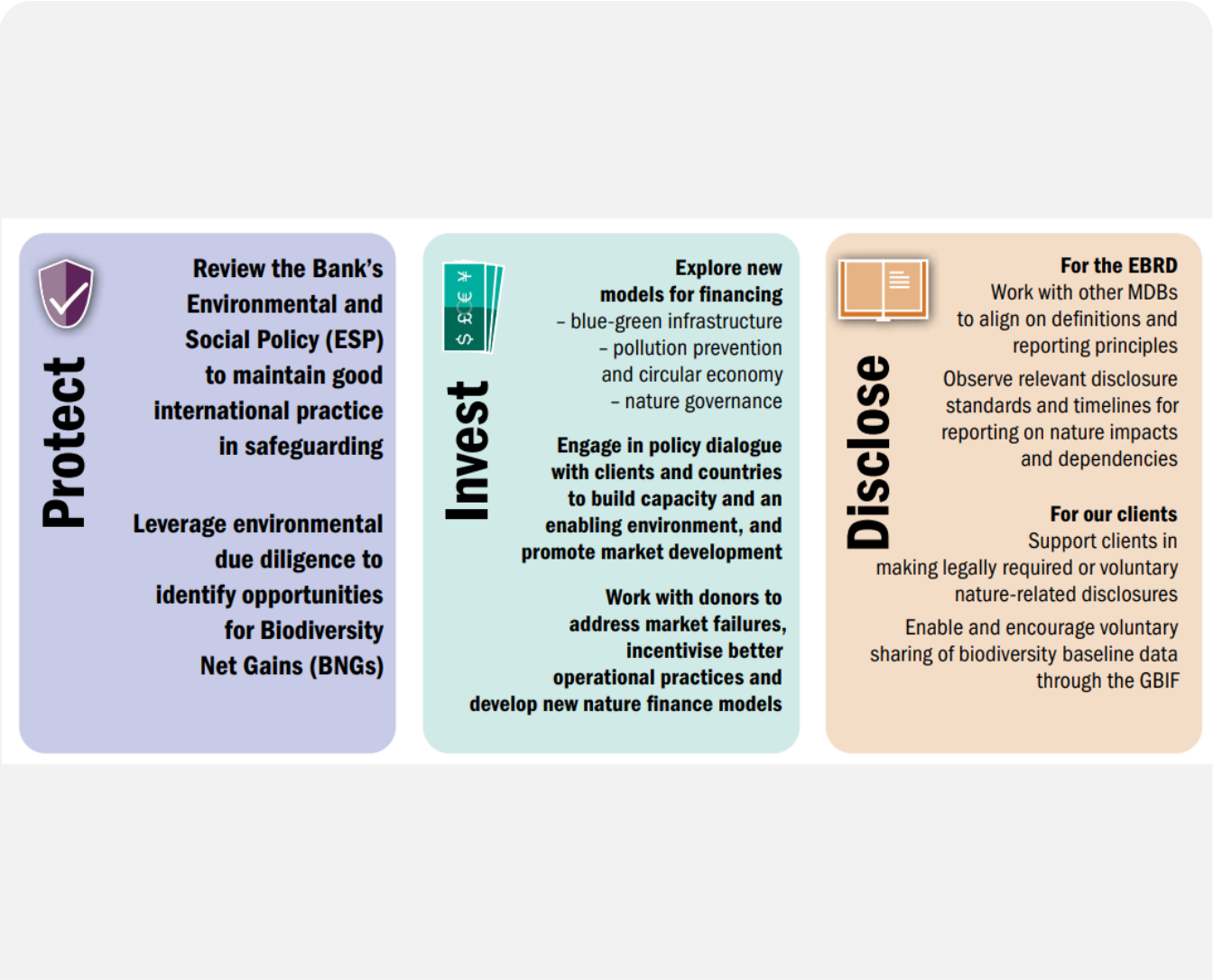
Expected annual reduction in CO_2 emissions as a result of EBRD investments in 2024

10 million tonnes



EBRD Approach to Nature

European Bank
for Reconstruction and Development



The EBRD produced a new 'Approach to Nature' in 2023, which sets out its role in halting and reversing the loss of nature by 2030. Clearly, this requires more than compliance. Some of the approaches include:

- Incentivising more nature recovery as green finance
- Exploring new models for financing
- Achieving biodiversity net gain that goes beyond compliance

Asian Development Bank's Experience of Greening the Transport Sector in harmony with Nature and Biodiversity

Bertrand Goalou

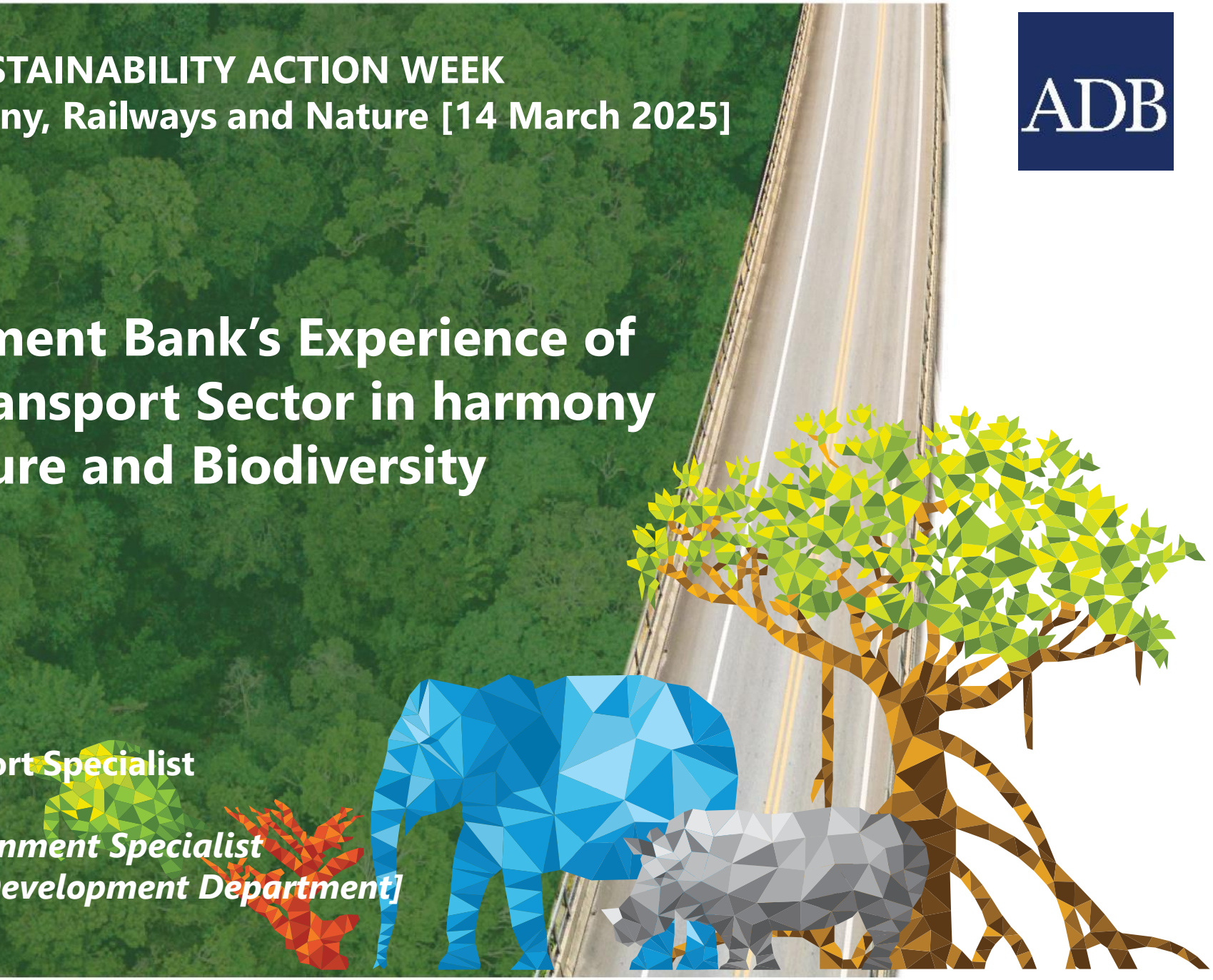
Principal Transport Specialist

Asian Development Bank

SUSTAINABILITY Action Week

SUSTAINABILITY ACTION WEEK
Tracks of Harmony, Railways and Nature [14 March 2025]

Asian Development Bank's Experience of Greening the Transport Sector in harmony with Nature and Biodiversity



Bertrand Goalou, Principal Transport Specialist
Transport Sector Group
[Karma Yangzom, Principal Environment Specialist
Climate Change and Sustainable Development Department]
Asian Development Bank

Bangladesh: SASEC Chittagong – Cox's Bazaar Rail Project

- World first elephant overpass

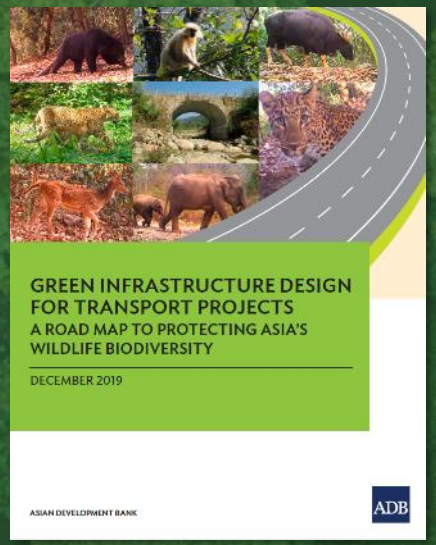
3 Focus Areas

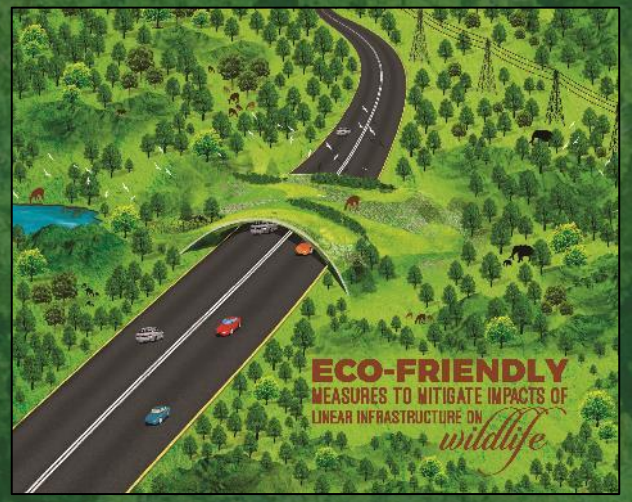
1) Guidance and knowledge sharing

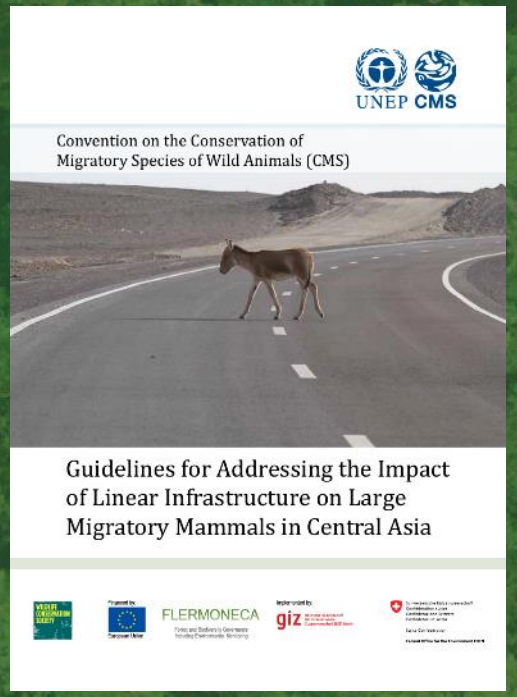
2) Capacity building

3) Integration of biodiversity friendly measures in transport infrastructure investment projects

1) Guidance and Knowledge Sharing

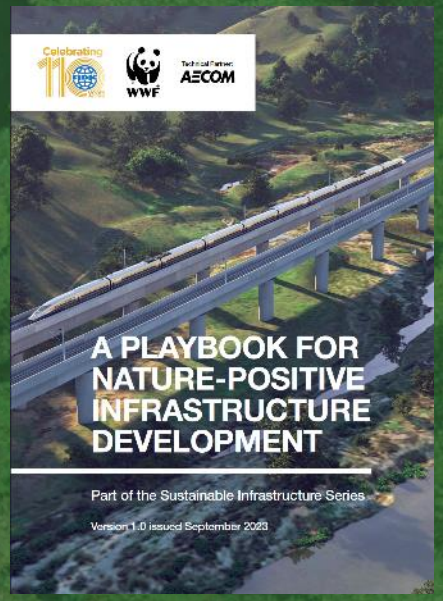






Wildlife-Friendly
Infrastructure Construction
Directives
2022

NEPAL



2) Capacity building

1) International forums and Training workshops:
   - 2017 Hanoi Forum on sustainable infrastructure organized in partnership with WWF in Hanoi, 2017
   - ADB transport forums
   - Training and exposure visit during IAIA 2019 conference in Brisbane
   - Convention on Biological Diversity COPs (COP15 and COP16)

2) Webinars:
   - Modern road ecologist's toolbox
   - Conserving and managing natural capital
   - Greening transportation projects
   - Planning and design of smart linear infrastructure

2) Capacity building

3) Investing in bringing in well reputed international, regional and national technical experts

4) Facilitating stakeholder engagement and institutional coordination within countries to promote biodiversity friendly approaches in linear transport projects

5) Monitoring performance of wildlife structures constructed to
   draw lessons and inform future projects

Bhutan Road Network Project II: Underpass Monitoring Study

3) Integration of biodiversity friendly measures

1) Bhutan: Road Network Project II; Approved in Nov 2009; Closed in June 2016; Elephants, Gaur, Tiger and many others; National Park

2) Nepal: SASEC Road Connectivity Project; Approved in July 2013; Closing in December 2020; Elephant; Ramsar site

3) India: SASEC Road Connectivity Investment Program (Tranche 1); Approved in April 2014; Under implementation; Closed in 2022; Elephant, guar, National park

4) Bhutan: SASEC Road Connectivity Project; Approved in Jul 2014; Ecologically sensitive road got **cancelled** in 2018; Asian elephant

5) Nepal: SASEC Road Improvement Project (SRIP); Approved in Dec 2016; Under implementation; Closing in June 2022; Tiger, Rhino, Leopard; National park and UNESCO World Heritage Site

6) India: Bihar New Ganga Bridge Project; Approved in June 2016; Under implementation; Closing in June 2021; Gangetic Dolphin

7) Bangladesh: SASEC Chittagong – Cox's Bazaar Rail Project (CCBRP); Approved in Sep 2016; Under implementation; Closing in Jun 2024 ; Elephant; 2 wildlife sanctuaries; 1 national park

8) Uzbekistan: National Road Development Project (Subproject 1: Derbent – Denua Road) ; Bukhara urial, Saker falcon, Egyptian vulture

9) Philippines: Bataan – Cavite Interlink Bridge Project; coral habitat, several bird species such as Philippine duck, Red-necked Stint and others

10) Nepal: Naryanghat – Hetauda – Patlaiya Road Project; Under preparation; ; Tiger, Elephant, Rhino, Leopard and several others; 2 National Parks. 1 is a UNESCO World Heritage Site as well; (for approval in 2026)

2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024

3) Integration of biodiversity friendly measures

Nepal SRIP: First time efforts in the country

- 54 wildlife underpasses included in the project design; 12 involve resizing;
- Regular meetings between DOR and wildlife stakeholders; Biodiversity Conservation Plan

Nepal Country Project under GEF Greening Transportation Infrastructure Development Integrated Program (GRID IP): Covers all 3 areas; under development and for approval by GEF in 2025

3) Integration of biodiversity friendly measures

Bangladesh: SASEC Chittagong - Cox's Bazaar Rail Project

- World first elephant overpass
- Several wildlife underpasses
- Funnel fencing
- Habitat enhancement plan
- Sensor technology to alert train driver when elephants are nearby (in the process of being procured

THANK YOU!

Integrating Ecosystem Services: From Urban Landscapes to Transport Networks

Pia Orthén

Head of Sustainability

Jernhusen

Michael Image

Associate

AtkinsRéalis

Marie-Claire Jalaguier

Environmental Scientist

AtkinsRéalis

SUSTAINABILITY Action Week

Biodiversity and ecosystem services in urban areas

Pia Orthén

Head of Sustainability

Jernhusen

Examples from Jernhusen's work with integrating biodiversity and nature-based solutions in Gothenburg

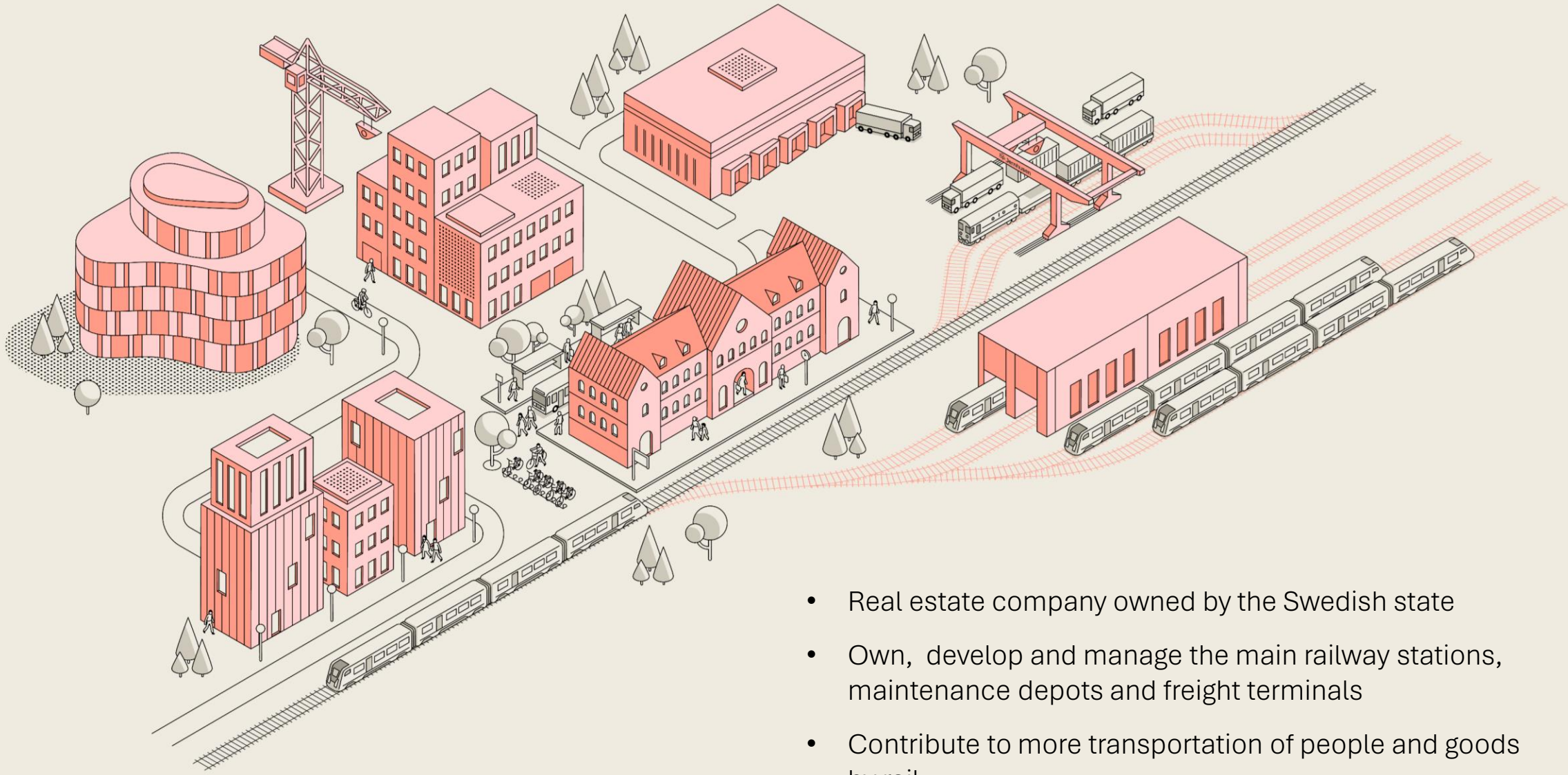
SUSTAINABILITY
Action Week

Biodiversity and ecosystem services in urban areas

Pia Orthén

Head of Sustainability @ Jernhusen

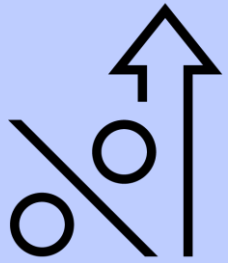
Jernhusen



- Real estate company owned by the Swedish state
- Own, develop and manage the main railway stations, maintenance depots and freight terminals
- Contribute to more transportation of people and goods by rail

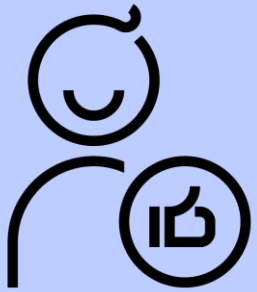
Jernhusen

Four strategic goals

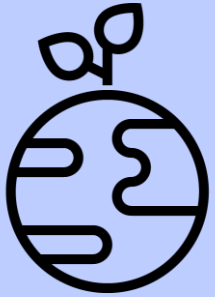


Profitable growth

Safe and sound for everyone



Positive customer experience



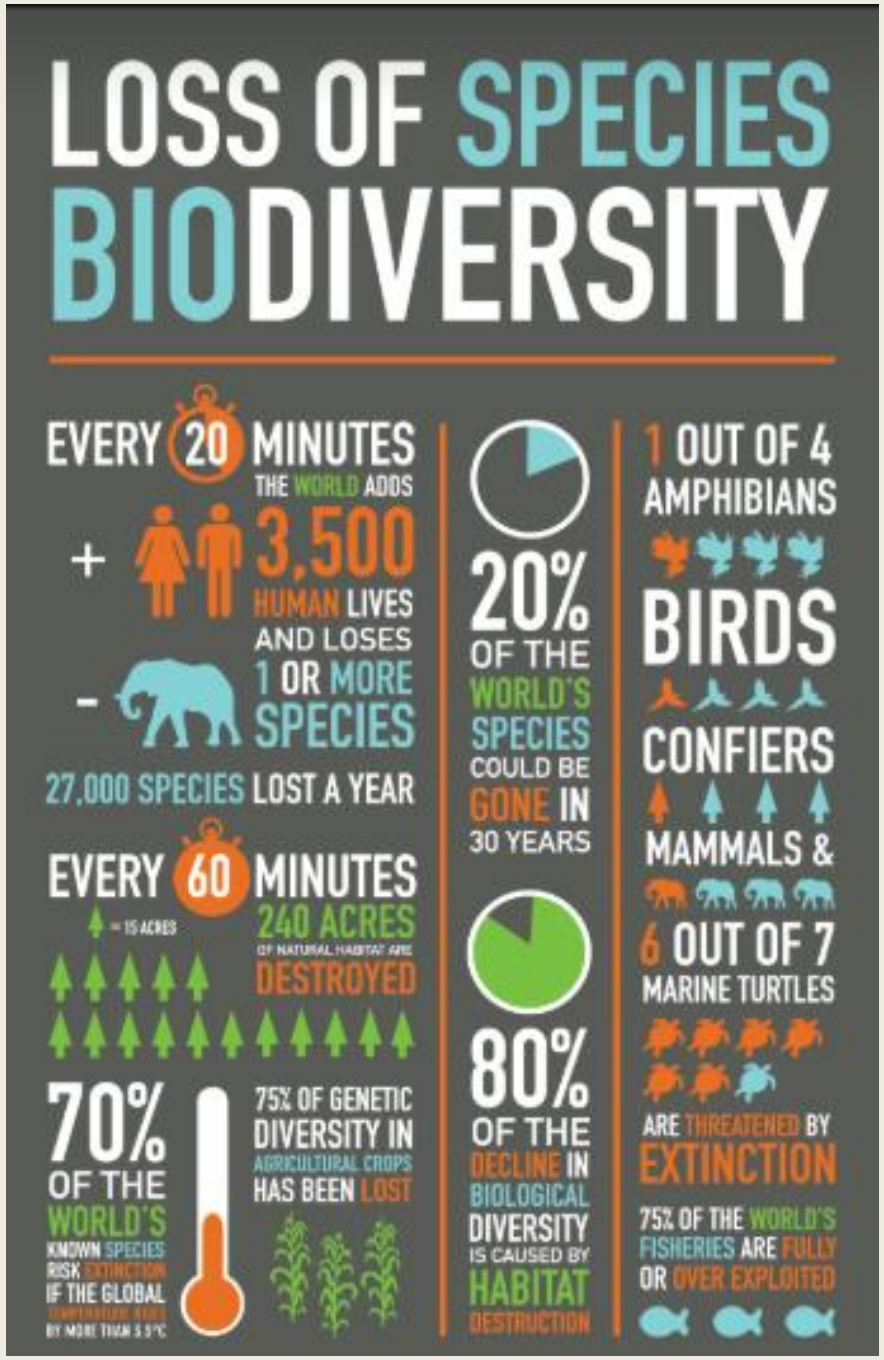
Climate neutral

Jernhusen

Green Financing

Jernhusen

Why biodiversity?


LOSS OF SPECIES
BIODIVERSITY
EVERY 20 MINUTES
THE WORLD ADDS
+ 3,500 HUMAN LIVES
AND LOSES
- 1 OR MORE SPECIES
27,000 SPECIES LOST A YEAR
EVERY 60 MINUTES
= 15 ACRES
240 ACRES OF NATURAL HABITAT ARE DESTROYED
70% OF THE WORLD'S KNOWN SPECIES RISK EXTINCTION IF THE GLOBAL
BY MORE THAN 5.5°C
75% OF GENETIC DIVERSITY IN AGRICULTURAL CROPS HAS BEEN LOST
20% OF THE WORLD'S SPECIES COULD BE GONE IN 30 YEARS
80% OF THE DECLINE IN BIOLOGICAL DIVERSITY IS CAUSED BY HABITAT DESTRUCTION
1 OUT OF 4 AMPHIBIANS
BIRDS
CONFIERS
MAMMALS &
6 OUT OF 7 MARINE TURTLES
ARE THREATENED BY EXTINCTION
75% OF THE WORLD'S FISHERIES ARE FULLY OR OVER EXPLOITED

Jernhusen


CENTRALSTATION
RESTAURANG
Barnkalas!

Park Central and Grand Central

Jernhusen

The area today

Jernhusen

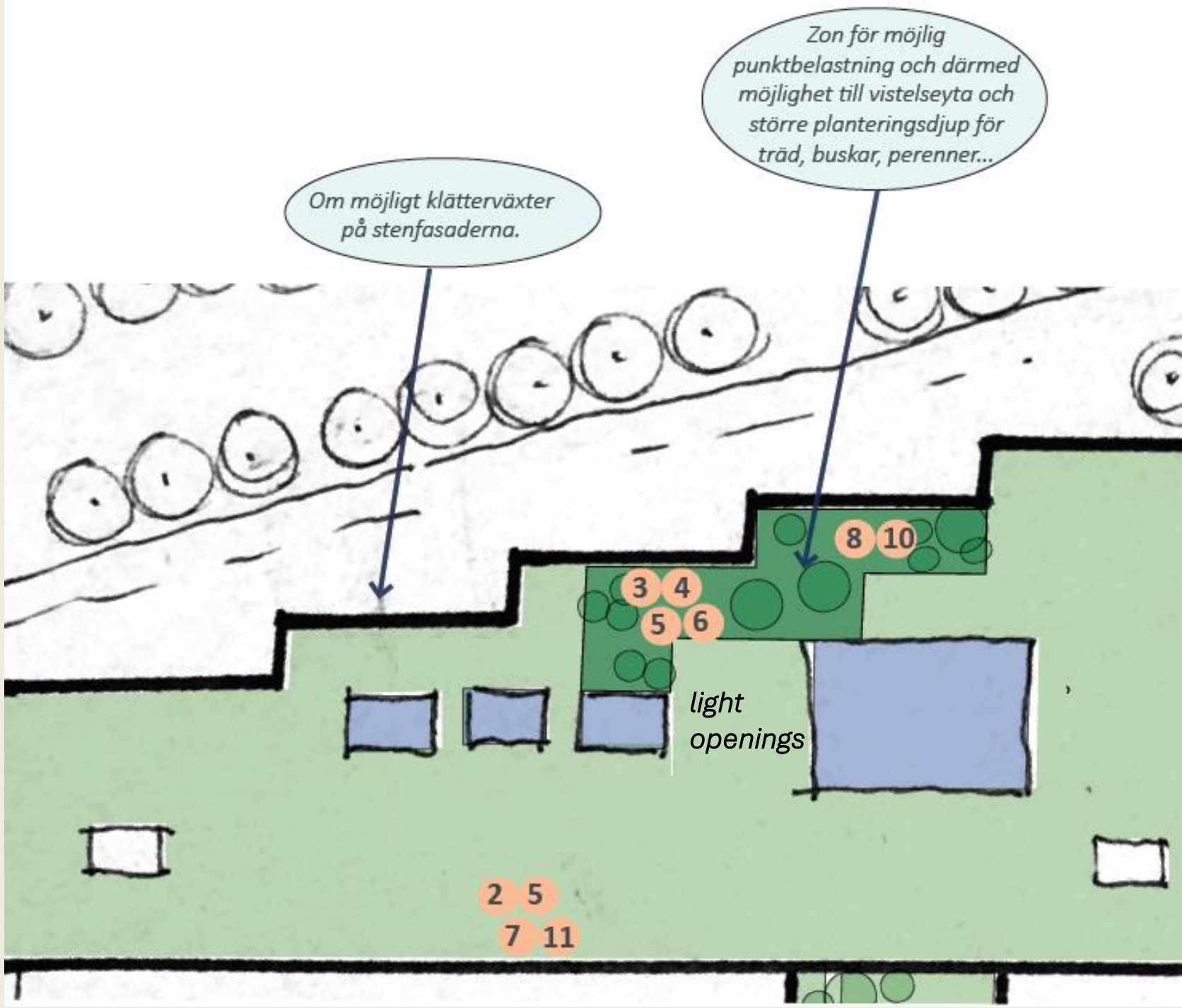
Greening and Ecosystem Services Master plan

Jernhusen


Grand Central
Jernhusen
l: Reiulf Ramstad Ariktekter

Grand Central

2. Biodiverse roof
3. Perennials
4. Trees and shrubs
5. Features supporting local wildlife
6. Inviting darkness
7. Rainwater storage and retention
8. Moist bed
10. Social areas
11. Solar cells



Jernhusen

Stockholm Central Station

Challenges

- Properties in central areas
- How to measure and evaluate?

Jernhusen

Thank you!

Questions?

pia.orthen@jernhusen.se

Jernhusen

Ecosystem Valuation for Railways (ECOV4R) Project

Michael Image

Associate

Marie-Claire Jalaguier

Environmental Scientist

AtkinsRéalis

ECOV4R

ECOSYSTEM VALUATION FOR RAILWAYS

SUSTAINABILITY Action Week

ECOSYSTEM VALUATION FOR RAILWAYS (ECOV4R)

Dr Michael Image, AtkinsRéalis
Marie-Claire Jalaguier, AtkinsRéalis

13 March 2025

Agenda

01 Introducing the ECOV4R Project

02 Presenting the ECOV4R Framework

03 Applying the ECOV4R Framework to pilot case studies

04 Summary and next steps for the ECOV4R Project

Introducing the ECOV4R Project

Ecosystem Services

Ecosystem services are the benefits provided by nature that contribute to making human life both possible and worth living.

An ecosystems approach provides a framework for looking at whole ecosystems in decision making.

Provisioning services
Food
Freshwater
Fuel
Fibre
Genetic resources

Regulating services
Climate regulation
Water regulation
Water purification
Pollination
Air quality regulation

Cultural services
Spiritual and religious
Recreation and tourism
Aesthetic
Educational
Cultural heritage

Supporting services
Soil formation - Nutrient cycling - Primary production

STOCKS
Natural capital

FLOWS
Ecosystem and abiotic services

VALUE
Benefits to business and to society

Millenium Ecosystem Assessment 2003

What are the drivers for using an ecosystem services approach in linear infrastructure management?

- Uncovering the value of the ‘soft estate’
- Better decision-making for climate risk resilience
- To inform and promote the effective use of nature-based solutions
- Good practice for sustainability and decision-making
- Reputational benefits (incl. reputational damage avoided)
- Disclosure and reporting (e.g. EU CSRD)
- International or national policy drivers
- Delivering on environmental assessment requirements

About the ECOV4R Project

The project will develop a common and global framework for the rail sector to support the assessment of ecosystem services impacts and enhancement opportunities to inform decision-making processes, EIAs, cost-benefit analysis, and sustainability reporting.

Improved, more sustainable and cost-efficient land management

Making a case for investment in green infrastructure and NBS

Promoting the role of railways in delivering wider value for society

Our approach to the project

Framework is pragmatic and usable by non-environmental economists

Draws on our extensive infrastructure and ecosystem services experience, both in drafting guidance for analysis, and communicating concepts to non-specialist audiences

Knowledge sharing and capacity building at the forefront through meaningful engagement with rail infrastructure managers in companies across the world

Highlight the management of land adjacent to railway tracks, and the potential enhancement that can be undertaken in these areas to build operational resilience – e.g. NFM measures to reduce risk of flooding and disturbance to rail operations.

Project Partners

Österreichische Bundesbahnen

Network Rail Infrastructure Limited

Administrator de Infraestructuras Ferroviarias

Bane Nor SF

Société Nationale des Chemins de Fer Français

Société Nationale des Chemins de Fer Luxembourgeois

Finnish Transport Infrastructure Agency

Ferrovie dello Stato Italiane S.p.A

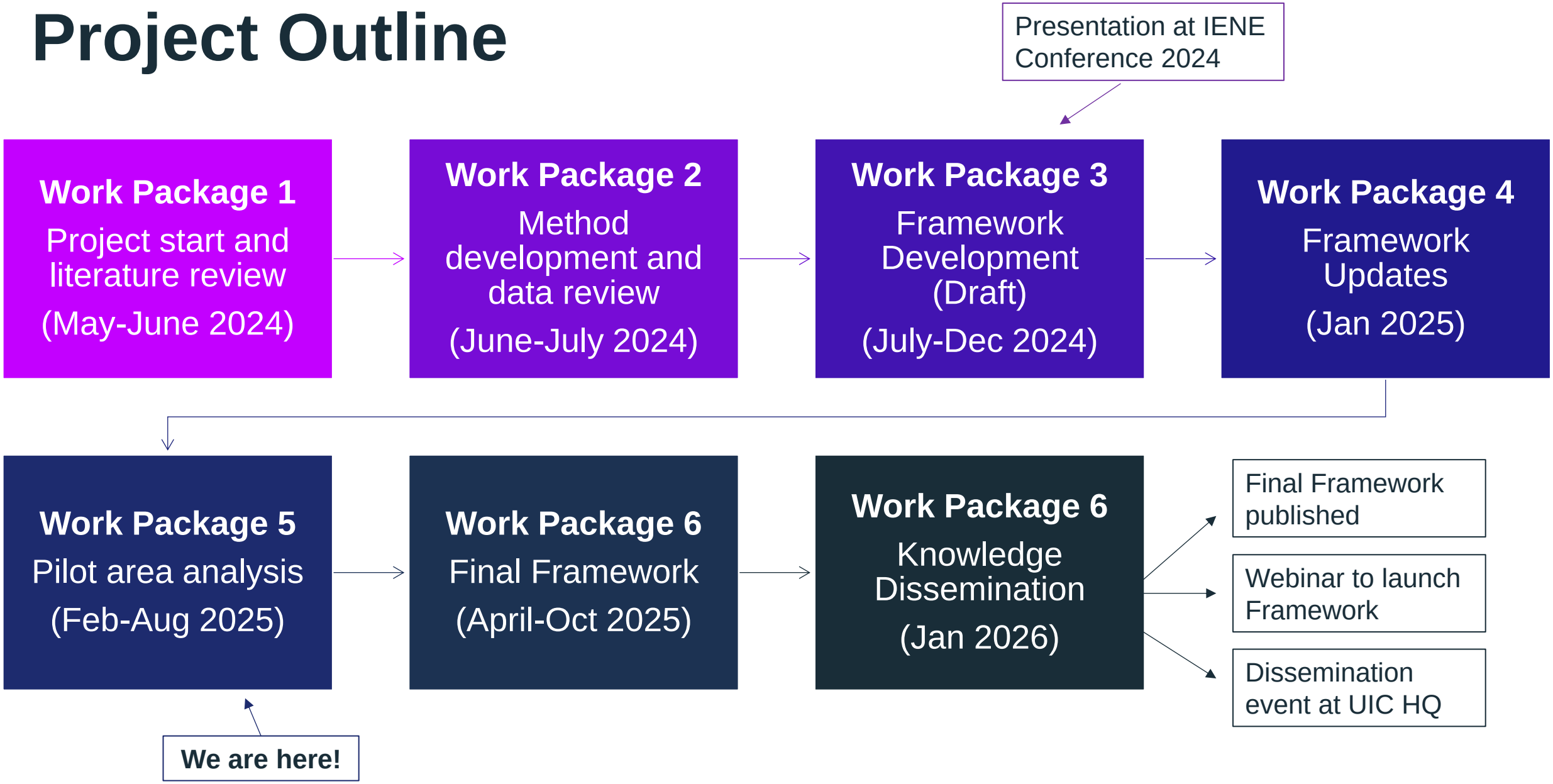
Sydney Trains

Kenya Railways

In partnership and collaboration with

INTERNATIONAL UNION OF RAILWAYS

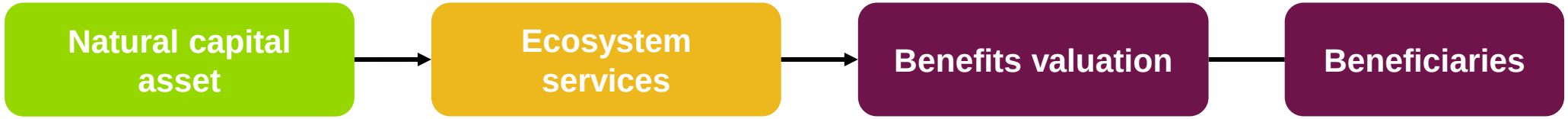
Project Outline



Presenting the ECOV4R Framework

The ECOV4R Framework

- The Framework is underpinned by a natural capital approach:



- The natural capital approach provides context information with which to implement the Ecosystem Services Valuation Framework, which has the following steps:

- Allows for ex-ante and ex-post assessments
  - Ex-ante: Results are indicative and are intended to communicate potential ecosystem service impacts of rail infrastructure
  - Ex-post: Can also be used in evaluation of impacts as part of monitoring (not part of guidance)
- Rail-specific considerations: Linear infrastructure; large variations in habitats; urban/rural mix

Step A. Baseline

Step B. Impacts on Natural Capital Assets

Step C. Impacts on Ecosystem Services

Step D. Change in values

Step E. Using and interpreting results

The baseline reflects the current state of assets and forms the foundation of the analysis.

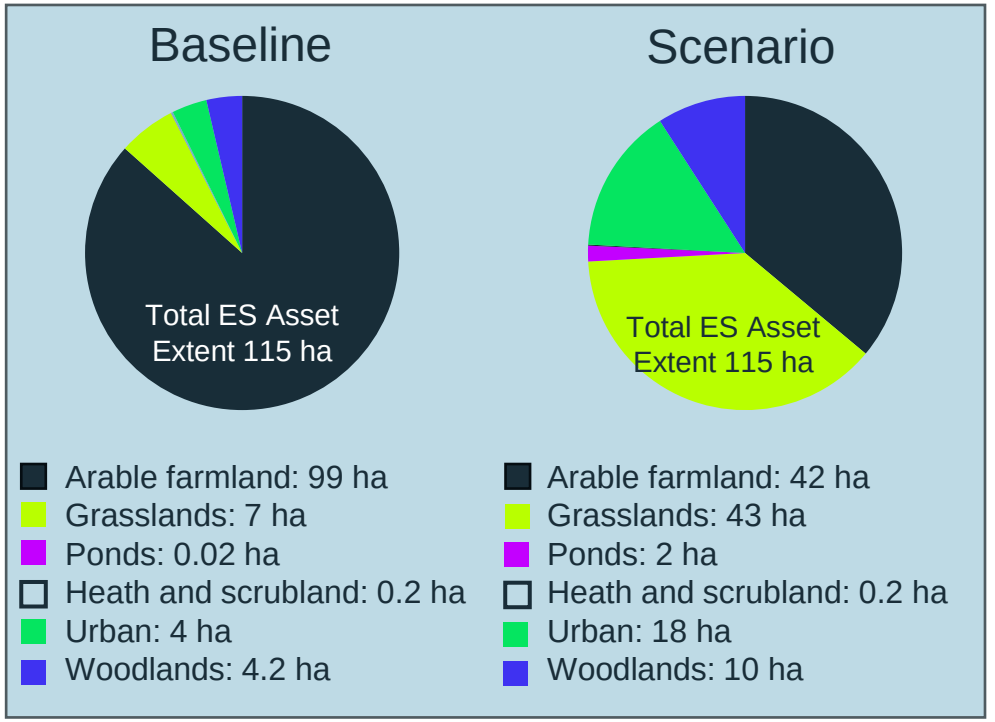
- What is the extent and condition of your current assets?
- What ecosystem services are currently provided?
- What value/benefits do they currently deliver?

The scenario considers the anticipated impacts to the assets because of the intervention(s).

- How will natural capital assets change?
- How does this change ecosystem services and benefits provided (positive or negative impacts)?
- What is the change in quantity and/or value?

- **Identify additionality** (e.g. removal/creation of habitats and changes in land-use)
- **Identify timing of interventions and impacts** (e.g., construction).

Example of an asset register of natural capital assets



Step A. Baseline

Step B. Impacts on Natural Capital Assets

Step C. Impacts on Ecosystem Services

Step D. Change in values

Step E. Using and interpreting results

The Framework includes a guide to determine materiality of ecosystem services for linear infrastructure.

- Which benefits are material for each asset within the boundary and to the scope of the project?
- Which benefits can be assessed?
- Which benefits are not possible to measure in physical units or value in monetary terms?

Short-listing and justification for inclusion may be based on:

- Stakeholder engagement and expert review
- Beneficiaries impacted
- The private or public value of the benefit
- Direct/indirect impacts
- Avoiding double-counting of benefits

Material impacts that cannot be assessed in monetary terms should still be reflected qualitatively in results.

Example ecosystem services:

- Carbon sequestered by habitats
- Air quality regulation
- Flood attenuation
- Local temperature control
- Visual impacts (e.g., aesthetics)
- Biodiversity

Framework provides a long-list of impacts relevant to the rail sector.

Step A. Baseline

Step B. Impacts on Natural Capital Assets

Step C. Impacts on Ecosystem Services

Step D. Change in values

Step E. Using and interpreting results

D: Benefits valuation – quantify and value material services

Generating evidence to communicate impact

Beneficiaries (e.g., wider society, organisation)

Qualitative assessment — Understand what ecosystem services are provided

Quantitative assessment — Measure the change in the provision of ecosystem services

Monetary assessment of economic values — Apply valuation methods to assess market and non-market values

→ Input in decision making

Step A. Baseline

Step B. Impacts on Natural Capital Assets

Step C. Impacts on Ecosystem Services

Step D. Change in values

Step E. Using and interpreting results

D: Benefits valuation – quantify and value material services

Value transfer (or benefits transfer) is a process by which readily available economic valuation evidence is applied in a new context for which valuation is required.

Key questions for valuing impacts:

- What is the change in management activities?
- What is the change in the asset and the benefits it provides?
- What is the time profile of management activities and benefits?
- Who is affected directly or indirectly?

Area of relevant habitats

Asset register data

- Area of habitats that sequester or emit carbon (*Asset register*)
- Condition of habitats (*UK Natural Capital Accounting or assumption*)

Net carbon sequestered (tCO_2e)

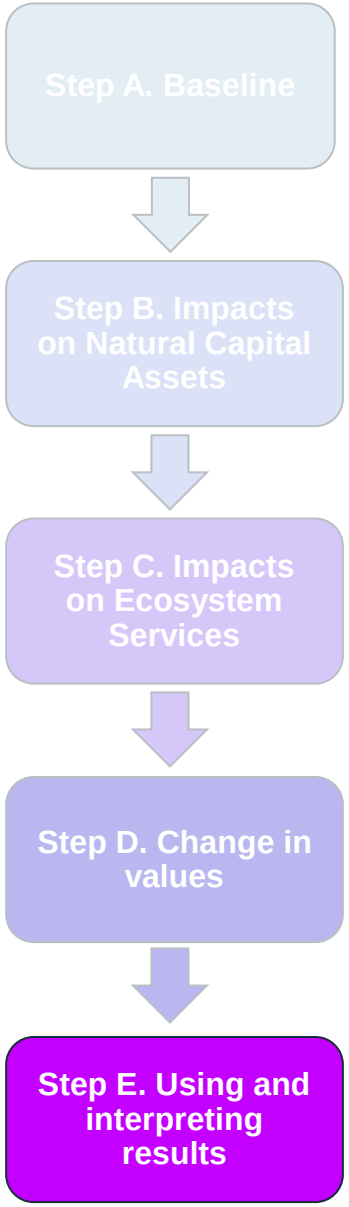
Physical data

- Carbon sequestration and emission rates by vegetation *(Academic literature, IUCN Peatland Carbon Code)*

Value of carbon

Monetary data

- Non-traded value of carbon dioxide equivalent *(UK Government guidance)*
- Beneficiaries: wider society



Reporting material impacts on ecosystem services in qualitative, quantitative, or monetary terms.

- Holistic view of impacts communicated for decision-making

Capturing uncertainties in data and evidence

- Sensitivity analysis following cost-benefit analysis/economic appraisal guidance
- Reporting upper/lower bound ranges for transparency

Framework is applicable at any stage of the project cycle

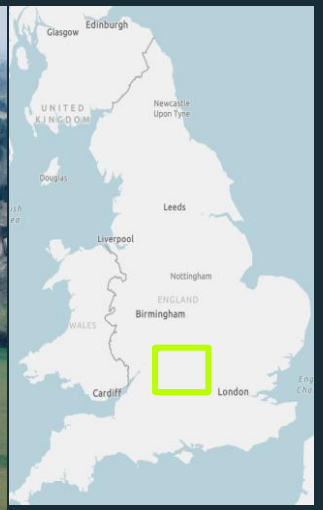
- Integrated in mitigation hierarchy
- Consider and compare alternative environmental mitigation measures
- Used post-intervention to evaluate outcomes and opportunities for further enhancement

Uses and purpose of the Framework

- Addresses needs of rail organisations to better capture ecosystem service impacts and is applicable across the world
- Reporting of results can feed into other purposes → EIA reports, sustainability disclosure reporting, business cases, mitigation planning
- Approach focuses on assets and ecosystem services provided, but can inform decision-making on biodiversity and environmental net gain
- Framework aligns to existing systems for developing business cases and signposts overlapping steps
- Highlights the role of stakeholders in supporting the valuation assessment
- Framework can be used pre-project and also to evaluate the impacts post-project

Applying the ECOV4R Framework to pilot case studies

Pilot Site #1: Cotswold Line, England



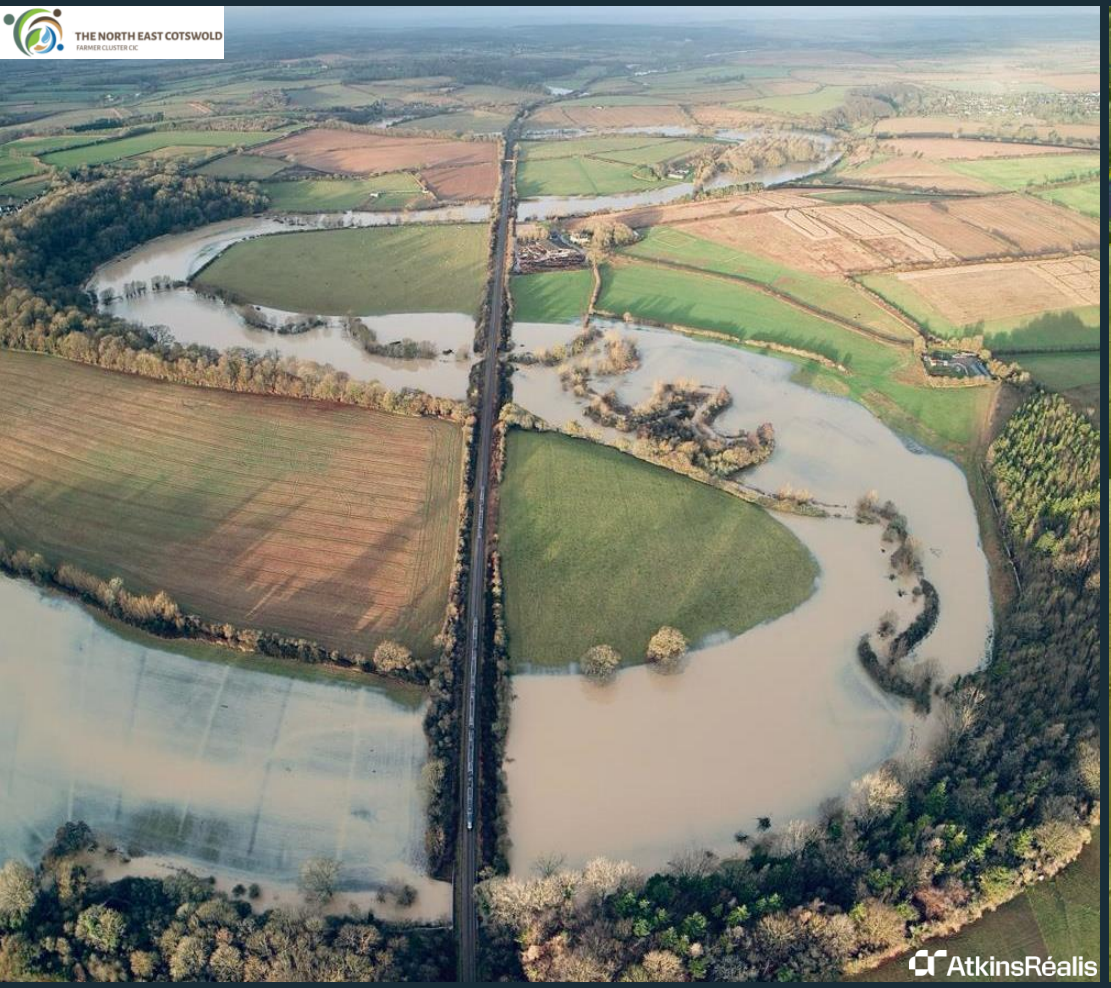
Pilot interventions across the Evenlode catchment for Natural Flood Management measures to reduce flood risk within the catchment and to the Cotswold Line.

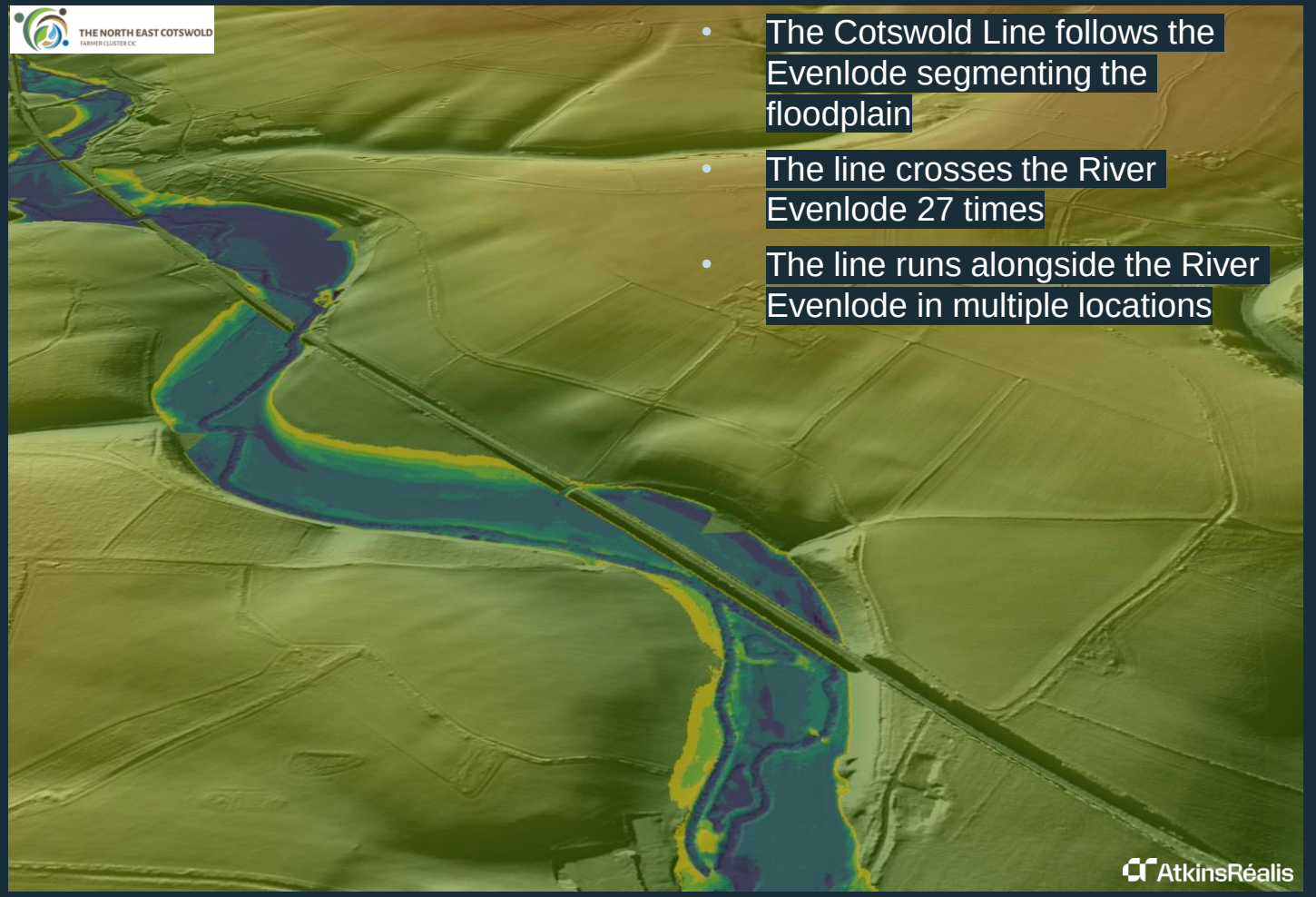
Delivering wider co-benefits such as Biodiversity Net Gain and carbon sequestration

Management of an existing railway line where investment will seek to enhance environmental outcomes and improve resilience of assets

Likely beneficiaries include landowners, local population, railway users, railway manager/operator.

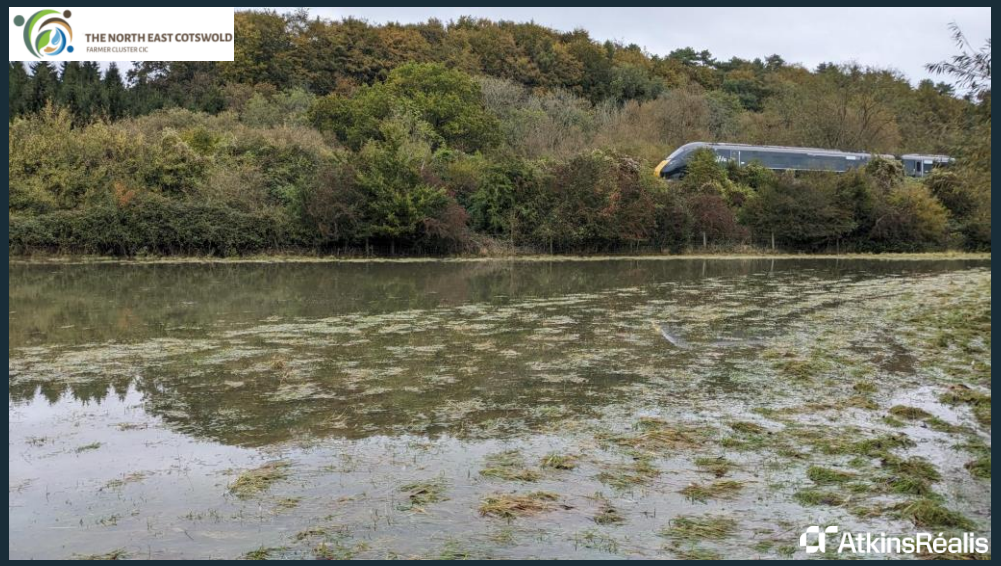
Railway in the floodplain





- The Cotswold Line follows the Evenlode segmenting the floodplain
- The line crosses the River Evenlode 27 times
- The line runs alongside the River Evenlode in multiple locations

Risks to the rail line



Natural Flood Management

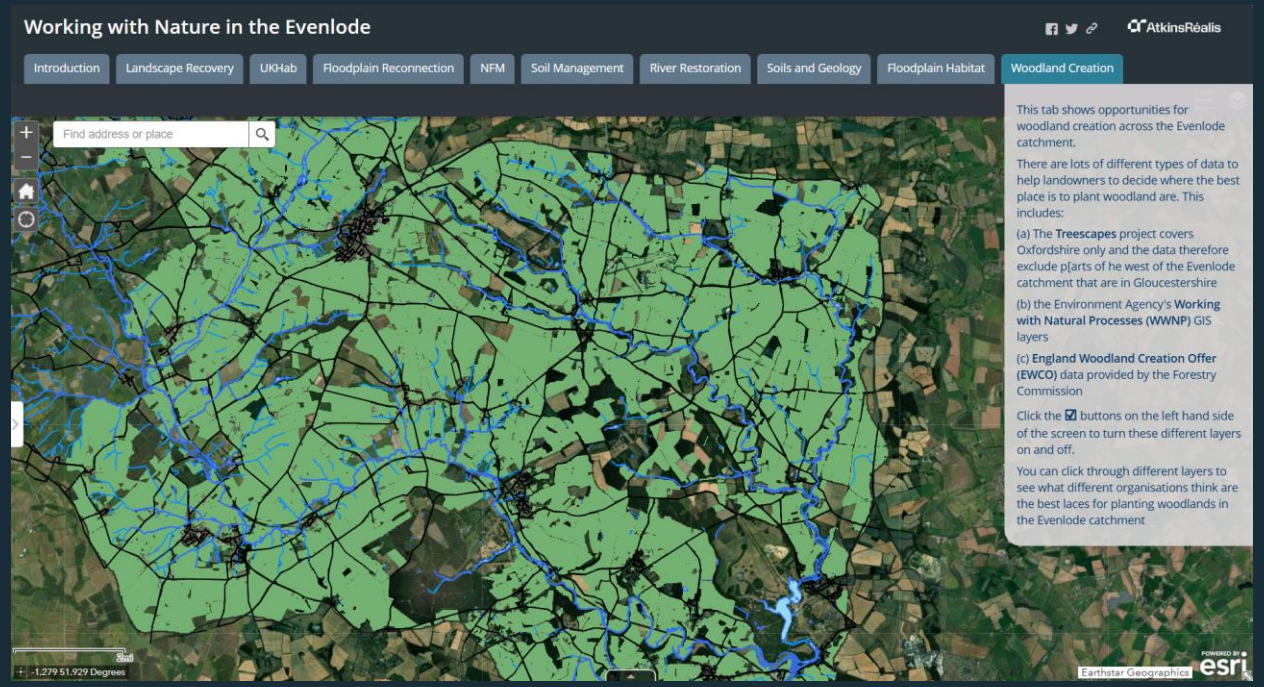
Storing flood waters upstream in wetlands, woodlands and soils

Slowing floodwaters in the floodplain to reduce erosion

Moving the river away from the rail embankment to a more natural course

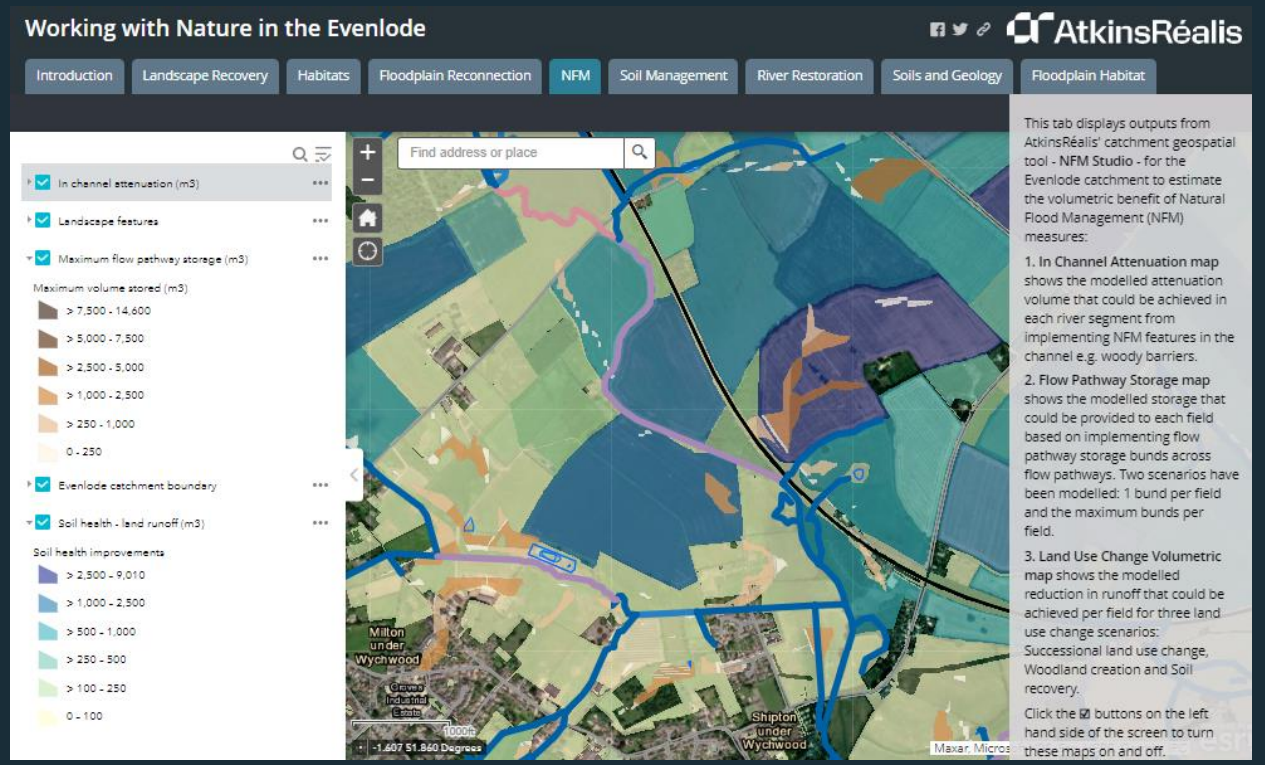
Bringing biodiversity and carbon benefits

Opportunities to increase resilience



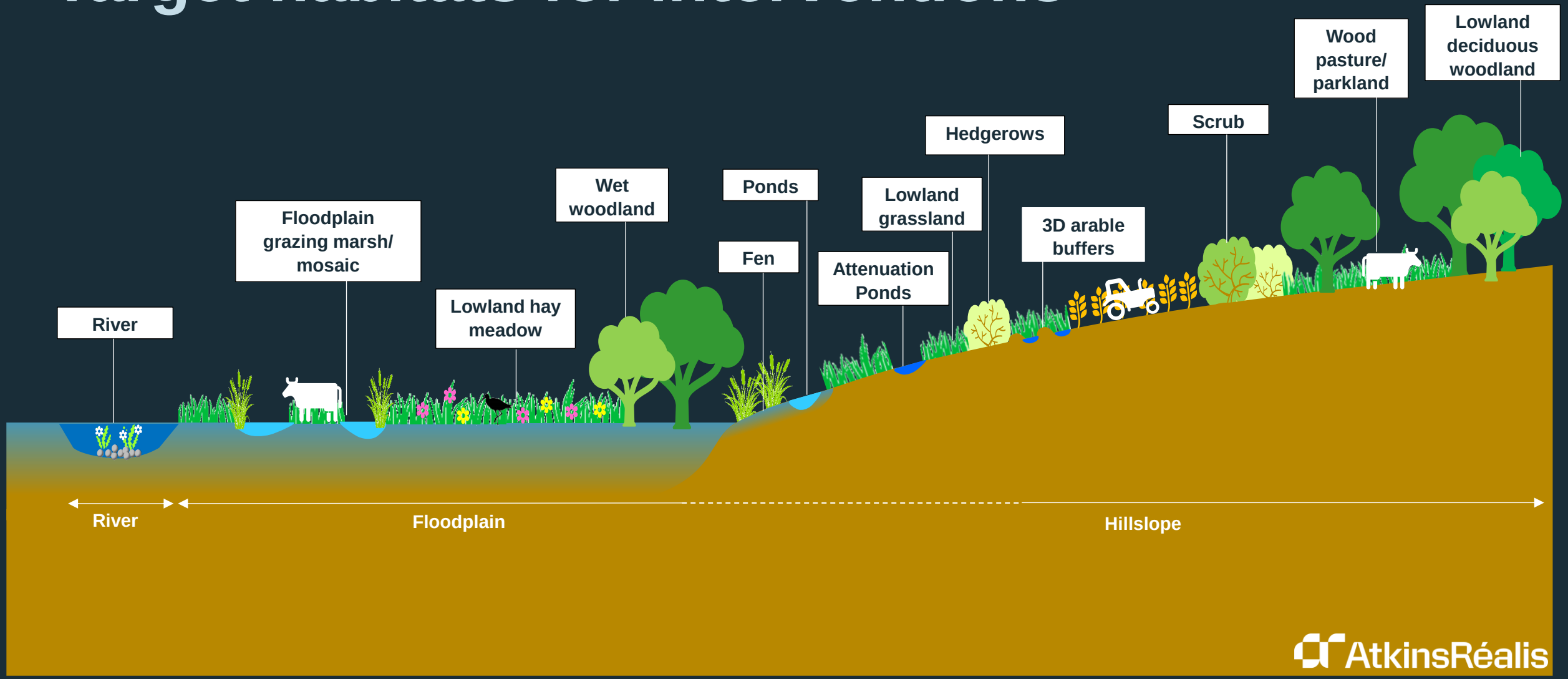
Map of woodland creation opportunities

Data has been collected from local catchment partnerships, the Environment Agency, Natural England and others as well as AtkinsRéalis investigations in the Evenlode catchment.



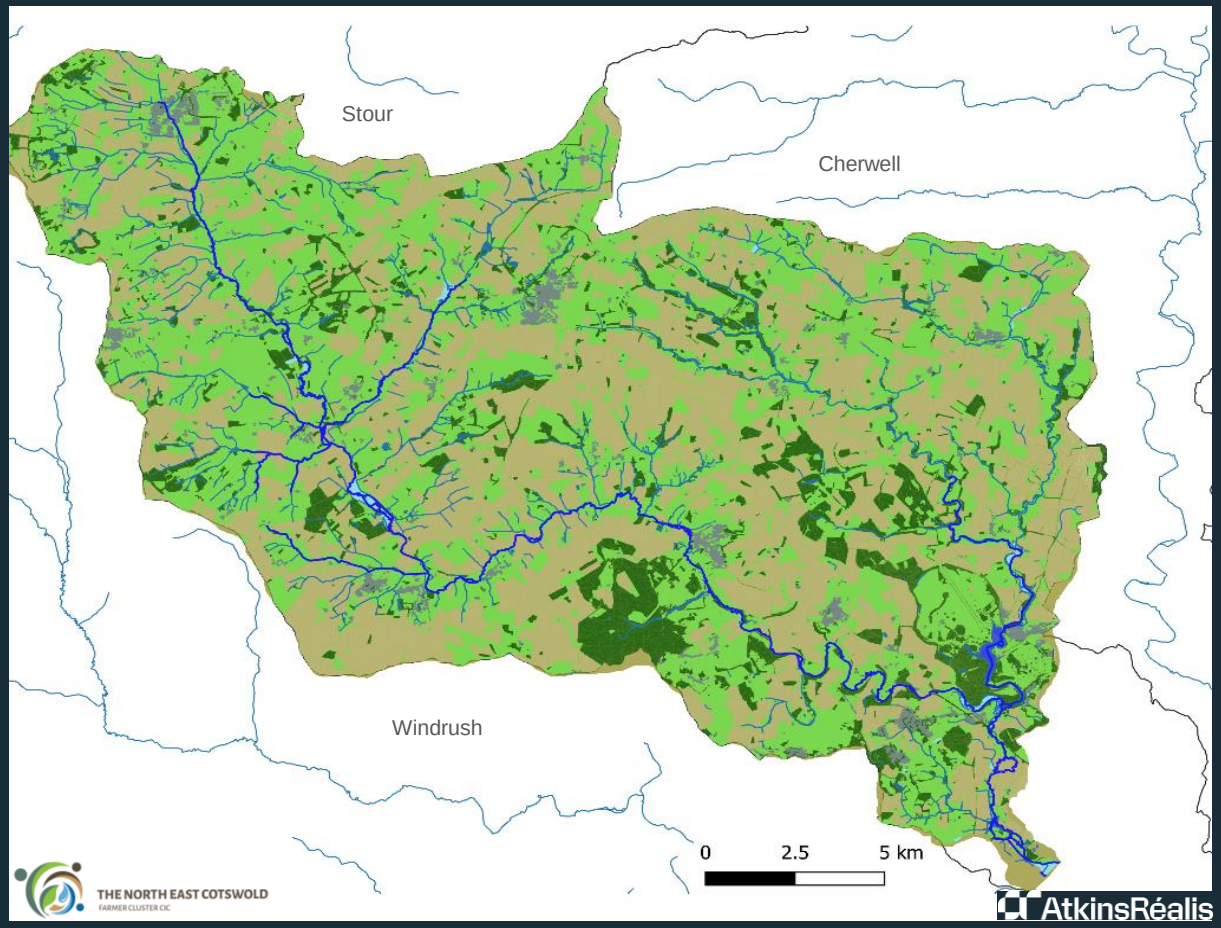
Map of **Natural Flood Management** to slow and store flow on land, flow pathways and in channels

Target habitats for interventions



ECOV4R Steps A and B

Step A. Baseline → Step B. Impacts on Natural Capital Assets → Step C. Impacts on Ecosystem Services → Step D. Change in values → Step E. Using and interpreting results



Catchment area
43,000 ha

Watercourse length
850 km

Main river length
115 km

Arable land
18,000 ha

Grassland
17,000 ha

Woodland
2,000 ha

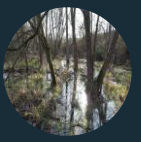
Priority habitats
5,000 ha

Wetlands
4000 ha

Hedge length
3,000 km

1,000 ha

Floodplain meadow restoration



800 ha

Woodland planting and natural regeneration

150 ha

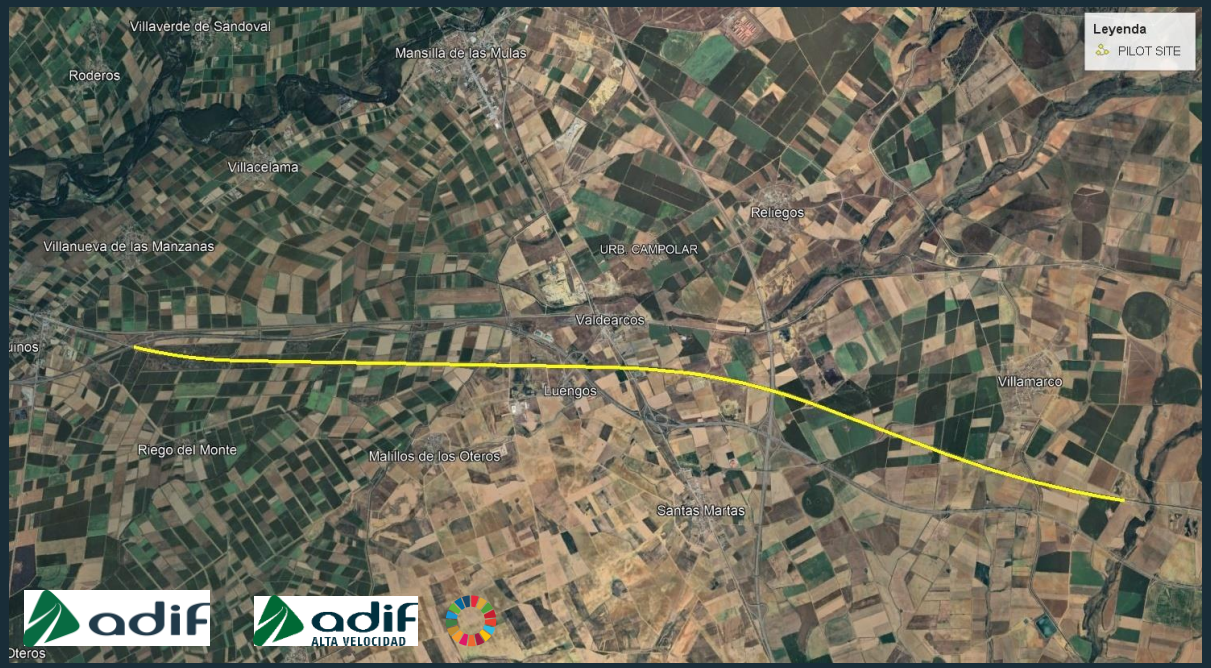
Wetland creation and enhancement

Pilot Site #2: High-speed railway between Valladolid and León, Spain

- Upgrading 16km of an existing railway to high-speed rail, reducing travel times from Madrid to the north of the peninsula
- Embankment along the train used soil of the surrounding agriculture land as fill material.
- Project includes mitigation measures on affected areas such as afforestation and creation of temporary wetlands.
- Likely beneficiaries include landowners, local population, railway users, railway manager/operator.
- Project completed, pilot assessment to understand the ES value of the environmental mitigation

Overview

Implementing ECOV4R at the pilot site seeks to evaluate the benefits of the mitigation measures and the broader impact/benefits of the project. Moreover, it would allow testing the framework on a constructed project.



- Located in the northwest of the Iberian Peninsula in the Autonomous Community of Castilla y León (Province of León).
- The area is dominated by agricultural land, dryland crops and irrigated land.

- **16 km selected for the pilot near the city of León**
  - Railway runs along the **Duero River** valley and crosses the Esla and Pisuerga rivers
  - Runs parallel to the Camino de Santiago
- Construction:
  - Platform construction:2008-2013
  - Superstructure: 2014-2016

Environmental Mitigation / Restoration

Mitigation measures considered

- Embankment slopes adaptation
- Temporary wetlands
- Afforestation

A 2022 follow up report on the efficiency and condition of the mitigation measures concluded:
"(…) the restored wetlands in LAV Palencia – León may constitute interesting wetlands within the crop matrix of Tierra de Campos, being able to be used temporarily as resting and/or camping areas or in some cases to complete the biological cycle of certain species of birds and amphibians."

ECOV4R Steps A and B

Step A. Baseline → Step B. Impacts on Natural Capital Assets → Step C. Impacts on Ecosystem Services → Step D. Change in values → Step E. Using and interpreting results

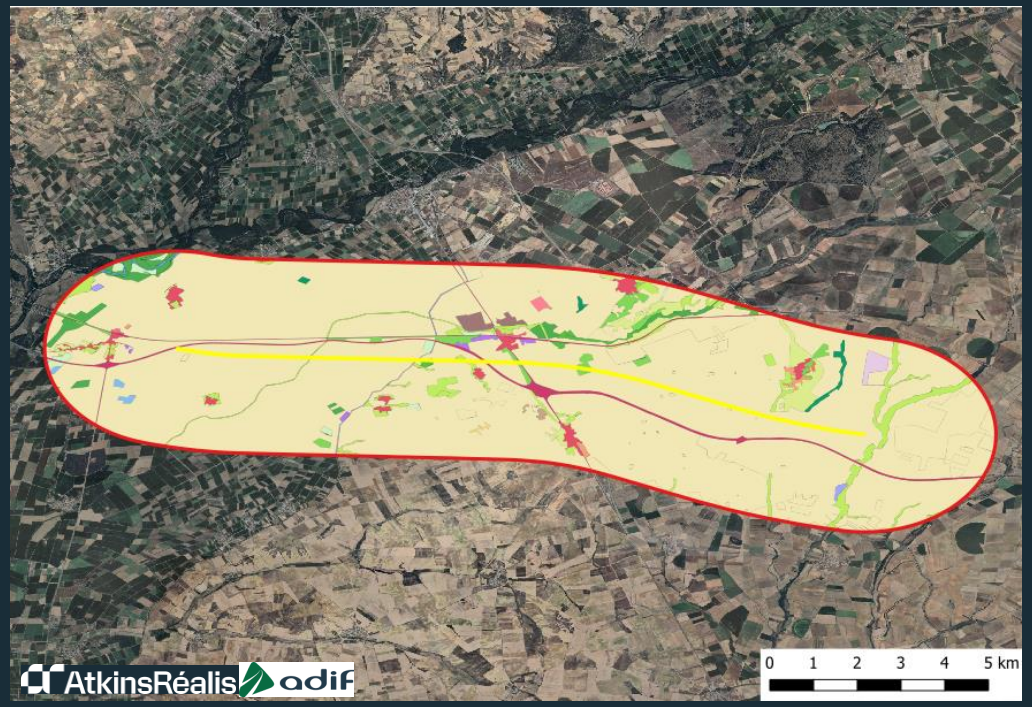
Ecosystem services assessment is in an early stage

Study area (buffer 3km)
12,480 ha

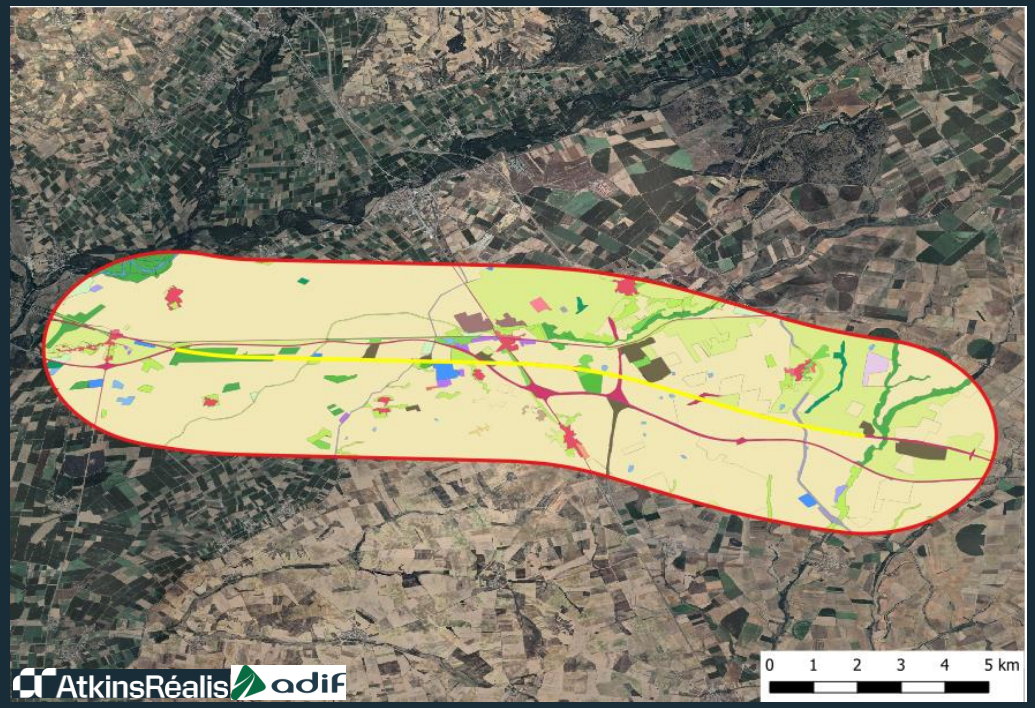
Railway length
16 km

Footprint and mitigation area
338 ha (approx.)

Baseline



Post-intervention



Summary and next steps for the ECOV4R Project

Ecosystem Valuation for Railways (ECOV4R)

What are some of the benefits of this project for railway companies and infrastructure managers?

Improved industry understanding of the application of ecosystem services thinking in railway projects and land management

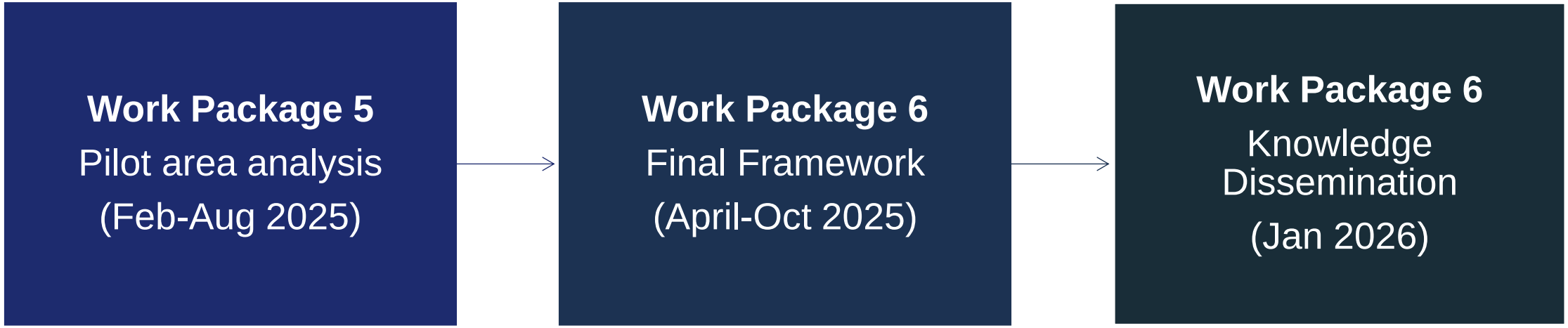
Understanding the value of ecosystems on railway estate, enabling a business case for investment in NBS for climate resilience and adaptation

Provide recommendations to improve land use management (including in land surrounding rails) that enhance ecosystem services

Using pilot studies to demonstrate applicability and facilitate shared learning and capacity building

There is a clear desire from stakeholders for ECOV4R to deliver a clear, reproducible and audit-proof valuation method that represents an added value to the usual quantification methods used to justify interventions and to monitor long-term effects.

Next Steps for the ECOV4R Project



If you would like to learn more about the project, please get in touch with:

- Lorenzo Franzoni (UIC), franzoni@uic.org
- Michael Image (AtkinsRéalis), Michael.image@atkinsrealis.com

With thanks to…

Österreichische Bundesbahnen

Network Rail Infrastructure Limited

Administrator de Infraestructuras Ferroviarias

INTERNATIONAL UNION OF RAILWAYS

thank you

AtkinsRéalis

Break time

See you in 15 minutes

Mainstreaming Biodiversity in Multimodal Infrastructure

Elke Hahn

EIA coordinator

Republic of Austria

Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology

Lorenzo Franzoni

Sustainability Advisor

UIC

SUSTAINABILITY
Action Week

Biodiversity and Infrastructure

Contribution of infrastructure operators to achieving the targets of the Austrian Biodiversity Strategy 2030+

Elke Hahn

EIA coordinator

Republic of Austria

Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology

SUSTAINABILITY
Action Week

Federal Ministry
Republic of Austria
Climate Action, Environment,
Energy, Mobility,
Innovation and Technology

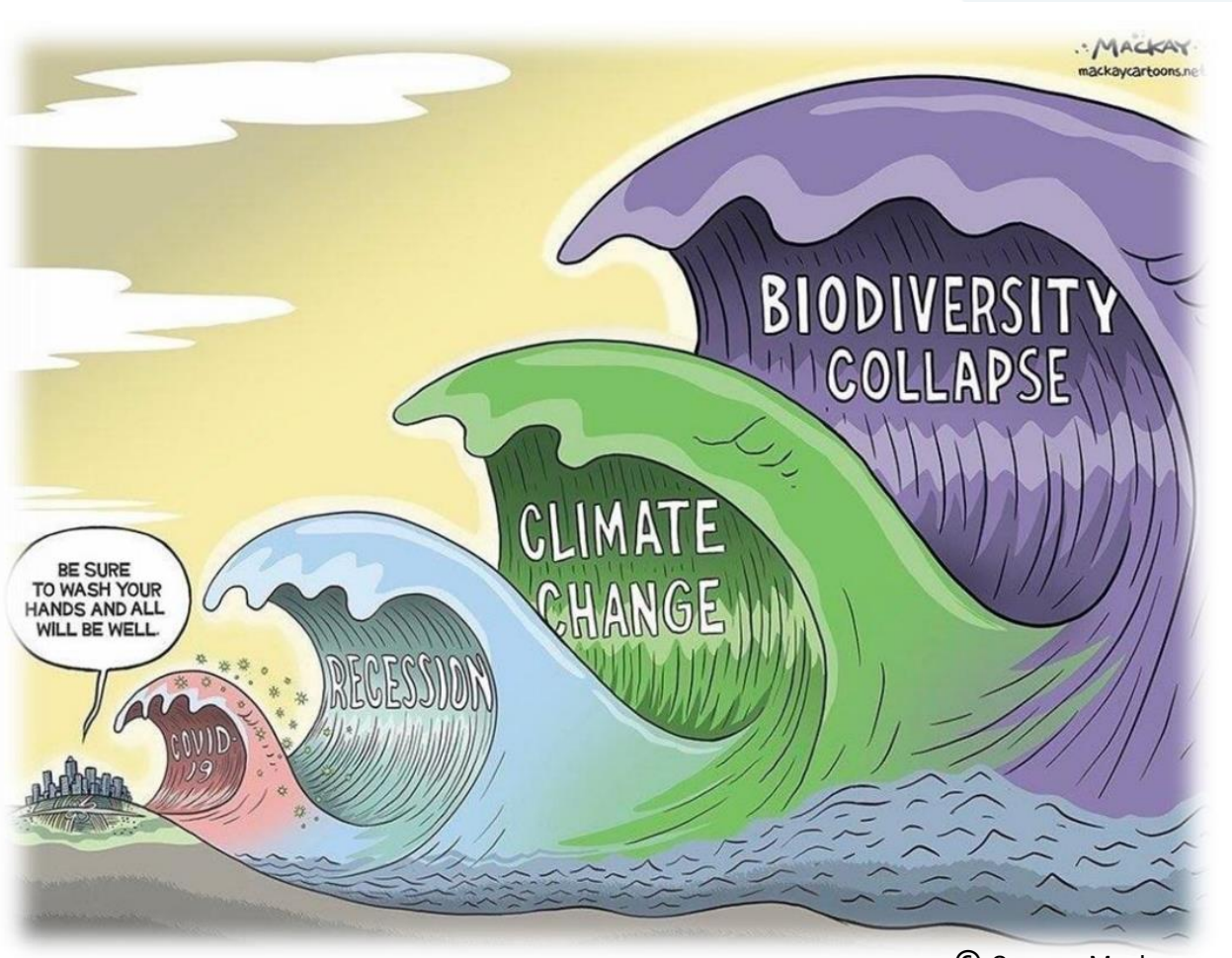
Biodiversity and Infrastructure

Contribution of infrastructure operators to achieving the targets of the Austrian Biodiversity Strategy 2030+

Elke Hahn
BMK, IV, IVVS1
Paris, 13th of march 2025

UIC Sustainability Week

Climate Change vs. Biodiversity Collapse ?

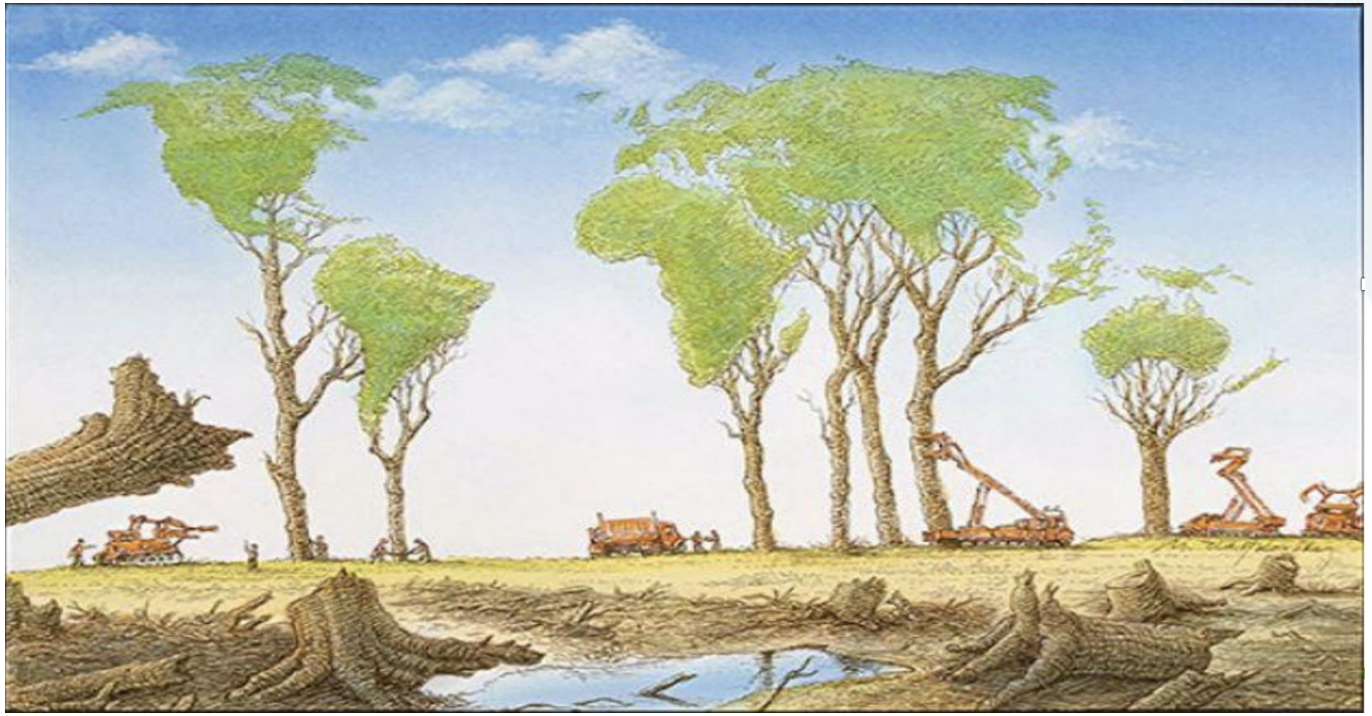


© Graeme Mackay

By 2050, …

… if the status quo prevails,

there will be twice as many roads and railways as in 2010.



Infrastructure and Biodiversity

- The development of linear transport infrastructure is **one of the main causes** of the global decline in biodiversity (Rockström et al., 2009, Jaeger et al., 2011, Mccallum, 2015)
- **Main impacts** of transport infrastruc ecosystems:
  - Habitat loss and degradation
  - Fragmentation and barrier effect
  - Traffic mortality – Traffic safety
  - Disturbance and Pollution

Des lynx malformés dans le massif jurassien

Si vous vous promenez près la frontière franco-suisse, vous tomberez peut-être nez à nez avec un lynx... sans oreilles. Une malformation qui inquiète les spécialistes: elle serait liée à un appauvrissement génétique de l'espèce.

TEXTE **ELEONORE.DELOYE**@ARCINFO.CH / PHOTOS **ALAIN PRÊTRE**

Biodiversity loss

- Species populations and the natural areas they inhabit are shrinking and degrading
- Despite EU's efforts in protecting nature, the most recent assessments (EEA, 2020) found:
  - 80% of habitats in poor condition | 10% of bee and butterfly species risk extinction | 70% of soils in unhealthy condition
- Along with **habitat loss, fragmentation and degradation**, climate change is one of the key drivers of the dramatic decline in biodiversity

Austrian Biodiversity Strategy 2030 +

- A ten-point programme provides national quantitative and qualitative targets:
  - Initiating transformative change in society and integrating biodiversity into all sectors - '**mainstreaming**'
  - Protection and **connectivity** of all ecologically valuable habitats
  - Substantial reduction of **habitat loss and fragmentation**

➔ Intra-departmental and cross-sectional **action plan** to identify areas of action within the federal competence that can contribute to implementation of the strategy

➔ Since 2020, bundling of the topics of transport and environment in **one ministry** for the first time

Project: Biodiversity and Infrastructure - Contribution of infrastructure operators to achieving the targets of the Austrian Biodiversity Strategy 2030+

- **Project partners**
  - ASFINAG - Austrian Motorway and Expressway Network Operator
  - ÖBB - Austrian Federal Railways
  - viadonau - Austrian waterway operator
  - Umweltbundesamt - Environment Agency Austria
- **Project duration:**
  - 11/2023 – 03/2025

Contribution of infrastructure operators to biodiversity

© Gebhard Banko, Florian Danzinger

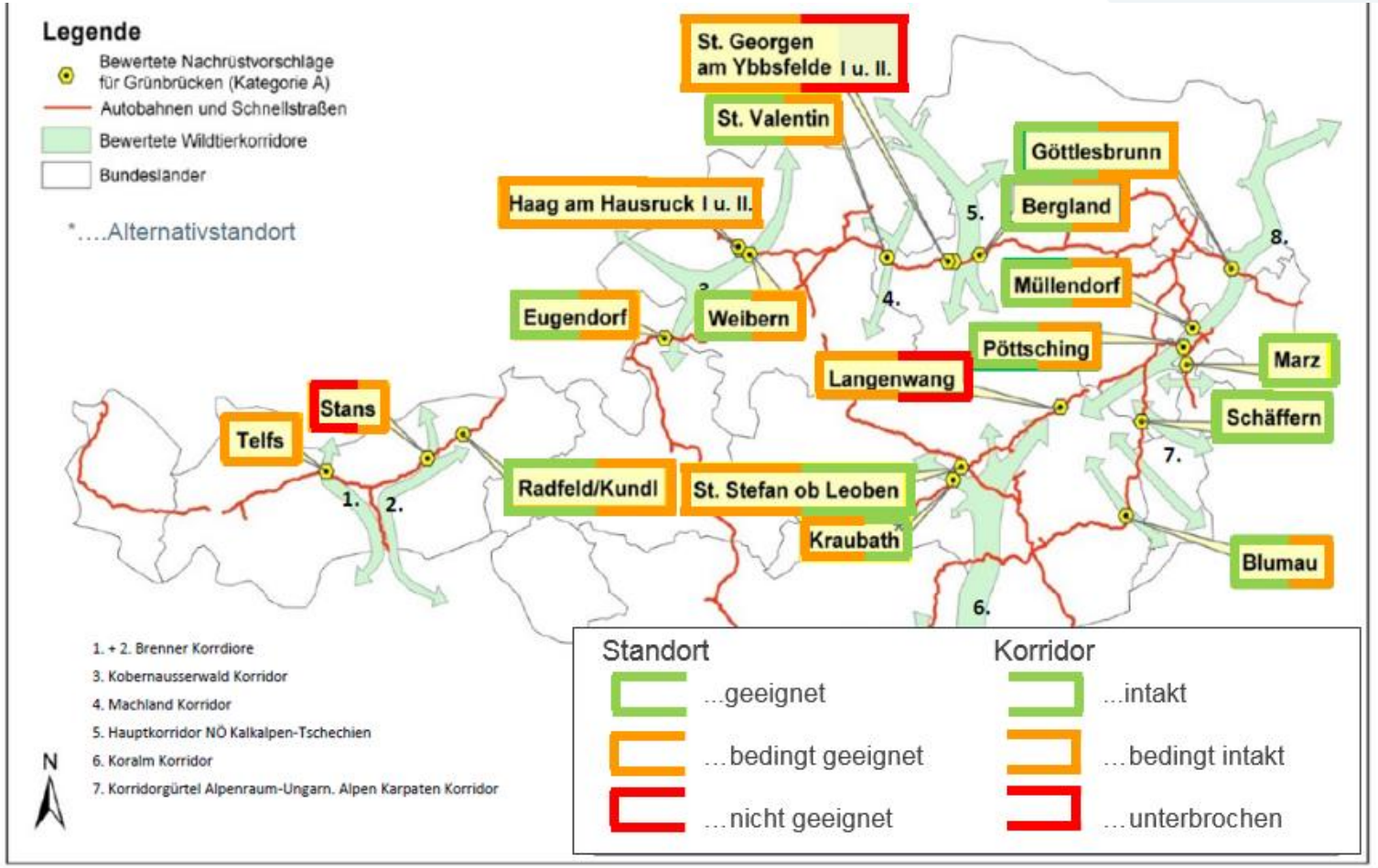
- **ASFINAG, ÖBB and viadonau** manage and maintain an enormous amount of **compensation areas, biodiversity offsets, green spaces and open areas**
- Compilation of all **compensation measures** in one **database**
- Inventory and **qualitative survey** of green areas
- Specific **recommendations for action** in order to realise the potential of these areas as a contribution to the protection of biodiversity
- ASFINAG and ÖBB **cross-sectoral defragmentation**

Cross-sectoral Defragmentation

- Since 1986: **obligatory fencing** on both sides along **motorways**
- 2001 Völk et al.: Study about fragmentation caused by motorways, 400 Hotspots
- 2005, Proschek: Priorization of 20 most important locations for refitting wildlife passages
- 2006 **Directive** from the ministry "**Habitat Connectivity**":

  20 wildlife over-passes above existing motorways to connect internationally important corridors

Defragmentation Programme



ASFINAG

WP Cross-sectoral Defragmentation

I. Areas with m

- Lower Austr
- ÖBB planne

→ 3 ne

→ mea

Untersuchungsgebiet	Standort	Korridor	Barriere baulich		Barriere frequenzbasiert		WQH	Eignung	Priorisierung
			hoch	sehr hoch	hoch	sehr hoch			
St.Valentin - Haag	A1	Machland Korridor		✓	✓		Grünbrücke Kat. A	Gut	1
St.Valentin - Haag	ÖBB-Neubaustrecke	Machland Korridor			✓*	✓**	Unterflurtrasse + Kat. A und B	Vorhanden	
St.Valentin - Haag	ÖBB alte Westbahn-strecke	Machland Korridor					Querungserleichterung	Gut	1
Reitzberg	A1	Machland Korridor		✓	✓		Brücke/Durchlass Kat. A	Gut	1
Reitzberg	ÖBB	Machland Korridor			✓	✓**	Durchlass Kat. A	Gut	1
St. Georgen Ost	A1	Hauptkorridor NÖ Kalkalpen - CZ		✓	✓		Brücke Kat. A	Mäßig	3
St. Georgen West	A1	Hauptkorridor NÖ Kalkalpen - CZ		✓	✓		Brücke Kat. A	Gut	2
St. Georgen	ÖBB	Hauptkorridor NÖ Kalkalpen - CZ			✓	✓*	Durchlass Kat. A	Gut	2
Langenwang	S6	Koralm-Korridor Nord (Mürztal)		✓	✓		Grünbrücke Kat. A	Gut	2
Langenwang	S6 Alternativstandort	Koralm-Korridor Nord (Mürztal)		✓	✓		Durchlass Kat. A	Gut	2
Langenwang	ÖBB	Koralm-Korridor Nord (Mürztal)			✓*		Durchlass Kat. A	Gut	2
Kindberg	S6 Standort "a"	Koralm-Korridor Nord (Mürztal)		✓	✓		Grünbrücke Kat. A	Gut	1
Kindberg	S6 Standort "b"	Koralm-Korridor Nord (Mürztal)		✓	✓		Durchlass Kat. A	Mittel	2
Kindberg	ÖBB	Koralm-Korridor Nord (Mürztal)			✓*		Durchlass Kat. A	Gut	1
Kraubath	S36 Standort Süd	Koralm-Korridor (Murtal)		✓	✓		Durchlass Kat. A	Gut	1
Kraubath	ÖBB Rudolfsbahn	Koralm-Korridor (Murtal)					Querungserleichterung	Gut	1
Kolsass/Terfens	A12	Brennerkorridor (Unterinntal)		✓			Brücke/Durchlass Kat. A	Gut	1
Kolsass/Terfens	ÖBB	Brennerkorridor (Unterinntal)		✓	✓**		Grünbrücke	Vorhanden	
Stans	A12	Brennerkorridor (Unterinntal)		✓			Brücke/Durchlass Kat. A	Mittel	2
Stans	ÖBB	Brennerkorridor (Unterinntal)			✓	✓*	Brücke/Durchlass Kat. A	Mittel	2

* Prognose 2025+ (für 2030); Quelle: ÖBB INFRA
** Prognose 2040; Quelle: ÖBB INFRA

WP Cross-sectoral Defragmentation

II. Other defragn

- ÖBB planned

Wildtierkorridore – Prüfung auf Durchlässigkeit

ÖBB INFRA

Zusammenfassung Prio 2 Standorte

In untenstehender Zusammenschau werden die wildökologische Eignung und Notwendigkeit aus Sicht ÖBB INFRA für die Errichtung von Wildquerungshilfen angegeben.
Weiters wurde je nach Untersuchungsbereich eine Priorisierung der Maßnahmen vorgenommen.

lfd. Nr	Untersuchtungsgebie	Strecke	Korridor	Barriere baulich 2024			Barriere frequenzbasiert			Empfehlung Wildquerungshilfe	Eignung Maß-nahme ÖBB	Priorisierung
				gering	mäßig	hoch	gering	mäßig	hoch			
10	Telfs	Arlbergbahn	Brennerkorridor WEST		2-gleisig		2022	2035-2040		Querungserleichterung	Mäßig	2
15	Radfeld / Kundl	Unterinntalbahn	Brennerkorridor OST		3-gleisig			2022-2040		nicht erforderlich WQH Maukenbach Kat B		0
11	Pöttsching	Mattersburger Bahn	Alpen Karpaten Korridor				2022-2040			nicht erforderlich		0
12	Schäffern	Thermenbahn	Alpen Karpaten Ungarn Korridor				2022-2040			nicht erforderlich		0
13	Müllendorf / Steinbrunn	Pottendorfer Linie	Alpen Karpaten Korridor		2-gleisig		2022	2035-2040		Querungserleichterung	Mäßig	2
		Pannoniabahn					2022-2040			nicht erforderlich		0
17	Bad Blumau	Thermenbahn	Alpenraum Ungarn Korridorgürtel				2022-2040			nicht erforderlich		0
14	Bergland	Westbahn Bestand	Hauptkorridor NÖ (Donauachse)				2022-2040			nicht erforderlich		0
		Erlauftalbahn					2022-2040			nicht erforderlich		0
16	Eugendorf	Westbahn	Machland Korridor		2-gleisig		2035-2040	2022		Querungserleichterung	Mäßig	2
18	Aistersheim / Weibern	Passauer Bahn	Kobernausserwald Korridor		2-gleisig		2022	2035-2040		Querungserleichterung	Mäßig	2
19	Haag am Hausruck III	Passauer Bahn	Kobernausserwald Korridor		2-gleisig		2022	2035-2040		Querungserleichterung	Mäßig	2
		Innkreisbahn					2022-2040			nicht erforderlich		0
20	Göttlesbrunn	S7 Flughafen- Schnellbahn	Alpen Karpaten Ungarn Korridor				2022-2040			nicht erforderlich		0
		Ostbahn				2-gleisig =Ausbau		2022	2035-2040	KAT B Bauwerk WQH Sarasdorf in Planung	gut	1

* Prognose 2035+; Quelle: ÖBB INFRA, Stand 09/2024
** Prognose Fachentwurf Zielnetz 2040; Quelle: ÖBB INFRA, Stand 09/2024

Frequenz
gering <=249 Züge/24h
mäßig 250-399 Züge/24h
hoch >=400 Züge/24h

ÖBB-Infrastruktur AG
Arbeitsgruppe Biodiversitätsstrategie

ÖBB Konzern bzw. TLP grün

15.10.2024

24

TLP gelb (Adressatenkreis)

MoU

Bundesministerium
Klimaschutz, Umwelt,
Energie, Mobilität,
Innovation und Technologie

ASFINAG
ÖBB viadonau

Memorandum of Understanding

Thank you for your attention !!

Elke Hahn
BMK
Elke.hahn@bmk.gv.at

EU-RAIL SYMBIOSIS Project:

Progress & Development

Lorenzo Franzoni

Sustainability Advisor

UIC

SUSTAINABILITY Action Week

SYMBIOSIS

Funded by the European Union

The project is supported by the Europe's Rail Joint Undertaking and its members. Funded by the European Union. Views and opinions expressed are, however, those of the author(s) only and do not necessarily reflect those of the European Union or Europe's Rail Joint Undertaking. Neither the European Union nor the granting authority can be held responsible for them.

SYMBIOSIS

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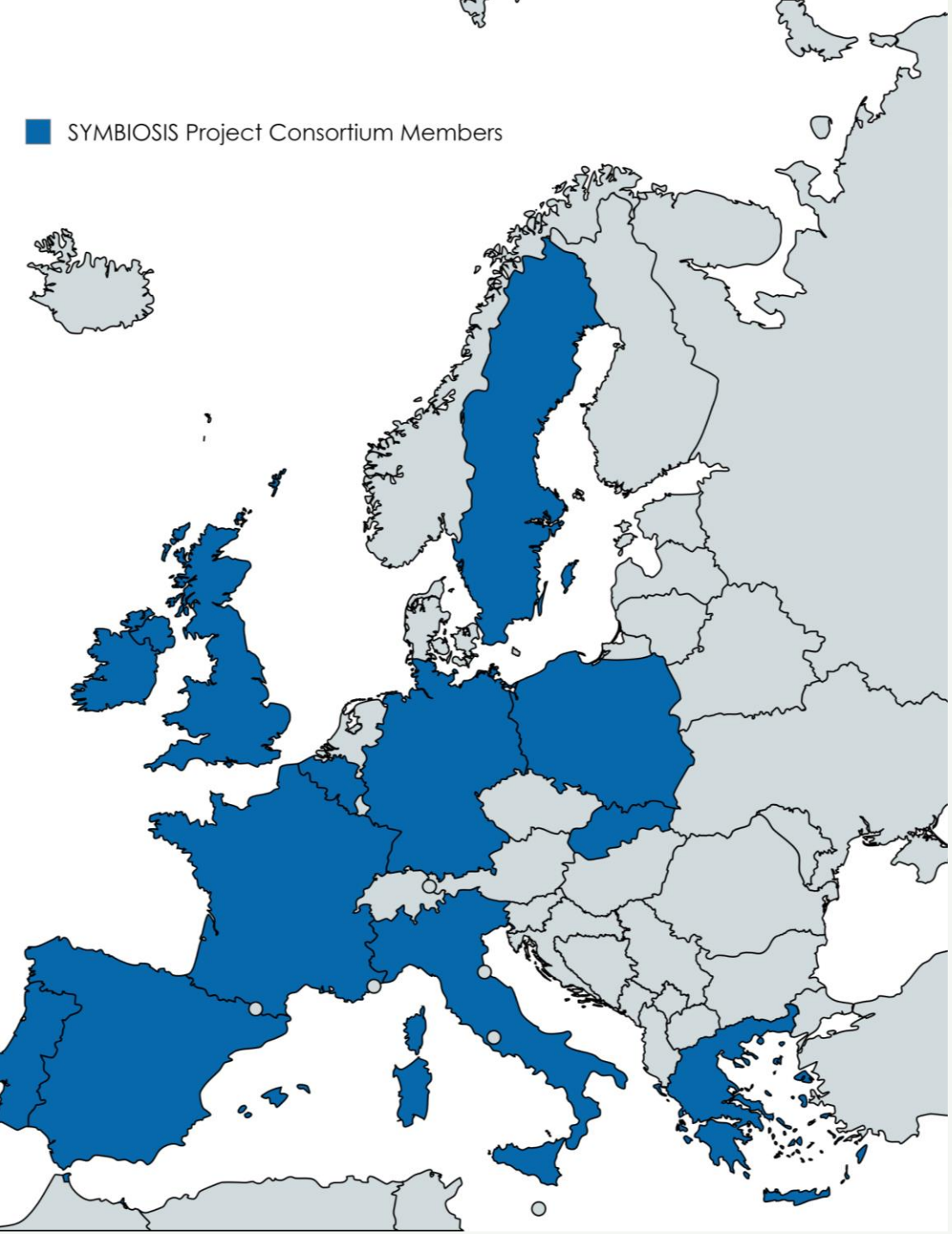
Funded by the European Union



International Organisations
UIC, FEHRL, ICSI

Railway Undertakings
SNCF, SNCF RESEAU,
NETWORK RAIL, ITALFERR

Research Centers
UKCEH, CERTH, IFEU

Universities
UPM, CENTRALE SUPELEC,
UNIVLEEDS, ULISBOA, SLU

Consulting and Service Providers
MINUARTIA, H&Z, KONNEKTABLE

Energy Companies
PGE Group

National Non-Governmental Organisations
FFE, RPS

Objective 1

Underline Key Enablers

- Mainstream biodiversity in infrastructure development

- Accelerate action by focusing on
  - ✓Transport policy
  - ✓Environmental impact assessments
  - ✓Sustainability reporting
  - ✓Procurement processes

Objective 2

Deliver Practical Tools

- Sustainable Land Management for Resilient Infrastructure
- Promote biodiversity while ensuring infrastructure is resilient, cost-effective, reliable, safe, and carbon-free.

Objective 3

Convene Communities of Practice

- Convene rail actors and biodiversity experts to create an inclusive, standardised framework for high-quality biodiversity data across transport and energy infrastructures

WP2: Communication, Dissemination & Exploitation

Creating a robust communication strategy for effective project dissemination and outreach

Mobilizing infrastructure and ecology stakeholders to strengthen collaboration and knowledge sharing

Developing capacity-building activities to empower stakeholders with best practices

Establishing a targeted advisory group to maximize project impact

Leader: FEHRL

Partners: UIC, Politécnica, CERTH Centre for Research & Technology Hellas, minuartia, ICSI International Coalition for Sustainable Infrastructure, PGE Energetyka Kolejowa, Fundación de los Ferrocarriles Españoles, UK Centre for Ecology & Hydrology, ITALFERR Gruppo Ferrovie dello Stato, NetworkRail, SNCF, University of Leeds

WP3: Operational Toolkit

Impact Assessment Tools for Linear Infrastructures

Mapping railway resilience, climate risks, and biodiversity enhancement opportunities

Guidance for railway blue-green infrastructure design and management options

Develop user-friendly biodiversity and carbon emissions calculator

Leader: POLITÉCNICA

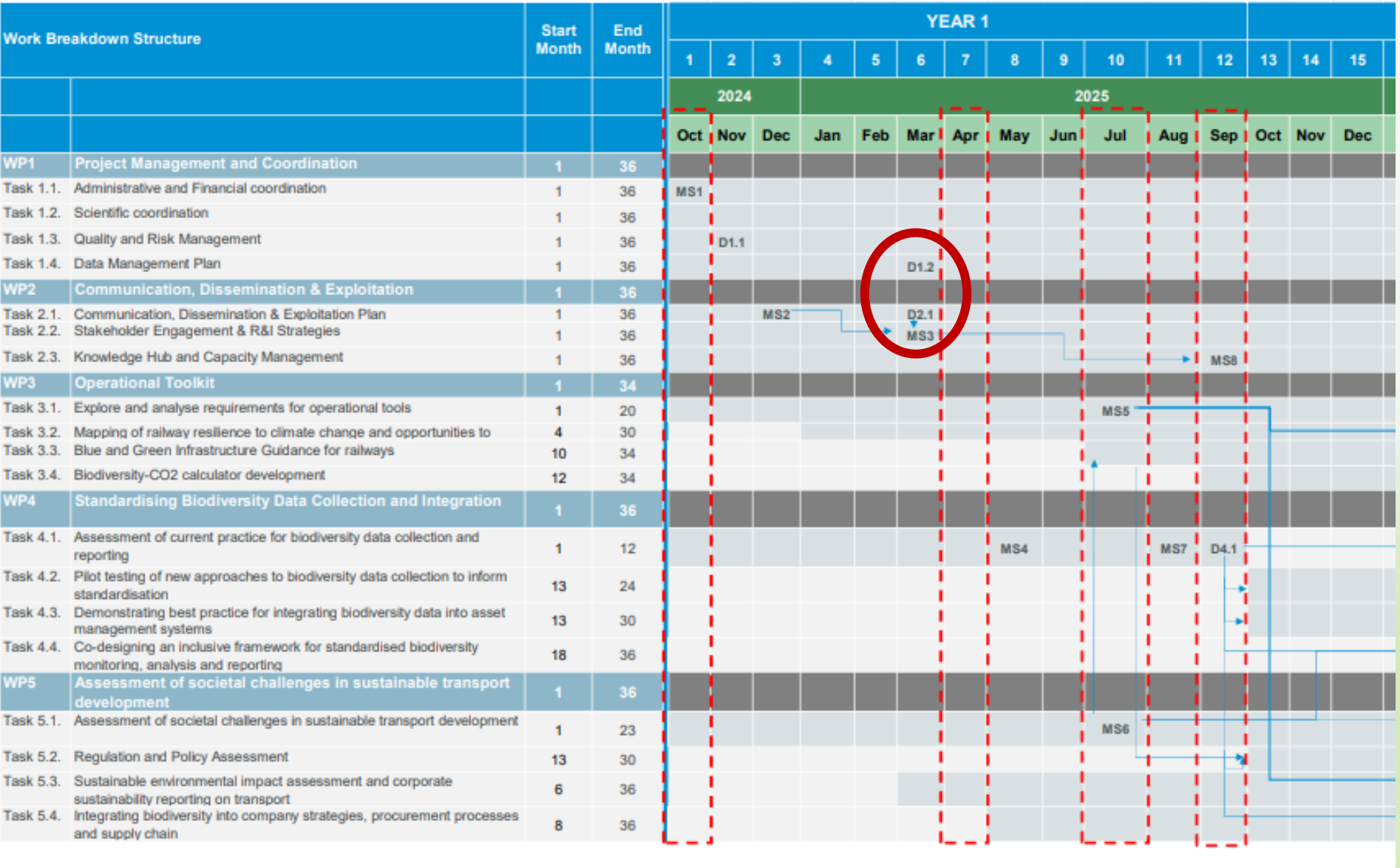
Partners: UIC, UK Centre for Ecology & Hydrology, minuartia, University of Leeds, CentraleSupélec, ifeu Institut für Energie- und Umweltforschung Heidelberg, Fundación de los Ferrocarriles Españoles, SLU Swedish University of Agricultural Sciences, CERTH Centre for Research & Technology Hellas, ITALFERR Gruppo Ferrovie dello Stato, PGE Energetyka Kolejowa, FCiências.ID Associação para a Investigação e Desenvolvimento de Ciências

Symbiosis Gantt Chart

Public events

Year Month

Date: 2024-06-13-15h30



Work Breakdown Structure		Start Month	End Month
WP1	Project Management and Coordination	1	36
Task 1.1.	Administrative and Financial coordination	1	36
Task 1.2.	Scientific coordination	1	36
Task 1.3.	Quality and Risk Management	1	36
Task 1.4.	Data Management Plan	1	36
WP2	Communication, Dissemination & Exploitation	1	36
Task 2.1.	Communication, Dissemination & Exploitation Plan	1	36
Task 2.2.	Stakeholder Engagement & R&I Strategies	1	36
Task 2.3.	Knowledge Hub and Capacity Management	1	36
WP3	Operational Toolkit	1	34
Task 3.1.	Explore and analyse requirements for operational tools	1	20
Task 3.2.	Mapping of railway resilience to climate change and opportunities to	4	30
Task 3.3.	Blue and Green Infrastructure Guidance for railways	10	34
Task 3.4.	Biodiversity-CO2 calculator development	12	34
WP4	Standardising Biodiversity Data Collection and Integration	1	36
Task 4.1.	Assessment of current practice for biodiversity data collection and reporting	1	12
Task 4.2.	Pilot testing of new approaches to biodiversity data collection to inform standardisation	13	24
Task 4.3.	Demonstrating best practice for integrating biodiversity data into asset management systems	13	30
Task 4.4.	Co-designing an inclusive framework for standardised biodiversity monitoring, analysis and reporting	18	36
WP5	Assessment of societal challenges in sustainable transport development	1	36
Task 5.1.	Assessment of societal challenges in sustainable transport development	1	23
Task 5.2.	Regulation and Policy Assessment	13	30
Task 5.3.	Sustainable environmental impact assessment and corporate sustainability reporting on transport	6	36
Task 5.4.	Integrating biodiversity into company strategies, procurement processes and supply chain	8	36

NEXT EVENTS

- May 2025 WP4: Milestones 4 Deploy to understand practices for biodiversity monitoring across European rail operators – Lead by UKCEH
- July 2025 WP3: Milestones 5 Preliminary analysis of impact assessment tools and stakeholder synergy exploration related – Lead by UPM

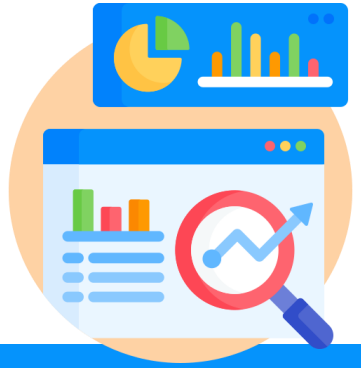
July 2025: Workshop on Enhancing Stakeholder Engagement

September 2025: Workshop on EIA and CSRD

WP4 – Standardising Biodiversity Data Collection and Integration

Assess biodiversity data collection and reporting practices across railways

Pilot testing automated biodiversity monitoring for standardisation and scalability



Integrate biodiversity data into rail asset management

Co-design an inclusive framework for standardised biodiversity monitoring and reporting.

Leader: UK Centre for Ecology & Hydrology

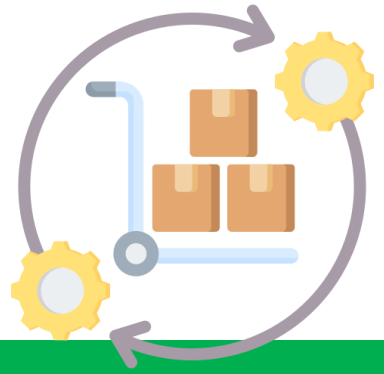
Partners: UIC, minuartia, FCiências.ID, University of Leeds, SNCF Réseau, Network Rail, SLU Swedish University of Agricultural Sciences, CERTH Centre for Research & Technology Hellas, ITALFERR Gruppo Ferrovie dello Stato, CentraleSupélec, ifeu Institut für Energie- und Umweltforschung Heidelberg, minuartia

WP5 : Assessment of Societal Challenges in Sustainable Transport Development

Assess societal impacts, challenges, and stakeholder involvement in sustainable transport development.

Assess regulatory frameworks and policy gaps affecting transport and biodiversity

Update environmental assessments and corporate reporting to integrate biodiversity



Embed biodiversity in procurement processes and corporate strategies effectively

Leader : CERTH CENTRE FOR RESEARCH & TECHNOLOGY HELLAS

Partners: UIC, FEHRL, minuartia, FCiências.ID, University of Leeds, ifeu, SNCF, Fundación de los Ferrocarriles Españoles, ICSI International Coalition for Sustainable Infrastructure, ITALFERR Gruppo Ferrovie dello Stato, CentraleSupélec, NetworkRail, UK Centre for Ecology & Hydrology, PGE Energetyka Kolejowa, H&Z, konnektable technologies

UIC Members' Environmental Challenges: Planning, Monitoring and Reporting

Iveta Jēgere

Head of Sustainability

RB Rail RS

Simeon Eichelmann

Sustainability Specialist

Rhaetian Railway

SUSTAINABILITY Action Week

Mitigating impact on biodiversity and ensuring animal migration in the Rail Baltica railway project

Iveta Jēgere

Head of Sustainability

RB Rail RS

SUSTAINABILITY Action Week

Rail Baltica

Co-funded by
the European Union

Mitigating impact on biodiversity and ensuring animal migration in the Rail Baltica railway project

March 2025

Four pillars of Rail Baltica

1. Connection to Europe
2. Economic benefits
3. Military mobility
4. TEN-T obligation

CONTRIBUTES TO EUROPEAN COMMISSION'S SUSTAINABLE AND SMART MOBILITY STRATEGY OBJECTIVES AND THE EUROPEAN UNION'S CLIMATE NEUTRALITY GOALS

Rail Baltica scope and solutions for ecosystem connectivity

- Most passages align with green corridors
- Standard landscaping guidelines established
- Ecologists design solutions to attract target species and provide hiding spots

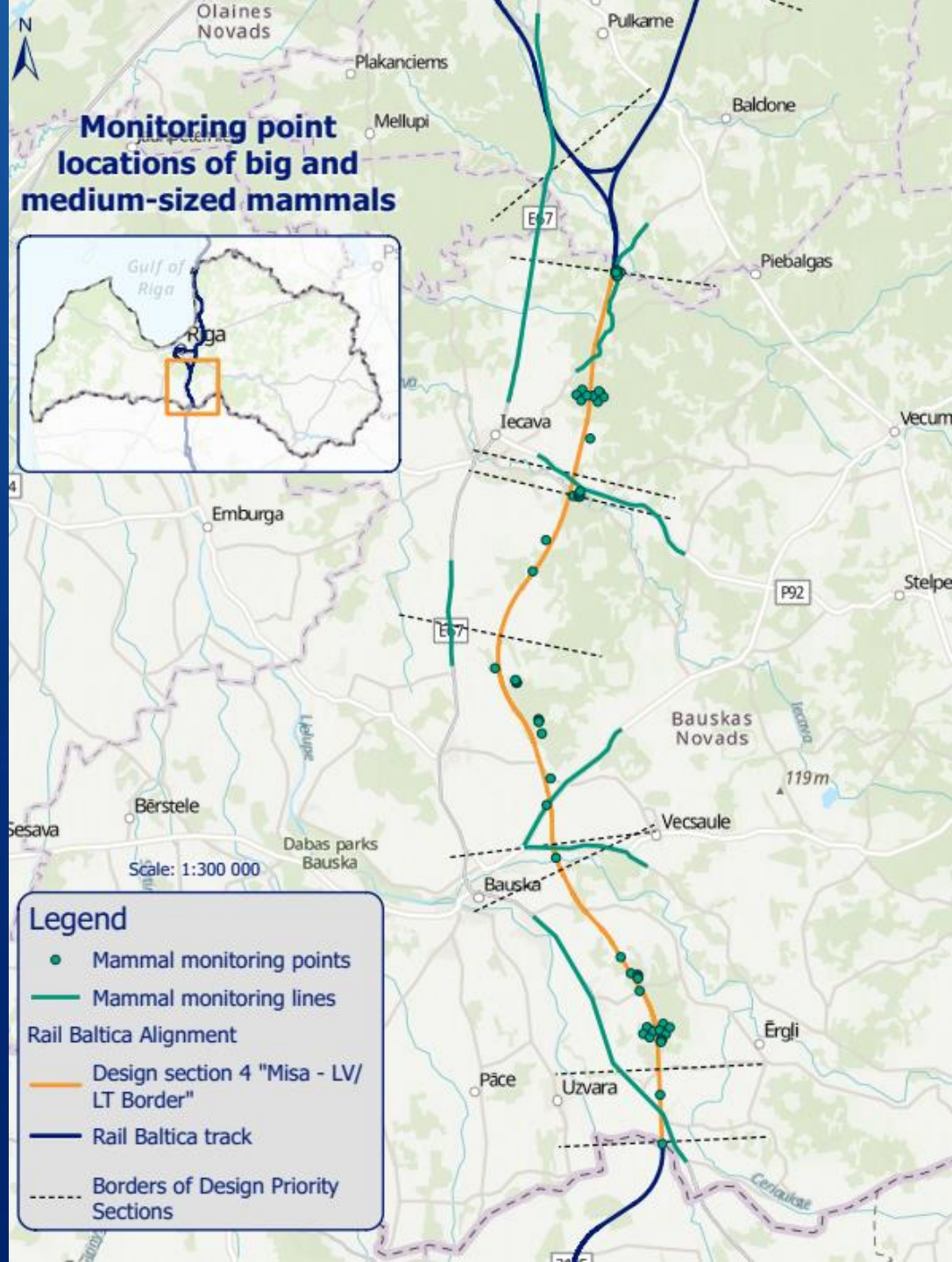
900 KM OF RAILWAY, > 1000 WILDLIFE CROSSINGS

> 90 ECODUCTS AND UNDERPASSES, ~ 50 GREEN PATHS, AND HUNDREDS OF STRUCTURES FOR SMALL FAUNA

Overpassing data gaps: Latvian example

RAIL BALTICA EIA (LATVIA, 2014–2016)

- Ongoing state biological mapping; data gaps on mammal corridors
- EIA requires mammal monitoring
- Duration: 4 seasons pre-construction, 4 seasons construction, operational phase
- Scope: Small to large mammals, including predators, dormouse, otter, and animal mortality monitoring



Rail Baltica

Crossing complex territories: Lithuanian example

NERIS RIVER – NATURA 2000 SITE (LTVIN0009)

- Key features: Freshwater habitat 3260, protected fish, otters (*Lutra lutra*), and green club-tailed dragonflies (*Ophiogomphus cecilia*)
- Neris Bridge: ~1.5 km long; no piers allowed in the riverbed
- Environmental measures: Time restrictions, water treatment, sediment control, and multiple migration passageways
- Monitoring required (pre-construction, construction and operational phase)

Compensating impact: Estonian example

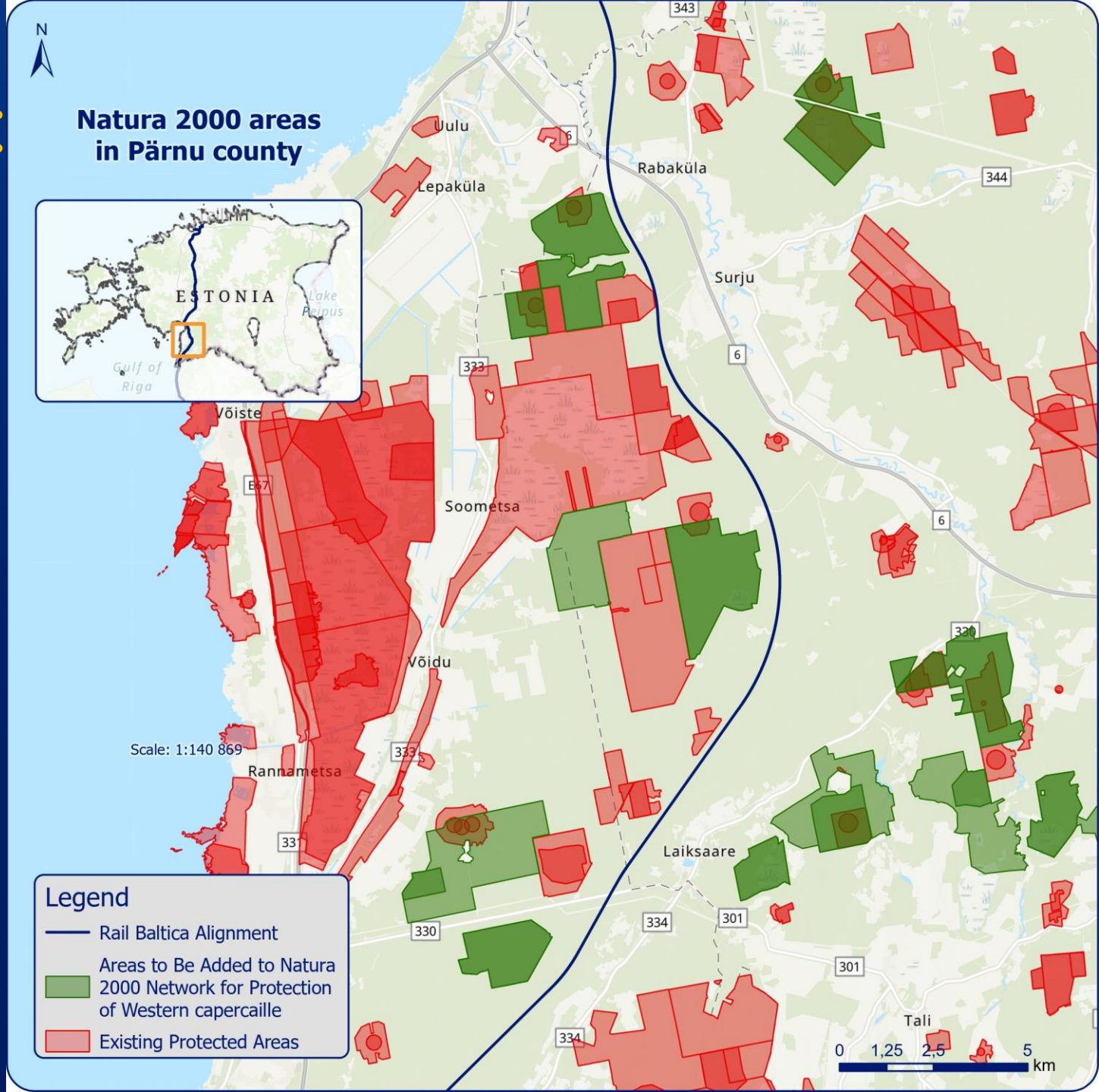
IN NUMBERS

- Additional protected area – 5754 ha
- Area of restoration works within the above – 3453 ha
- Duration of restoration works (design and implementation) – 4 years from 2023 to 2026
- Total expected cost – approximately 2,5 million euros

MONITORING REQUIREMENTS TO PROVE EFFICACY –

The number of males in courting

- Prior to the works – annually
- Within ten years after the completion of works – annually
- Adjacent areas where courting occurs – 3-yearly
- Efficacy assessment at 5 years and at 10 years after completion of works




Rail Baltica
Co-funded by
the European Union
Thank you!
Rail Baltica

On Track to Nature-Positive:

Simeon Eichelmann

Sustainability Specialist

Rhaetian Railway

RhB's Journey into TNFD Reporting

SUSTAINABILITY Action Week

Rhaetian Railway

On Track to Nature-Positive

RhB’s Journey into TNFD-Reporting

Chur, 10. März 2025 / S-SQN

Content

- Introduction of Rhaetian Railway
- Why Nature Reporting Matters at the Railway Sector
- TNFD Recommendations for Nature Reporting
- Challenges and Solutions

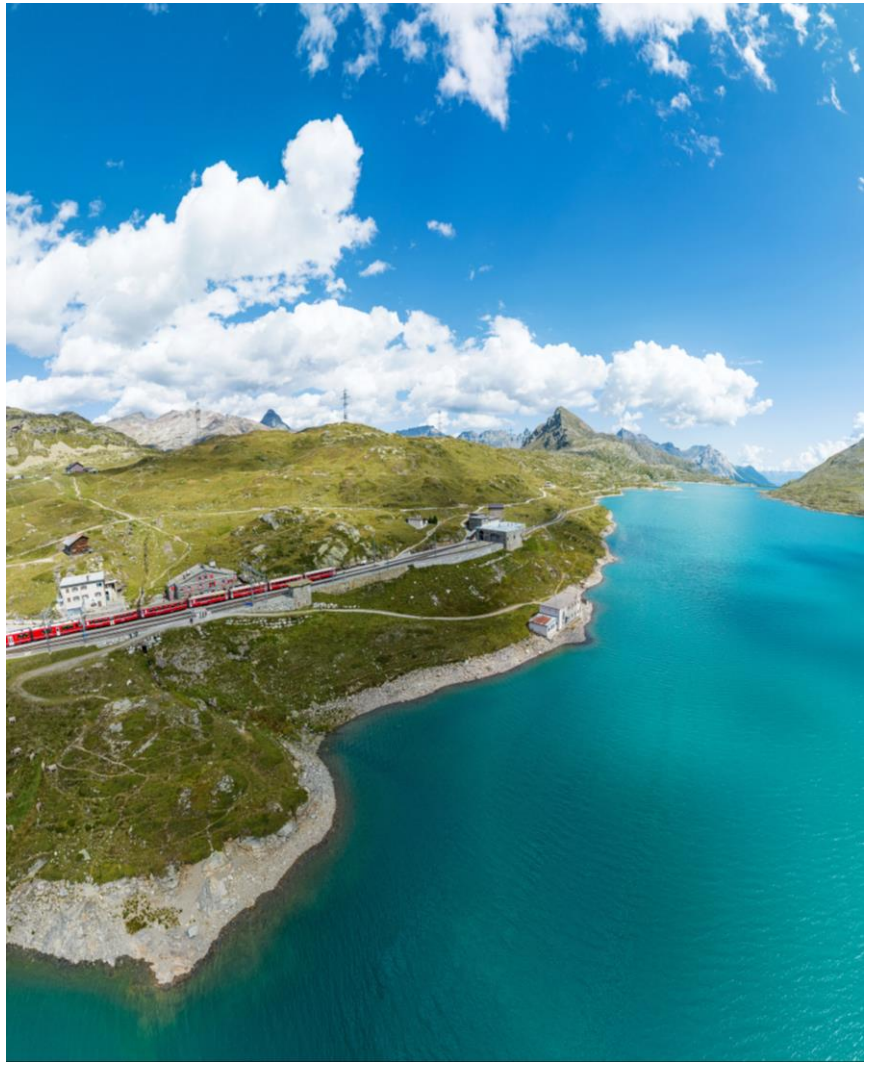
Raethian Railway – Who We are?

- The Raethian Railway is a Swiss railway company operating in the canton of Grisons.
- It offers both passenger and freight services, connecting remote areas and popular tourist destinations like St. Moritz and Davos.
- The Raethian Railway is renowned for its scenic routes through the Alps:
  - Albula and Bernina lines, which have been designated as UNESCO World Heritage sites.

- The Raethian Railway is renowned for its products
  - Glacier Express
  - Bernina Express

Why Nature matters in the railway sector

- **Tourism:** landscapes as the RhB's main selling point
- Our commitment to nature pays direct dividends for our USP
- **Soil erosion**: Biodiversity plays a crucial role in preventing soil erosion.



RhB's great dependence on nature

- **Natural hazards** (rockfall, debris flows, landslides) lead to operational disruption and infrastructure damage

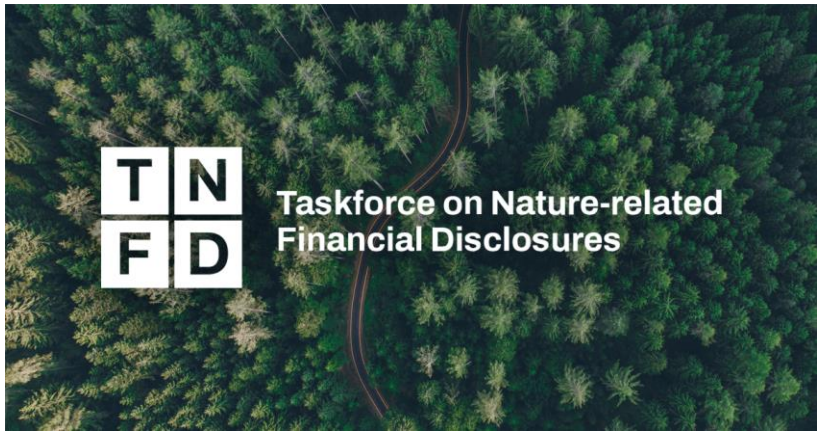
Global Risk Report WEF 2025

Railroad operations have a major impact on nature

- Invasive species
- Disturbance (light, noise)
- Habitat fragmentation
- Pollution (leakages, particulate matter)
- Emissions
- Waste

Regulatory developments

- Increasing **regulatory** requirements due to legislation
- Growing attention and demands from **stakeholders**
- The CSRD (Corporate Sustainability Reporting Directive) are in align with TNFD.
- The ISSB standards could be adopted by Swiss legislation as an alternative to the CSRD.



ISSB

IFRS Sustainability

International Sustainability Standards Board

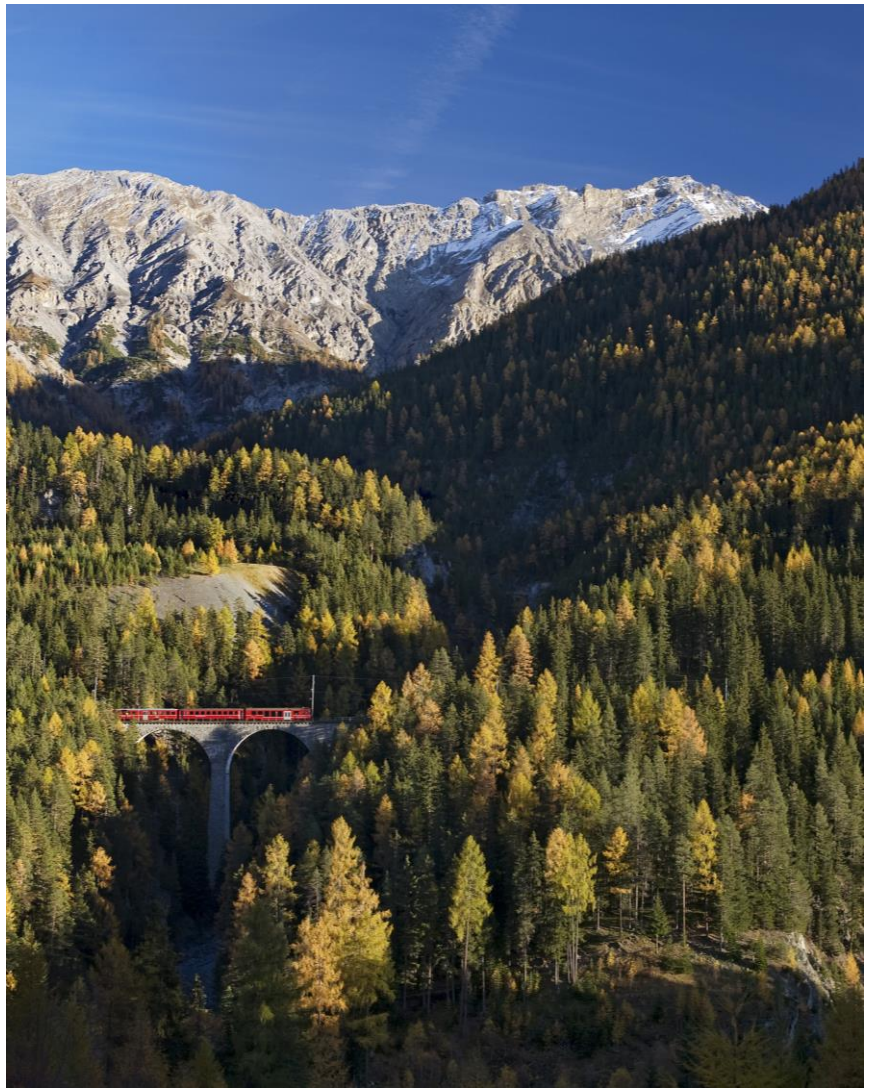
TNFD Recommendations for Nature Reporting

- The Taskforce on Nature-related Financial Disclosures (TNFD) is a global initiative that provides a framework for organizations to assess, manage, and report on their nature-related dependencies, impacts, risks, and opportunities.
- Published on September 2023.
- The TNFD aims to shift financial flows towards nature-positive outcomes by integrating nature into business and financial decision-making.
- The TNFD recommendations are similar to the TCFD climate reporting standards. But more holistic about nature.

TNFD Taskforce on Nature-related Financial Disclosures

Obligation for non-financial reporting

- The sustainability report is not a means of cultivating a company's image, but a legal obligation.
- Nature is not a corporate social responsibility topic. It’s a financial risk.



Advantages of early adopting the TNFD in the railway sector

- Rail companies can further consolidate their position as the most sustainable mobility provider
- Not just in climate, also in biodiversity
- Join the TNFD Forum – become a member

Challenges and Solutions

Challanges

- Data availability
- Data comparability

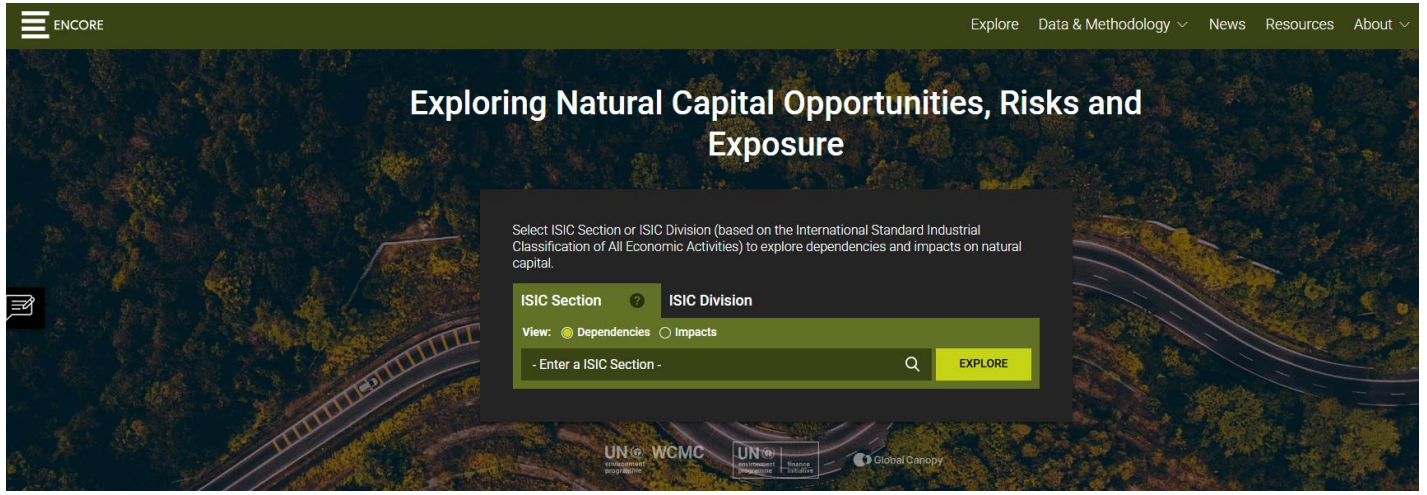
Solutions

- Tools with comparable spatial data like WWF risk filters, satellite maps etc.

Time to act - it`s now for nature

- Start with the first step
- Discover your company's risks and dependencies in just 10 minutes

- ENCORE-Tool
- https://encorenature.org/en



Further information

- You can email me for further information. I made a Good Practice Handbook and have lists of tools for spatial data.
- Or the TNFD-Website: https://tnfd.global/

Taskforce on Nature-related Financial Disclosures

Rhätische Bahn

Thank you!

Contact:

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Rhaetian Railway

Backup

TNFD-Report

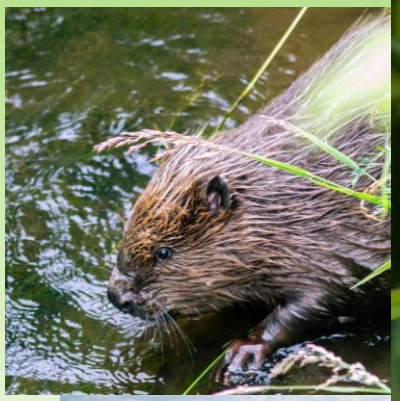
- Our TNFD-Report will be published in May 2025 on this page:

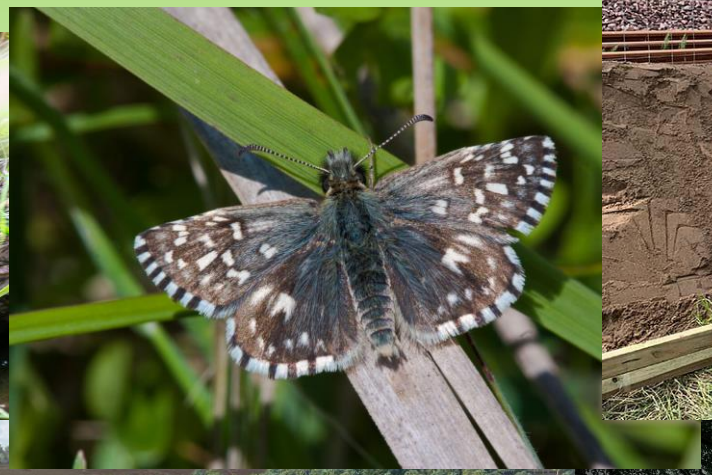
  https://www.rhb.ch/de/unternehmen/portraet/nachhaltigkeit

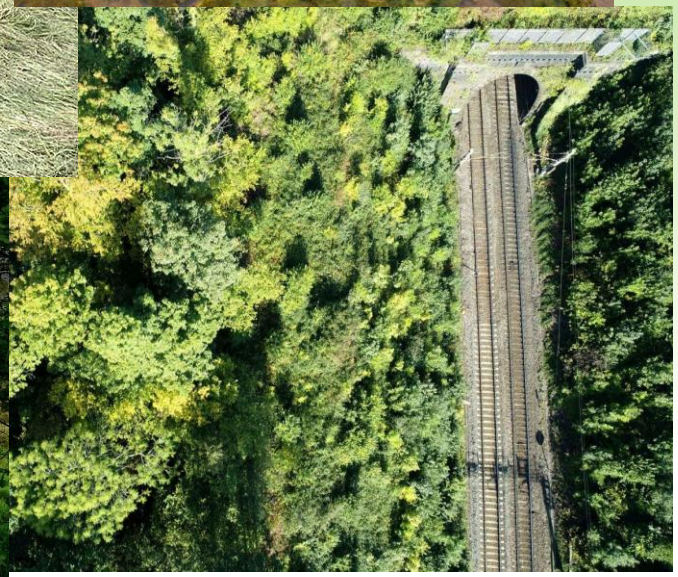
One more thing
...
Last Minute Announcement
by
Louise McGowan


IENE
Infrastructure & Ecology
Network Europe
IENE Conference 2026

IENE
Infrastructure & Ecology Network Europe







Images: Natural England, National Highways, Network Rail, The British Ports Association

See you in Bristol

Thank you

Cardiff University / Prifysgol Caerdydd

Natural England

NetworkRail

The Wildlife Trusts

UWE Bristol

Animex International – Keeping Habitats Connected

national highways

West of England Mayoral Combined Authority

Wildlife and Countryside LINK

Closing Remarks,
Neil Strong,

Network Rail