

Europa Biodiversity Observation Network

## Cross-cutting and bioeconomy

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- 52 variables
- Ranked (from 30 to 7 votes) and clustered (same metric, or ecosystem, or service)

|   | Row = ES/B | ₩ MetricGroup   | EcoBiome "                            | Taxa or ES  | GeoGrain G  | Temp "   | Rationale  | Policy   | PolicyQ  | New name | Potential Merg       | Comment                     | ₩ Henrique (low-1, high -5) | Cesar (low-1 | N.Fernandez |   | Tom Breeze | Ruben Valbu | Roberto Pas T | Total "                                |
|---|------------|---|---------------------------------------|---|---|--|--|--|--|----------|----------------------|-----------------------------|-----------------------------|--------------|-------------|---|------------|-------------|---------------|--|
|   |            |   |                                       |   |   | ideally annual,<br>but probably  |  | Climate and<br>Restoration Policy  |  |          |                      |                             |                             |              |             |   |            |             |               |  |
| Insect (arthropod) diversity  |            |   |                                       |   |   |  | Given the widespread insect declines, it is  | Restoration Policy<br>Bioeconomy   | What are the impacts of anthropogenic  |          |                      |                             |                             |              |             |   |            |             |               |  |
| (taxonomic and functional)  | 9.8        | Community   |                                       |   | 10 x 10 km  | frames are more  | Given the widespread insect declines, it is<br>essential to have a monitoring scheme to<br>understand trends in diversity and biomass  | strategy, Commo  | What are the impacts of anthropogenic activities, particularly agriculture, on insect  |          |                      |                             |                             |              |             |   |            |             |               |  |
| and biolinass   | 9.8        | Composition   | multiple                              | invertebrates   | 10 x 10 km  | realistic  | understand trends in diversity and biomass   | Agricultural Policy  | populations and communities  |          | teerge with #5       |                             |                             | •            |             |   | •          | •           | '             | 30                                     |
|   |            |   |                                       |   |   |  |  | Habitats Directive<br>Climate and  |  |          |                      |                             |                             |              |             |   |            |             |               |  |
|   |            | Community   |                                       |   |   | long term  | Insects are a species-rich group and our   | Restoration Policy   |  |          |                      |                             |                             |              |             |   |            |             |               |  |
| Insect diversity of Europe  | 21 8       | composition   | mulitple                              | Other   | National  | every third year   | researchers are highly interested in.  | Agricultural Policy  | What is the effect of agriculture on insects?  |          | Merge with #4 an     | d Originally Eco Structure  |                             | 5            | 5           |   | 4          | 4           |               | 5 28                                   |
|   |            |   |                                       |   |   | Continuous<br>(high-frequency)   |  |  |  |          |                      |                             |                             |              |             |   |            |             |               |  |
|   |            |   |                                       |   |   | (high-frequency)   |  |  | To what extent is insert dispersity and biomass  |          |                      |                             |                             |              |             |   |            |             |               |  |
|   |            |   |                                       |   |   | recording of<br>species from   |  |  | To what extent is insect diversity and biomas<br>in agricultural, orban and natural habitats<br>declining (or recovering), and how does this<br>affect ecosystem services (e.g. pollination,   |          |                      |                             |                             |              |             |   |            |             |               |  |
| Insect diversity and<br>biomass in agricultural,  |            | Community   | Agricultural, urban<br>and natural    |   |   | digital images   | Comprehensive insect monitoring is largely   | Habitats Directive<br>Bioeconomy   | , declining (or recovering), and how does this   |          |                      |                             |                             |              |             |   |            |             |               |  |
| urban and natural habitats  | 5.8        | composition   | habitats                              | Invertebrates   | 10 x 10 km  | traps)   | missing  | strategy   | pest control, human well being)?   |          | Merge with #9 an     | 1 #21                       |                             | 5            | 5           |   | 5          | 4           | 3 5           | 27                                     |
|   |            |   |                                       |   |   |  |  | Habitats Directive   |  |          |                      |                             |                             |              |             |   |            |             |               |  |
| Fine scale land cover and   |            | Consustam   |                                       |   |   | Real-time  |  | Climate and  | Eg what is the effect of CAP policy on eg  |          |                      |                             |                             |              |             |   |            |             |               |  |
| land use data, frequently   |            | structure and   |                                       | Regulation of   | 100 x 100 m   | - continuous   | LULUCF data are needed for several ESVs and  | Bioeconomy   | climate goals? This data can be used as drive  | ,        |                      |                             |                             |              |             |   |            |             |               |  |
| updated   | 38 8       | function  | All                                   | climate   | 1x1km   | yearly   | policies   | strategy   | data for many analyse types?   |          |                      | Originally ES Supply        |                             | 4 :          | 4           |   | 5          | 5           | 5 4           | 4 27                                   |
|   |            |   |                                       | Invertebrates.  |   |  | soil invertebrates (biodiversity) are a critical variable to assess terrestrial ecosystems that it   | s Habitats Directive   | . What is the effect of climate, land-use chang  |          |                      |                             |                             |              |             |   |            |             |               |  |
|   | 2.0        | Community   |                                       | fungi and<br>microbiota                                     | 100 x 100 m   |  | often overlooked so specific variables are   | Climate and  | and agricultural intensificationon soil communities across Europe?   |          |                      |                             |                             |              |             |   |            |             |               | \ \ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ |
| species diversity in soils  | 2.8        | composition   | soils                                 | microbiota  | 1×1km   | snort term   | needed<br>Soil biodiversity has a key role in ecosystem  | mestoration Policy   | communicies across Europe?   |          | taterge with row 3   | a Perhaps not possible at 1 | on.                         | •            |             |   | 5          | -           |               | 26                                     |
|   |            |   |                                       |   |   |  | processes and is negatively affected by<br>multiple anthropogenic stressors. Besides   | Climate and  |  |          |                      |                             |                             |              |             |   |            |             |               |  |
| Taxonomic and functional  |            | Community   |                                       | Invertebrates,<br>fungi and                                 | < 100 x 100   |  | multiple anthropogenic stressors. Besides<br>invertebrates, the metric might include fungi   | Restoration Policy   | What is the effect of agriculture /restoration   |          |                      |                             |                             |              |             |   |            |             |               |  |
| diversity of soil biota   | 3.0        | composition   | Multiple                              | microbiota  | m   | Annual   | and microbiota   | strategy   | /pollution on soil diversity   |          | Merge with row 2 a   | and #29 and #32             |                             | 4            | 4           |   | 5          | 5           | 5 1           | 3 26                                   |
|   |            |   |                                       |   |   |  | Divesity of aquatic organims is an indicator of anthropogenic stressors. It needs to consider  |  |  |          |                      |                             |                             |              |             |   |            |             |               |  |
|   |            |   | Aquatic                               |   |   |  | anthropogenic stressors. It needs to consider taxonomic diversity functional diversity and   | Habitats Directive,  |  |          |                      |                             |                             |              |             |   |            |             |               |  |
|   |            |   | ecosystems                            |   |   |  | taxonomic diversity, functional diversity, and diversity of sensitive species (e.g., EPTO in   | Water Framework  |  |          |                      |                             |                             |              |             |   |            |             |               |  |
| Taxonomic and functional diversity of aquatic   |            | Community   | (including marine,<br>freshwater, and |   | 100 x 100 m   |  | freshwaters). Several taxonomic groups can be included, from microbiota to fish and other  | e Directive, Climate<br>and Restoration  | What is the effect of anthropogenic drivers  |          |                      |                             |                             |              |             |   |            |             |               |  |
| organisms organisms   | 8.8        | composition   | transitional)                         | Invertebrates   | 1 x 1 km  | annual   | vertebrates.   | Policy   | on aquatic diversity   |          | Merge with row 4     | and #21                     |                             | 4            | 4           |   | 4          | 4           | 5 5           | 5 26                                   |
|   |            |   |                                       |   |   |  |  | Birds Directive,<br>Habitats Directive   |  |          |                      |                             |                             |              |             |   |            |             |               |  |
|   |            |   |                                       |   |   |  |  | Water Framework  |  |          |                      |                             |                             |              |             |   |            |             |               |  |
|   |            |   |                                       |   |   |  | Population abundance is responsive for specie<br>in focus. Stress should be given to survey  | es Directive,  |  |          |                      |                             |                             |              |             |   |            |             |               |  |
| Abundance index trend of  |            | Species   |                                       |   |   | depends on the   | in focus. Stress should be given to survey<br>relative abundance, and not population size  | strategy, Red list   |  |          |                      |                             |                             |              |             |   |            |             |               |  |
| species   | 34.8       | populations   | Multiple                              | Amphibians  | 50 x 50 km  | population limit   | (too costly)   | of species   | What are the species states ?  |          |                      |                             |                             | 6            |             | _ | 4          | 4           |               | d 20                                   |
|   |            |   | Agricultural<br>landscapes            |   |   |  |  |  |  |          |                      |                             |                             |              |             |   |            |             |               |  |
|   |            |   | (including rural                      |   |   |  |  |  |  |          |                      |                             |                             |              |             |   |            |             |               |  |
| pollinator trait diversity in   |            | Community   | areas, cropland<br>and managed        |   | 1 x 1 km - 5 x  |  |  | Common   | Are some pollinator groups threathened in  |          |                      |                             |                             |              |             |   |            |             |               |  |
| agricultural landscapes   | 37 8       | composition   | grassland)                            | Invertebrates   | 5 km  |  |  |  | this particular crop area ?  |          |                      | Originally in Species Trait |                             | 3            | 5           |   | 3          | 5           | 5 4           | 4 25                                   |
| Abundance of invertebrate<br>disease-vectors (ticks;  |            | Species   |                                       |   |   |  | Important to assess risk of disease  |  | What is the risk of disease transmission to  |          |                      |                             |                             |              |             |   |            |             |               |  |
| mosquitoes etc)   | 31 B       | populations   | Multiple                              | Invertebrates   | 10 x 10 km -<br>50 x 50 km  | short-term   | Important to assess risk of disease<br>transmission to humans  | Not Applicable   | What is the risk of disease transmission to<br>humans?   |          |                      |                             |                             | 4            | 5           |   | 4          | 3           | 5 3           | 3 24                                   |
| Soil biodiversity (in general,  |            |   |                                       |   |   |  |  |  |  |          |                      |                             |                             |              |             |   |            |             |               |  |
| as it remains understudied<br>in literaraly all ecosystems);  |            |   |                                       |   |   |  |  | Habitats Directive<br>Climate and  |  |          |                      |                             |                             |              |             |   |            |             |               |  |
| speifically a focus on  |            |   |                                       |   |   | real-time (for   |  | Restoration Policy   |  |          |                      |                             |                             |              |             |   |            |             |               |  |
| hypogeous fungi would be<br>great (as a very limited  |            |   |                                       |   |   |  |  |  |  |          |                      |                             |                             |              |             |   |            |             |               |  |
| number of groups is   |            |   |                                       |   |   | total soil<br>biodiversity) OR   | In general soil diversity (at any level, including   | Bioeconomy   |  |          |                      |                             |                             |              |             |   |            |             |               |  |
| actively involved in this   |            |   |                                       |   |   | blodiversity) OR<br>yearly (for  | its ecosystem functions) reamain poorly<br>studied and in best cases remain either at the  | Bioeconomy<br>strategy, Common<br>Agricultural Police  |  |          |                      |                             |                             |              |             |   |            |             |               |  |
| eroup of funeil   | 32 B       | Species<br>populations  | "Madrinie"                            | Mirmhes/Funei   | < 100 x 100   | blodiversity) OR<br>yearly (for  | its ecosystem functions) reamain poorly  | Bioeconomy<br>strategy, Common<br>Agricultural Police  |  |          | Mercus with #2 and   | d #1 and #29                |                             |              | ,           |   |            |             |               |  |
|   | 32 8       | Species populations   | "Multiple"                            | Microbes/Fungi  | < 100 x 100<br>m  | blodiversity) OR<br>yearly (for  | its ecosystem functions) reamain poorly<br>studied and in best cases remain either at the  | Bioeconomy<br>strategy, Common<br>Agricultural Policy<br>2030 Biodiversity<br>targets<br>Birds Directive,  | Effect of soil biodversity on their respectful ecosystem functions   |          | Merge with #2 an     | d #3 and #29                |                             |              | ,           |   |            |             |               | 4 24                                   |
|   | 32 B       | Species populations   | "Multiple"                            | Microbes/Fungi  | < 100 x 100<br>m  | biodiversity) OR<br>yearly (for<br>hypogeous<br>fungi)   | its ecosystem functions) reamain poorly<br>studied and in best cases remain either at the  | Bioeconomy<br>strategy, Common<br>Agricultural Policy<br>2030 Biodiversity<br>targets<br>Birds Directive,<br>Habitats Directive  | Effect of soil biodversity on their respectful ecosystem functions   |          | Merge with #2 an     | d #3 and #29                |                             |              |             |   |            |             |               | 24                                     |
|   | 32 B       | Species<br>populations  | "Multiple"                            | Microbes/Fungi  | < 100 x 100<br>m  | biodiversity) OR<br>yearly (for<br>hypogeous<br>fungi)<br>real-time for<br>bloom events  | its ecosystem functions) reamain poorly<br>studied and in best cases remain either at the<br>local level (point sampling) or are being<br>modelled  There are several Essential Ocean Variables  | Bioeconomy<br>strategy, Common<br>Agricultural Policy<br>2030 Biodiversity<br>targets<br>Birds Directive,<br>Habitats Directive<br>Water Framework<br>Directive,   | Effect of soil biodversity on their respectful ecosystem functions   |          | Morge with #2 an     | d 83 and 829                |                             | ,            |             |   |            |             |               | 24                                     |
|   | 32 8       | Species populations   | "Multiple"                            | Microbes/Fungi  | < 100 x 100<br>m  | biodiversity) OR<br>yearly (for<br>hypogeous<br>fungi)<br>real-time for<br>bloom events  | its ecosystem functions) reamain poorly<br>studied and in best cases remain either at the<br>local level (point sampling) or are being<br>modelled  There are several Essential Ocean Variables  | Bioeconomy<br>strategy, Common<br>Agricultural Policy<br>2030 Biodiversity<br>targets<br>Birds Directive,<br>Habitats Directive,<br>Water Framework<br>Directive,<br>Common Fisherie   | Effect of soil biodversity on their respectful ecosystem functions   |          | Merge with #2 on     | d #3 and #29                |                             |              |             |   |            |             |               | 24                                     |
| group of fungi)   | 32 B       | Species<br>populations  | "Multiple"                            | Microbes/Fungi  |   | biodiversity) OR<br>yearly (for<br>hypogeous<br>fungi)  real-time for<br>bioom events<br>(harmful algal<br>biooms) to<br>monthly   | its ecosystem functionaly rearmain poorly<br>studied and in best cases remain either at the<br>local level (point sampling) or are being<br>modelled.  There are several Essential Ocean Variables<br>((OVb) that are elaborated by by OOOS and<br>MBON (see Miloslavic et al., 1410B). How do<br>https://doi.org/10.1111/gci.1410B). How do   | Bioeconomy<br>strategy, Common<br>Agricultural Policy<br>2030 Biodiversity<br>targets<br>Birds Directive,<br>Habitats Directive,<br>Water Framewori<br>Directive,<br>Common Fisherie<br>Policy, Marine<br>Strategy   | Offect of soil biodiversity on their respectful ecosystem functions  |          | Merge with #2 on     | f E3 and E29                |                             | 3            |             |   |            |             |               | 24                                     |
|   | 32 B       | Species populations  Community                                      | "Multiple"                            | Microbes/Fungi  | m<br>10 x 10 km -   | biodiversity) OR<br>yearly (for<br>hypogeous<br>fungi)  real-time for<br>bloom events<br>(harmful algal<br>blooms) to<br>monthly<br>sampling to  | This exception functional pramain poorly studied and in less cause remain either at the local level (point sampling) or are being modelled  There are several (ssential Ocean Variables ((DON) that are elaborated by the GOOS and MOMON (see Millosolivic et al (https://doi.org/10.1111/gbt.3108). How do with the fire furned both? It she have if the for possibility in the control of the property of of the prope | Bioeconomy<br>strategy, Common<br>Agricultural Policy<br>2030 Biodiversity<br>targets<br>Birds Directive,<br>Habitats Directive,<br>Water Framework<br>Directive,<br>Common Fisherie<br>Policy, Marine<br>Strategy<br>Framework  | Effect of soil biodversity on their respectful ecosystem functions   |          | Morge with #2 an     | 1 K3 and K29                |                             |              |             |   |            |             |               | 24                                     |
| group of fungi)   | 32 B       | Species populations  Community composition                          | "Multiple"                            | Microbes/Fungi  | m<br>10 x 10 km -   | biodiversity) OR<br>yearly (for<br>hypogeous<br>fungi)  real-time for<br>bioom events<br>(harmful algal<br>biooms) to<br>monthly   | its ecosystem functionaly rearmain poorly<br>studied and in best cases remain either at the<br>local level (point sampling) or are being<br>modelled.  There are several Essential Ocean Variables<br>((OVb) that are elaborated by by OOOS and<br>MBON (see Miloslavic et al., 1410B). How do<br>https://doi.org/10.1111/gci.1410B). How do   | Bioeconomy<br>strategy, Common<br>Agricultural Policy<br>2000 Biodiversity<br>tarpets<br>Birds Directive,<br>Habitats Directive,<br>Habitats Directive,<br>Common Fisherie<br>Policy, Marine<br>Strategy<br>Framework<br>Directive   | Effect of soil biochernity on their respectful ecosystem functions.  Status, trends and functioning of the Marine environment.   |          | Merge with #2 an     | i K3 and K29                |                             |              |             |   |            |             |               | 3 2                                    |
| group of fungi)   | 32 B       | Species populations  Community composition                          | "Multiple"  Marine                    | Microbes/Fungi  | m<br>10 x 10 km -   | biodiversity) OR<br>yearly (for<br>hypogeous<br>fungi)  real-time for<br>bloom events<br>(harmful algal<br>blooms) to<br>monthly<br>sampling to  | This exception functional pramain poorly studied and in less cause remain either at the local level (point sampling) or are being modelled  There are several (ssential Ocean Variables ((DON) that are elaborated by the GOOS and MOMON (see Millosolivic et al (https://doi.org/10.1111/gbt.3108). How do with the fire furned both? It she have if the for possibility in the control of the property of of the prope | Bioeconomy<br>strategy, Common<br>Agricultural Policy<br>2030 Biodiversity<br>targets<br>Birds Directive,<br>Habitats Directive,<br>Water Framework<br>Directive,<br>Common Fisherie<br>Policy, Marine<br>Strategy<br>Framework<br>Directive<br>Habitats Directive<br>Climate and  | Offest of wall biodernity on their respectful empyteen functions  Satus, trends and functioning of the Marine environment  |          | Merge with #2 an     | ( E) and ED                 |                             |              |             |   |            |             |               | 3 27                                   |
| group of fungi)   | 32 B       | Species populations  Community composition                          | "Multiple"                            | Microbes/Fungi  | m<br>10 x 10 km -   | biodiversity) OR<br>yearly (for<br>hypogeous<br>fungi)  real-time for<br>bloom events<br>(harmful algal<br>blooms) to<br>monthly<br>sampling to  | This exception functional pramain poorly studied and in less cause remain either at the local level (point sampling) or are being modelled  There are several (ssential Ocean Variables ((DON) that are elaborated by the GOOS and MOMON (see Millosolivic et al (https://doi.org/10.1111/gbt.3108). How do with the fire furned both? It she have if the for possibility in the control of the property of of the prope | Bioeconomy<br>strategy, Common<br>Agricultural Policy<br>2010 Biodvenstly<br>stargets<br>Birds Directive,<br>Habitats Directive,<br>Common Fisherie<br>Policy, Marine<br>Strategy<br>Framework<br>Directive<br>Habitats Directive<br>Habitats Directive<br>Restoration Policy  | Office of sail biodernity on their respectful<br>exception functions<br>Satist, tends and functioning of the Marine<br>environment   |          | Merge with #2 on     | 6 K3 and K29                |                             |              |             |   |            | 4           |               | 3 23                                   |
| group of fungi<br>Zooplankton biomass and<br>diversity  | 32 B       | Species populations  Community composition                          | "Multiple"  Marine                    | Microbes/Fungi  | 10 x 10 km -<br>50 x 50 km  | biodiversity) OR yearly (for hypogeous fung) real-time for bloom events (harmful algal blooms) to monthly sampling to detect trends  | This exception functional pramain poorly studied and in less cause remain either at the local level (point sampling) or are being modelled  There are several (ssential Ocean Variables ((DON) that are elaborated by the GOOS and MOMON (see Millosolivic et al (https://doi.org/10.1111/gbt.3108). How do with the fire furned both? It she have if the for possibility in the control of the property of of the prope | Bioeconomy<br>strategy, Commo<br>Agricultural Polic<br>2010 Biodiversity<br>targets<br>Birds Directive,<br>Habitats Directive,<br>Common Fisherie<br>Policy, Marine<br>Strategy<br>Framework<br>Directive<br>Habitats Directive<br>Climate and<br>Restoration Policy<br>Planning for gree  | Offset of soil biodernity on their respectful exception factions  Status, trends and functioning of the Marine environment.  |          | Merge with #2 as     | ( i) and (29                |                             |              |             |   |            |             |               | 3 2                                    |
| group of fungi<br>Zooplankton biomass and<br>diversity  | 32 B       | Species populations  Community composition  Ecosystem functioning   | "Multiple"  Marine                    | Microbes/Fungi  | 10 x 10 km -<br>50 x 50 km  | biodiversity) OR yearly (for<br>hypogeous<br>fungi)  real-time for<br>bloom events<br>(harmful algal<br>blooms) to<br>monthly<br>sampling to<br>detect trends  | This exception functional pramain poorly studied and in less cause remain either at the local level (point sampling) or are being modelled  There are several (ssential Ocean Variables ((DON) that are elaborated by the GOOS and MOMON (see Millosolivic et al (https://doi.org/10.1111/gbt.3108). How do with the fire furned both? It she have if the for possibility in the control of the property of of the prope | Bioeconomy<br>strategy, Common<br>Agricultural Policy<br>2010 Biodivensity<br>targets<br>Birds Directive,<br>Habitats Directive<br>Water Frameword<br>Directive,<br>Common Fisherie<br>Policy, Marine<br>Strategy<br>Framework<br>Directive<br>Habitats Directive<br>Climate and<br>Restoration Policy<br>Planning for gree<br>infrastructure an<br>protected areas  | Offset of soil biodernity on their respectful exception factions  Status, trends and functioning of the Marine environment.  |          | Merge with #2 an     | l Devi CO                   |                             |              |             |   |            |             |               | 3 23                                   |
| group of fungi<br>Zooplankton biomass and<br>diversity  |            | Species populations  Community composition  Ecosystem functioning   | "Multiple"  Marine                    | Microbes/Fungi  | 10 x 10 km -<br>50 x 50 km  | biodiversity) OR yearly (for hypogeous fungi) real-time for bloom events (harmful algal blooms) to recently sampling to detect trends  | This exception functional pramain poorly studied and in less cause remain either at the local level (point sampling) or are being modelled  There are several (ssential Ocean Variables ((DON) that are elaborated by the GOOS and MOMON (see Millosalisite et al. (https://doi.org/10.1111/gbt.3108). How do have fit in Europalisite et al.  | Bioeconomy<br>strategy, Common<br>Agricultural Policy<br>2020 Biodelvensity<br>sargets<br>Birds Directive,<br>Habitats Directive,<br>Common Fisherie<br>Policy, Marine<br>Strategy<br>Framework<br>Directive<br>Climate and<br>Restoration Policy<br>Planning for gree<br>infrastructure and<br>protected areas<br>network<br>Habitats Directive<br>Habitats Directive   | Effect of soil biodernity on their respectful<br>anapystem functions<br>and the soil of the soil of the soil of the<br>Status, trends and functioning of the Marine<br>environment   |          | Merge with #2 an     | IS set ID                   |                             | 4            | 4           |   | ,          | 4           |               | 3 23                                   |
| group of fungi<br>Zooplankton biomass and<br>diversity  |            | Species populations  Community composition  Ecosystem functioning   | "Multiple"  Marine  multiple          | Microbes/Fungi Other  | 10 x 10 km -<br>50 x 50 km  | biodiversity) Oit yearly (for<br>hypogrous<br>fungi)<br>real-time for<br>bloom events<br>(harmful algal<br>blooms) to<br>monthly<br>sampling to<br>detect trends<br>yearly<br>6 year cycle,  | This exception functional pramain poorly studied and in less cause remain either at the local level (point sampling) or are being modelled  There are several (ssential Ocean Variables ((DON) that are elaborated by the GOOS and MOMON (see Millosalisite et al. (https://doi.org/10.1111/gbt.3108). How do have fit in Europalisite et al.  | Bioceconomy<br>stratagy, Common<br>Agricultural Polici<br>2010 Biodelvensty<br>Jargess<br>Birds Directive,<br>Habitats Directive,<br>Habitats Directive,<br>Common Fisherie<br>Policy, Marine<br>Stratagy<br>Framework<br>Directive<br>Habitats Directive<br>Climate and<br>Restoration Policy<br>Planning for gree<br>infrastructure amprotected areas<br>network<br>Habitats Directive<br>Climate and<br>Climate and  | Offset of acid bioderanty on their respectful exception functions  Status, trends and functioning of the Marine environment  |          | Merge with #2 an     | lDel ID                     |                             | 4            |             |   | 3          | 4           |               | 5 23<br>5 23                           |
| Zooplankton blomass and diversity  Measures and role of connectivity for habitats   |            | Community composition  Ecosystem functioning                        | "Multiple"  Marine  multiple          | Microbes/Fungi Other Other                                  | 10 x 10 km -<br>50 x 50 km  | biodiversity) OR yearly (for<br>hypogeous<br>fungi) time for<br>bloom events<br>(harmful algal<br>blooms) to<br>monthly<br>sampling to<br>detect trends<br>yearly<br>6 year cycle,<br>with one-third<br>of data points.  | the consystem functional transmiss proxystations and instruction and instruction among the state and instruction as the state and instruction as the state and instruction and | Bioceconomy<br>strategy, Common<br>Agricultural Policy<br>2010 Biodelvensky<br>targets<br>Birds Directive,<br>Habitats Directive,<br>Common Faherie<br>Policy, Marine<br>Strategy<br>Framework<br>Directive,<br>Climate and<br>Restoration Policy<br>Flanning for gree<br>infrastructure am<br>protected areas<br>returned.  | Effect of soil biodernity on their imprected<br>many-left functions.  Status, trends and functioning of the Marine<br>many immenses.   |          | Merge with \$2 am    | Onto                        |                             | 4            |             |   | 3          | ,           |               | 3 23<br>5 23                           |
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| Zooplankton blomass and diversity  Measures and role of connectivity for habitats   |            | Community composition  Ecosystem functioning                        | "Multiple"  Marine  multiple          | Microbes/Fung.  Other  Cither                               | 10 x 10 km<br>50 x 50 km<br>1 x 1 km · 5 x<br>5 km  | biodiscripty OR yearly for<br>hypogenous<br>fungi) real-sime for<br>bloom events<br>(harmful digal<br>blooms) to<br>morthly<br>sampling to<br>detect trends<br>yearly<br>G-year cycle,<br>with one-third<br>of data point<br>surveyed every ;  | the consystem functional transmiss proxystations and instruction and instruction among the state and instruction as the state and instruction as the state and instruction and | Bioceconomy strategy, Common<br>Agricultural Policy<br>2010 Biodiversity<br>12010 Biodiversity<br>12010 Biodiversity<br>12010 Biodiversity<br>12010 Biodiversity<br>12010 Biodiversity<br>12010 Birds<br>12010 Birds<br>1201 | Effect of gold booleranty on their imprectful managed in functions are proposed for the section of the Manhaman and American of the Manhaman and Manhaman a |          | Marga with 12 an     |                             |                             | 4            | 3           |   | ,          | 3           | s 3           | 3 23<br>5 23<br>3 22                   |
| Zooplankan biomass and<br>diversity  Measures and note of<br>connectivity for habitats.  Scratified sampling of plant<br>species devictivity  Kerwild sign blooms   | 23 0       | Community composition   | "Multiple"  Marine  multiple          | Microbes/Fung.  Other  Cither                               | 10 x 10 km<br>50 x 50 km<br>1 x 1 km · 5 x<br>5 km  | biodiscripty OR yearly (for hypogeous fung) real-time for bioom events (harmful algal bioom) to events (harmful algal bioom) to events detect trends  yearly 6-year cycle, with one-third of data points surveyed every 'years real-time,  | the competent household reasoning process under and in front case mean make and a model and in front case mean make and a model to a second control of the control fill of the control of the control fill of the control of the control fill of the c | Biocenomy atriange, Common Agricultural Policy 2006 Biodisorthy 2006 Biodi   | Effect of gold booleranty on their imprectful managed in functions are proposed for the section of the Manhaman and American of the Manhaman and Manhaman a |          | Morps with \$2 and   | (1) and (2)                 |                             | 4            |             |   | 3          | 3           |               | 3 23<br>5 23                           |
| Zooplankton blomass and diseasily.  Measures and role of connectivity first habitats  Stratified sampling of plant species diversity.  **Terminal slight blooms and   | 23 0       | Community composition   | "Malapia"  Marine  multiple           |   | 10 x 10 km<br>50 x 50 km<br>1 x 1 km · 5 x<br>5 km  | biodiscripty OR yearly for<br>hypogeous<br>fung) real-time for<br>bloom events<br>(harmful algal<br>bloom) to<br>morthly<br>wearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly<br>yearly | the competent handloring treatment process taked and of head too see much retained and the second and the secon | Biocenomy artisage Common Agicultural Pulicy artisage Common Agicultural Pulicy artisage Common Biocenomy  | Effect of gold booleranty on their imprectful managed in functions are proposed for the section of the Manhaman and American of the Manhaman and Manhaman a |          | Ny 20 0              | (A) and \$20                |                             | 4            |             |   | ,          | 3           |               | 3 23<br>5 23                           |
| Zooplankton biomass and diseasily.  Zooplankton biomass and diseasily.  Measures and role of connectivity for habitats.  Sociatified sampling of plant species diseasily.  **terminal algal biomes**  **terminal a              | 23 0       | Community corposition  Ecosystem functioning  Community corposition |                                       | Regulation of freshwater and                                | 10 x 10 km - 50 x 50 km  1 x 1 km - 5 x 50 km  1 x 1 km - 5 x 5 km                          | bodievniny OR yearly (for hypogeous fung) or hypogeous fung) or real stone for bloom events (hearn) and the fung) or real stone for bloom events (hearn) and the remotably sampling to detect trends  yearly  Gyear cycle, with one-third of data points surveyed every years  real stone with the property of   | this consystem functional reasoning occupy stated and in fine cities make in the cities make in the cities and in the cities of  | Biocenomy artisage, Common Agricultural Pulici 2006 Biodenesis Birch Directive, Birch Directive, Birch Directive, Birch Directive, Common Taberier Strategy Transming for general Frankring for general Frankrin   | Offset of and biochemistry on their impreceded encaptures functions  Status, trends and functioning of the Marine environment  How done land use & cover miste to plant species diversity and tose?  What is the impact of harmful significant biochemistry.   |          | Morga with £2 as     | (A and CO                   |                             | 4            |             |   | ,          | 3 3         |               | 3 23<br>5 23<br>3 22                   |
| gross of fungi<br>20oplankton blomass and<br>disensity  Measures and role of<br>connectivity for habitats.  Scratified sampling of plant<br>species diversity  Hamful align blooms<br>threatming recessoral<br>services, a.g. butting select  | 7.9        | Community composition  Ecosystem Sectioning  Community composition  | Lakes and coastal                     | Regulation of<br>freshwater and<br>coastal water            | 10 x 10 km - 50 x 50 km  1 x 1 km - 5 x  5 km  100 x 100 m  1 x 1 km - 5 x                  | bodievnity OR yearly (for hypogeous fung) real-time for bloom events (harmful align) real-time for bloom events (harmful align) blooms) to monthly sampling to detect trends with one-third of data points surveyed every years evently or westly or surveyed every e   | the competent handland reasoning procys taked and of hear loss are min in this are are taked and of hear loss are min in this are to modelled.  There are toward Essential Decay Variables MEXIVE processes are already of the second of  | Biocenomy arising Common Agicultural Fulling Agicultural Fulling Agicultural Fulling Agicultural Fulling Agicultural Agicultural Birds Directive, Habitatis Directive, Habitatis Directive Framework Directive Framework Framework Framework Habitatis Directive Habitatis   | Effect of soil booleanity on their impactful asseption functions.  Datus, brends and functioning of the Marine anniversess of the solid process of the solid |          | Morge with #2 ins    | Li And IO                   |                             | 4            |             |   |            | 3           |               | 3 23<br>5 22                           |
| Zooplankton biomass and diseasily.  Zooplankton biomass and diseasily.  Measures and role of connectivity for habitats.  Sociatified sampling of plant species diseasily.  **terminal algal biomes**  **terminal a              | 23 0       | Community corposition  Ecosystem functioning  Community corposition | Lakes and coastal                     | Regulation of<br>freshwater and<br>coastal water            | 10 x 10 km - 50 x 50 km  1 x 1 km - 5 x  5 km  100 x 100 m  1 x 1 km - 5 x                  | bodievnity OR yearly (for hypogeous fung) real-time for bloom events (harmful sign) bloom) to reach time for bloom events (harmful sign) bloom) to reaching to detect trends with one-third of data points surveyed every years weethy or surveyed every years surveyed every survey   | the competent hundron's reasoning power stated and in Near case must either and reasoning the reasoning that are the model of the competence of the competen | Biocessony attrasge Common attrasge Common attrasge Common attrasge Common attrasge Common attrasge Common attrasge attr   | Effect of soil booleanity on their impactful asseption functions.  Datus, brends and functioning of the Marine anniversess of the solid process of the solid |          | Morge with 42 ins    | (Barl 67)                   |                             | 3            |             |   | 3          | 3           |               | 3 22<br>5 23<br>3 22                   |
| gross of fungi<br>20oplankton blomass and<br>disensity  Measures and role of<br>connectivity for habitats.  Scratified sampling of plant<br>species diversity  Hamful align blooms<br>threatming recessoral<br>services, a.g. butting select  | 7.9        | Community composition  Ecosystem Sectioning  Community composition  | Lakes and coastal                     | Regulation of<br>freshwater and<br>coastal water<br>quality | 10 x 10 km - 50 x 50 km  1 x 1 km - 5 x  5 km  100 x 100 m  1 x 1 km - 5 x                  | bodievnity OR yearly (for hypogeous fung) real-time for bloom events (harmful align) real-time for bloom events (harmful align) blooms) to monthly sampling to detect trends with one-third of data points surveyed every years evently or westly or surveyed every e   | The competent handlored reasoning onerly statistical and in Neuroles ment on the area of the statistics and in Neuroles ment on the area of the statistics and the statistics are strong or are a long modelled.  There are severed Statemach Chasan Variables and MICON (page 1997) and MICON | Biocessony artisting Common artisting artisti   | Effect of soil booleranty on their respectful exception functions.  Status, breeds and functioning of the Marine environment of the Marine environment of the Marine environment of the Cover militar to plant isseed of their status of the Cover militar to plant isseed of their status of  |          | Morga with #2 am     | O and 40                    |                             |              |             |   | ,          | 3           |               | 3 23<br>5 23<br>2 22                   |
| gross of fungi<br>20oplankton blomass and<br>disensity  Measures and role of<br>connectivity for habitats.  Scratified sampling of plant<br>species diversity  Hamful align blooms<br>threatming recessoral<br>services, a.g. butting select  | 7.9        | Community composition  Ecosystem Sectioning  Community composition  | Lakes and coastal<br>waters           | Regulation of<br>freshwater and<br>coastal water<br>quality | 10 x 10 km - 50 x 50 km  1 x 1 km - 5 x  5 km  100 x 100 m  1 x 1 km - 5 x                  | bodievnity OR yearly (for hypogeous fung) real-time for bloom events (harmful align) real-time for bloom events (harmful align) blooms) to monthly sampling to detect trends with one-third of data points surveyed every years evently or westly or surveyed every e   | The complete hundron's reasoning power stated and in Next case much state and in Next case must state and in Next case must state and in Next case and in Next  | Sincercomy artisting Common artisting Co   | Effect of soil booleranty on their respectful exception functions.  Status, breeds and functioning of the Marine environment of the Marine environment of the Marine environment of the Cover militar to plant isseed of their status of the Cover militar to plant isseed of their status of  |          | Monapa milih EZ am   | To peak in Regular          |                             | 5            |             |   |            | 3           |               | 3 23<br>5 23<br>3 22                   |
| grose of fungi<br>Zagglankan blomass and<br>diversity  Measures and role of<br>connectivity for belonders.  Southfield sampling of plant<br>openies diversity  recently digit blomes<br>threating recently and<br>provision, a glatillowers  belonders of the sample of th  | 7.9        | Community composition  Ecosystem Sectioning  Community composition  | Lakes and coastal<br>waters           | Regulation of<br>freshwater and<br>coastal water<br>quality | 10 x 10 km<br>50 x 50 km<br>1 x 1 km - 5 x<br>5 km<br>100 x 100 m<br>1 x 1 km - 5 x<br>5 km | bodievnity OR yearly (for hypogeous fung) real-time for bloom events (harmful align) real-time for bloom events (harmful align) blooms) to monthly sampling to detect trends with one-third of data points surveyed every years evently or westly or surveyed every e   | The complete hardware reasons procy statistical and in Next case must either and in Next case must either and in Next case must either and statistical must be reasonable to the process of the statistical must be reasonable to the process of the statistical must be reasonable to the process of the statistical must be reasonable to the process of the statistical must be reasonable to the process of the statistical must be reasonable to the process of the statistical must be summer and process on an alternative to the process of the statistical must be summer as an analysis of the statistical must be summe | Biocessony artisting Common artisting Co   | Effect of soil booleranty on their respectful exception functions.  Status, breeds and functioning of the Marine environment of the Marine environment of the Marine environment of the Cover militar to plant isseed of their status of the Cover militar to plant isseed of their status of  |          | Merga with #2 and    | O and 40                    |                             |              |             |   |            | 3           |               | 3 23<br>3 22<br>2 2                    |
| gross of fungi<br>20oplankton blomass and<br>disensity  Measures and role of<br>connectivity for habitats.  Scratified sampling of plant<br>species diversity  Hamful align blooms<br>threatming recessoral<br>services, a.g. butting select  | 7.9        | Community composition  Ecosystem Sectioning  Community composition  | Lakes and coastal                     | Regulation of<br>freshwater and<br>coastal water<br>quality | 10 x 10 km - 50 x 50 km  1 x 1 km - 5 x  5 km  100 x 100 m  1 x 1 km - 5 x                  | bodievnity OR yearly (for hypogeous fung) real-time for bloom events (harmful align) real-time for bloom events (harmful align) blooms) to monthly sampling to detect trends with one-third of data points surveyed every years evently or westly or surveyed every e   | The complete hundron's reasoning power stated and in Next case much state and in Next case must state and in Next case must state and in Next case and in Next  | Sincercomy artisting Common artisting Co   | Effect of soil booleranty on their respectful exception functions.  Status, breeds and functioning of the Marine environment of the Marine environment of the Marine environment of the Cover militar to plant isseed of their status of the Cover militar to plant isseed of their status of  |          | Monga milih EZ am    | To peak in Regular          |                             |              |             |   | 3          | 3           |               | 3 22<br>5 23                           |
| grose of fungi<br>Zargiankan biomass and<br>diversity  Measures and role of<br>connectivity for habitats  Stratified sampling of plant<br>species diversity  varied algol biomer  varieties, get sharing safet<br>relationships of the safety of the safety<br>safety of the safety of the safety of the safety of the safety<br>and provided and the safety of | 7.9        | Community composition  Ecosystem Sectioning  Community composition  | Lakes and coastal<br>waters           | Regulation of<br>freshwater and<br>coastal water<br>quality | 10 x 10 km<br>50 x 50 km<br>1 x 1 km - 5 x<br>5 km<br>100 x 100 m<br>1 x 1 km - 5 x<br>5 km | bodievnity OR yearly (for hypogeous fung) real-time for bloom events (harmful align) real-time for bloom events (harmful align) blooms) to monthly sampling to detect trends with one-third of data points surveyed every years evently or westly or surveyed every e   | The complete hardware reasons procy statistical and in Next case must either and in Next case must either and in Next case must either and statistical must be reasonable to the process of the statistical must be reasonable to the process of the statistical must be reasonable to the process of the statistical must be reasonable to the process of the statistical must be reasonable to the process of the statistical must be reasonable to the process of the statistical must be summer and process on an alternative to the process of the statistical must be summer as an analysis of the statistical must be summe | Sincerconny strategy Common Strategy 2000 Redutembly Birds Directive, substant Directive substa   | Effect of soil boolership on their respectful managed in Sections.  Status, brench and functioning of the Marine ministerences.  How done hard use & cover ministe to plant baction diversity and section of the section |          | Monopo militi SE min | O and 400                   |                             |              |             |   |            |             |               | 3 23<br>5 23<br>3 22                   |
| grose of fungi<br>Zasquinkton blomass and<br>diversity  Measures and role of<br>connectivity for habitats  Scratified sampling of plant<br>sacross develop  Scratified stampling of plant<br>sacross develop  Control of plant  sacross deve    | 7.9        | Community composition  Ecosystem Sectioning  Community composition  | Lakes and coastal<br>waters           | Regulation of<br>freshwater and<br>coastal water<br>quality | 10 x 10 km<br>50 x 50 km<br>1 x 1 km - 5 x<br>5 km<br>100 x 100 m<br>1 x 1 km - 5 x<br>5 km | bodievnity OR yearly (for hypogeous fung) real-time for bloom events (harmful align) real-time for bloom events (harmful align) blooms) to monthly sampling to detect trends with one-third of data points surveyed every years evently or westly or surveyed every e   | The complete hardware reasons procy statistical and in Next case must either and in Next case must either and in Next case must either and statistical must be reasonable to the process of the statistical must be reasonable to the process of the statistical must be reasonable to the process of the statistical must be reasonable to the process of the statistical must be reasonable to the process of the statistical must be reasonable to the process of the statistical must be summer and process on an alternative to the process of the statistical must be summer as an analysis of the statistical must be summe | Bocsessony  The State of Control  | Office of and biodermity on their respectful exception functions.  Status, tends and functioning of the Marine environment.  What is the impact of harmful algal blooms are already and all the impact of harmful algal blooms are already and all the impact of harmful algal blooms are all the impact of harmful algal blooms are already and all the impact of harmful algal blooms are already as a second and all the impact of harmful algal blooms are already as a second all the impact of harmful algal blooms are already as a second and all the impact of harmful algal blooms are already as a second and all the impact of harmful algal blooms are already as a second and all the impact of harmful algal blooms are already as a second and all the impact of harmful algal blooms are already as a second and all the impact of harmful algal blooms are already as a second and all the impact of harmful algal blooms are already as a second and all the impact of harmful algal blooms are already as a second and all the impact of harmful algal blooms are already as a second and all the impact of harmful algal blooms are all the impact of harmful algal blooms ar |          | Maga anth EZ an      | To paid in Region           |                             |              |             |   |            | 3           |               | 3 22<br>5 23<br>3 22                   |

## Insect diversity and biomass

| Community composition | Multiple                                 | Invertebrates | frames are more | Given the widespread insect declines, it is essential to have a monitoring scheme to understand trends in diversity and biomass | •  | What are the impacts of anthropogenic activities, particularly agriculture, on insect populations and communities   |
|-----------------------|--|---------------|-----------------|---|--|---|
| Community             | mulitple                                 | Other         |                 | Insects are a species-rich group and our researchers are highly interested in.  | Habitats Directive,<br>Climate and<br>Restoration Policy,<br>Common<br>Agricultural Policy | What is the effect of agriculture on insects?   |
|                       | Agricultural, urban and natural habitats |               |                 | Comprehensive insect monitoring is largely missing  | Habitats Directive,  | To what extent is insect diversity and biomass in agricultural, urban and natural habitats declining (or recovering), and how does this affect ecosystem services (e.g. pollination, pest control, human well being)? |

#### Ecosystem distribution and connectivity

| Fine scale land cover and land use data, frequently updated | Ecosystem structure and function | All      | Regulation of climate | 100 x 100 m -<br>1 x 1 km | Real-time<br>continuous<br>yearly | LULUCF data are needed for several ESVs and policies |   | Eg what is the effect of CAP policy on eg climate goals? This data can be used as driver data for many analyse types? |
|---|----------------------------------|----------|-----------------------|---------------------------|-----------------------------------|--|---|---|
|   | Ecosystem functioning            | multiple | Other                 | 1 x 1 km - 5 x<br>5 km    | yearly                            |  | Habitats Directive,<br>Climate and<br>Restoration Policy,<br>Planning for green<br>infrastructure and<br>protected areas<br>network |   |

#### Soil biota diversity

| Community composition     | Invertebrates,<br>fungi and<br>microbiota | 100 x 100 m -<br>1 x 1 km |   | Climate and  | What is the effect of climate, land-use change and agricultural intensificationon soil communities across Europe? |
|---------------------------|---|---------------------------|---|--|---|
| <br>Community composition | Invertebrates, fungi and microbiota       | < 100 x 100 m             | multiple anthropogenic stressors. Besides | Climate and<br>Restoration Policy,<br>Bioeconomy<br>strategy | What is the effect of agriculture /restoration /pollution on soil diversity                                       |

#### Freshwater species diversity

| 4  |                          |  |   |                            |   |   | All breakout rooms will close in 22 seconds.  |           |              |
|--|--------------------------|--|---|----------------------------|---|---|---|-----------|--------------|
| Taxonomic and functional diversity of aquatic  | Community                | Aquatic<br>ecosystems<br>(including marine,<br>freshwater, and |   | 100 x 100 m -              |   | taxonomi<br>diversity<br>freshwate                                  | Leave Breakout Room  The diversity, Turnetional diversity, and y of sensitive species (e.g., EPTO in ters). Several taxonomic groups can be                       |           |              |
| Zooplankton biomass and diversity  | Community<br>composition | Marine   | Other   | 10 x 10 km -<br>50 x 50 km | real-time for<br>bloom events<br>(harmful alga<br>blooms) to<br>monthly<br>sampling to<br>detect trends | ts There are<br>(EOVs) the<br>MBON (so<br>(https://d<br>they fit in | re several Essential Ocean Variables hat are elaborated by by GOOS and see Miloslavic et al (doi.org/10.1111/gcb.14108). How do in EuropaBON? Is this part of the |           |              |
| Taxonomic composition underlying the WFD biological indices to enable calculation of additional EBVs, e.g. diversity indices, invasive species or red list species | 4 B                      | Species Tran   | vers, Lakes,<br>ansitional and<br>astal waters Pl |                            | 1 x 1 km - 5 x m  | veekly or   | Phytoplankton blooms are very dynamic the scale of a few weeks, and seem to be increasing with climate change and nutric pollution                                | e Policy, | work<br>nate |

### Species populations

| Abundance index trend of species                                     | 34 B  | Species populations | Multiple                               | Amphibians   | 10 x 10 km -<br>50 x 50 km | spatial grain<br>depends on the<br>population limit   | Population abundance is responsive for species in focus. Stress should be given to survey relative abundance, and not population size (too costly)   | of species  | What are the species states ?  |
|--|-------|---------------------|--|--|----------------------------|---|--|---|--|
| completedness of apex predators                                      | 49 ES | Relational values   | multiple (terrestrial, freshwater etc) | Regulation of<br>detrimental<br>organisms and<br>biological<br>processes | 10 x 10 km -<br>50 x 50 km | yearly long term  | functionality at community and ecosystem levels are very much dependent on the presence and population regulation of apex predators directly copeting with humans and can be a good measure of the local evolutionary, ecological and conservation potential | Birds Directive,<br>Habitats Directive,<br>Water Framework<br>Directive, Common<br>Agricultural Policy,<br>Common Fisheries<br>Policy | ecosystem functionality vs human footprint   |
| Conservation status<br>assessment of certain<br>terrestrial species. | 36 B  | Species populations | Terrestrial                            | Other  | < 100 x 100<br>m           | Yearly and<br>short-term  |  | Water Framework<br>Directive,<br>Common   | Monitoring certain species needs prolonged systematic monitoring which is expensive and laborious. Locally the pool of experts to study these species is very limited besides the fact that these are usually busy with keeping up with the academic demands of their institution. Besides this a monitoring framework still needs to be developed, making the present approach an ad hoc one. |
| Raptors as indidators of communities and some of them as endangered  |       | Species populations | Multiple                               | Birds  | 1 x 1 km - 5 x<br>5 km     | It depend of the<br>species. Most<br>endangered:<br>yearly; Others:<br>each to 2 years<br>or 5 years. | Are species umbrella in the communities and bioindicators. Some of them endangered.  | Birds Directive,<br>Habitats Directive  | What is the trend of raptors? Which human factors affect their conservation?   |

#### Pollinator diversity and pollination

| pollinator trait diversity in<br>agricultural landscapes | 37 | В  | Community         | Agricultural<br>landscapes<br>(including rural<br>areas, cropland<br>and managed<br>grassland) | Invertebrates | 1 x 1 km - 5 x<br>5 km | long term |   | Common<br>Agricultural Policy | Are some pollinator groups threathened in this particular crop area ?           |
|--|----|----|-------------------|--|---------------|------------------------|-----------|---|-------------------------------|---|
| Economic value of Pollination                            |    |    |                   |  |               |                        |           | We still lack robust spatial quantifications of the pollination value of agricultural landscapes. |                               |   |
| in heterogeneous agricultural landscapes                 | 51 | ES | Ecological supply | Artifical; Temperate grasslands  |               | 1 x 1 km - 5 x<br>5 km | yearly    | Existing estimates (NatCap) often do go beyond simple thresholds of natural vegetation cover.     |                               | What is the monetary value of pollination for agricultural production in Europe |



#### **Ecosystem disservices**

| Crop pest risk in European agriculture   | Merge with #17      | 7                           |   |                            | 3   | 4                    |   | 3        | 5                 | 1                   | 4                                     |               | 20 |
|--|---------------------|-----------------------------|---|----------------------------|---|----------------------|---|----------|-------------------|---------------------|---------------------------------------|---------------|----|
| Harmful algal blooms<br>threatening recreational<br>services, e.g. bathing water<br>quality, and provisional<br>services, e.g. public<br>drinking water supply | Relational          | Lakes and coastal<br>waters | Regulation of<br>freshwater and<br>coastal water<br>quality | 1 x 1 km - 5 x<br>5 km     | real-time,<br>weekly or<br>monthly in<br>summer,<br>short-term and<br>long-term | for a fe<br>d respon | s develop over a few w<br>ew weeks, we need data<br>se to climate change ar<br>gement | on their | Agricultural Poli | cy, What is the     | impact of harmfu<br>vater quality and | •             |    |
| disease-vectors (ticks;<br>mosquitoes etc)   | Species populations | Multiple                    | Invertebrates   | 10 x 10 km -<br>50 x 50 km | Real-time;<br>short-term  |                      | tant to assess risk of dis<br>hission to humans                                       | ease     | Not Applicable    | What is the humans? | risk of disease tra                   | ansmission to |    |

### Plant diversity

| Stratified sampling of plant species diversity | 7  | В  | Community composition | multiple | Plants                           | 100 x 100 m -<br>1 x 1 km | 6-year cycle,<br>with one-third<br>of data points<br>surveyed every 2<br>years | Very representative of ecosystem condition + land use intensity, great in-situ data for training of EO data               | 0,,, |   |
|--|----|----|-----------------------|----------|----------------------------------|---------------------------|--|---|------|---|
| Stratified sampling of EUNIS<br>habitats       | 45 | FS | Ecological supply     | multiple | Habitat creation and maintenance | 100 x 100 m -             | sampled every 2  | Important variable to understand the impact of land use on vegetation type/ecosystem condition, and to train EO data sets | ,    | How does land use affect plant community distribution and where are the most rare |

### Genetic diversity

| Genetic diversity monitoring   | 24 B | Genetic<br>composition | Multiple          | Amphibians     | 1 x 1 km - 5 x<br>5 km | every 5 years;<br>long term<br>monotoring             | Species and populations can cope with global change only if they maintain 95 % and 90% of their current genetic diversity, respectively. | Birds Directive,<br>Habitats Directive,<br>Water Framework<br>Directive, EU<br>Green Deal;<br>Biodiversity 2030<br>Strategi; CBD<br>post-2020 Global<br>Biodiversity<br>Framework | hw can we assure that the genetic dimension will be properly takn into account in any new regulation |
|--|------|------------------------|-------------------|----------------|------------------------|---|--|---|--|
| Data on withinspecies genetic diversity across taxa                        | 27 B | Genetic composition    | multiple          | Other          | National               | real time (and historic)                              | across all animal and plant taxa   | Birds Directive,<br>Habitats Directive  | Diodiversity monitoring  |
| belowground biodiversity & genetic diversity                               | 29 B | Genetic composition    | multiple          | Microbes/Fungi | National               | depending on<br>the level - 5 - 10<br>years           | to see temporal changes  | Forest genetic resources strategy   | forest management and climate change threats   |
| Genetic diversity of forest<br>tree species / Forest<br>Genetic Monitoring | 28 B | Genetic composition    | Forest ecosystems | Other          | National               | 10-year<br>monitoring<br>interval /<br>national scale | Forest Genetic Monitoring is needed to ensure healthy (new established and old) forests in the future.                                   | strategy, Common  |  |

#### Recreation

| Birds Directive, Habitats Directive, Woodland and Habitat creation < 100 x 100 cultural services are bit underweighted in Climate and what's the value of restoring/expanding |      |  |   |                                    |  |  |
|---|------|--|---|------------------------------------|--|--|
| forest and maintenance m yearly policies Restoration Policy NATURA2000  | <br> |  | cultural services are bit underweighted in policies | Habitats Directive,<br>Climate and | what's the value of restoring/expanding NATURA2000 |  |



# THANK YOU!



