LifeWatch Thematic Core Services

# *Report on Taxonomy Services Workshop*

Brussels, January 30th 2024

## Introduction

The kick-off Workshop, focusing on the Taxonomy. Thematic Services was proposed and organised by [LifeWatch Belgium](https://www.lifewatch.be/) in collaboration with all LifeWatch Common Facilities and National Distributed Centers. The workshop took place in Brussels on January 30th, concurrently with the [LifeWatch Belgium Biodiversity Day](https://www.lifewatch.eu/events/lifewatch-biodiversity-day/). The workshop also launched the constitution of LifeWatch ERIC Working Groups on the Thematic Services, engaging participants from all LifeWatch National Distributed Centers and Common Facilities in an open discussion on the current state of the Taxonomy Services, their actual matching with the scientific community needs and requirements and the approaches and priorities of the Taxonomy Services’ Working Group for further integration and improvement of LifeWatch Taxonomy Services and user engagement.

The LifeWatch biodiversity day event was a culmination of efforts to highlight the indispensable role of LifeWatch in advancing biodiversity research within Europe and globally. Alberto's presentation served as a beacon, illuminating the multifaceted facets of LifeWatch as a premier European research infrastructure. With a clear mission to delve into the intricacies of biodiversity organization, ecosystem functioning, and ecosystem services, especially amidst the looming specter of climate change, LifeWatch emerges as a cornerstone of e-science facilities. Alberto eloquently articulated how LifeWatch revolves around the dissemination of crucial data through national nodes and international collaborations, thereby empowering scientists across continents with the necessary tools and virtual research environments. Moreover, LifeWatch's significance transcends scientific pursuits, doubling down as a catalyst for science diplomacy, bridging gaps for countries lacking physical infrastructure and fostering global collaboration.

## Presentations

Alberto Basset introduced LifeWatch as a European research infrastructure aimed at providing e-science facilities for delving into key questions on biodiversity organization, ecosystem functioning, and ecosystem services, particularly under the pressure of climate change. The infrastructure primarily revolves around data, which is distributed through national nodes and international organizations to provide tools and virtual research environments for scientists across Europe and globally. This infrastructure not only supports scientific endeavors but also acts as a form of science diplomacy for countries lacking physical infrastructure. LifeWatch is focusing on developing thematic services tailored to the needs of the scientific community, with priority areas identified for the 2022-2027 period, including taxonomy, biogeography, habitat mapping, biodiversity response to climate change, biodiversity observatory automation, animal behavior, natural capital, and human health.

To enhance collaboration and address research needs, LifeWatch plans to establish working groups for each thematic service. These groups will be community-guided, with participants defining the organization and coordination. LifeWatch will support these groups through its common facilities, networking, training, and communication services. Additionally, advisory boards comprising European scientists will be formed to provide further support and guidance. The working groups will closely interact with LifeWatch's executive board to ensure alignment with organizational goals and secure funding for their activities.

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Thematic Priorities and Working Groups:

Alberto meticulously outlined the thematic priorities that LifeWatch aims to address between 2022 and 2027. These priority areas include taxonomy, biogeography, habitat mapping, biodiversity response to climate change, biodiversity observatory automation, animal behavior, natural capital, and human health. To ensure these priorities translate into actionable initiatives, LifeWatch envisions the establishment of thematic working groups. These groups, envisioned to be community-driven, will provide participants with a platform to actively shape organizational frameworks and coordination mechanisms. Furthermore, LifeWatch pledges unwavering support to these groups through its extensive suite of facilities, networking opportunities, training modules, and communication services. The formation of advisory boards comprising distinguished European scientists will add another layer of expertise, offering guidance and support. The synergistic interaction between the working groups and LifeWatch's executive board will guarantee alignment with organizational objectives and secure funding for their endeavors.

Leen Vandepitte's presentation provided a deep dive into the taxonomy services embedded within the LifeWatch framework. Despite taxonomy's pivotal role in underpinning biodiversity research, Leen shed light on its relatively diminished priority during discussions surrounding thematic core services. She underscored taxonomy's foundational importance, elucidating its intricate connections with various components such as species registers, occurrences, literature, ecology, and genetics within the LifeWatch Species Information Backbone. Proposing an expanded scope for thematic core services on taxonomy, Leen advocated for a holistic approach that acknowledges its interplay with allied disciplines such as ecology and genetics, transcending the traditional confines of species naming. Her call for audience input regarding additional services requisite in the taxonomy realm or those intricately connected to it resonated well within the community.

Stephanie Dekeyzer begun her presentation by introducing herself as a data manager for WORMS (World Register of Marine Species) and discussed the taxonomy services available within and outside of LifeWatch. She showcased the LifeWatch Eric metadata catalog, which allows users to explore various services, including taxonomic services. Stephanie demonstrated how users can search for services related to scientific names and mentions specific services available, such as WORMS web services and the Checklist of Italian Node.

Moving on, Stephanie introduced the e-Lab developed by LifeWatch Belgium, which provides access to web services developed by the institution. She explained the categories of services available within the e-Lab, including data validation, geographical services, marine regions gazetteer services, human biology services, tidal services, and taxon services.

Stephanie elaborated on taxon match services, which allow users to match scientific names with various taxonomic databases such as PESI, Paleobiology Database, ITIS, Index Fungorum, and others. She also discussed thematic species databases available within WORMS, such as harmful algae and marine cave species. Furthermore, Stephanie highlighted taxon observation services, including the number of observations of marine taxa, taxon lists of specific regions, and occurrences of taxa within known distribution records. She introduced the Trades Data Explorer, a tool that provides access to traits and attributes data available in AVIA, the database behind WORMS. Stephanie also mentioned the AVIA Journal Importer, a tool designed to simplify the process of importing new taxa from publications for WORMS editors.

In the final part of her presentation, Stephanie provided an overview of various databases and taxonomic registers with available API services and mentions whether LifeWatch has established links with them. She identified databases such as PESI, Paleo Database, ITIS, Global Names Index (GNI), Index Fungorum, IPNI, and Catalog of Life Checklist Bank, among others, and discussed the availability of taxon match services for each. Additionally, she mentioned databases like GBIF, World Flora Online, and NCBI, which currently do not have established links within LifeWatch Belgium's taxonomic species information backbone.

## Minutes of the discussion part

**Andreja Ramsak:** I would like to thank Alberto, Lynn, and Stephanie for their excellent presentations. My concern is that although the services in LifeWatch are excellent, they are not being utilized to their full potential by researchers. How can we increase awareness and usage of these services among researchers?

**Alberto Basset:** Thank you for bringing up this important issue. One suggestion I have is to organize training sessions for the community. These could start with webinars introducing the services and then progress to more intensive courses, including hands-on training. We've found this approach to be effective in reaching a wider audience, including younger researchers who may not yet be aware of the available resources. Additionally, we've had success promoting LifeWatch services at conferences by incorporating them into presentations and posters, which generates interest among attendees.

**Andreja:** Yes I absolutely agree with you. And I think we have to stimulate and train more younger researchers. According to my experience, also being involved in these thematic services in Slovenia, we have to increase the awareness of LifeWatch. Because at the moment, I got a nice response from our community and I see that we need to make much more promotion on services.

**Alberto:** Thank you so much. That is absolutely true. In large conferences, what we have realised is that the global community of environmental, ecological or marine sciences, is not aware that there are a number of research infrastructures that have been built for them and can support their activity. In the British Ecological Society Conference this year, instead of organising workshop for the research infrastructure, we ivaded many parts of the conference with communication or posters from the activities that has been developed in LifeWatch. It has been very effective, people are intersted in when they see. If we do it like that it is really useful. Then, it is another way we can work on with the thematic center to try to see what we can do in order to show what we actually are doing and what can be used by others. For all these issues, not only the servce center but all the common facilities will be supported as much as possible. That is part of our game and that is also the part of this new way of collaborating that we are trying to launch with this thematic core service workshop. And then, again I’m thanking a lot to Lynn and all of the Belgium Community VLIZ, first of all for the idea to built this issue, and then to be the first to launch.

**Tom Webb:** I regularly use LifeWatch services for my work on functional traits data, and they have been incredibly helpful in saving time. However, I often encounter challenges with matching species names and would appreciate guidance on dealing with these issues, especially for the more complex cases that require manual intervention.

**Reply from Leen:** Tom, your feedback is valuable. We're actively working on improving our taxonomic services, and we're collaborating with other initiatives like OBIS and WoRMS to address challenges in name matching. We're also exploring ways to document and share the decision-making process for resolving difficult cases, aiming for transparency and reproducibility in workflows.

**Alberto:** Tom are you going to be in the working group of taxonomhy core service of LifeWatch? My question is to all participants, are you interested in entering the working group that we are going to establish for this specific thematic service and start building all these issues that are of interest of all of us?

**Tom:** I’m certainly really interested inparticipating if I can. These are issues that I encounter regularly in my own work, bu as I say, with collaborations as well they crop up regularly. So, I think if there is real potential here to develop something. I mean what you have already is fantastic, but to develop something on top of that, makes a valuablae contribution.

**Vanessa Bremerich:** I've faced similar challenges with manual decisions in taxonomic work, but I've found tools like OpenRefine to be helpful. Integrating these external tools with LifeWatch services could enhance efficiency and documentation. Perhaps this could be included in future workshops or training sessions.

**Alberto:** We see Vijay Barve in the chat, telling us a presentation in the SPNHC-TDWG conference would be useful too. Vijay, if you send us the link, we will see and if it is possible we will try to participate.

**Leen:** Maybe a general question, because a lot of you are letting us know that trainin would be very valuable, but how do you see training? Do you see it as we tell you this is what is available ? or do you also see a training as an opportunity for someone who is already using our services? Or in a training, do you wanna deal with the problems like Tom had? Or, are you ok with saying, “ok I’ll just put that on email in writing and we’ll see when it gets solved or addressed”?

Identifying the specific needs and requirements of researchers is crucial for developing tailored services. I think the biggest question is how do we identify them? We can ask around, and we can get input here and there, but how could we structurally identify all the needs and requirements? There has been a poll before, trying to get information on which specific research and policy questions, task and analysis would you like to be able to answer by using the LifeWatch thematic services, and lots of things came from that. Some of them are quite broad as well, so for example “Help produce products aimed at non-scientists”. That sounds as an excellent thing to do but I think that needs to be more specific. What exactly do we want to communicate to non-scientists and what do we need as input to do that? The same for “Support biodiversity data networks for species”, it’s again very broad so how do we deal with that? “Biodiversity decline”, how do we have services that give an output that is for example understandable for non-scientists to able to do something with that? So, I guess this first poll was a really good starting point but we really like it to become more specific, whether it’s on a specific species or a specific region. I think you, within your institute or with the work that you’re doing, can definitely help us to define those questions a little bit better. So, any suggestions, any ideas ther on how we can do that are very much welcome, including any specific questions already that you would like see answered through, for example use of the services.

**From chat:** Interesting to offer a webinar to learn how to use the platform, I think it might be interesting to focus on the advantages that the LifeWatch ERIC platform gives over other facilities.

**Leen:** “A webinar to learn how to use the platform” I think that goes with this discussion. I think that’s definitely an option, but specifically a topic I think for the webinar would be needed and not just let’s demonstrate the services. Because there’s lots of services not everybody will use or will need the same services, so anything that can focus that a little bit better would be really great.

**Ioannis Rallis:** Recently I started working on a project on data resting from historical marine biodiversity data sets and I’m working on the verification process but also I have to do the quality control of the coordinates, of the species names and all of this stuff. So, I believe that this platform that connects all the services in a place is really a valuable tool. In this way I can avoid going in several websites for all the tasks that I have do.

**Leen:** I think that does indeed sound good and then your workshop or the focus of a workshop or a webinar or a training could specifically be linked to historical data. I think lots of people are dealing with historial data and trying to mobilize them and to get them online so that could indeed be a specific focus point.

**Follow-up question from Alberto:** Which thematic services would you prioritize for discussion in webinars or workshops?

**Leen:** We’re talking the LifeWatch services now, what is already available. Stephanie also pointed out that there’s more out there that we haven’t connected with yet. Do any of you know other systems or infrastructures that we have not listed or actively connected with? That would also be very helpful for us to know because we know a lot but we don’t know everything.

**Alberto:** So we just go to the next discussion which is about the organization of the working group. We are launching today with this workshopi this firstb working group on taxonomy services but the idea that we have in LifeWatch is to have a working group for every taxonomic services working together. So, I just have the slide to show at the begininnig. It will be great for us to know what you think about that? What do you think about the organisation of the thematic working group on the thematic services that are going to represent the community which is working more sepcifically on the services that can highlight to all LW which are the services that need more and additional development which are even if consider as it was in the last slide from Leen. So, the different thematic issue for which the services will be needed, that is another great point. Now, for all biodiversity monitoring in Europe there’s a strong advancement of the idea to use the essential biodiversity variable. And then can probably improve really a lot the monitoring but also posing a number of additional questions and challenges in order to be able to fine tune the data to have proper services for that dedicated data. And also offer these services to a number of communities that are not yet strictly connected to the RI as the environmental agencies wherever in Europe. So, that is going to be anıumber ofpoints that cuould be a part of discussion in the WG and then we hope that they are going to support the construction phase of LW because, as you have seen we can build services and virtual equipment in order to support the research activities in environmental, ecological and zoological sciences around the biodiversity and ecosystem, but then we need to prioritize. And then it’s going to be the main job we expect from the different WGs. I leave the floor, to get feedback from you, if you need more information or would like to suggest something.

**Question from chat:** Are any of the Wiki services worth connecting? Wikidata or wikispecies?

**Leen:** For the Wiki services, that’s something we need to look into. I can’t answer that right now. I am not sure about the services they offer and how we could step into that. So, that will go on our to-do list to investigate.

**Question from chat:** (Francesca) I think it is a great idea (the LW Taxonomy WGs) but my impression is that similar efforts are being made by several institutions such as Consortium of European Taxonomic Facilities (CETAF) and the project Transforming European Taxonomy through Training, Research and Innovations, are you connected with these initiatives? We should be!

**Alberto:** For the question of Francesca, of course there are a lot of activities and collborations that are running. On this field, there is a strong activity from DiSSCo and there are strong collaborations between LW and DiSSCo, between LW and ESFRI, landmark infrastructure for the environment. The other issue is that even at the scientific level but then, Leen can tell better than me, there’s a collaboration that has been lasting for decades probably, between the LW scientists and the set of scientists dealing with the issue of taxonomic services. It would be great to improve these collaborations but there are also specific niches of the different RIs and then the services that we are building, planning and we’ve already developed can be useful for a lot of different RIs. Every one of us will take advantage of the work of other RIs. Even virtually, a meta-RI that is working together and connecting different RIs at least in the environmental area, is absolutely beautiful. We are a community with different perspective, different specific niche, but basically a common culture that is joining us and then the use of collaborating since a very long time.

**Leen:** I think you sketched and summarized it really well. Where we can connect with ongoing initiatives whether the small ones, European ones or global ones. If we can find common grounds to work together then we will aim for that. For taxonomy what I know best is the marine environment and from the WORMS perspective we do connect with a lot of things on the LW perspective. We don’t duplicate efforts; we don’t go into competition but we just share what we have openly and as widely as we can. And by sharing data and information automatically, you find your common ground. I’m pretty sure in the next years we’ll have constructive discussions on services that could be possible or that would make the work on both ends easier. So, it is a lot of collaboration and a lot of joint efforts. If there are still holes in our knowledge and in what we do, then please do let us know, because again, we might know a lot but we don’t know everything. All the help we can get from you as a community to point out what is missing and what would be useful is helpful for us to continue to build on what we’re already doing.

**Alberto:** Are you available to receive comments and outcomes from this meeting? So can we use your registration mail in order to send you the outcome of this meeting and open a discussion also through the mail eventually through the LW Community Platform where we open a working group on the taxonomic services where you will find out a number of facilities for the communication including the tool for brainstorming as Mural or other facilities that can be used. As every process, it is going to take time. I think that VLIZ and the VLIZ Group, you can start coordinating the process, and then we will be supportive as much as possible. If there is the to build training material, we will support and do everything needed. So, it is not going to be an additional charge on the distributed center. It is going to be sharing the charge with the service center. We have dedicated officers for training, networking, so we can surely help you a lot in this process. At the beginning it could need to be activated and then it is going to be great step forward. In the working space, we will also regularly update the information on the next call that can be considered by the WG for application.

**Leen:** For the people online now, it can be doubtful whether or not they would join another working group. Don’t worry, we’re not going to have monthly or two monthly meetings, because we also need to fit that into our schedule. We’ll take it as it comes in a sense. We’ll start with the outcomes of this online workshop and then see how we organise ourselves for the future. We’re not going to bomb you with invites and emails, we’ll take it on a slow pace but make sure that we make progress as well.

**Alberto:** Opening the WG on the platform will also prevent being flooded by mail. If we use the WG as a shared room, then everyone of us could simply enter the WG and see what’s happening, and then add what s/he thinks it is useful to add. Most of the work is going to be done inside the WG without creating additional flood of emails. And also, as Leen suggested we’ll avoid additional meetings. We simply can share the space, the facility, the repository that we have in the working group. When inside the WG there’s an agreement to organise a meeting then it would be organised, but that is going to be basically the point. The only thing is that, if you like to be in, simply to have in mind from time to time to enter a WG and see what is going to happen, or propose something, provide input, tell us “hey guys, there’s this conference that where you should participate”. If there would be someone willing to participate in these conferences on behalf of LW, then we will see also how can we support. Vanessa has just uploaded the questionnaire. The last question is which one of thematic services is a priority for you to be discussed in a webinar or a workshop. I think we have touched the almost all of the points we were planning to have.

On the webpage of LW ERIC, you’ll find out the programme of all the series of workshops that we are slowly completing as organisation. The information is going to progress day after day, updating the participation and so on. I think that we were very efficient and we managed to end the discussion even in a bit less than two hours. I thank to VLIZ and the academy for the organisation and hosting us. We will be waiting all of you in the group to discuss with us and it is going to be completely open. We will try to be as useful as possible from the Service Center, so Leen, you can be sure that you will be fully supported and then, you will decide with the development how to organize internally the working group.

**Leen:** Thank you for joining, I know in times where agendas get flooded really fast and you are here to provide your input. We will definitely be in touch with all of you on the taxonomic services, but I’m not going to put a date on it. Thank you for your inputs.