11/12/2025

Version 1.2

D1.1 List of 10-15 User Stories

Author(s): Tami Wooldridge

Contributor(s): Emma Bush, Christopher Ellis, Wojciech Mroz, Monica Vidal, Eva Alonso Vizcaino, Niels Raes, Stella Koprinkova, Louise Hendrickx, Julian Oeser, Joaquin Lopez, Marina Skunca, Peter Hollingsworth

Co-funded by the European Union

Project funded by

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs, Education and Research EAER
State Secretariat for Education, Research and Innovation SERI

BMD (Biodiversity Meets Data) receives funding from the European Union's Horizon Europe Research and Innovation Programme and the Swiss State Secretariat for Education, Research and Innovation (SERI) (ID No 101181294). Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union, the European Research Executive Agency (REA) or SERI. The EU, REA and SERI cannot be held responsible for them.

Prepared under contract from the European Commission
Grant agreement No. 101181294
EU Horizon Europe Research and Innovation Action

Project acronym:	**BMD**
Project full title:	**Biodiversity Meets Data**
Project duration:	01.03.2025 – 28.02.2029 (48 months)
Project coordinator:	Stichting Naturalis Biodiversity Center (Naturalis)
Call:	HORIZON-CL6-2024-BIODIV-01
Deliverable title:	List of 10-15 User Stories
Deliverable n°:	D1.1
Work package:	WP1
Nature of the deliverable:	Report, Data
Dissemination level:	Public (Report Only)
Licence of use:	N/A
Lead beneficiary:	Eurosite
Recommended citation:	Wooldridge, T., Bush, E., Ellis, C., Mroz, W., Vidal, M., Alonso Vizcaino, E., Raes, N., Koprinkova, S., Hendrickx, L., Oeser, J., Lopez, J., Skunca, M., Hollingsworth, P. (2025). ***List of 10-15 User Stories***. BMD project deliverable D1.1.
Due date of deliverable:	Month 10
Actual submission date:	Month 10
Quality review:	Yes

Deliverable status:

Version	Status	Date	Author(s)	Actions
1.0	Draft	28/11/2025	Tami Wooldridge, RBGE	Sent for internal review (RBGE)
1.1	Final	03/12/2025	Tami Wooldridge, RBGE	Sent for Review
1.1	Final	05/12/2025	Niels Raes, Naturalis Nikol Stoykova, Pensoft	Reviewed
1.2	Final	11/12/2025	Tami Wooldridge, RBGE	Finalised, with incorporation of feedback from reviewers
1.2	Final	15/12/2025	Niels Raes, Naturalis	Submitted to PCT for verification

Table of Contents

Key Takeaway Messages 4
Summary 5
List of Abbreviations 5
1. Introduction 6
2. Methodology 7
    2.1. Data Collection 7
    2.2. Analysis 8
3. Representation 9
4. List of User Stories 12
5. Reflections and Next Steps 17
6. References 18

Key Takeaway Messages

- The Biodiversity Meets Data (BMD) project is designing a Single Access Point to allow users to contribute high throughput biodiversity data and provide access to tools for biodiversity status assessment, monitoring and analyses. A suite of Virtual Research Environments are therefore being developed and the functional and thematic direction of these tools will be directly shaped by the stakeholder needs and priorities gathered via a series of project co-design activities that support the creation of user stories.
- “User Stories” are short, simple narratives that illustrate a particular question, task or need that the narrator (stakeholder) would like the BMD project to address.
- Three user story workshops were facilitated between September – November 2025 and resulted in a list of 52 user stories produced by stakeholders. A further 33 user stories were produced based on additional stakeholder contributions. A consolidated list of 11 user stories that exemplify stakeholder needs and a further 10 interesting examples are presented in this report.
- Based on the co-design activities facilitated so far, the consolidated user stories have depth in certain aspects – allowing for variations in the region, realm or domain of stakeholder contributions – but they are determined by the selection of stakeholders that were able to participate in workshops. Some additional data gathering is needed for certain aspects, such as for the policy domain and the freshwater and marine realms.
- An iterative and snowballing approach to stakeholder engagement is being taken by the BMD project. Therefore, the user stories outlined in this report represent the contributions made by the group of stakeholders that have participated in the project to date, and not the entire stakeholder community.

Summary

The Biodiversity Meets Data (BMD) project is working to deliver a Single Access Point (SAP) to high-throughput biodiversity data, monitoring and analysis tools to support the biodiversity conservation and restoration work of Europe's Natura 2000 (N2K) site managers and policymakers. A suite of tailored thematic Virtual Research Environments (VREs) forms the foundation of the SAP and will be co-designed with stakeholders to ensure that the data and tools made available are functional and relevant for the practitioners that will use them. The first set of co-design activities were facilitated by the BMD team from September to November 2025 and created the opportunity for stakeholders to engage in dialogue with the BMD team about their biodiversity information and analysis needs and priorities by participating in interactive user story workshops. Three lists of user stories have been produced as a result of the contributions gathered in these workshops. These lists provide guidance on the thematic direction that the VREs should take at this stage, to ensure that stakeholder needs are appropriately addressed. The three lists are detailed in full in a separate database which will be shared within the BMD team to provide important guidance to the ongoing technical developments of the project. A consolidated list of user stories and additional interesting examples are presented in this report, with supporting information about the composition of the group of stakeholders who contributed so far, and the participatory approaches employed in facilitating the creation of the user stories.

List of Abbreviations

BMD	Biodiversity Meets Data
EU	European Union
N2K	Natura 2000
SAP	Single Access Point
VRE	Virtual Research Environment
WP	Work Package

1. Introduction

The Biodiversity Meets Data (BMD) project is committed to facilitating a participatory co-design process rooted in ethical dialogue and iterative stakeholder engagement to ensure that the project's outputs are designed and delivered in alignment with the needs and priorities of stakeholders (Wooldridge et al., 2025a). The Single Access Point (SAP) to high-throughput biodiversity data, monitoring tools and analyses will be supported by a set of interactive Virtual Research Environments (VREs) that are tailored to the thematic and functional priorities of the project's stakeholders. The stakeholder priorities that BMD primarily seeks to address are those of Europe's Natura 2000 (N2K) site managers and policymakers. However, it is anticipated that additional relevant and interested parties, such as conservation practitioners and researchers from the academic and private sectors, may also benefit from the open-access tools that BMD brings together in the SAP. The SAP and underpinning VREs therefore need to meet the needs of a diverse range of stakeholders from across Europe, that operate at different biological and spatial scales, monitor and manage biodiversity in different ecological realms, and operate within different organisational and political frameworks. Identifying common areas of interest relating to biodiversity monitoring and information is essential for creating a simple and usable tool that pulls together relevant data across a diverse range of stakeholders.

With this in mind, an iterative stakeholder engagement process has been scheduled throughout the duration of the project (2025-2029) to facilitate stakeholder participation across all project stages and Work Packages (WPs) through a series of co-design activities that create opportunities for direct dialogue, input and feedback. The first co-design activities facilitated by the BMD team focused on the creation of "user stories" which aimed to better understand the biodiversity data, monitoring and analysis priorities that stakeholders would like BMD to address in the VREs. The user stories that were created as a result of these initial co-design activities are the focus of this report and will inform the thematic direction of the VREs delivered by the project's technical teams.

This report builds on the work completed from April 2025 to November 2025. The principles and methods applied in the co-design activities facilitated to date were reported in detail for Milestones 1-4. A brief description of the data collection and analysis methods are outlined below (Section 2 - Methodology), and further details on these can be found in the reports for *Milestone 3 Completion of in-person workshops with collaborators* and *Milestone 4 Online workshop and survey across consultative group* (Wooldridge 2025a and 2025b). An overview of the participant representation across roles, realms and domains is then provided to illustrate the range of perspectives gathered and any gaps in representation that have emerged (Section 3 - Representation). Next, the list of user stories that exemplify stakeholder priorities captured to date are presented (Section 4 - List of User Stories). Finally, some key reflections and next steps are outlined (Section 5 - Reflections and Next Steps).

2. Methodology

2.1. Data Collection

User stories are short narratives that illustrate a particular need, question or task and inform the functionalities of new tools and technologies being developed to ensure that they are relevant and operable for the anticipated end-user (Amna & Poels, 2022). As reported in Milestones 2-4 (Wooldridge, 2025a, b; Wooldridge et al., 2025a), BMD has designed an iterative stakeholder engagement process that gathers an initial set of user stories to shape the thematic direction of the VREs to ensure alignment with stakeholder needs and priorities. The BMD team combined principles and practices from the fields of social research, design thinking and ethical dialogue to create a tailored, interactive and practical approach to gathering user stories in collaboration with stakeholders through in-person and online workshops (Wooldridge et al., 2025a). As defined in the Milestone 3 report, the user story workshops can be described as "2-hour long interactive workshop[s] in which participants are invited to explore their biodiversity data, biodiversity monitoring and biodiversity analysis needs via a series of activities and facilitated discussions" (Wooldridge, 2025b, p6). The user story workshops consisted of a series of questions and prompts designed to encourage stakeholders to think broadly and then in detail about their biodiversity information needs, and format these into user stories.

Two in person workshops were conducted in September 2025 in collaboration with Eurosite, and one further online workshop conducted in November 2025. Additionally, an online survey was published and remains live for a further period of 6 months to enable ongoing stakeholder input and the creation of additional user stories to fill any gaps in representation that have emerged. Fifty-seven stakeholders participated across the three facilitated workshops, completing 56 user story activity sheets forming the basis for the analysis and findings outlined in this report.

Invitations to participate in the three workshops were sent directly to stakeholders that were identified via the following routes: 1) relevant parties identified through the stakeholder mapping process, 2) relevant parties that are part of networks connected to BMD consortium members (e.g. Eurosite members), 3) invitations shared between identified relevant parties and their colleagues and networks (i.e. snowballing) and 4) dissemination via BMD social media channels. All invitations to participate clearly stated that the target audience for the workshops were biodiversity conservation practitioners in Europe, namely N2K site managers and policymakers. This meant that the majority of the user story workshop participants had a direct or indirect role in the management of Natura 2000 sites.

With this focus on N2K site managers and policymakers the BMD project is actively working to engage with a range of stakeholders representing different roles, realms and domains. The project team maintains an approach that seeks to minimise stakeholder fatigue while maximising participation. Therefore, a snowballing approach to participation and engagement is ongoing, meaning that the views presented below may not be fully representative of the stakeholder population, but instead reflect a range of views from stakeholders that had the capacity and availability to participate in the co-design activities facilitated to date.

2.2. Analysis

An analysis plan and coding framework were produced to establish a clear approach to analysing the qualitative data collected across the three workshops conducted from September to November 2025. The framework included a list of "codes" identified from the workshop protocol, which represent the variety of themes that relate to stakeholders' biodiversity information needs and priorities. A combination of deductive coding (organising the data based on a set of predefined themes) and inductive coding (organising the data based on themes that emerge throughout the analytic process, i.e. where new themes are added to the coding framework) was therefore used to organise and categorise the qualitative data gathered from each workshop participant. While a range of questions were asked over the course of the workshops, the responses gathered via the user story activity sheet were the primary focus of this phase of analysis, contributing to this report and related deliverable (*D1.1 List of 10-15 user stories*). The user story activity sheet included some broad questions about the data and analyses the participant was interested in and included a final prompt to format their responses as a short user story narrative (see Wooldridge 2025a and 2025b). The qualitative data analysis software NVivo (Lumivero, 2025, Version 15) was used to organise and analyse the data. The steps carried out to analyse the user story workshop data were as follows:

1. Outline coding framework and case classifications
2. Set up coding framework and case classifications on NVivo
3. Prepare and upload data to NVivo
4. Assign case classifications (e.g. role, realm, domain, country)
5. Round 1 of coding (deductive & inductive, produce List A of user stories)
6. Review approach & findings
7. Round 2 of coding (focusing on any additional codes and supplementary user stories, produce List B)
8. Run coding queries (searches by specific case classifications and codes, produce List C of user stories)
9. Produce excel database with 3 lists of user stories (Lists A-C) that illustrate stakeholder needs

Although 57 stakeholders participated in the user story workshops, one stakeholder did not complete the user story activity sheet and four participants partially completed the user story activity sheet. With this in mind, the following lists of user stories were produced as a result of the analysis:

List A: 52 stakeholder produced user stories (as written by participants on activity sheets)

List B: 33 user stories based on stakeholder responses to other user story activity prompts

List C: 11 user stories that exemplify stakeholder needs based on common themes identified in the analysis

3. Representation

As aforementioned, it is important to note that the views represented in the user stories reflect those of available stakeholders from a variety of contexts in Europe and are not necessarily a representative sample of the entire stakeholder population. Due to the iterative and snowballing approach being taken by BMD, the user stories, particularly those detailed in List C and included in this report, illustrate only the common themes identified by the stakeholders that have participated in the project to date. The information in Table 1, Table 2, Table 3 and Figure 2 provides an overview of the stakeholder representation across N2K focussed roles (site manager, policymaker, researcher, consultant, data supplier, other), realms (terrestrial, freshwater, marine), domains (Governmental, NGO, Research/Institute, Private Business, Other) and countries.

The user story activity sheet provided in the workshops invited participants to self-identify with any of the given roles within the context of N2K site management. The majority of workshop participants were either directly or indirectly involved in N2K management, and/or policymaking, and this participant composition was due to the targeted approach when disseminating invitations to participate in the workshops. While 13 participants self-identified as “site managers”, many other participants identified themselves as researchers, consultants and data suppliers within the context of N2K site management. It is therefore important to note that participant roles included N2K site managers with responsibilities for:

a) overall site management,
b) undertaking practical research and analysis activities to inform or improve site management, and
c) supplying data from sites to recording schemes and repositories.

The role of “site manager” is one that some participants identified with as their primary responsibility whereas other participants identified more closely with the other given roles, such as researcher or data supplier, that function to inform and shape N2K site management (rather than in an academic or commercial setting). In some regional contexts, consultancies appeared to be important in helping to deliver site management activities. Policymakers on the other hand provide an important link between site management and the delivery of EU Directives relevant for the protection and restoration of biodiversity. Figure 1 provides an overview of how these different roles are appearing to interact within the context of N2K site management and shows that the needs of managers, researchers and data suppliers in this context reflects a demand for VREs and research enabling tools, plug-n-play devices for data supply, and the SAP to enable more effective use of biodiversity information for Europe’s natural sites.

Figure 1: Natura 2000 site management roles

The terrestrial realm and researcher role are well represented in the user stories, with the largest number of stakeholders identifying with these groups. Research and data supply were identified as activities that appear well embedded within the context of N2K site management, with workshop participants noting a need for better support in their practical and applied research to inform site management decisions. As illustrated in Table 1, there are significant gaps in representation for the marine and freshwater realms, and the policymaker role. Further effort is required to increase representation of stakeholders identifying with a manager role (as the anticipated end-user for BMD), policymakers and stakeholders focusing on the marine and freshwater realms in future engagement activities.

Table 1: user story stakeholder representation across roles and realms

Realm	Site Manager	Policymaker	Researcher*	Consultant*	Data Supplier*	Other	*Total per realm*
Terrestrial	4	1	15	6	1	2	29
Freshwater	0	0	0	1	0	0	1
Marine	1	0	1	0	0	0	2
Terrestrial, Freshwater	7	2	6	2	0	0	17
Terrestrial, Marine	0	1	0	1	0	0	2
Freshwater, Marine	0	0	0	0	0	0	0
Terrestrial, Freshwater, Marine	1	0	2	1	1	0	5
Total per role	13	4	24	11	2	2	56

**researchers, consultants and data suppliers working within the context of N2K site management, providing information and data to inform management decisions and actions.*

Table 2: number of stakeholders representing each domain

Domain	Number of Stakeholders
Governmental	18
NGO	11
Research / Institute	17
Private (business)	7
Other	3

Table 3: list of countries represented by user story workshop participants

Country	N. Stakeholders	Country	N. Stakeholders
Austria	1	Lithuania	3
Belgium	2	The Netherlands	6
Croatia	5	Slovakia	1
Czechia	6	Slovenia	1
Denmark	1	Spain	1
Finland	3	Sweden	13
Germany	1	Switzerland	1
Greece	1	UK	5
Italy	1	Unknown	2
Latvia	2		

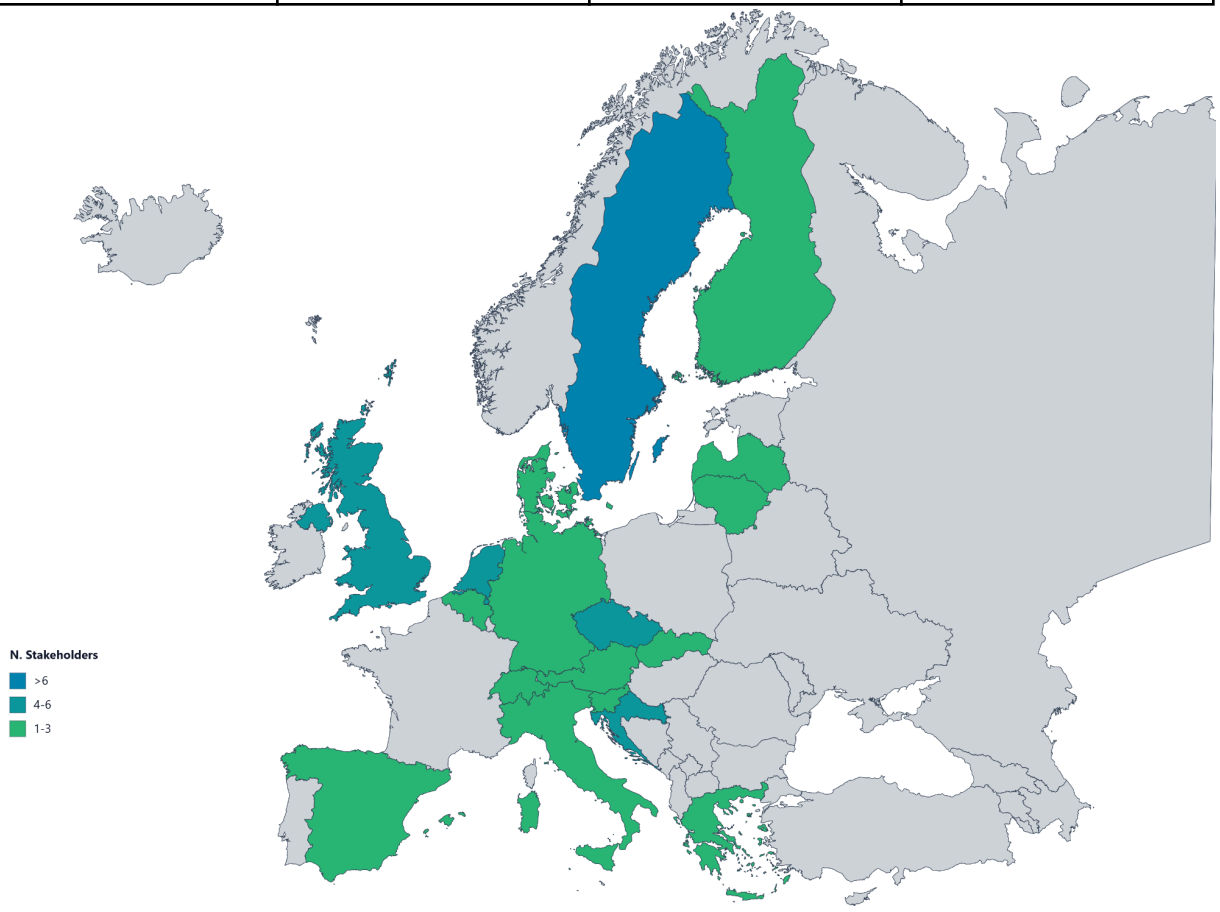

Figure 2: map of countries represented by user story workshop participants

4. List of User Stories

The following list outlines a selection of user stories that exemplify stakeholder needs and priorities. As highlighted above, these examples are a mix of stakeholder produced user stories based on stakeholder contributions, and consolidated user stories that combine the views of multiple stakeholders where a common theme or question was identified. All user stories have been anonymised, meaning that attributable personal data (e.g. name, organisation name, country) have been removed and replaced with generic identifiers provided for GDPR and data protection reasons.

The aim of the list of user stories is to provide short, structured narratives that exemplify the needs and priorities of stakeholders across different roles, realms, and domains. A spread of user stories should be produced covering each role, realm, and domain to ensure that there is sufficient representation of the varying stakeholder views when informing the design of the VREs. However, there is uneven representation so far (see Section 3 - Representation), requiring future co-design activities at the snowballing stage to target engagement with underrepresented groups. With this in mind, eleven user stories have been included in List C, based on the contributions made by stakeholders so far, and leaving space for additional user stories to be produced as a result of future engagement to cover gaps in representation (see Table 4). As mentioned above (Section 3 - Representation) the roles detailed in Table 4 represent different key activities that practitioners and policy makers self-identified with in the context of Natura 2000 site management. Not all individuals working within the context of N2K site management identified as "site managers" (that is, having a managerial role) and many participants aligned their roles and responsibilities more closely with practical aspects of research, data supply or consultancy to inform and shape site management and/or related policies.

Table 4: user story representation across roles, realms and domains.

User Story No. *(as listed in this report)*	Role*	Realm	Domain	Note on Source or Gap
1	N2K Site Manager	Terrestrial	Governmental	*Consolidated from multiple examples*
2	Researcher	Terrestrial	Research / Institute	*Consolidated from multiple examples*
3	Policymaker	Terrestrial	Governmental	*One example from selection of user stories*
4	Data Supplier	Terrestrial	NGO	*One example from selection of user stories*
5	Consultant	Terrestrial	Private (Business)	*Consolidated from multiple examples*
6	N2K Site Manager	Freshwater	Governmental	*Consolidated from multiple examples*

7	Researcher	Freshwater	Research / Institute	*One example from selection of user stories*
TBC	Policymaker	Freshwater	Governmental	*Gap: more data needed*
TBC	Data Supplier	Freshwater	NGO	*Gap: more data needed*
8	Consultant	Freshwater	Private (Business)	*One example from selection of user stories*
TBC	N2K Site Manager	Marine	Governmental	*Gap: more data needed*
9	Researcher	Marine	Research / Institute	*One example provided, more data needed*
10	Policymaker	Marine	Governmental	*One example provided, more data needed*
TBC	Data Supplier	Marine	NGO	*Gap: more data needed*
11	Consultant	Marine	Private (Business)	*One example provided, more data needed*

**researchers, consultants and data suppliers working within the context of N2K site management, providing information and data to inform management decisions and actions.*

List of Common Themes Emerging from Thematic Analysis of User Stories

Habitat: *status, expressed as quality and condition*

Species: *populations, occurrence and distributions*

Analytic focus: *past trends, current status, future projections*

Decision-making: *informing and influencing (decisions of site managers and policymakers), creating management plans*

Drivers of change: *identifying what, where, when and why (including in response to management measures implemented)*

Data collection: *improving efficacy and efficiency of monitoring techniques*

List of 10-15 User Stories that Exemplify Stakeholder Needs and Priorities (List C)

1. I am a Natura 2000 site manager. I need to know the status, quality, trends and distribution of the habitats and species in my sites. So that I can manage them accordingly and meet the relevant conservation targets. *(N2K Site Management, Terrestrial, Governmental)*

2. I am a researcher. I need to assess the drivers of change (including effects of management/measures) to biodiversity in specific ecosystems (e.g. the effect of climate change on peatlands) using credible evidence and efficient techniques. So that I can inform policymakers and shape the creation of protection plans and management plans. *(N2K Site Management, Terrestrial, Research / Institute)*

3. I am a policymaker. I need to define habitat thresholds based on habitat and species trends and distributions. So that I can find out where the decline is happening and how to prevent and revert it. *(Policy, Terrestrial, Governmental)*

4. I am a data supplier. I need to assess what the valuable nature types are, based on high resolution spatial data, temporal data and historical records. So that I can provide high-quality data for continuous monitoring. *(N2K Site Management, Terrestrial, NGO)*

5. I am a consultant. I need to access habitat suitability models, species distribution data, environmental data, and vegetation distribution data. So that I can find out the state of different habitats for different species (and how they are distributed in Europe) and what the related pressures are, so I can help to restore them. *(N2K Site Management, Terrestrial, Private Business)*

6. I am a Natura 2000 site manager. I need to access timely data on habitat quality, species presence and abundance, and climate change scenarios. So that I can prioritise my restoration and conservation proposals, inform my decision-making and secure funding for biodiversity protection in the freshwater realm. *(N2K Site Management, Freshwater, Governmental)*

7. I am a researcher. I need to have accurate data on drainage systems and current status of GWL (ground water level) and vegetation cover. So that I can successfully restore GWL for better quality (state) of habitats. *(N2K Site Management, Freshwater, Research / Institute)*

8. I am a consultant. I need to understand the status of species and habitats and the connectivity. So that I can properly assess the potential impacts of human development to the environment and to suggest appropriate measures to avoid impacts to nature. *(N2K Site Management, Freshwater, Private Business)*

9. I am a researcher. I need to find out how much seagrass (area estimation) there is in the Baltic sea, based on in-situ species data and species coverage from the remote sensing of habitats. So I can meet the requirements of the Habitats directive. *(N2K Site Management, Marine, Research / Institute)*

10. I am a policymaker. I need to know the distribution, abundance and population dynamics of the species. So that I can meet requirements of the Habitats directive and adapt the management accordingly. *(Policy, Marine, Governmental)*

11. I am a consultant. I need to efficiently monitor species distribution through remote sensing. So that I can efficiently tackle biodiversity threats. *(N2K Site Management, Marine, Private Business)*

Further Examples Selected from Full List of User Stories

1. I am a monitoring ecologist at a governmental organization. I need to understand the conditions of habitats and species in protected sites. So that I can advise site managers on how to best manage habitats and species. *(N2K Site Management, Terrestrial, Governmental)*

2. I am a monitoring ecologist. I need to use the most recent records for species in specific protected areas to identify where changes occur over time and why (including changes to habitat, land use, land cover species distribution, population size, local extinctions, evidence of species reproduction). So that I can inform site managers on the condition of species and habitats in relevant sites. *(N2K Site Management, Terrestrial, Governmental)*

3. I am a GIS and data consultant focusing on bird biodiversity and conservation. I need to get accurate data and analysis methods. So that I can assess the conservation status of birds. *(N2K Site Management, Terrestrial / Freshwater / Marine, NGO)*

4. I am a researcher. I need to create maps/indicators from the past, to now and the future. So that I can create robust and clever policies on the environment. *(Policy, Terrestrial / Freshwater / Marine, Research / Institute)*

5. I am a researcher. I need to know what caused the decline of insects. So that I can implement policies to restore populations. *(N2K Site Management, Terrestrial / Freshwater, Research / Institute)*

6. I am a researcher. I need to understand how biodiversity is changing within habitats, based on in-situ species observations (to validate remote sensing), quality and area assessments. So that I can use this information as an indicator for habitat condition. *(N2K Site Management, Terrestrial, Research / Institute)*

7. I am a data scientist. I need to know how to efficiently and reliably integrate remote sensing data with species observations (e.g. using ungulate density estimation). So that I can produce habitat suitability maps for certain species. *(N2K Site Management, Terrestrial)*

8. I am a researcher. I need to find out what the threats and pressures are for birds in breeding grounds and migration flyways, using species distribution modelling, population (viability) assessments, trend analysis, remote sensing data, telemetry, and information on protected area connectivity. So that I can decide on and apply appropriate (conservation) measures and to target population assessment. *(N2K Site Management, Terrestrial / Freshwater / Marine)*

9. I am a researcher. I need to use data on long term species composition, biomass, abundance and observations to assess the reason for insect decline. So that I can know how to halt the negative trends. *(N2K Site Management, Terrestrial / Freshwater, Research / Institute)*

10. I am a researcher. I need to find out what causes the decline of biodiversity and which measures are effective in reversing this, based on species trends, species distribution and site conditions. So that I can restore ecological functions on a system wide basis. *(N2K Site Management, Terrestrial / Freshwater, Research / Institute)*

5. Reflections and Next Steps

This report has outlined a list of user stories that exemplify the needs and priorities of a selection of stakeholders working in the biodiversity conservation and restoration field in Europe. As communicated throughout the report and illustrated in Section 3, a review of the distribution of participating stakeholders across realms, roles and domains shows a gap in representation for the freshwater and marine realms, as well as a need to further engage policymakers and site managers that have a specific managerial role. The reflections and next steps highlighted below outline how the stakeholder engagement team (WP1) will work to address the gaps in representation while continuing to facilitate stakeholder participation in the co-design of the SAP and underpinning VREs.

Reflections

- The categories that were used to group stakeholders within the user story activity are potentially restrictive, and some stakeholders may not identify with certain categories, or may interpret a misalignment between the provided categories and their own job descriptions (e.g. the term 'site manager' might not be used by all stakeholders that have site management responsibilities, some might have other roles such as "project manager" or "research manager"). The BMD team should reflect on these categories periodically, with stakeholder feedback, to ensure they are fit for use in future co-design activities.
- A range of user stories of varying specificity and detail were produced as a result of stakeholder participation in the co-design activities. Some user stories were very broad, whereas other user stories highlighted specific species or habitat interests. Although a consolidated list was presented in this report, to ensure that all participant contributions are equally valued and considered, the database detailing the 3 lists of user stories includes all stakeholder-produced user stories regardless of level of detail or thematic focus.
- The BMD project has identified Natura 2000 site managers and policymakers as the primary stakeholders for the project. As illustrated in Section 3, a large number of stakeholders identified as having a research role within the context of their site management. At this early stage of the project, this would appear to underline the potential need for and relevance of the VREs and SAP in providing better access to analytical tools geared towards practical site management. However, as previously mentioned, there may be some overlap between the categories "site manager" and "researcher" due to differences in interpretation and job titles. The user stories produced by stakeholders that identified as researchers highlighted that their biodiversity information needs were related to their role advising and informing decision-making relating to both site management and policy.

Next Steps

- The WP1 team will communicate the user stories with the technical teams, and format accordingly to suit the desired workflow while ensuring stakeholder needs and priorities are clearly and accurately represented (e.g. formatting user stories for use in GitHub). The database for the 3 lists of user stories will be referred to regularly as the VREs are developed, and their use will be populated by the relevant technical teams to track alignment between the VREs and the user stories.

- The WP1 team will work closely with the technical teams from WP2, WP5 and WP6 to coordinate further co-design activities and opportunities for stakeholder participation in the design and testing of: the SAP, the VREs and the plug-and-play devices.
- Targeted workshops will be delivered to increase participation from site managers, policymakers and stakeholders representing the freshwater and marine realms.

6. References

Amna, A. R., & Poels, G. (2022). Systematic Literature Mapping of User Story Research. *IEEE Access, 10,* 51723–51746. https://doi.org/10.1109/ACCESS.2022.3173745

Lumivero. (2025). NVivo (Version 15) [Computer software]. https://lumivero.com/products/nvivo/

Wooldridge, T. (2025a). *Online workshop and survey across consultative group*. BMD project deliverable MS4.*https://bmd-project.eu/storage/app/uploads/public/692/9b2/58d/6929b258d4c10243000287.pdf#file_name=BMD%20-%20MS4%20-%20Online%20workshop%20and%20survey%20across%20consultative%20group_Final_V1.0_20251120.docx.pdf*

Wooldridge, T. (2025b). *Completion of in person workshops with collaborators.* BMD project deliverable MS3.https://bmd-project.eu/storage/app/uploads/public/691/d6e/8ea/691d6e8ea0211575070364.pdf#file_name=BMD%20-%20MS3%20-%20Completion%20of%20in%20person%20workshops%20with%20collaborators_v1.0_20251014.docx.pdf

Wooldridge, T., Mroz, W., Alonso Vizcaino, E., Vidal, M., & Hollingsworth, P. (2025a). Biodiversity Meets Data (BMD) MS2 Project-wide published stakeholder engagement plan (1.3). Zenodo. https://doi.org/10.5281/zenodo.16985228

Wooldridge, T., Mroz, W., & Hollingsworth, P. (2025b). *Initial Phase of Stakeholder Mapping & Next Steps.* BMD project deliverable MS1.