WP2 December meeting – overview of 2023

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Monthly WP2 meeting with active partners

13th of December 2022

Welcome words and introduction of the meeting

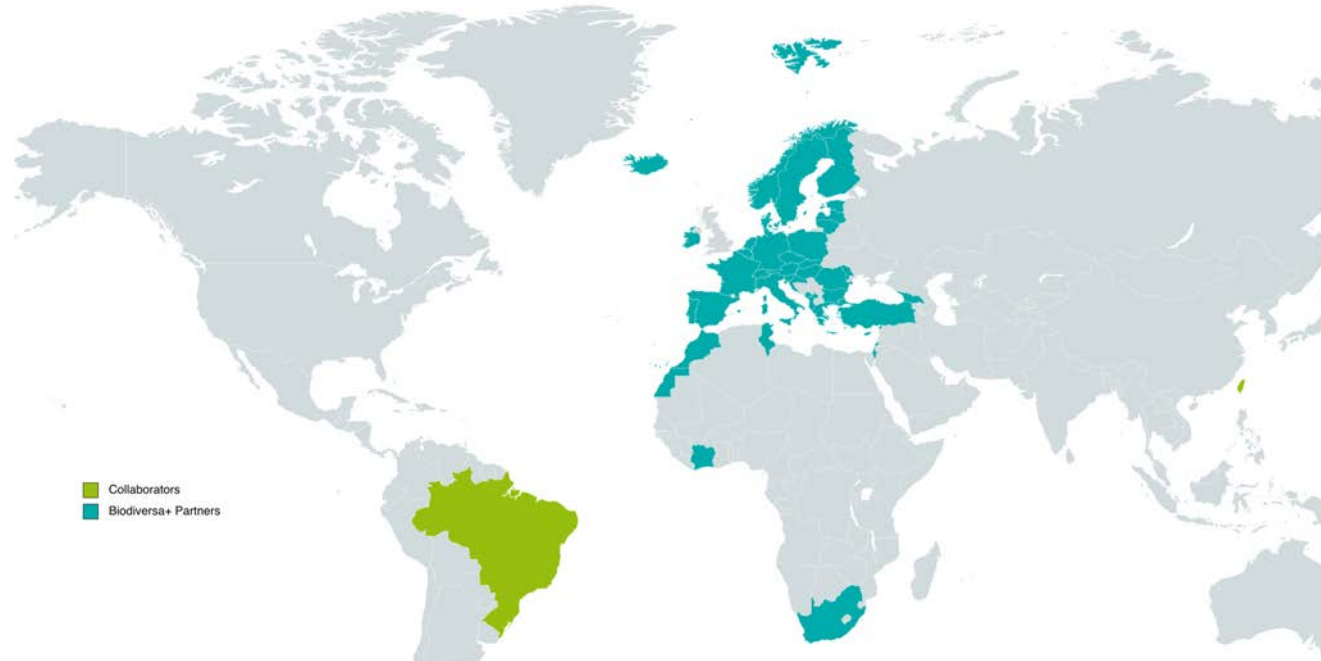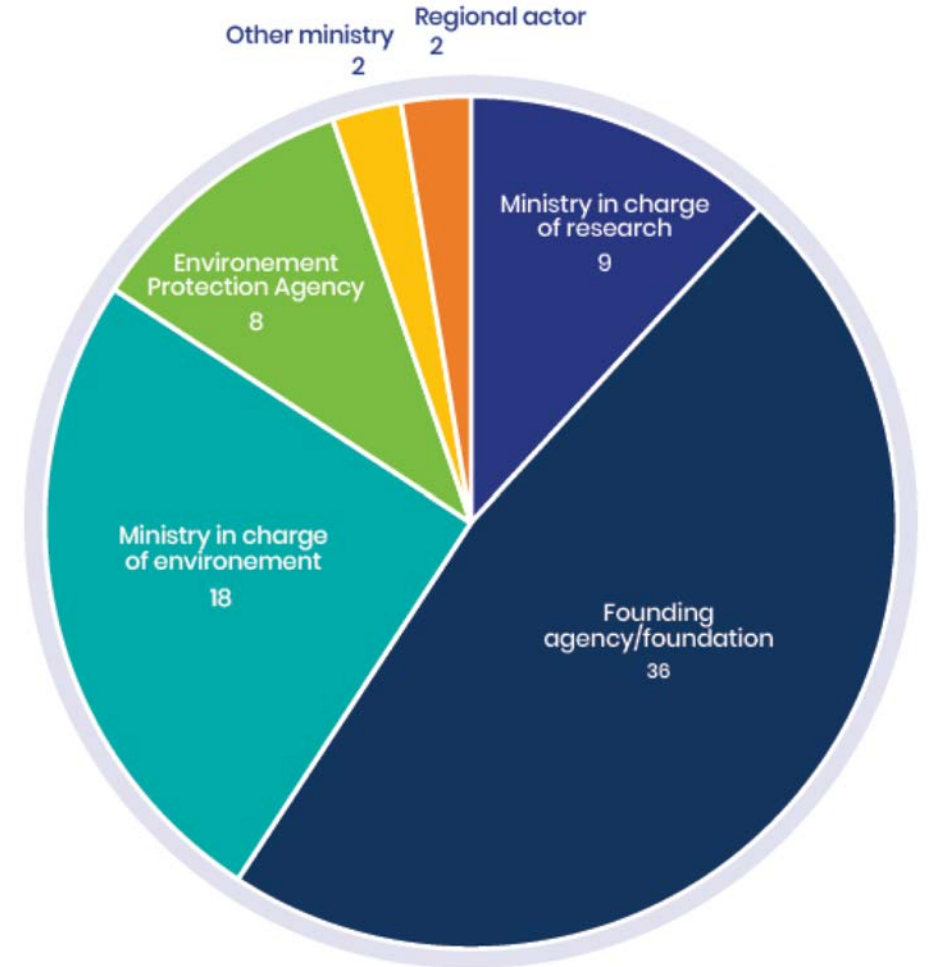By Petteri Vihervaara, MoE_FI, WP2 leader

Agenda of the meeting

- Welcome words and introduction of the meeting

- Update on the European biodiversity monitoring landscape

- Budget and reporting reminders for WP2

- Activities in WP2 on biodiversity monitoring

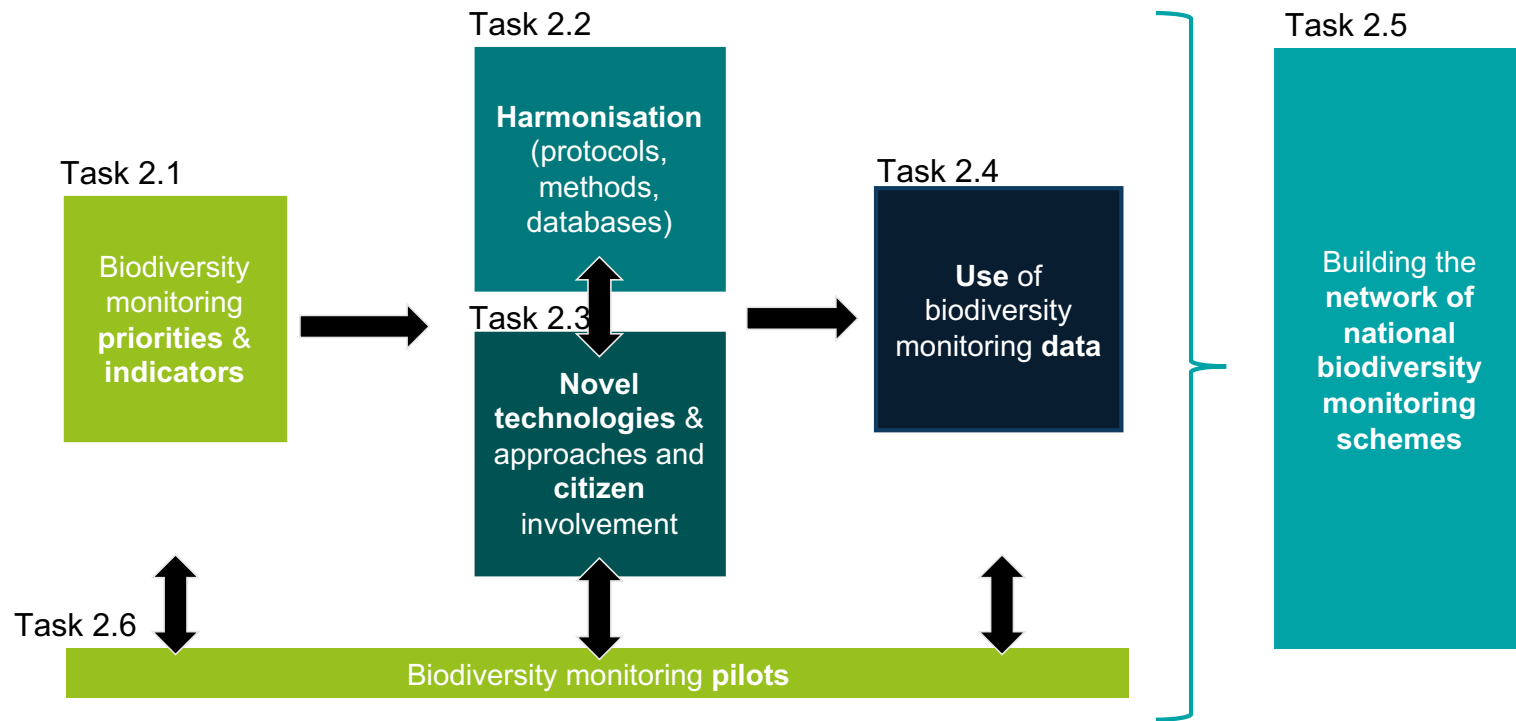- Biodiversity monitoring pilots

- Concluding words

Biodiversa+ is a network of (sub-)national partners (2021-2028)

Collaborators
Biodiversa+ Partners

40 Countries

80 Partners

Other ministry 2

Regional actor 2

Ministry in charge of research 9

Environement Protection Agency 8

Ministry in charge of environement 18

Founding agency/foundation 36

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Biodiversa+ and biodiversity monitoring activities

Welcome to Iiris Kallajoki!

CBD & COP15

COP15: NATIONS ADOPT FOUR GOALS, 23 TARGETS FOR 2030 IN LANDMARK UN BIODIVERSITY AGREEMENT

UN environment programme

CBD

Convention on Biological Diversity

Distr.
LIMITED

CBD/COP/15/L.28
18 December 2022

ORIGINAL: ENGLISH

CONFERENCE OF THE PARTIES TO THE
CONVENTION ON BIOLOGICAL DIVERSITY
Fifteenth meeting – Part II
Montreal, Canada, 7-19 December 2022
Agenda item 13A

Capacity-building and development and technical and scientific cooperation

Draft decision submitted by the President

The Conference of the Parties,

Recalling Articles 15.6, 16, 17, 18 and 19 of the Convention,

Recalling decisions XIII/23 and 14/24,

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25. *Also decides* to establish a mechanism comprising a network of regional, and/or additional subregional technical and scientific cooperation support centres to be coordinated at the global level by a global coordination entity, as described in annex II;

26. *Also decides* that the core functions of the regional and/or subregional centres will include the following:

27. *Also decides* that the modalities for operationalization of the global coordination entity will be developed by the Subsidiary Body on Implementation at its fourth meeting, for consideration by the Conference of the Parties at its sixteenth meeting, taking into account the core functions listed below:

30. *Urges* Parties in accordance with Articles 20 and 21, and *invites* other Governments, relevant organizations and other stakeholders to provide financial and technical support to the regional and/or subregional support centres and to the global coordination entity referred to in paragraph 25 of the present decision;

Biodiversa+ supports setting up of harmonized national and sub-national biodiversity monitoring schemes in Europe, in close collaboration with EuropaBON, following GEO BON's example
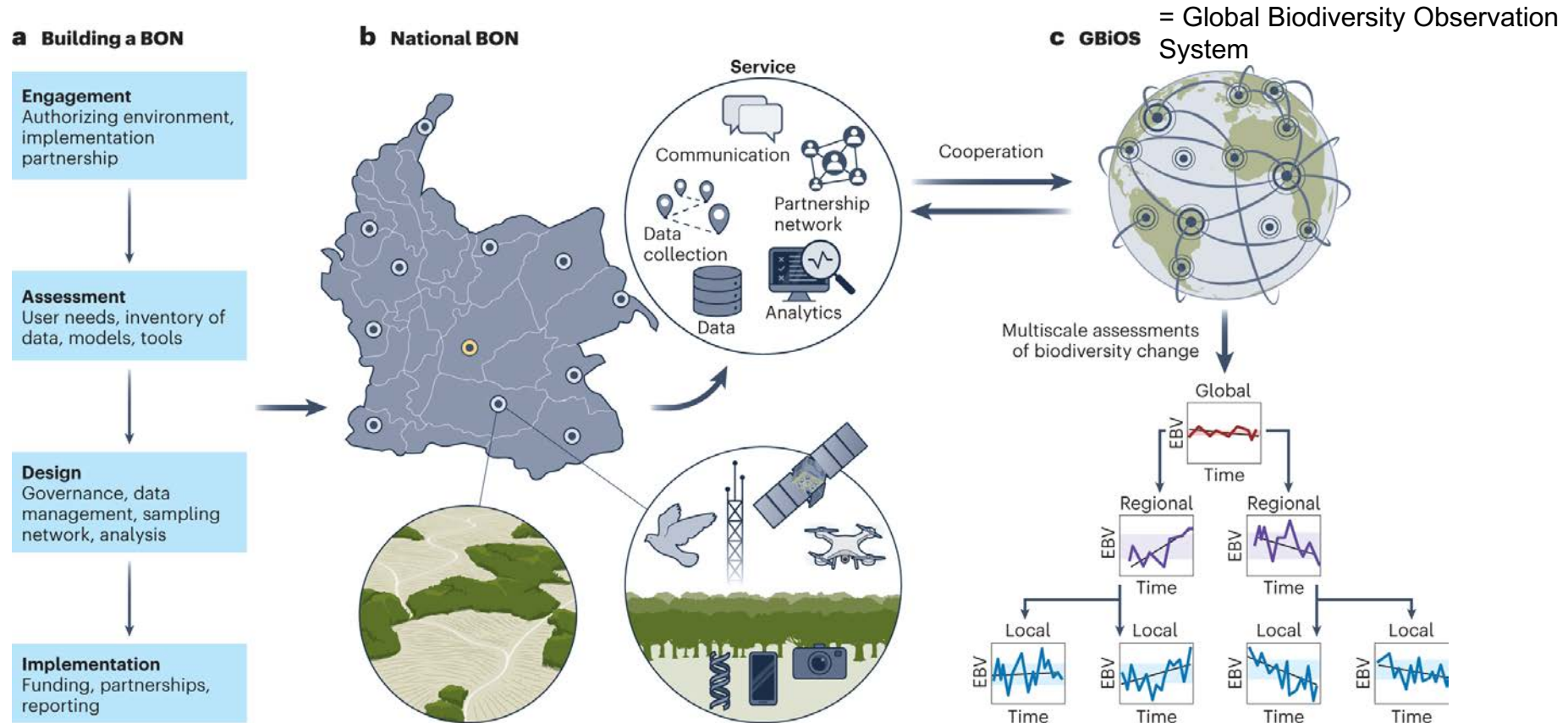

c GBiOS = Global Biodiversity Observation System

Gonzalez, A., Vihervaara, P., Balvanera, P. *et al.* A global biodiversity observing system to unite monitoring and guide action. *Nat Ecol Evol* (2023). https://doi.org/10.1038/s41559-023-02171-0

EBVs as a key concept for harmonizing biodiversity monitoring schemes

Table 1. EBV classes and attributes measured, as defined by GEOBON.

Entity measured	EBV class	Attributes measured
Species [Species-focused EBVs]	Genetic composition	Genetic diversity
		Genetic differentiation
		Effective population size
		Inbreeding
	Species traits	Morphology
		Phenology
		Movement
		Reproduction
	Species populations	Species distributions
		Species abundances
Ecosystem [Ecosystem-focused EBVs]	Community composition	Community abundance
		Taxonomic/phylogenetic diversity
		Trait diversity
		Interaction diversity
	Ecosystem functioning	Primary productivity
		Ecosystem phenology
		Ecosystem disturbances
	Ecosystem structure	Live cover fraction
		Ecosystem distribution
		Ecosystem vertical profile

Scales of harmonizing biodiversity monitoring schemes

Michelle Silva del Pozo, Guillaume Body, Gaby Rerig, Mathieu Basille. (2023). Guide on harmonising biodiversity monitoring protocols across scales. Biodiversa+ report. 60 pp.

Snapshot view of European Biodiversity Knowledge landscape,

Fig. by Anne Teller, EC DG ENV
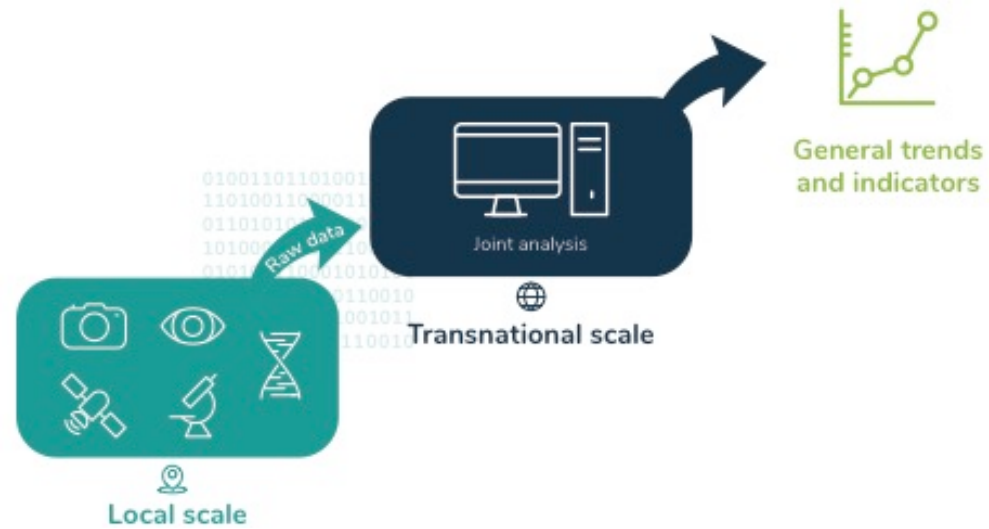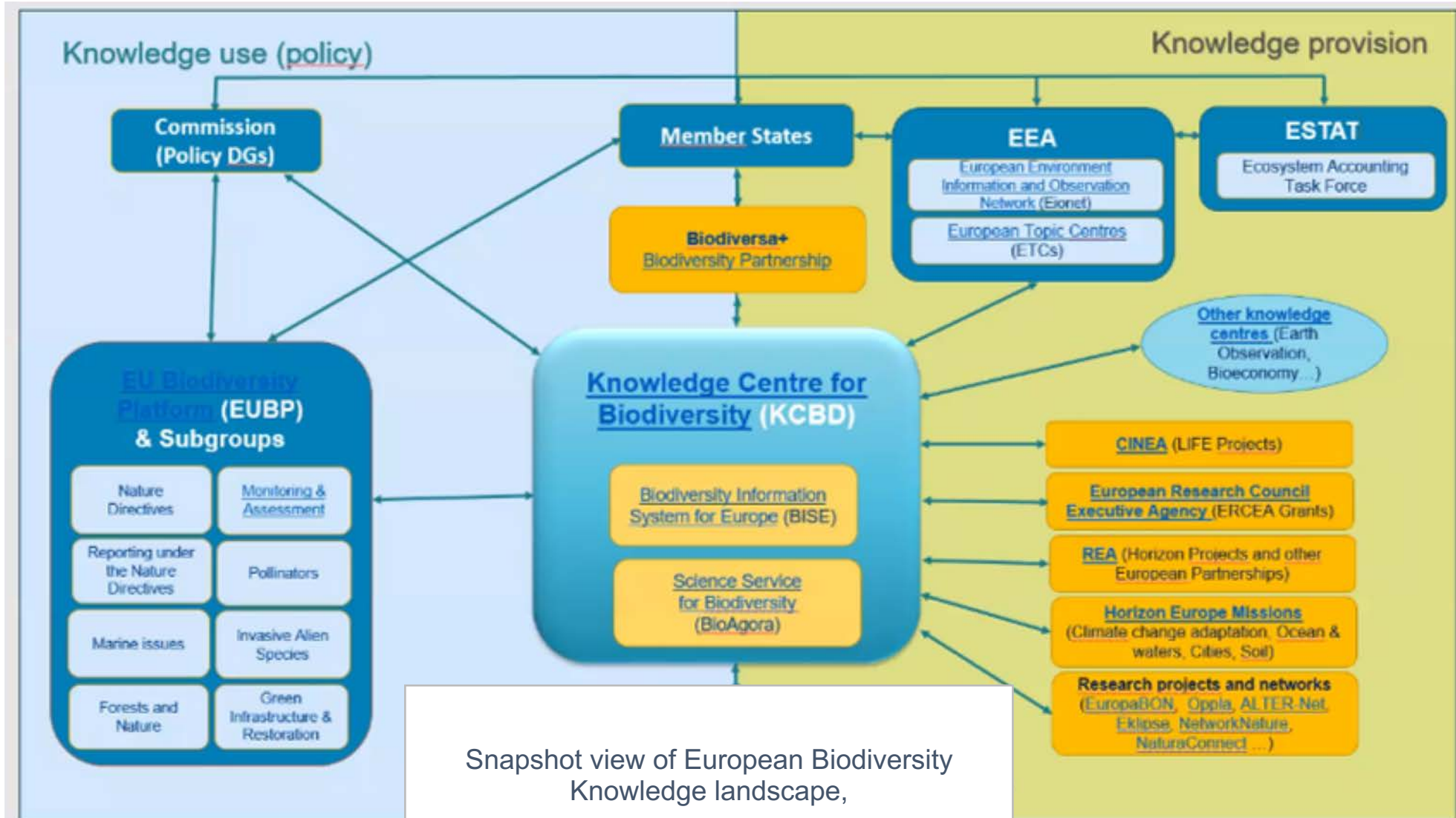
Biodiversa+ aims to support development of National Hubs that are interlinked with the EU Hub (the BMCC)
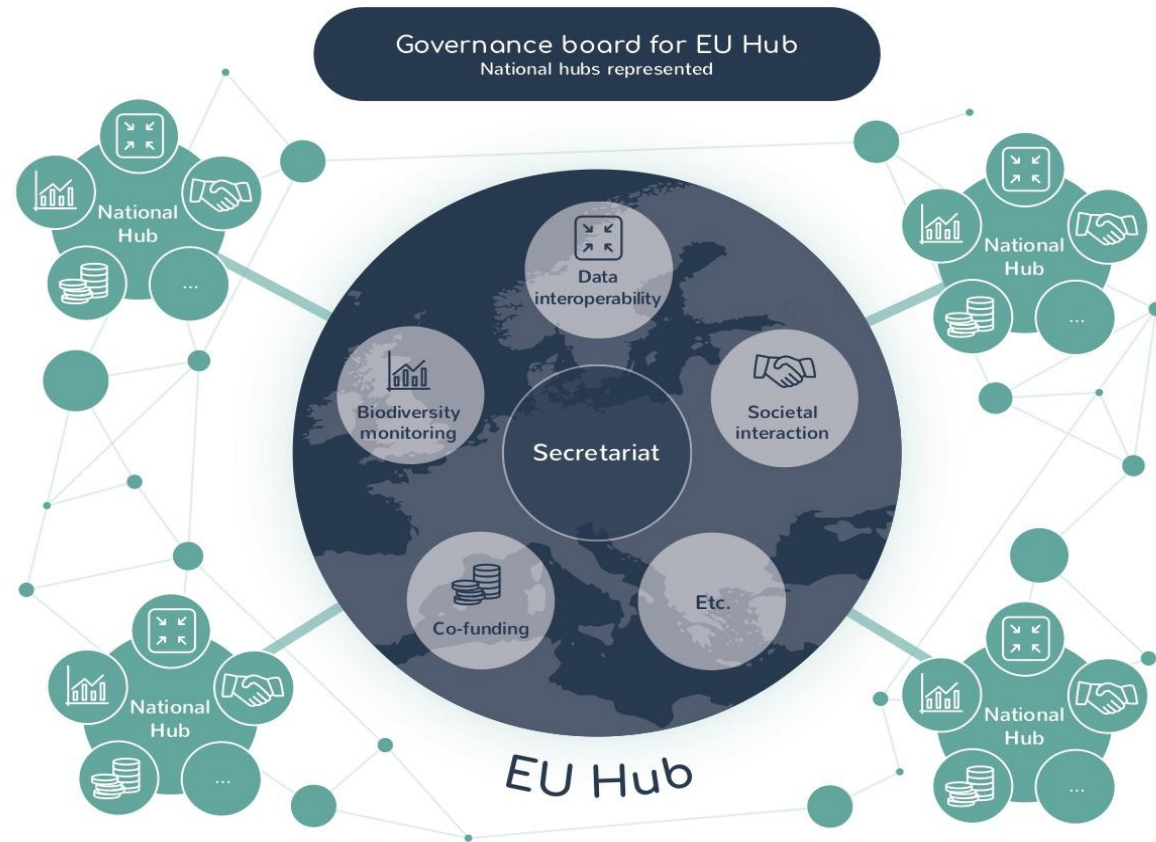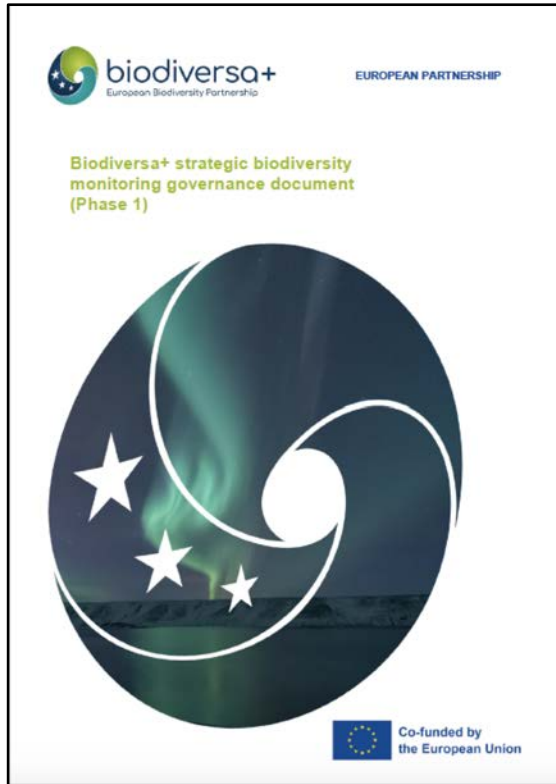
D2.8 Biodiversa+ strategic biodiversity monitoring governance document (PHASE I)
https://www.biodiversa.eu/wp-content/uploads/2023/05/D2.8-Biodiversity-monitoring-strategic-Phase-I-report.pdf

Fig. 2: Illustration of a multiscale governance model of the European biodiversity monitoring hubs. National hubs can be flexible entities/platforms or refer to a coordinating organisation that is responsible for biodiversity and ecosystem assessments and implementation of international environmental policies and agreements. Hubs can include and host functions such as networking, funding, steering, coordination of biodiversity monitoring, and data management. National hubs can provide synergies for national Eionet members, national GBIF nodes and national biodiversity observation networks (BONs).

Integrate results from different communities effectively

Michelle Silva del Pozo, Guillaume Body, Gaby Rerig, Mathieu Basille. (2023). Guide on harmonising biodiversity monitoring protocols across scales. Biodiversa+ report. 60 pp.

EuropaBON & European Biodiversity Monitoring Coordination Centre (BMCC)

Figure ES3: Monitoring status of the 15 most highly ranked Essential Biodiversity Variables (EBVs) and Essential Ecosystem Services Variables (EESVs) in Europe, as selected by countries and agencies. For each respondent country the monitoring status is given for each essential variable.

EUROPABON

Aims for EU-wide design of biodiversity monitoring

EuropaBON 2022: User and policy needs assessment report

Illustration of BMCC position and roles

EU BIODIVERSITY MONITORING COORDINATION CENTRE

National coordination centres

EU institutions and agencies

Coordination

Co-funding

Data interoperability

Capacity building

Data collection

Modelling and analysis

Thematic hubs
for monitoring communities and expert groups

International organisations doing monitoring

International infrastructures

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By Camino Liquete, JRC / EuropaBON

Illustration of BMCC position and roles

EU BIODIVERSITY MONITORING COORDINATION CENTRE

Coordination

Co-funding

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By Camino Liquete, JRC / EuropaBON
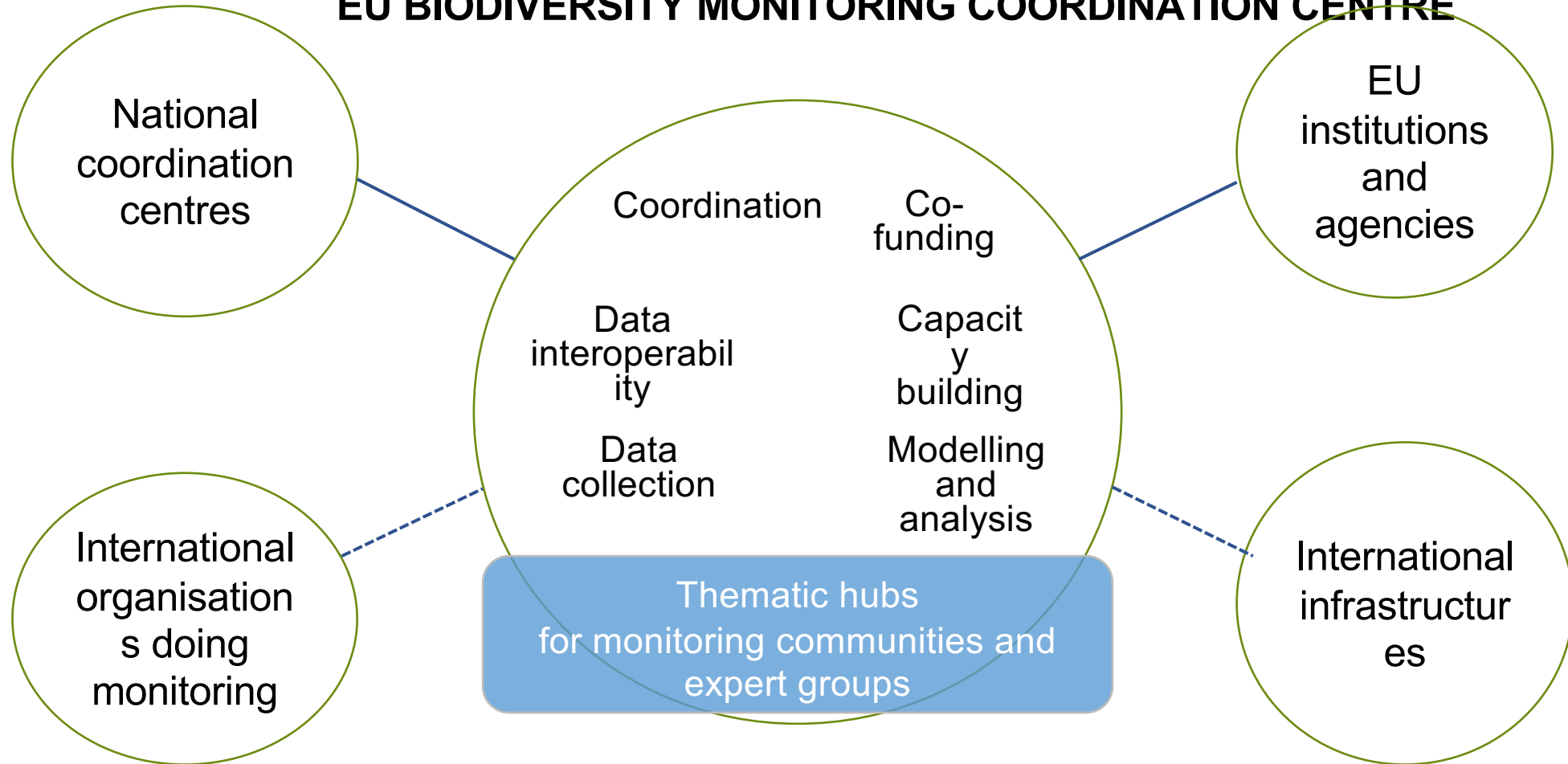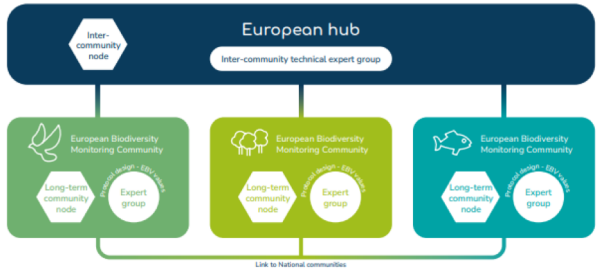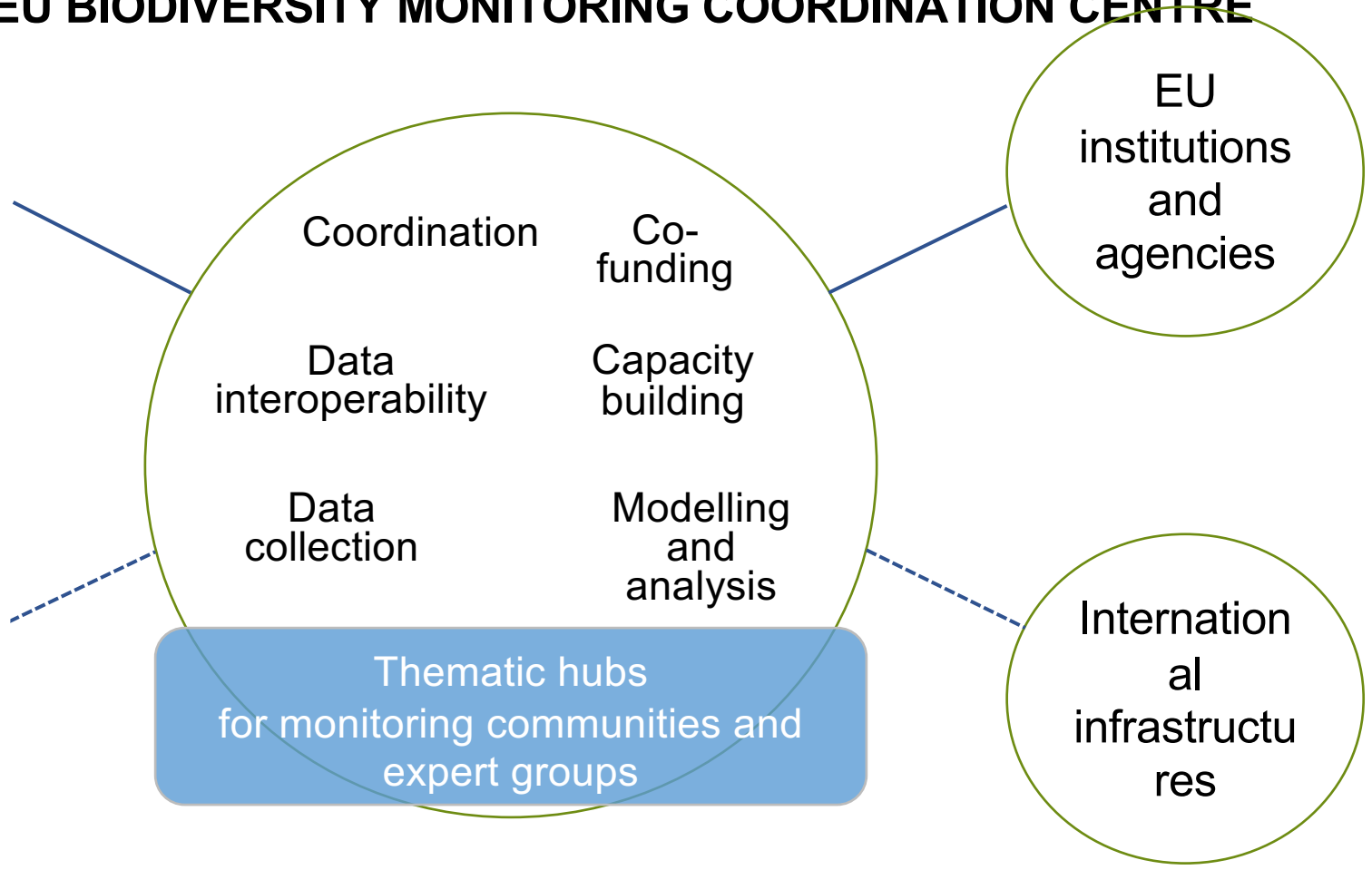
Proposed organisational structure

Executive/ strategic roles

Tactical/ collaborative roles

Operational roles

General assembly
(national hubs, EU bodies)

Technical and stakeholders advisory board
(international organisations and infrastructures, scientific experts)

General secretariat
(new staff, detached experts)

Data governance and ethical committee

Specialists
(thematic hubs with implementers from all stakeholder's groups)

Hosting body
(*EEA?, KCBD ?*)

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By Camino Liquete, JRC / EuropaBON

Functions of the BMCC (draft BMCC report)

Category	Topic	Urgency			Relevance		
		H	M	L	H	M	L*
Coordination and support functions	Coordination 1: Support coordination between Member States and institutions	X			X		
	Coordination 2: Collaborate and engage with external knowledge holders	X			X		
	Coordination 3: International coordination		X				X
	Capacity building 1: Support data exchange, analysis and standardization	X			X		
	Capacity building 2: an overarching role		X				X
	Capacity building 3: Data collection		X			X	
	Capacity building 4: Design of national monitoring schemes		X			X	
	Capacity building 5: Support to citizen science		X			X	
	Capacity building 6: New techniques and approaches		X			X	
	Funding 1: Allocation of funds to sponsor monitoring schemes		X			X	
	Funding 2: Capacity building on financing options		X				X
Data collection, mobilization, integration and sharing	Data 1: Data mobilization, integration and harmonization	X			X		
	Data 2: Improved sampling designs and standardization of field data collection		X		X		
	Data 3: Data infrastructure and tools	X			X		
	Data 4: Develop data access and data sharing policies	X			X		
	Data 5: Field data collection and monitoring implementation		X				X
Analysis and reporting to support stakeholders	Analysis 1: Statistical analysis and visualization		X			X	
	Analysis 2: Support official reporting			X		X	
	Analysis 3: Web portals for dissemination of analyses		X				X
	Analysis 4: Gap analysis, both on monitored data and on knowledge	X			X		
	Analysis 5: Develop and standardize analysis tools		X				X
	Analysis 6: FAIR principles and justice/transparency		X		X		

EuropaBON & BMCC: a stepwise approach

ToR

5M€ from European Parliament for piloting BMCC

2023 2024 2025 2026 2027 2028

Immediate action (preparation)

Intermediate targets (construction)

Finalising set up (pre-operational phase)

Centralised governance

Interim governance and management

Operational phase governance
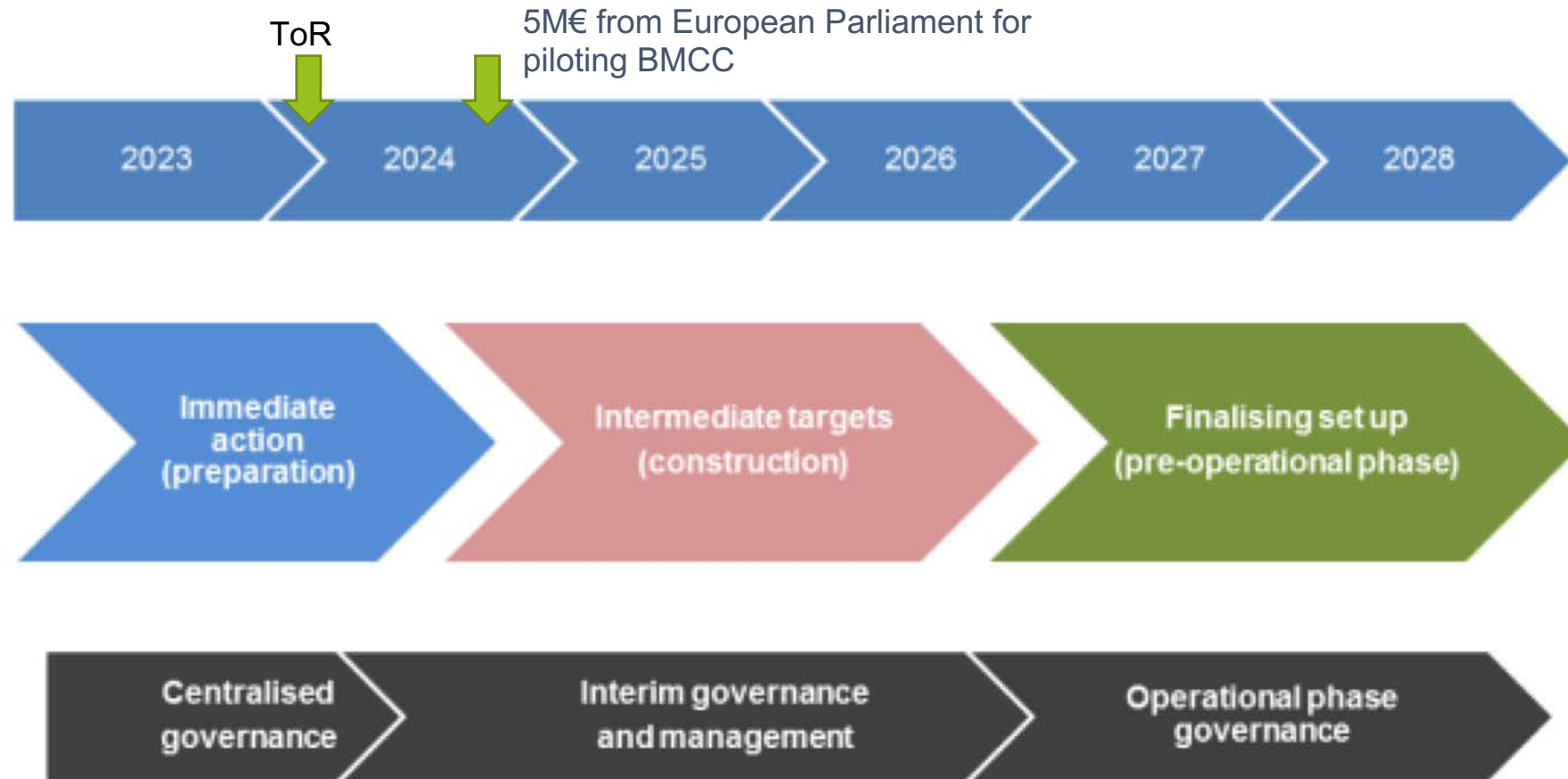
Figure 7. Indicative phases for the development of an operational BMCC.

Source: BMCC DRAFT REPORT!

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Biodiversa+ builds transnational networks of national biodiversity monitoring schemes for specific domains by

Priorities
Protected Areas
Habitats
Marine Biodiversity
Invasive Alien Species
Soil Biodiversity
Insects
Wildlife Diseases
Urban Biodiversity
Bats
Genomic & Genetic Monitoring
Wetlands
Common Species
Transversal Activities
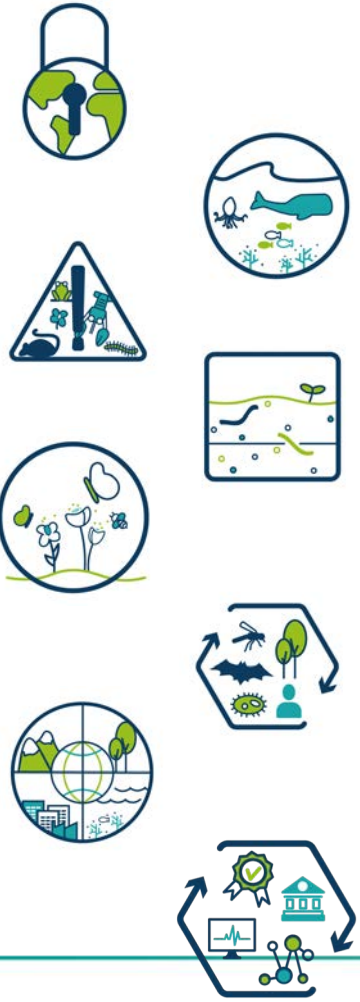
1. Supporting the establishment of transnational biodiversity monitoring schemes (reinforce existing schemes or create new ones) **with European Commission top-up** (i.e. 30 % for national *in kind €* contributions)**.**

2. Supporting **exchanges** between the national biodiversity monitoring schemes and increasing **cooperation**.

3. Launching **biodiversity monitoring pilots**, to support the harmonization of biodiversity monitoring programs on a pan-European scale. Building on their outcomes, ways to establish pan-European **long-term biodiversity monitoring** schemes (including cost estimations) will be designed.

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Biodiversa+ strategy to harmonise biodiversity monitoring schemes

Setting the scene
Y1-2
2022-2023

Extending collaboration
Y3-4
2024-2025

From pilots to long-term monitoring schemes
Y5-7
2026-2028

National scale

Mapping the landscape of biodiversity monitoring on national and sub-national level in 23 partner countries

Reviewing best practices along data-to-knowledge workflows

Co-designing the concept of national hubs as counterparts to a BMCC

Revising monitoring priorities among the network (13 priorities)

Launching 1st wave of pilots to cover one species monitoring scheme, one habitat scheme, and transversal activities
- Aim to prepare a model for transnational, flexible collaboration model to get comparable new data with harmonised methods

Strengthening coordination across the national networks, nodes, and hubs

Launching 2nd wave of pilots to cover 2 species monitoring schemes (both terrestrial and marine), and 1 habitat monitoring scheme

Starting of new task 2.5.2 to critically evaluate pros and cons of pilots, and their possibilites to become a true long-term, pan-European new monitoring schemes
- Aim to evaluate how piloted schemes could provide data for EBVs

Start monitoring how EC top-up is spend among partners for improving monitoring schemes, and estimate what role it might have in the future to support upscaling of piloted monitoring schemes

National hubs emerging and becoming established, their links to a BMCC formulated

1st European conference week of biodiversity monitoring networks launched

Launching 3rd wave of pilots (aiming to cover 2/3 of monitoring priorities

All pilots (8/12) critically evaluated, including their linkages to other similar initiatives in Europe

Their possibilities to provide data for EBVs analysed

Cost-benefit analysis for upscaling/expanding pilots to true pan-European, long-term monitoring schemes evaluated

Funding model and budgets (national in kind vs. EC top-up) developed

Recommendations (incl. Harmonised protocols, and use of novel methods) given to EC and MSs

EC scale

EuropaBON: BMCC & 70 EBVs designed → **BMCC piloted** → **BMCC established, and getting data from national schemes**

bio European

Budget for biodiversity monitoring activities in Biodiversa+

By Cécile Mandon, Biodiversa+ officer, FRB

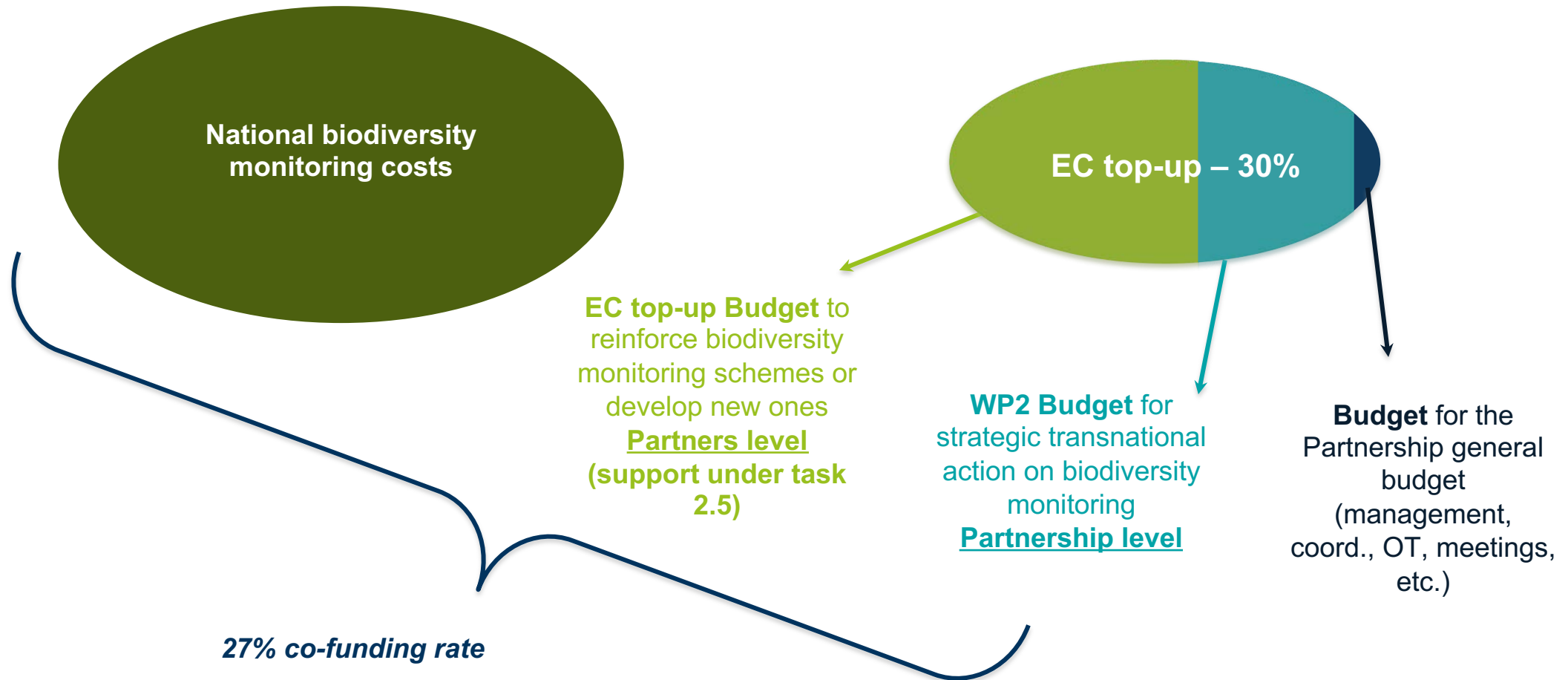# Main points to be addressed today for the biodiversity monitoring Biodiversa+ bduget

1. Quick key messages when it comes to budget reminders

2. Reminder about funding model for biodiversity monitoring budget & call for partners to valorise more in-kind contribution

3. Receiving indirect costs in Y3/Y4

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1. Biodiversity monitoring budget – key messages

Key messages for today:

✓ Keep track of the time that you spend on the Biodiversa+ WP2 (for example time that you spend when attending this meeting) ☺ → under task code WP2 – All partners

✓ Ensure the eligibility of your costs (time spent, purchase costs, subcontracting costs) based on Horizon Europe rules.

✓ Admin & Financial FAQ & supporting documents are available here: https://drive.google.com/drive/folders/1EOhynp0Z8kt-qIdWIuDByVCRuA-qwVcS?usp=share_link

✓ We are open for suggestions / ideas for improvements

✓ For any questions: you can reach out to the OT (Cécile, Patricia Vera and very soon Iiris as well)

2. What is our funding model for biodiversity monitoring activities?

National biodiversity monitoring costs

EC top-up – 30%

EC top-up Budget to reinforce biodiversity monitoring schemes or develop new ones
Partners level
(support under task 2.5)

WP2 Budget for strategic transnational action on biodiversity monitoring
Partnership level

Budget for the Partnership general budget (management, coord., OT, meetings, etc.)

27% co-funding rate

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2. Difficulties to meet our targets
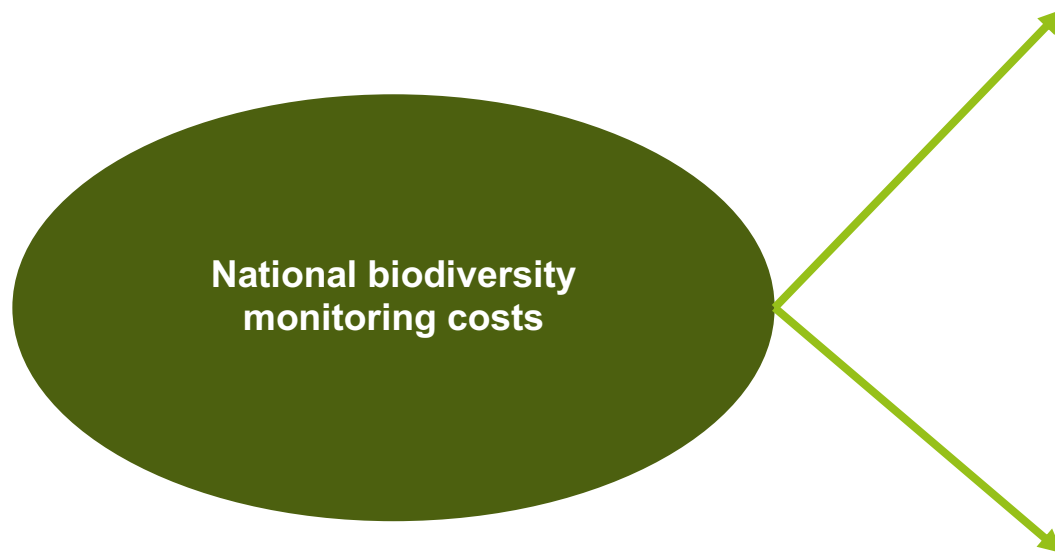
Y1/Y2: 31.1M€ → We do no longer reach this target.

- **VDI/VDE-IT**: can no longer valorise **3.6M€** (**506k€** of EC top-up funding WP2 activities and the general functioning of Biodiversa+).
- **MoE of DK**: can no longer valorise their initial costs 2.5M€ covered through person months but they can valorise new subcontracting costs instead (~1M€) and we thank them for their effort. Yet, this might still generate a loss of EC top-up in the end.

Y3/Y4: 52M€ → We do not reach this target

- 1,012,677.09€ of national in-kind contribution missing

National biodiversity monitoring costs

2. How to move forward?

➢ For Y1/Y2 and Y3/Y4: **we are officially opening a call for partners to valorise new national biodiversity monitoring costs** which will allow you to receive a dedicated EC top-up.

Deadline to valorise new costs: 31st of January 2024.

➢ The OT will in parallel check with the EC if the missing national in-kind contribution from Y1/Y2 can be shifted to Y3/Y4.

➢ Depending on how much new national biodiversity monitoring costs can be valorised: we may loose part of the biodiversity monitoring reserve budget. We will update the partners on the situation once our call for new budget closes.

Thank you for your support!

3. EC top-up biodiversity monitoring budget Y3/Y4

In the new version of the Biodiversa+ budget sent on the 11th of December:
- ✓ We have clarified the budget columns so that you can more easily identify how much budget is covered by your organisation and how much budget is for the EC top-up.
- ✓ So far, no indirect costs are allocated to your organisation on top of the costs that are EC covered. We encourage you to keep such an approach to contribute to the Biodiversa+ budget as we need such money to cover WP2 activities and general functioning.
- ✓ However, with a joint agreement of the OT and Executive Board, if you truly need to receive 15% of indirect costs, you can send me an official request <u>by the 20th of December</u>.

Any questions?

?

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Overview of 2023 biodiversity monitoring activities & next steps

By WP2 task leaders

Tasks 2.1 – Biodiversity monitoring priorities and indicators

By Mona Naeslund (SEPA) on behalf of Mathieu Basille (OFB)

Main 2023 achievements for biodiversity monitoring priorities & indicators

Biodiversity monitoring priorities
- Revised biodiversity monitoring priorities for Y3–4 [D2.5 report]
- Added priorities: *Urban Biodiversity*, *Bats*, *Genomics & Genetics*, *Wetlands*, and *Common Species*

Biodiversity monitoring indicators
- Sharing of good practices: 17 actively contributing partners, 6 meetings, 5 presentations
- Survey to partners on their ongoing indicator work and priorities of indicator work in relation to major policies
- Report on Shared goals and priorities for biodiversity indicators in Biodiversa+ [D2.7 report]

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Key next steps for biodiversity monitoring priorities & indicators

Subtask 2.1.1: Priorities revised

- Develop a theoretical framework to define general biodiversity monitoring priorities (what is of highest priority for biodiversity monitoring given the current state of the environment, policy and target landscape, etc.)
- Apply the framework to the specific context of Biodiversa+ to revise priorities for Y5–7 (relevance, added-value, etc.)

Subtask 2.1.2 indicators

- Discuss how to work further on key priorities from survey:
  - Sharing of good practices (e.g. presentations, concept note, dashboard, governance)
  - Develop guidelines
  - Coordination with other tasks (e.g. use of BD monitoring data, pilots, WS) & networks
- Further discuss focus of priorities for indicators:
  - Invasive Alien Species, including possibility to build on the work from the IAS pilot.
  - Habitats, ecosystems, and restoration, including coordination with the Habitat pilot
  - CBD headline indicators

Task 2.2 - Main achievements in 2023 on the harmonisation of databases, protocols and methods and key next steps

By Alberto Basset, MUR and Michelle Silva del Pozo, OFB

Main achievements on the harmonisation of…

… biodiversity monitoring protocols

- Literature survey on transnational monitoring protocols

- Workshop: Harmonising protocols across countries: Strategies analysis

- Guide on harmonising monitoring protocols across scales

GUIDE ON HARMONISING BIODIVERSITY MONITORING PROTOCOLS ACROSS SCALES

Support to effectively integrate monitoring results

Co-funded by the European Union
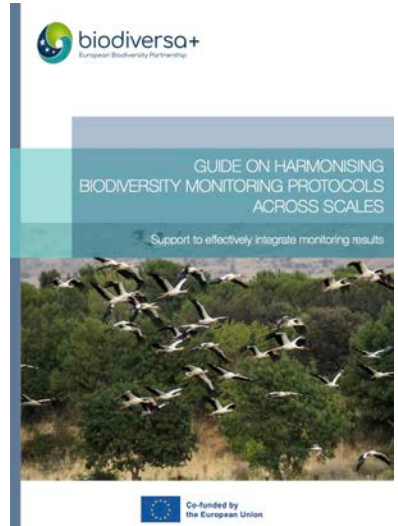
+ BioDash

- Pre work on users and needs analysis
- State of the art – Information systems on monitoring programs
- Candidate Pilot Workplan

**… biodiversity monitoring database and data interoperability**

- Strengthening the connection of Biodiversa+ and National Institutions with ERIs and International Initiatives;
- Identifying main gaps in data harmonisation and interoperability
- Lack of (Meta)Data Standards
- Limited use of semantic annotation for data/dataset harmonization
- Lack of Capacity Building and Knowledge Sharing Activities
- Complex Governance Structures

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EUROPEAN PARTNERSHIP

Report on the harmonisation and interoperability of datasets across regions and countries

Co-funded by the European Union

Standard need | Governance | Capacity Buildig

New technology need

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Key next steps

… for biodiversity monitoring protocols

- Mapping and networking of different **biodiversity monitoring communities**
- Discussions within technical experts' groups
- Collectively identify **common minimum requirements** for harmonised protocols
- → Expert workshop
- → Guidance note on specifications for cross-scale inclusion
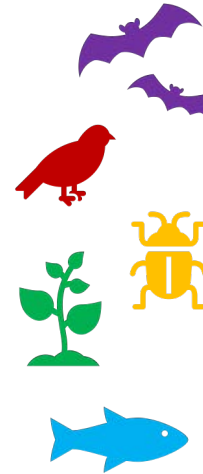
… for data interoperability and harmonisation

- **Assess data workflows and architecture plans for optimal solutions**: Evaluate the current data management practices and infrastructure to identify areas for improvement and develop a roadmap for enhancing data interoperability.

- **Define data interoperability via APIs**: Establish standardized application programming interfaces (APIs) to facilitate seamless data exchange and retrieval across different biodiversity data systems.

- **Support European coordination mechanisms**: Promote cooperation and collaboration among European institutions and organizations involved in biodiversity data management to ensure consistency and harmonization across the region.

- **Develop capacity-building actions for stakeholders**: Provide training and education programs to equip stakeholders with the knowledge and skills necessary to adopt and implement common data standards, vocabularies, and harmonization practices.

BioDash task-force

- Conceive and mock-up BioDash user interface → **Functional and technical specifications**

- Define BioDash governance and its place among the monitoring landscale → **BioDash roadmap**

- Develop the **Minimum Viable Product**

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Task 2.3 - Main achievements in 2023 on novel technologies and approaches for biodiversity monitoring and key next steps
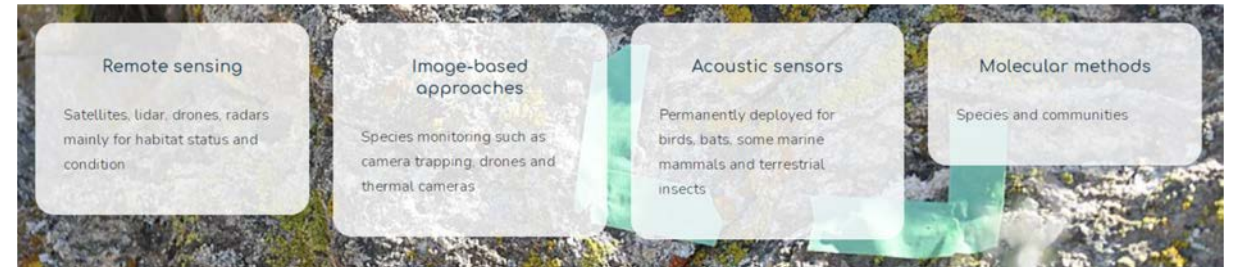
By Lluís Brotons, DACC and Constantinos Phanis, MOECSY

Main achievements in 2023

… for biodiversity monitoring novel technologies

February 2023: Expert workshop to develop a Biodiversa+ roadmap on novel technologies and approaches for biodiversity monitoring.

September 2023: Capacity building WS on image-based approaches for biodiversity monitoring

… for the mobilisation of citizens in biodiversity monitoring

February 2023: Workshop with WP7 on citizen science and biodiversity. The workshop participants identified several bottlenecks faced by citizen science approached in biodiversity monitoring.

Ongoing: Preparation of a call for tender to develop a report on the importance and cost-effectiveness of citizen science in biodiversity monitoring schemes. Objective: Showcase cost-efficiency of citizen science in biodiversity monitoring by demonstrating how volunteer effort in long running biodiversity monitoring schemes can be calculated

February 2023 Workshop

Key next steps

… for biodiversity monitoring novel technologies

- **Ongoing:** Preparation of a survey for the Biodiversa+ partners on novel technologies for biodiversity monitoring (for the roadmap)

- **May 2024:** Release of the Biodiversa+ roadmap on novel technologies and approaches for biodiversity monitoring

- **July 2024**: capacity building events on biodiversity monitoring novel technologies & approaches

… for the mobilisation of citizens in biodiversity monitoring

Report on the importance and cost-effectiveness of citizen science in biodiversity monitoring schemes:
1. What are the existing methods used to calculate the involvement of citizens in long term biodiversity monitoring programs? Review of existing methods.
2. What are the most effective methods? Report on best practices in line with the Biodiversa+ biodiversity monitoring priorities.
3. Demonstrate how Citizen Science / volunteer effort in long running biodiversity monitoring schemes positively contribute to research, decision makers (public and privates) and society
4. Demonstrate the careful considerations that must be given to successfully involve citizens in long running biodiversity monitoring programs (logistics of national scale implementation…)

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Task 2.4 - Main achievements in 2023 on the use of biodiversity monitoring data and key next steps

By Rob J.J. Hendriks, LNV and Cécile Mandon, FRB

Main achievements in 2023 to support the use of biodiversity data

… by research and innovation

- Results of the 2022 expert workshop on trends estimation were included in the 'Biodiversa+ strategic biodiversity monitoring governance (phase 1) document' (D2.8, paragraph 1.6)

… by private decision makers

- Release of Report of the use of biodiversity monitoring data in private decision making (D2.4)

Key next steps

… on the use of biodiversity data by R&I

- A next expert workshop on trends estimation will be organised in September 2024 (possibly focussing on biodiversity trends in relation to ecosystem restoration). -> concept note is nearly ready for discussion among active partners.

… on the use of biodiversity data in private decision making

- January 2024: start to write a call for tender
- February 2025: Guidelines on how to use data resulting from innovative data collection by private sector will be developed (by an external provider). -> Process of subcontracting is underway.
- June 2025: Workshop on the use of biodiversity data by the private sector to promote life cycle assessments and EBVs
- September 2025: Guidance for the private sector on FAIR data, data standards and data sharing (including best practices). To be developed through a subcontracting procedure.

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Task 2.5 - Main achievements in 2023 to establish a transnational network of harmonised biodiversity monitoring schemes and key next steps

By Aino Lipsanen, MoE_FI and Michele Bresadola, BOZEN

Main achievements

23 countries mapped following a survey and bilateral interviews

Main findings:

- Ministries of Environment and/or Environmental Protection Agencies are the actors in charge of steering and governing biodiversity monitoring schemes.

- Biodiversity governance is split by realms (e.g., terrestrial and aquatic) in 2/3 of the countries.

- An overview of biodiversity monitoring in each country is provided.

Biodiversa+ strategic biodiversity monitoring governance document (Phase 1)

- A first overview of the European biodiversity monitoring governance landscape including both national and sub-national viewpoints as well as the outcomes of the EuropaBON project and its proposals for a BMCC.
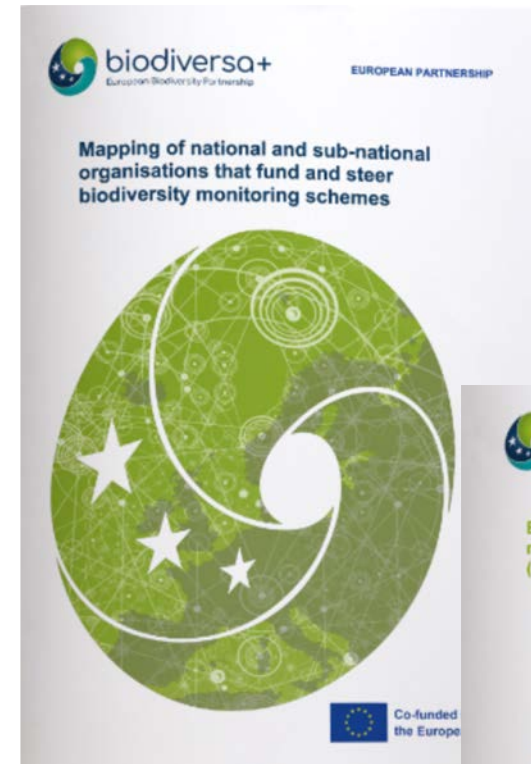
Key next steps

Sub-task 2.5.1

- Deliverable 2.9 Biodiversa+ strategic biodiversity monitoring governance document (Phase 2) in 2/2024
- Survey for countries and sub-national regions on biodiversity monitoring costs to be launched in 3/2024
- Yearly seminar (workshop) with a focus on defining the forms and functions of national hubs 18.4.2024 in Tallin
- Yearly seminar organised back-to-back with sub-task 2.3.1 (Science Fair event) in 5/2025
- Deliverable 2.21 Biodiversa+ strategic biodiversity monitoring governance document (Phase 3) in 8/2025

Sub-task 2.5.2

- Deliverable 2.16 Analysis report on how to implement and sustain long-term biodiversity monitoring schemes in 9/2024
- Personal interviews with single Working group members (eventually grouped by country)
- Milestone 208 Guidance document on the use of the EC top-up by the Biodiversa+ Partners

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Biodiversity monitoring pilots

By Toke Thomas Høye, MoE of DK

Biodiversa+ pilot on biodiversity monitoring

Objectives:

- ✓ Support to **harmonise biodiversity monitoring** programmes (at the scale of the participating Biodiversa+ partners in the pilot)
- ✓ **Increase availability** of biodiversity data in time and space across EU and fill taxa gaps
- ✓ Align with the **needs of the Biodiversa+ Partners** and existing needs in the biodiversity monitoring landscape
- ✓ Tackle some of the **biodiversity monitoring priorities** identified by Biodiversa+
- ✓ **Engage** the broadest range of Partners and countries

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Biodiversity monitoring pilot and subpilots - Conceptual framework
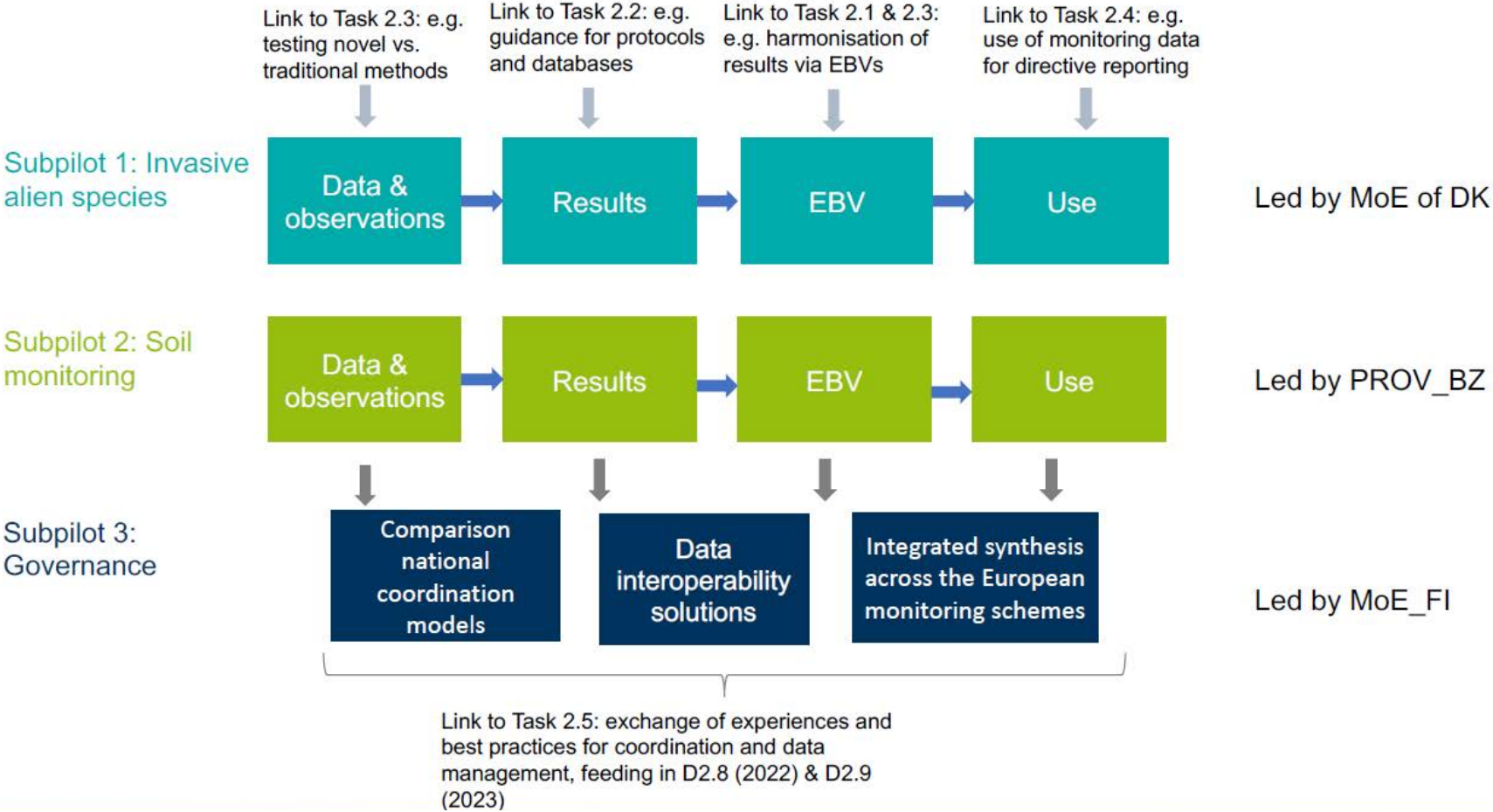
New wave of pilots running for two years (2024-2025)

- **Habitats** - Mapping and monitoring of grassland and wetland habitats. Habitat monitoring using remote sensing methods, *co-led by MoE_FI and SEPA*

- **ABMS** - Automated Biodiversity Monitoring Stations. Automated monitoring of birds, bats and nocturnal insects through sound and image recognition, *led by MoE of DK*

- **EuRockFish** - Toward a European Rocky reef Fish Monitoring Network, *led by OFB*

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EuRockFish: Toward a European Rocky Reef Fish Monitoring Network

A Biodiversa+ pilot study coordinated by Pierre Thiriet and Nina Prasil Delaval, OFB (PatriNat)

6 active contributors:
- FB, Spain
- MoE of Danemark
- MOEP, Israel
- NEA, Norway
- OFB, France
- TAGEM, Turkey

In field data collection

Underwater Visual Census

Baited Remote Underwater Video

Metabarcoding on eDNA

© Pierre Thiriet

3 advisors:
- DACC, Spain
- NARD, Moldova
- SAS, Slovakia

Together, we will:
- Develop and test **homogenized protocols** for two traditional methods (scuba diving and video) and a new complementary method (eDNA)
- **Validate the methodological framework** that combines the 3 sampling methods to more accurately assess infralittoral and circalittoral reef fish
- Produce a **methodological guide** for monitoring European reef fish under MSFD, regional sea conventions and MPAs, and provide guidance for OWF monitoring

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Biodiversity monitoring pilot and subpilots - Conceptual framework
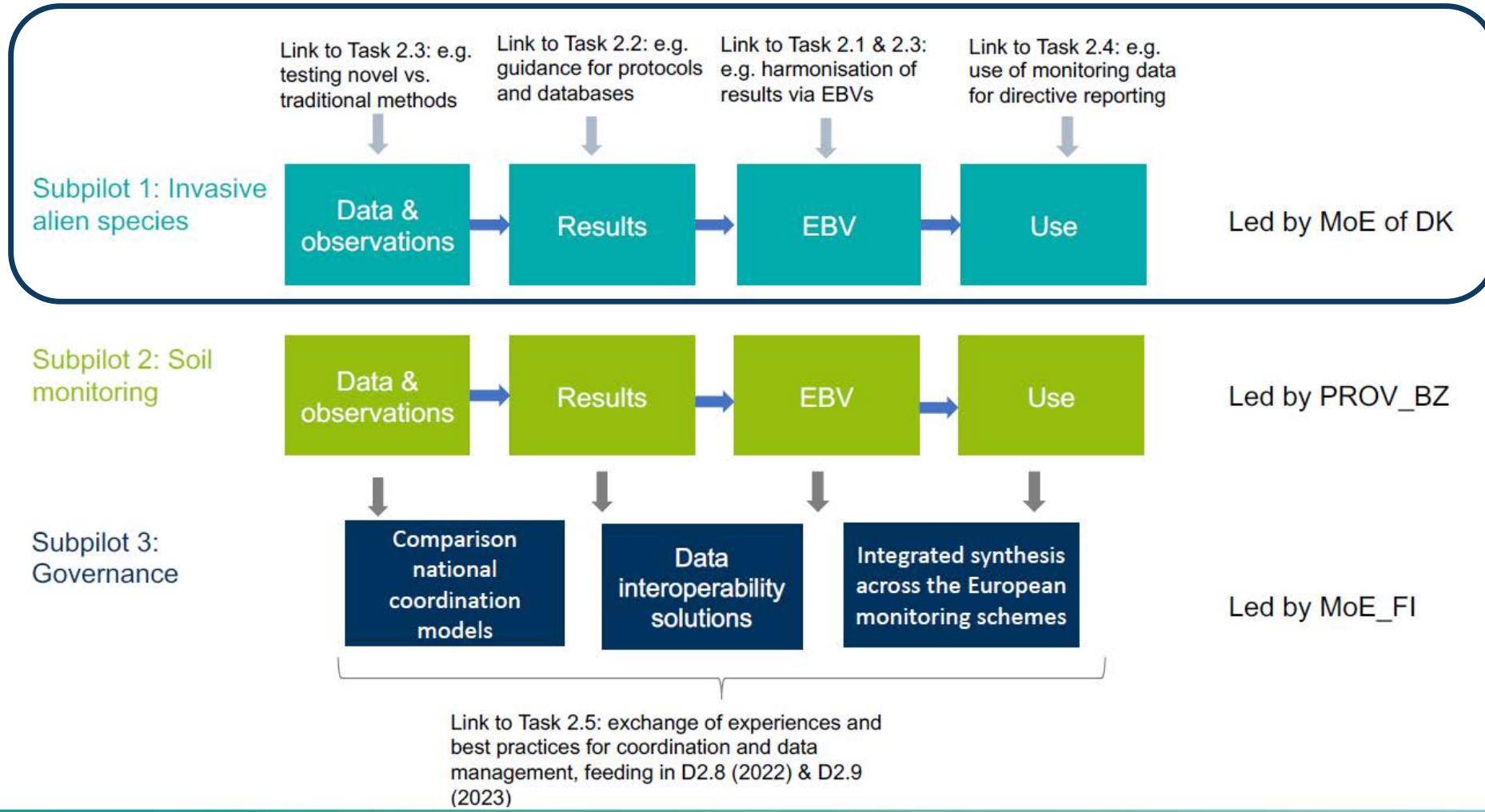
Invasive alien species sub-pilot - aims and objectives

Overall aim

- To evaluate scalable methods using novel technologies for monitoring invasive alien species at continental scale

Objectives

- Identify critical infrastructure and potential logistical challenges with the implementation of a coordinated international image-based monitoring scheme for invasive alien plant and insect species (FOCUS on botanical gardens and transport networks)

- Map benefits and constraints to real-time mapping of invasive alien plant and insect species and presentation in decision support tools (Shortening time frame from observation to management action)

- Showcase the workflow of image-based monitoring for early detection of invasive alien species (Capacity-building on novel and scalable image-based methods for species monitoring)

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Plant module

Recent activities

- \>25TB image data collected
- Processing all tagged images recorded with CamAlien system
- Expert review of images to validate model predictions
- Develop map and image viewing features for user interaction

Lessons learnt

- Data analysis and management infrastructure works
- First results are promising
- JRC (EASIN) is interested in a data partner agreement with Biodiversa+
- The subpilot can drastically shorten the timeframe from observation to actionable knowledge
- Data upload speed, shipping times, customs regulations challenge the launch of standardized digital monitoring with sensors
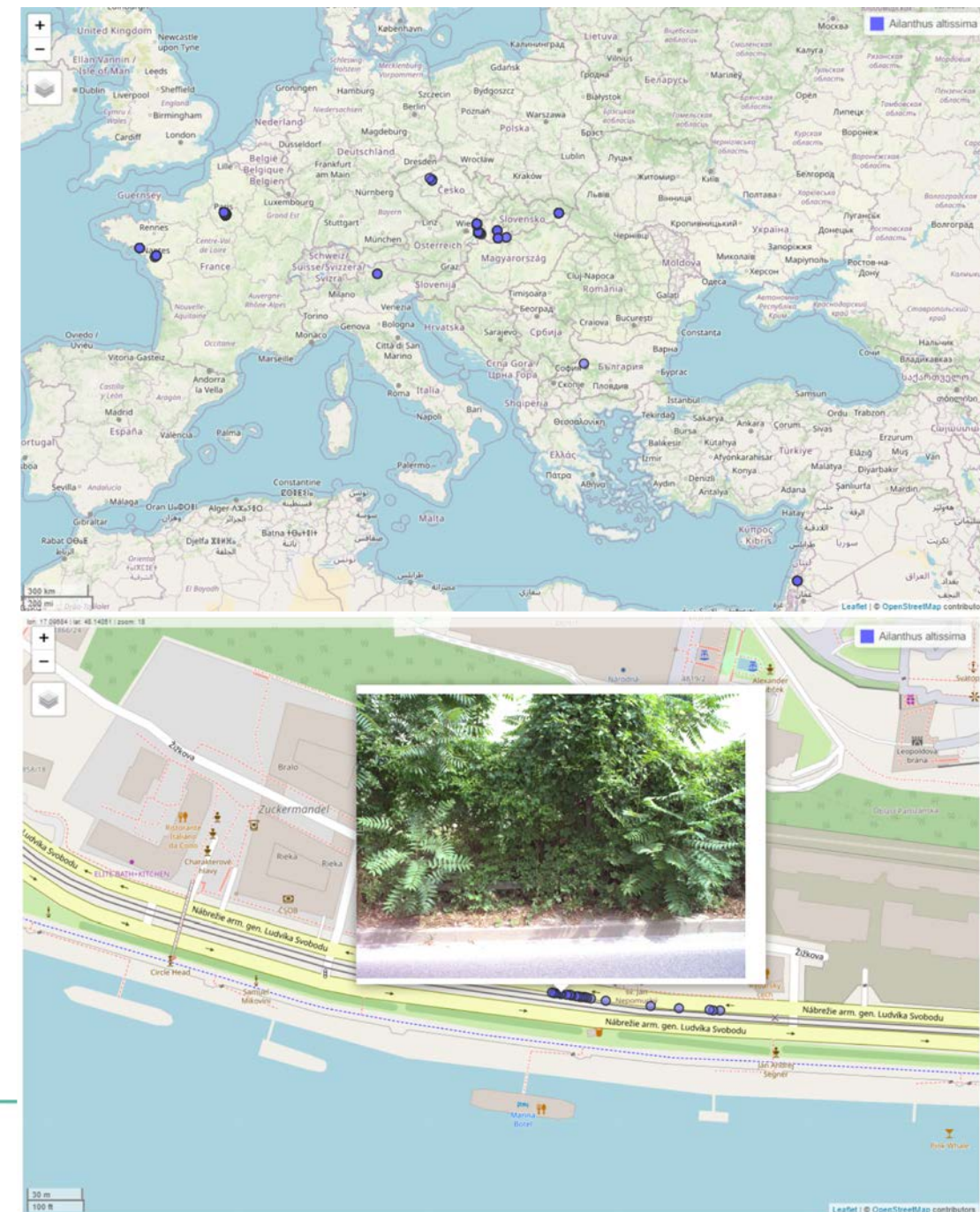
Insect module

Recent activities

- Image data is being uploaded by partners
- Newly trained classifier based on 1.4 million images from GBIF
- New improved localization algorithm to detect insects on the screen
- Covers 2500 species of moths
- Work ongoing to process images from AMI traps

Lessons learnt

- Logistical challenges: delivery times, damage and delays during transport, software problems and technical problems during installation
- Challenges are now mostly solved and meaningful data is expected for year 2
- Phenology data on moth species can be useful for management
- Partners are also interested in insect camera traps for broader moth monitoring
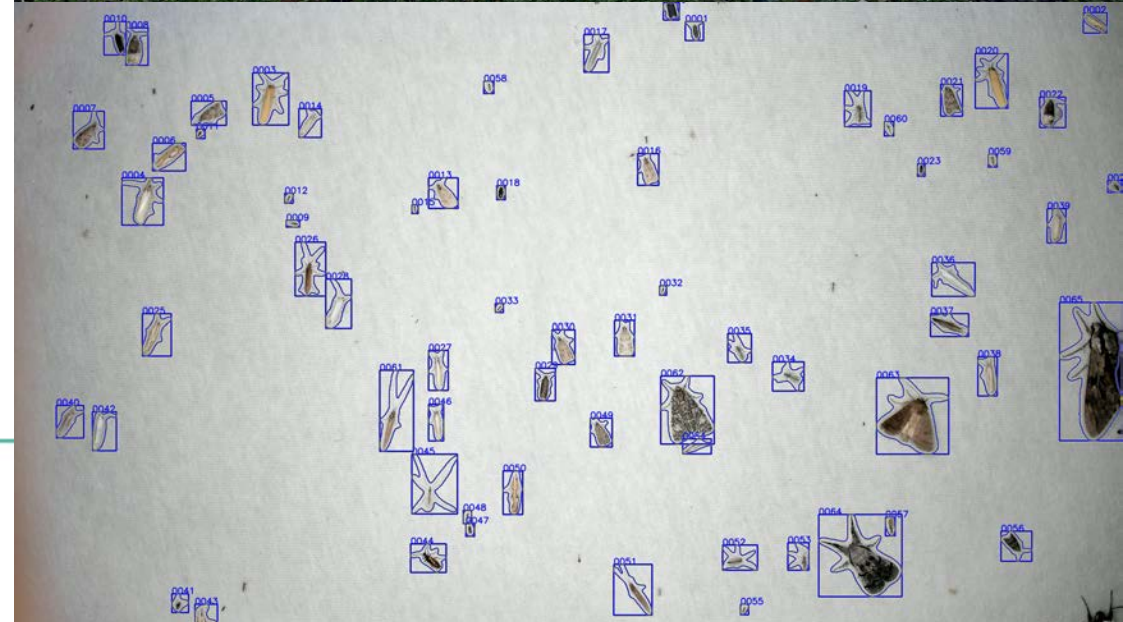
Biodiversity monitoring pilot and subpilots - Conceptual framework
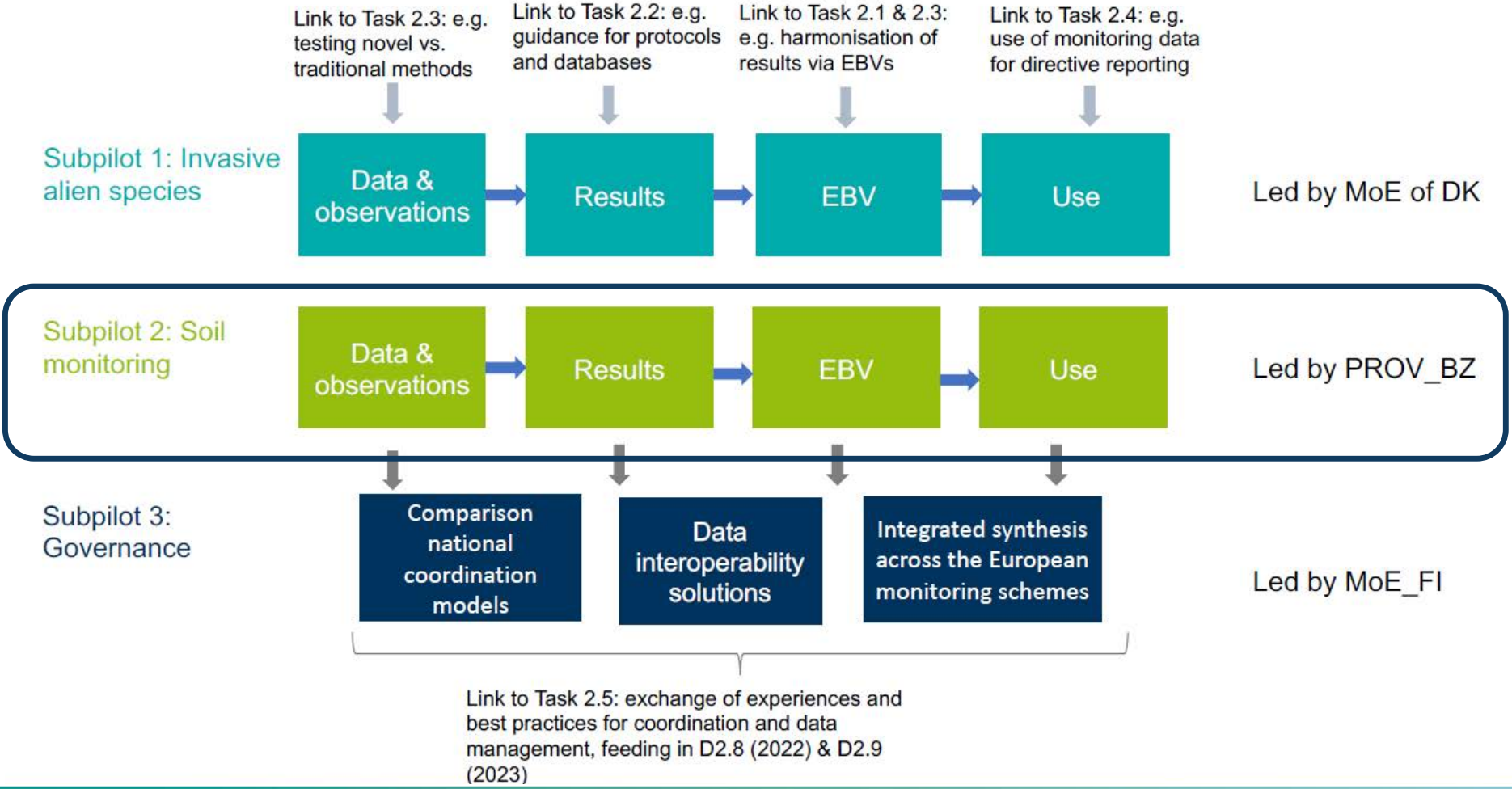
Sub-pilot on soil biodiversity

Current status:

- autumn sampling by active partners finished or almost finished
- pre-sorting of spring pitfall trap and soil core samples by coordinator finished, species identification by external company has already started
- eDNA samples from spring sampling were sent to external company

Workshop: November 15-17 in Bolzano, Italy
- first results
- lessons learnt from the first year

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Sub-pilot on soil biodiversity

Lessons learnt so far

This is a subpilot, where active partners send all samples (composite dried soil and invertebrates in ethanol) to coordinator.

- To ensure comparable data (quality), analyses need to be centralised
- Step-by-step protocol very useful, but partners still need reminders/information (not all strictly followed the protocol)
- Administrative problems: getting the MTA protocol signed due to national Nagoya regulations
- Biggest challenge so far: national regulations affecting the sending of certain types of samples (e.g. insects in ethanol) - this affects both the sending of samples by partners and the receiving of samples by the coordinator

Sub-pilot on soil biodiversity

FCY - Boreal and hemi-boreal Scots pine forests
FCP - Boreal and Alpine spruce forests
FDE - Oak forests of Continental and Atlantic Europe
FDB - Beech forests of the nemoral and Alpine region
FDS - Thermophilous deciduous forest (supramediterranean)
FEH - Broadleaved evergreen forest of the Mediterranean region
FCM - Coniferous forests of the Mediterranean, Anatolian and Macaronesian region
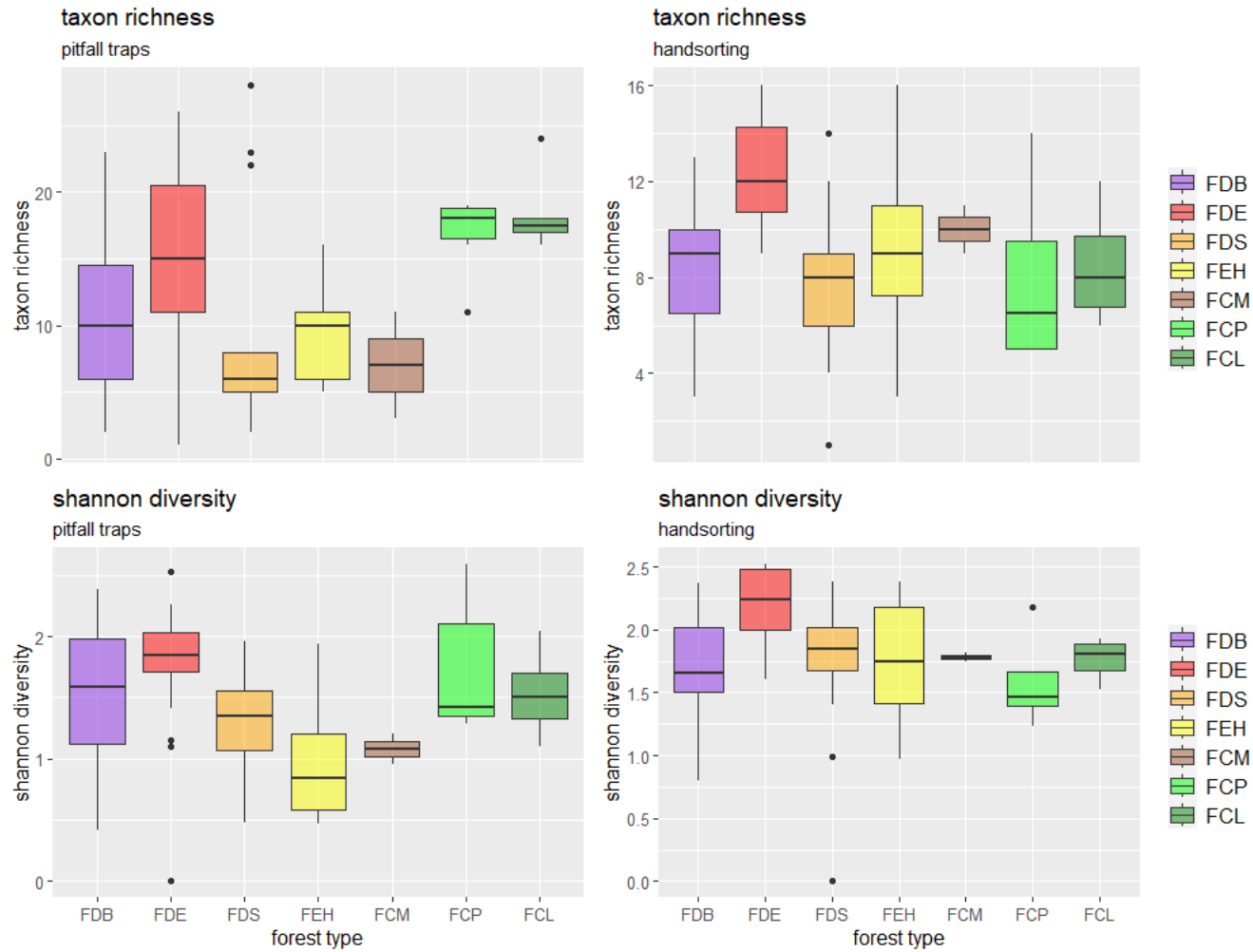FCL - Alpine Swiss pine and larch forests

Soil parameters by forest type

Sub-pilot on soil biodiversity

FCY - Boreal and hemi-boreal Scots pine forests
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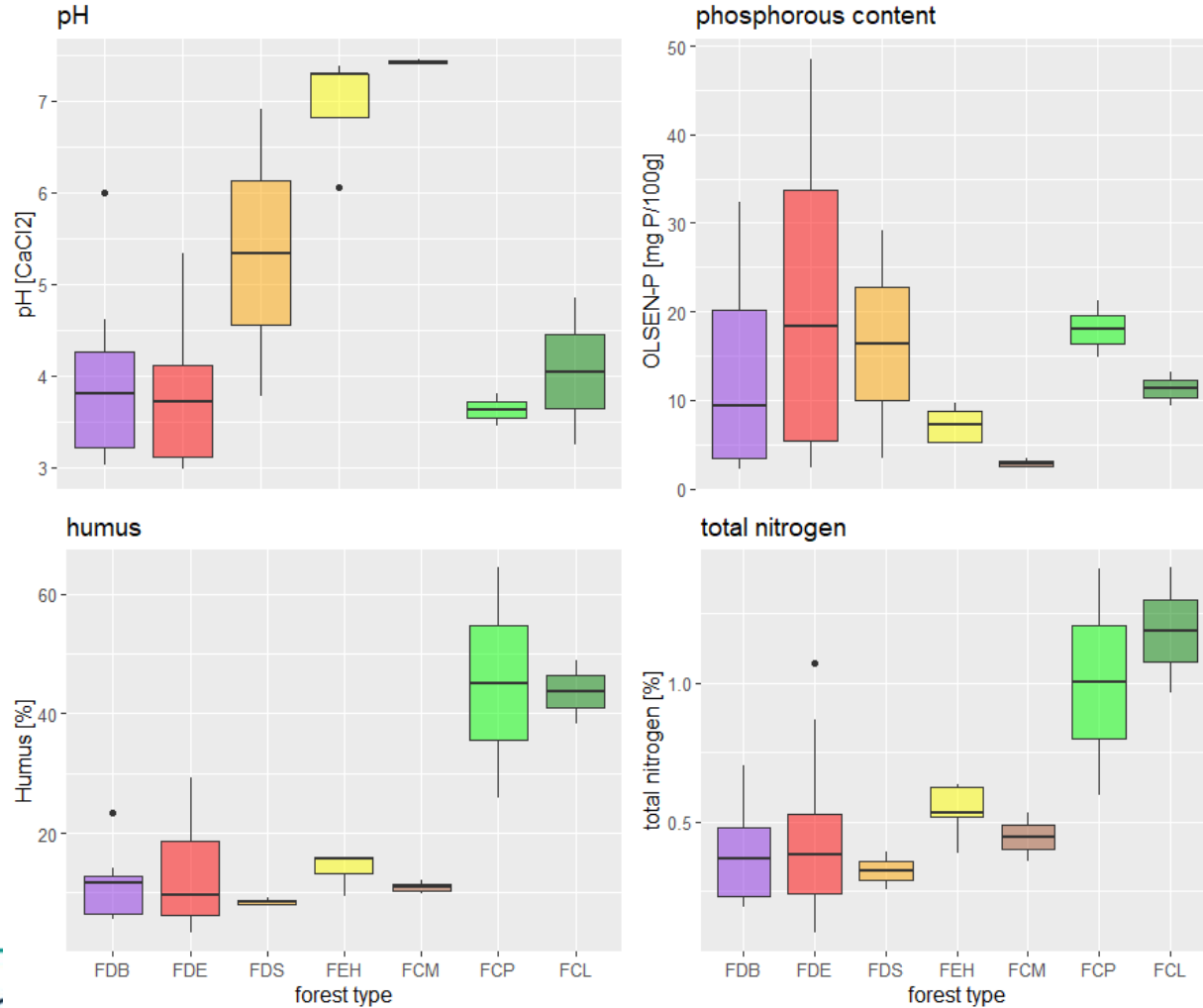
Invertebrate diversity by forest type

Biodiversity monitoring pilot and subpilots - Conceptual framework
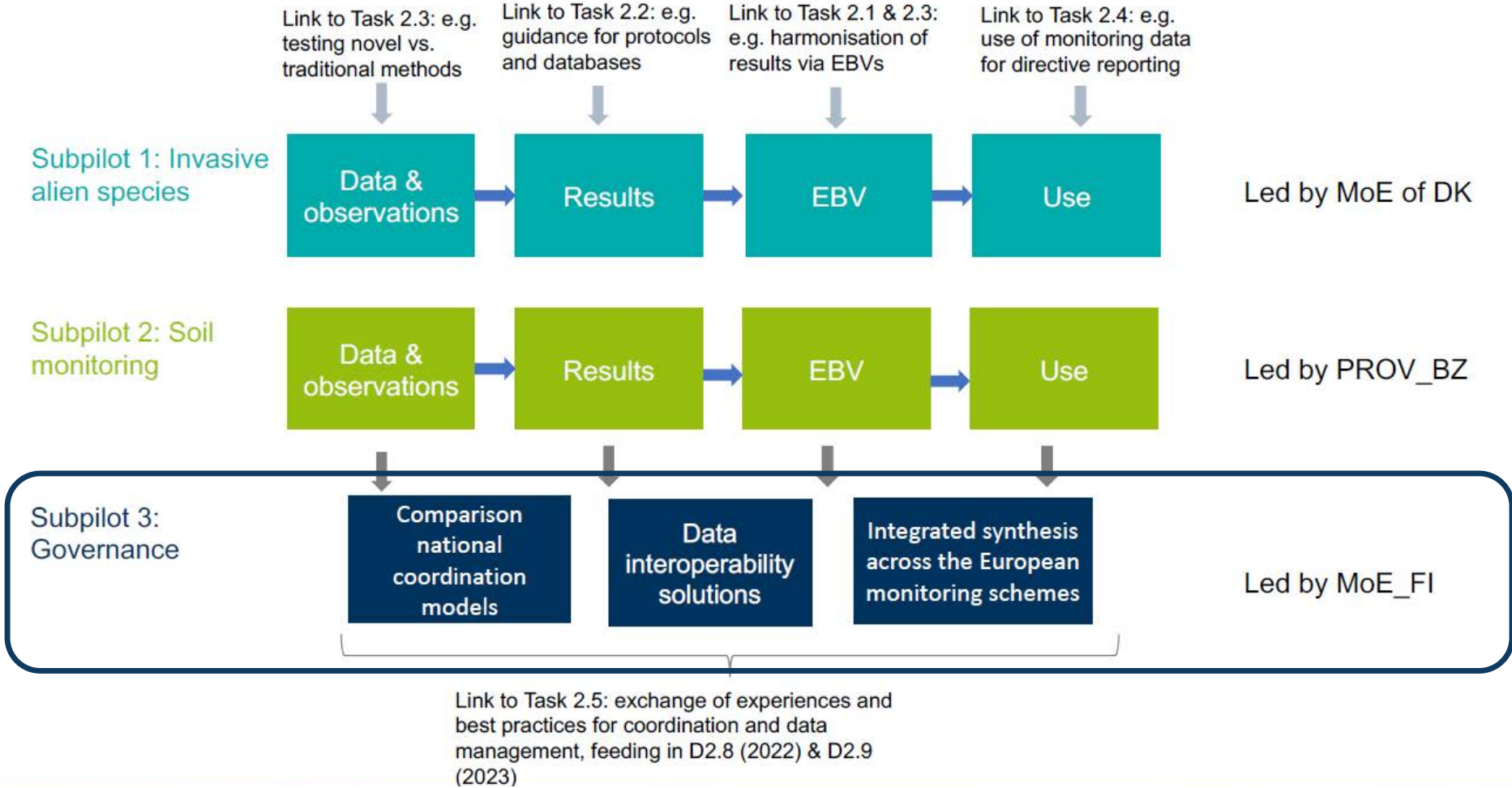
Governance subpilot - towards national biodiversity monitoring coordination centres

Goal

- Provide the foundation for establishing of the "national hubs", which will be the national counterparts for the design of the European Biodiversity Monitoring Coordination Centre (BMCC)

Task

- Review the **governance structures** of national biodiversity monitoring schemes. **Data management and interoperability solutions and use of data standards**

Output

- Comparative report by 31st December 2023

Modules

1: Comparison of national governance models of biodiversity monitoring

2: Comparison of national data management and data interoperability solutions

3: Use of DwC and EML standards at national levels

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Status update – how have we moved towards national biodiversity monitoring coordination centres?

- ✓ Each Active Contributor has organized a **national seminar** on biodiversity monitoring governance
    - to facilitate discussion between all monitoring experts
    - to identify governance needs
    - to pave way for closer collaboration in the future

- ✓ Each Active Contributor has produced **a report** describing biodiversity monitoring governance structures, data management and interoperability solutions and use of data standards on a national (or regional) level

- ➢ Next step: **to prepare a final report**, comparing the governance structures and other solutions
    - Final report forms a key knowledge base for future development of national (or regional) biodiversity monitoring coordination centres
    - National biodiversity monitoring coordination centres will be a key component in the European biodiversity monitoring coordination landscape (with BMCC)

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Lessons learnt

In general, final lessons still to be drawn. Some thoughts:

The sub-pilot has…

- Helped some participants to **bring together rather scattered biodiversity monitoring schemes & experts** conducting them to discuss challenges and possibilities

- Lead to **better understanding of existing monitoring schemes**, and in some cases, even lead to idenfitication & discovery of new existing schemes (e.g. in Finland)

- Brought to light the **diversity of monitoring governance structures in countries**: key information for any discussions on development of transnational governance and cooperation!

Thank you for your attention

- Questions?

Concluding words

By Petteri Vihervaara, MoE_FI

Next steps & save the dates

Budget and Admin reminders:

- **20th of December**: Indirect costs deadline for the partners valorising national biodiversity monitoring costs (only if needed by your organisation)
- **31st of January 2024**: Deadline for partners to valorise more biodiversity monitoring costs

WP2 activities:

- **1st of January 2024**: Launch of the 2nd wave of biodiversity monitoring pilots
- SAVE THE DATES **16th to 18th of April**: Tallinn events on biodiversity monitoring (science policy forum, kick-off of the BiodivMon projects, national-hubs workshop). In collaboration with WP1, WP4, WP5, WP7

General Biodiversa+ events:

- **17th of January**: 10 to 11am CET: General Assembly (online)
- **14th of February**: 9am to 12m CET: General Assembly (online) 💚
- Tentative **17th to 19th of September**: General Assembly in Bulgaria? TBC

+ apply to become a (co-)chair!

Thank you!

🌐 www.biodiversa.eu

✉ contact@biodiversa.eu

🐦 BiodiversaPlus