

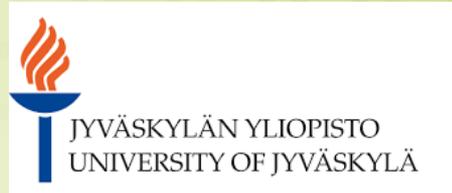
National workshop on integrating species data with environmental data

Part 1: Species and environmental data – an overview of data types and visions for their integration



10.10.2022

Finnish Biodiversity Information Facility
Finnish Ecosystem Observatory



KUOPION
LUONNONTIETEELLINEN
MUSEO

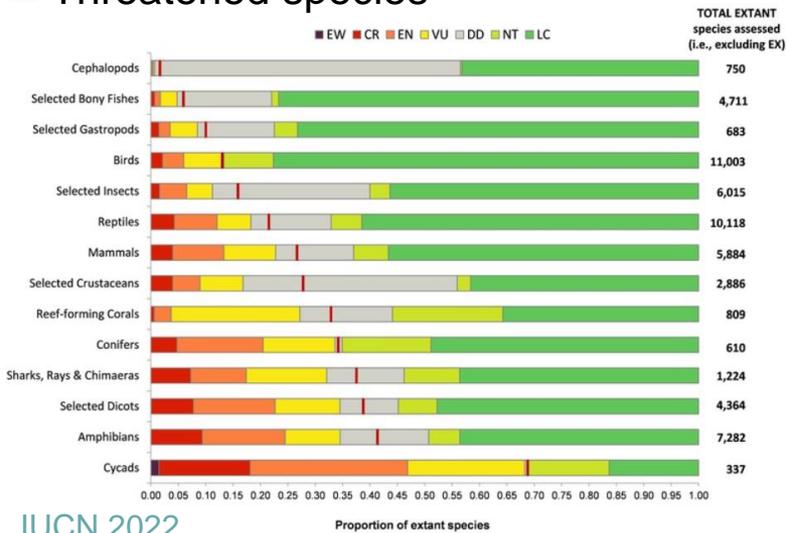
Overview, aims and agenda of the workshop

Veera Norros

Finnish Environment Institute (SYKE)

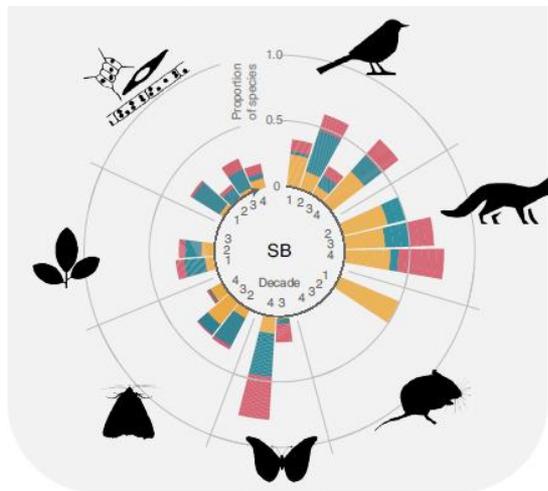
Biodiversity is diminishing due to human activities

Threatened species

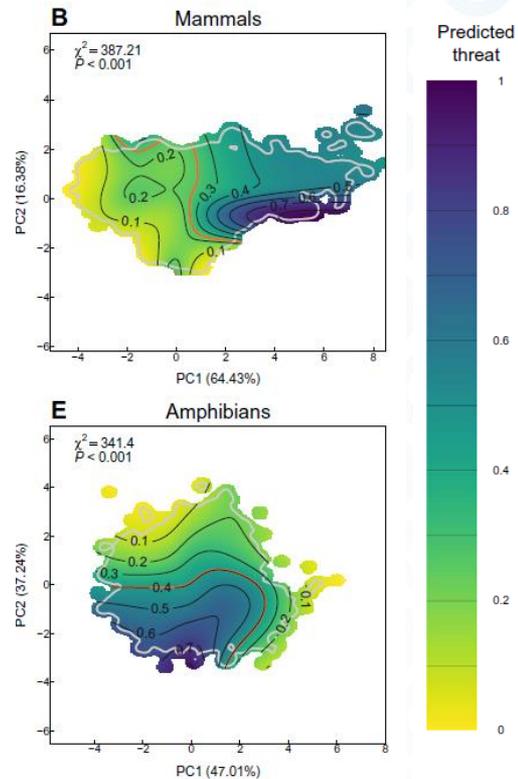


Loss of genetic diversity in small and isolated populations

Shifting species composition



Functional impoverishment



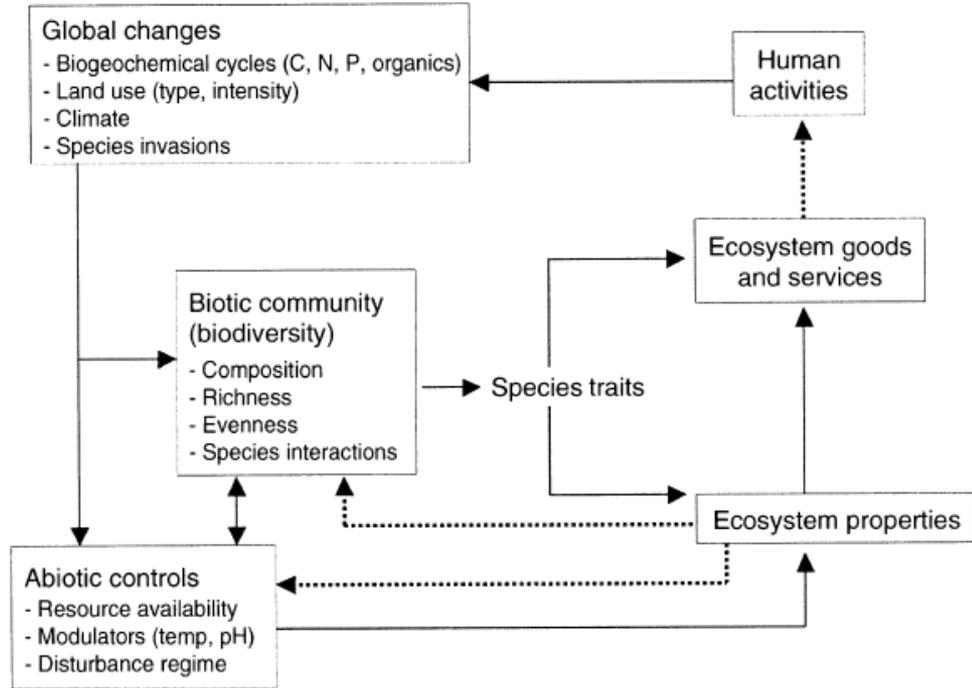
The society is waking up

- Post-2020 Global Biodiversity Framework finalized soon
- EU Biodiversity Strategy
- National Biodiversity Strategy and Action Plan
- Regional biodiversity programmes
- Ecological compensation included in the Nature Protection Act, ongoing pilots
- Organizations calculate their biodiversity footprints
- Companies have growing interest in reducing and compensating for their negative biodiversity impacts

→ **Growing need for biodiversity data, knowledge and predictions**

The motivation is there – what about the data and knowledge base?

- In order to predict and manage **biodiversity changes** and their adverse **effects** to natural ecosystems & society, we need to understand their **drivers**
- Why do species occur where they do?
- How do ecosystem functions depend on different levels of biodiversity (species, traits, genes)?



The motivation is there – what about the data and knowledge base?

- To answer these questions, we need to **combine data** on
 - **Species:** occurrences, abundances, traits
 - **Environment:** physical, chemical, biological (habitat) features
 - + **ecosystem functioning** (system-level features and processes, e.g.: primary production, element fluxes and storage, greenhouse gas fluxes)
- What are the current limiting factors?
 - Is relevant data collected?
 - Is the volume and resolution of the data sufficient?
 - Is the data **Findable**, **Accessible**, **Interoperable** and **Reuseable**?
 - From raw data to **data products** and knowledge: would users benefit from a higher degree of processing by distributors such as FinBIF?

Background & aims of the two workshops 10.10. and 31.10.

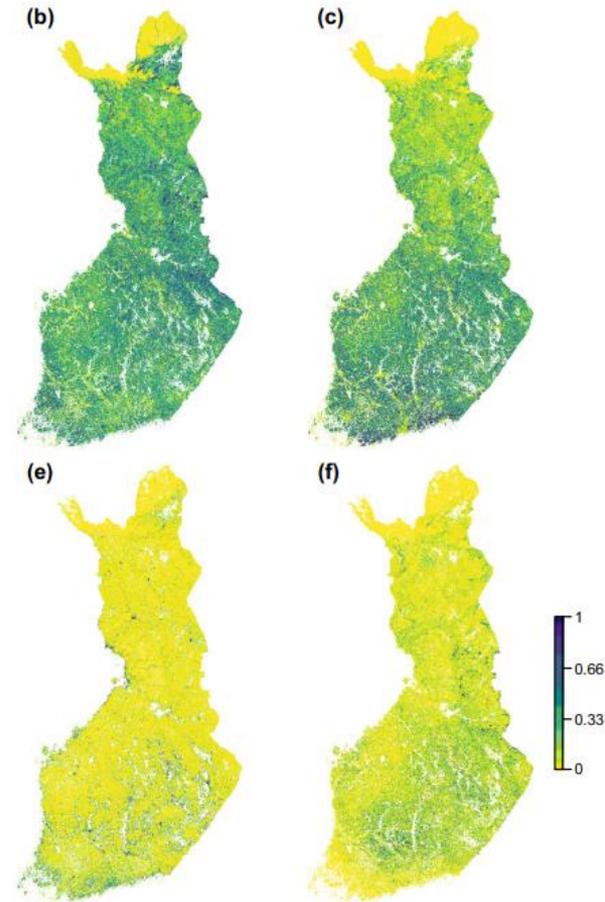
FinBIF-FIRI2021 (2022-2026): Expansion, Integration, and Development of AI-Based Research Services

- SYKE, Luomus, OU, JyU, Kuopio
- Project in brief:
 - WP1: Expansion of data coverage.
 - Digitizing collections (JyU, Kuopio), DNA barcoding of “all” Finnish species, establishing a trait database (+ including DNA-based observations?)
 - WP2: Integration of species data with environmental data
 - Environmental variables, habitat types, ecosystem functioning
 - Utilizing remote sensing data
 - Integration/collaboration with the Finnish Ecosystem Observatory
 - WP3: Development of AI-Based Research Services
 - Automated digitization of specimen data, species identification (images, sound, DNA)
 - WP4: International Collaboration
 - DiSSCo, DNAqua-Net, BIOSCAN Europe, European Biodiversity Partnership



What can we do for you?

- What could integration of species data with environmental data mean in practice?
- How could interoperable data on species observations, habitat types and other environmental data be useful for **research** but also to **other user groups** in our society?
- What kind of challenges in data coverage, availability and interoperability should be addressed?
- What kind of data products would different users benefit from?
 - Maps – e.g. combining species occurrences with different layers of habitat variables
 - Models – e.g. habitat suitability or species distribution models predicting occurrence/abundance from environmental factors



National workshop on integrating species data with environmental data

- **Part 1 (10.10.):** Species and environmental data – an overview of data types and visions for their integration
- **Part 2 (31.10.):** Stepping stones towards the integration of species and environmental data

→ We will use the results to focus the work of the FinBIF-FIRI project for 2023-2026 – **and hope to keep in touch along the way!**

Today's agenda

Agenda – Morning session (1/2)

- 9:00 – 9:10 Opening words (Petteri Vihervaara / SYKE)
- 9:10 – 9:25 Overview, aims and agenda (Veera Norros / SYKE)
- **Introduction to species, habitat and other environmental data (host: Veera Norros / Syke)**
 - 9:25 – 9:40 Outlook on environmental monitoring in Finland (Kristian Meissner / Syke)
 - 9:40 – 9:55 Introduction to species data (Mikko Heikkinen / Luomus)
 - 9:55 – 10:15 Introduction to national habitat type classifications (Aapo Ahola / Syke)
 - 10:15 – 10:30 Environmental and ecosystem data from remote sensing (Saku Anttila / Syke)
 - 10:30 – 10:40 Summary of different data types (Veera Norros / SYKE)
- *10:40 – 11:00 Coffee break*

Agenda – Morning session (2/2)

- **User viewpoints on combining species, habitat and environmental data (host: Päivi Sirkiä / Syke)**
 - 11:00 – 11:15 Scientific research viewpoint 1 (Jarno Vanhatalo / REC, University of Helsinki)
 - 11:15 – 11:30 Researchers' view on combining species and environmental data (Merja Elo & Daniel Burgas / University of Jyväskylä)
 - 11:30 – 11:45 Data use in the Red List assessments of habitats (LuTU) (Tytti Kontula / Syke)
 - 11:45 – 12:00 Environmental and species data needs in environmental administration (Tytti Kontula / Syke)
 - 12:00 – 12:15 UPM – User experience on the feasibility of environmental databases (Petri Heinonen / UPM)
 - 12:15 – 12:20 NGO commentary: Jyri Mikkola / SLL

Agenda – Afternoon session

- 12:20 – 13:30 *Lunch break*
- 13:30 – 16:00 Group work: developing visions for interoperable species and environmental data (**Viikki A-building, Latokartanonkaari 9, room A4**)
 - What could interoperable species and environmental data look like in the future?
 - How would their integration benefit the different end user groups?
 - What concrete steps can we identify towards our vision?
- Discussion group themes (**there is still room!**):
 1. Potential for scientific breakthroughs from combining species and environmental data
 2. Perspectives for unifying habitat classification systems for species and habitat monitoring
 3. Possibilities of using habitat data in red-list assessments
 4. Societal needs and uses for combining species and environmental data

Thanks & let us begin!

