Secretariat responses to comments on draft 2022 Work Programme

Event	28th meeting of the GBIF Governing Board (GB28) 5-7 October 2021, 11:00-12:30 and13:30-15:00 (CEST/UTC+2) each day Meeting conducted virtually by Zoom
Agenda item	9. Presentation of draft 2022 Work Programme and draft 2022 Budget
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Action	For approval ☒ For discussion ☐ For information ☐

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This document shows the comments on the draft 2022 Work Programme that the GBIF Secretariat has received, and the Secretariat responses to the comments.

Participant	Activity/Section	Comment	Secretariat response
Australia	Activity 1a: Focus on people	The Australian node supports this initiative	Thank you for your support
Canada	Activity 1b: Strengthen skills	o2021 progress: Suggest that this section make direct reference and linkages to what progress was achieved for each of the 7 points in the 2021 Work Program What progress has been made on item in 2021 Work Program to "Expand engagement of volunteer mentors, including through webinars and a mechanism for tracking contributions of mentors" ?	The 2021 progress section has been amended to clarify progress on specific work items
Argentina	Activity 1b: Strengthen skills	"Develop new training module on data quality management, targeted at GBIF nodes" By whom? Workshops: I think there should be an evaluation of the organization, hours of synchronized meetings and the results obtained. Ensure a minimum level of skills of the trainers/mentors It is essential to ensure that training for projects with marine data with staff from the OBIS community "New documents on guidance on digitization and publication of data from camera traps, and new guidelines on species migration and telemetry data, targeted filling of data gaps and data quality" Little communication .... I saw it in TW and then in GBIF.org, not even an email with this call came to the nodes.	The training module on data quality management will be developed by the Secretariat, taking account of materials developed by nodes and in consultation with the nodes community; The review of training impact will include the aspects raised in this comment; We are aiming to include OBIS partners in training on marine data publication as far as possible; The documentation listed in this item was agreed with the documentation panel established with regional representation, released through normal communication channels including the documentation opt-in news list. We have since sent a reminder email to all nodes.
Australia	Activity 1b: Strengthen skills	The ALA has recently commissioned a review of tertiary education engagement and options. It supports the development of new training modules that can be utilised by Node members.	Thank you for the information and support of this activity.
Sweden	Activity 1c: Equip Participant nodes	I believe that encouraging contacts between nodes with similar interests and problems would strengthen the network, not just geographically/regionally but also topicwise. If possible including in the nodes description ("About GBIF XX") a statement from the node itself on preferences, specific interests, capacity to assist etc. might be useful in breaking visible and invisible barriers.	Thanks for the suggestion - we will investigate the option of including such information in the node descriptions
Canada	Activity 1c: Equip Participant nodes	o2021 progress: Suggest that this section make direct reference and linkages to what progress was achieved for each of the 8 points in the 2021 Work Program oWhat is the progress on the Living Atlases?	The 2021 progress section has been amended to clarify progress on specific work items including the Living Atlases
Argentina	Activity 1c: Equip Participant nodes	Hosted portals: We need coordination for regional portals since they are an integral part of GBIF (logos, domains ...). Future "additional" services apply to regional portals? New contracts for BID: If there are new contracts that are NOT focused solely on the BID countries, but rather that allow all the members of the global community to apply. Materials: take into account the need for materials in several languages and subtitles for videos generated in English Thank you for adding my suggestion of the CARE principles LAC needs a workshop to train trainers and find profiles for the part of DNA based data	On hosted portals: with the conclusion of the pilot phase, these points will be taken into account when deciding how to move forward in 2022; 'additional services' in the context of the 2022 work item refers to services that may be offered to institutions making an additional financial contribution, but the treatment of regional portals will also be considered; on the regional support contracts: the particular calls under BID and SYNTHESYS+ were focussed on the target regions of the projects, but the aim is to investigate extending this model to other regions through supplementary funding (see 2022 work item listed in this Activity); on translation of materials and subtitles: we continue to work for maximum multi-lingual content through our volunteer translator community; Thanks for the suggestion regarding LAC workshops - please consider CESP or other means to propose these.
Australia	Activity 1c: Equip Participant nodes	The ALA supports the extension of the technical coordinator role within the Living Atlas community. This role allows network members to access technical assistance and further drive innovation across the platform. It is requested that GBIF consult with current regional Nodes when exploring supplementary funding for additional regional support contracts. There is potential to leverage science diplomacy methods within the Australian context to support pacific lead initiatives. The ALA has provided has a current active program in supporting Indigenous and local knowledge practices and would welcome collaboration on this activity.	Thank you for the support regarding the Living Atlas coordinator; regarding exploration of additional regional support contracts, we will certainly consult with current nodes in the respective regions; regarding the work on indigenous and local knowledge, we already have direct engagement with Australia and will draw on your experience in this area.
Sweden	Activity 1d: Equip data publishers	GBIF-Sweden remains supportive of work started on aligning and flagging sensitive species information but would like to also suggest a similar approach to deal with foreign and invasive species classification (black lists, gray lists). We also strongly support the implementation of a new technical documentation website.	Thank you for the support and suggestions. It would be helpful to have a more specific suggestion on how national invasive lists could be incorporated - other than the filtering of occurrence data by checklists (including e.g. GRIIS country lists) which is already in the work pipeline
Canada	Activity 1d: Equip data publishers	oPlease spell out the IPT acronym for those unaware of what it stands for	Thank you - we do spell it out in the 'rationale' section but have now included the full name in each separate section for clarity
Canada	Activity 1d: Equip data publishers	o2021 progress: Suggest that this section make direct reference and linkages to what progress was achieved for each of the 8 points in the 2021 Work Program oThere are few items listed under 2021 progress that were not part of the 2021 work programme (regarding national sensitive species, IPT)	The 2021 progress section has been amended to clarify progress on specific work items. The work on sensitive species arose from issues raised since WP2021 was drafted including at GB27; the work on the IPT was also a result of ongoing responsiveness to users - we have amended the text to make this clear.

Argentina	Activity 1d: Equip data publishers	Building on the 2021 work of the sensitive species working group, what are the funds for? Future of IPT: what are the changes contemplated?	The 2022 funds for sensitive species are to commission a detailed research analysis of the level of sensitive species data publication in GBIF and an evaluation of the associated risk, a need which has emerged through discussion of this issue; Proposed changes to the IPT will depend on further analysis of needs and revisions to the data model: the proposals will be developed during 2022 and subjected to wide consultation before implementation. GBIF are aware of the potential for disruption with changing procedures, and aim to proceed carefully to minimuse this for the user community. During the remainder of 2021, the IPT will be integrated with the GBIF data validator to help publishers validate content before sharing in GBIF
Australia	Activity 1d: Equip data publishers	The ALA is currently undertaking a 2-year program of work to enhance access to sensitive species information for appropriately authorised users. This work will include the development of a National Framework that provides classification of sensitive information and access methods.

Sensitive species information represents important subset of data and information for research, conversation planning and biosecurity. ALA recommends consultation and collaboration on this activity and utilising Australia as an example case. | Thank you. We are aware of this work and ALA is represented in the group of nodes working with the Secretariat to guide this activity. |
| Canada | Activity 1e: Expand national participation | oSuggest addition of: Take more proactive action to bring in new Voting Participants | We have added wording along these lines. |
| Canada | Activity 1e: Expand national participation | o2021 progress: this section doesn't address all the work items in the 2021 work program, notably: regional outreach project proposals to support expansion of national participation; internationalization of GBIF.org; develop a 'catalogue of GBIF services'; and communications to support the GBIF value proposition
o2022 work items: would it be feasible to carrying over some of the 2021 work items that were not implemented, especially those related to expanding the membership? | The 2021 progress section has been amended to clarify progress on specific work items, including some where additional outcomes are expected later in 2021, and those that should be carried over to 2022 |
| Argentina | Activity 1e: Expand national participation | Many nodes lose their category as such by the lack of payment or are ready to enter that state and others (such as Italy, Greece) have never joined ... we are losing community ... maybe we should review the conditions for national nodes without payment.
BID Caribe has not succeeded, to date, in the creation of a single national node in the Caribbean. I hope that with this new edition this will be reversed.
"Perhaps the most dramatic increase in activity outside the formal national membership has been in the case of the Russian Federation". I assume that something similar would happen if the Secretariat included staff from other regions and areas to facilitate and increase the mobilization of data. | We would appreciate specific suggestions regarding the rules for nodes where countries lose participation status through non-payment, since we operate according to the MoU and Rules of Procedure agreed by the Governing Board; note the work item in 2022 regarding the participation model which will be an opportunity to address some of these issues; Regarding the Caribbean we have had promising discussions with several governments including Dominican Republic, Haiti and Trinidad and Tobago, as well as regional-level organizations, and will continue to make every effort to bring in additional national members; Regarding improved geographical diversity of Secretariat staff this is a priority in our recruitment procedures, balanced with evaluation of applicants for all advertised positions based on qualifications and performance |
| Australia | Activity 1e: Expand national participation | ALA supports this activity. Providing greater influence in the Asia Pacific region is of importance to Australian diplomatic activity. | Thank you for your support. We will greatly appreciate Australia's influence in further engagement of potential participant countries in the Asia-Pacific region |
| Australia | Activity 1f: Plan implementation | ALA supports this activity. Participating countries might have existing programs and initiatives that are relevant to the GBIC agenda. Consider asking Nodes to offer invitations to complimentary programs. | Thank you for the support. We will certainly consult with nodes when considering invitations to GBIC3. |
| Argentina | Activity 1f: Plan implementation | GBIC3 open for all regions or just Europe?
Alliance for biodiversity knowledge: what kind of activities? what are the funds for? | GBIC3 will be open to invited participants from all regions. We have added detail on the expected activities and use of funds for the alliance in 2022 |
| Argentina | Activity 1g: Coordinate resources | Are we going back to the top of 25k x project or are we left at 15k? Travels in 2022 call?

"Following approval by the Science Committee, Budget Committee and Executive Committee, the Secretariat is commissioning a contracted expert in the second half of 2021 to compile known use cases, and define a data model and initial formats for data exchange beyond the Darwin Core Archive (DwC -TO)." It would have been nice if the nodes found out about this prior to this draft (as in GNM or an email).
"It is envisaged one or more developer workshops will be arranged to encourage more open development and collaboration (40k)" In what language, what profiles will be searched? | For the 2022 CESP call, we will review the situation closer to the time regarding international travel. The lower maximum for the 2021 call was agreed due to the impossibility of large physical workshops that required a larger budget, so this decision will be dependent on the practicality of travel in 2022. In any case, we will continue to require contingency planning for all international travel and all reasonable steps to avoid cancellation charges;

Regarding the new work on the data model (see Activity 2a), a 12 minute video introducing details of this work was provided by the Head of Informatics to the Global Nodes Meeting, including an invitation for discussion. GBIF are strengthening existing relationships with the standards community (TDWG) for this work and in particular the Darwin Core standard which is central to GBIFs work in this area;

Regarding the developer workshop(s) for 2022, more details will be provided in due course (this refers to Activity 2a) although we will be seeking to bring together groups with experience and running systems. We anticipate working with the the ALA, OBIS, Living Atlases, iDigBio, VertNet, Hosted Portal and GBIF Node communities who are active in this area. |

Sweden	Activity 2a: Modernize data standards	GBIF-Sweden is happy to participate in the data standards modernization process but needs to bring along our own museum´s staff/colleagues to be able to contribute meaningfully – not a simple task. By participating actively in the Living Atlases Community SBDI hope to be of use in the technical development and adoption of shared data pipelines, APIs and user interfaces.	Thank you for your support and willingness to contribute to these activities
Canada	Activity 2a: Modernize data standards	o2021 progress: there was no mention of progress in work items on specimen-related identifiers across GBIF; exchange of ecological data; data clustering annotations; reviewing the GBIF Metadata Profile to explore migrating to Ecological Metadata Language (EML); reviewing the Darwin Core Archive; revising the GBIF Data Validator; handling counts of absence-based records. oIs the first paragraph in this section intended to address the 2021 work item "Participate in the ongoing Open Digital Specimen and Extended Specimen Network standards development and strive towards a common solution"? oRegarding the statement: "Collaborations with academic projects were initated to display occurrence data within a phylogenetic framework" - what about the "occurrence records clustering algorithm"?	The 2021 progress section has been substantially amended to clarify progress on specific work
Brazil	Activity 2a: Modernize data standards	Explore existing and potential standards to better accommodate ecological data exchange and visualization, with GBIF as well as Living Atlas infrastructure user nodes	The aim is to include this in the broader review of standards mentioned in this activity. As the data model matures, it will be available for open review and we anticipate work with the Living Atlas community and others to prototype services around this in 2022.
Australia	Activity 2a: Modernize data standards	The ALA will be undertaking a Complex Data project commencing in the 2021/22 financial year. This project will facilitate the provision of extended data models that support biodiversity and ecological model. It will include participation in the Open Digital Species and Extended Specimen network standards. The ALA supports the ongoing role of Living Atlas Coordinator position.	Thank you, we will certainly keep in touch to ensure our work in this area is aligned.
Sweden	Activity 2b: Deliver names infrastructure	GBIF-Sweden strongly supports work on the GBIF taxonomic backbone and will continue to contribute by presenting updated versions of national taxonomy Dyntaxa plus by adding organisms lacking latin names to this system.	Thank you for your support and willingness to contribute to these activities
Canada	Activity 2b: Deliver names infrastructure	oPlease explain to what extent GBIF uses one or more of the existing names infrastructures and provide details on the value add of this activity	This is addressed in the GB28 Executive Secretary in text reproduced here: GBIF requires a taxonomic backbone to align and index all occurrences in a consistent manner. GBIF uses the Catalogue of Life (COL) taxonomy as a key source for the GBIF taxonomic backbone to organise occurrence data. Today approximately 95% of occurrences are organised to names ("taxa") coming from the COL Checklist. We cannot operate without this dataset. The COL Checklist is based on validated species lists maintained by a large global taxonomic community. In general, the COL Checklist is highly used by among others biodiversity data initiatives, national species lists, institutes, individual researchers and by international policy-making initiatives like the Convention on Biological Diversity and the European Environmental Agency. In 2015, GBIF and COL started discussions with other global biodiversity data initiatives on how to create better services for users to find biodiversity information associated to species. This resulted in a joint collaboration starting in 2017 to construct a new Catalogue of Life infrastructure that could be used by both GBIF and COL. The new COL infrastructure was launched at the end of 2020 and is hosted and powered by GBIF infrastructure. Data quality (and perceptions of data quality) remains one of the greatest challenges for GBIF, with a significant part of this issue driven by the challenge of organising heterogeneous data labelled with scientific names. If GBIF could reliably depend on a taxonomic backbone developed and maintained by the global taxonomic community, it would both address a significant portion of the quality issues and reduce the impression that GBIF is the party responsible for any remaining issues with the backbone. Today, too much of the taxonomic framework relies on unsupervised automated construction or on judgements made by non-taxonomists (e.g. IT staff). The goal of the GBIF - COL partnership is to solve the technical and data challenges that hamper taxonomists from delivering this taxonomic backbone. The solution will depend on the technical strengths developed by GBIF in its broader management of biodiversity data and the longer-term work by COL to build the existing network of global species databases (GSDs) and its experience in working with taxonomists to do this work. Progress has been significant at the level of retooling and redesigning COL operations to align with the GBIF infrastructure, but three major areas remain in order to capitalise on these investments. Firstly, the collaboration needs to expand automation of tasks amenable to

Canada	Activity 2b: Deliver names infrastructure	oUnder rationale, please clarify how the COL, which is backed and developed by GBIF, brings added value to the efforts of the other stakeholders o2021 progress: does not mention progress on a couple of items, assessing and reporting on gaps for organizing GBIF occurrence records; broadening the community of contributors	The 2021 progress section has been amended to clarify progress on specific work items. An additional 2022 item on community curation was added. The rationale section is repeated from the original implementation plan as therefore not edited for this update - see comment above regarding added value of COL/GBIF collaboration
Argentina	Activity 2b: Deliver names infrastructure	CoL: + of 300k euros to CoL invested in several years, what has been achieved to date?	see response to Canada above, and Executive Secretary report
Australia	Activity 2b: Deliver names infrastructure	Accurate taxonomic representation and assessment is a consistent and important challenge. The ALA support further work on the taxonomic backbone. It is noted that ALA provides a consolidated taxonomic backbone for Australia and is also exploring the potential to provide different taxonomic viewpoints.	Thank you for the support and information.
Canada	Activity 2c: Catalogue collections	o2021 progress: there was no mention of progress in "piloting a profile of the TDWG Collection Descriptions to capture collection-level metadata" as was stated in 2021 work plan oRegarding the statement: "The iDigBio collection catalogue is now powered by GRSciColl, through its open APIs. iDigBio data managers edit directly through the online editing interface." - is this intended to address "an enriched catalogue providing search and access of collections, specimens and people" as identified in 2021 work program? oRegarding the statement: "A service has been deployed allowing the linking of collections in GRSciColl to specimen records in GBIF. This has resulted in 134 million records being linked to GRSciColl entries. A basic data dashboard is now available for institutions and collections such as this example" – Is this intended to address the 2021 workplan item of "aligning similar records from differing sources wherever possible"? oRegarding the statement:" Options for a richer user interface for GRSciColl are being considered within the hosted portal framework (see Activity 1c). There is work remaining on the data model, and how to make best use of the data clustering to link related data before this can progress. It is anticipated the collections catalogue user interface will continue into 2022." – is this intended to address the 2021 workplan item of "avoid unnecessary record duplication"? oRegarding the statement: "Adoption of persistent identifiers, such as Research Organisation Registry (ROR) identifiers is actively being discussed within European nodes (e.g. through DiSSCo) with some nodes piloting use of ROR IDs on their entries." – is this intended to address the 2021 workplan item of "not clear if this amounts to "add additional identifiers, such as DOIs, GRID or ROR IDs as appropriate" as in 2021 work plan"?	* "piloting a profile of the TDWG Collection Descriptions": the Secretariat is following the work of the TDWG CD working group. Integration into the data model of GRSciColl has been postponed to 2023, recognizing the priority to improve data content and quality work within the existing catalogue of institutions and collections before extending the data model to accomodate additional information. * iDigBio/GRSciColl: integrating and maintaining data content and supporting synchronization (Index Herbariorum) and communal editing (iDigBio, GBIF Nodes, others), together with disambiguation of duplicates, provides the baseline for meaningful content enrichment. This also concerns the other point on "avoid unnecessary record duplication" * "aligning similar records": yes, in part. Pulling together information relating to a specific collection across datasets and publishers is one of the benefits of improved collection code curation in GRSciColl. The other component is detailed under "clustering" of records * persistent identifiers: correct; enriching the catalogue with identifiers in use in other places helps to reduce ambiguity and to support connections to other sources of information
Argentina	Activity 2c: Catalogue collections	GrSciColl: training Videos? Tutorials? It is a lot of work and we should have rules for the community (if there is a node, if not, the role of the regional representative) Identifiers on wikidata? ROR?	The Secretariat is in close contact with the nodes community including regional representatives on the best way to take this work forward
Sweden	Activity 3a: Identify priority gaps	GBIF-Sweden consider it essential, and will collaborate with partners to address the information needs of the post-2020 Global Biodiversity Framework through filling priority data gaps.	Thank you for your support and willingness to contribute to these activities
Canada	Activity 3a: Identify priority gaps	oThe following point presented in the program is an excellent idea: "Work with partners to address the information needs of the post-2020 Global Biodiversity Framework through filling priority data gaps"	Thank you for your support on this point
Canada	Activity 3a: Identify priority gaps	Under implementation plan update: oThis section should also mention priority data gaps in countries that are not (yet) members	It is assumed that priority data gaps refer to all locations and not only participant countries in GBIF, but we have clarified this in the text
Australia	Activity 3a: Identify priority gaps	ALA supports this activity and requests that Data Gaps reports be made available for specific countries.	Thank you for the support. In work with partners we will investigate the best means of reporting data gaps at country level.
Sweden	Activity 3b: Expand data streams	Strongly supportive of expanding data streams, GBIF-Sweden primarily focus on DNA-derived data (thereby also certain tropical biodiversity for which funding is already provided in a five-yr project). Improving visibility of biodiversity monitoring datasets in GBIF is a major undertaking of SBDI and we strongly advocate integration of such data.	Thank you for the support and information.
Netherlands	Activity 3b: Expand data streams	Adjust '2022 work items' header	Fixed - thanks
Canada	Activity 3b: Expand data streams	oSuggest adding "agricultural genetic resources collections" to the thematic data streams for the data mobilization campaigns	Thank you for the suggestion - the selection of these thematic data streams is still open and we will consult with the community before making final choices.
Argentina	Activity 3b: Expand data streams	Favor inter-regional collaborations. Other thematic networks? artic-antartic, wikimedia Commons, GRSciColl. "Building on the framework developed in 2021, establish data mobilization campaigns for additional thematic data streams (possibly freshwater, DNA-derived data and tropical biodiversity) - € 40k." What nodes would each include? Publishing DNA-derived data. We need more dissemination of this guide in other regions apart from Europe and Asia	Regarding thematic collaborations across regions, this is certainly something we continue to encourage building on existing networks e.g. through CAFF, SCAR and OBIS; on the thematic data mobilization campaigns all nodes will be encouraged to participate; we take note of the need to disseminate the DNA guide across regions and are open to specific suggestions.

Australia	Activity 3b: Expand data streams	ALA supports this activity and requests that thematic data mobilisation activities for Nodes or countries could be determined in collaboration. ALA will have a focus on industry and genomic related data.	Thank you for the support. As we develop the thematic data mobilization work, we will certainly work with nodes to understand priorities and share tools and resources
Argentina	Activity 3c: Engage data holders	In many countries there is a lack of equipment and training to be able to mobilize data. I understand that this "phase" in GBIF has already passed, but there are people who are just beginning and we should have something suitable for those who have little development.	We fully recognize the need to have materials constantly available for those just starting in data mobilization, and do not agree that this 'phase has passed'. The assumption in all our engagement activity is that 'beginners' need to be supported in taking the first steps in publishing data, both through nodes and Secretariat-developed resources. We would appreciate more specific identification of where it is thought these resources are lacking so that we can be sure to address them in upcoming activity.
Australia	Activity 3c: Engage data holders	ALA supports this activity and will be conducting an industry engagement and partnerships program in 2021/22. This includes engagement activities with the private sector as well as mechanism to handle sensitive data that may not be 'open-access' by default.	Thank you for the support. We will certainly continue to keep across Australia's activities in this area and align our work
Australia	Activity 3d: Rescue datasets	ALA supports this activity	Thank you for the support
Argentina	Activity 3e: Liaise with journals	Data papers: giving the possibility to different regions for an open call (not only Russia) BiCIKL: And something similar with other initiatives, like LaReferencia?	We will explore data paper calls for other regions based on supplementary funding; we would appreciate more information about LaReferencia to see if it could align with the work of BiCiKL. A description of the GBIF Secretariat involvement in Supplemental Funding projects is contained in the ES report.
Australia	Activity 3e: Liaise with journals	ALA supports this activity. The ALA has an Impacts and Metrics project which involves the examination of data utilisation in journals and other areas.	Thank you for the support and information. We would be interested to know more about this project and will be in touch
Sweden	Activity 4a: Ensure data persistence	GBIF-Sweden is cautiously supportive of adopting cloud technologies for accessing GBIF-mediated data, and eager to participate in revision procedures and formats discussions as necessary. We are keen to explore opportunities to strengthen integration of the GBIF network within research data infrastructures.	Thank you for the (cautious) support and willingness to engage in these activities
Canada	Activity 4a: Ensure data persistence	oIn the 2021 Work Plan, the "alliance for biodiversity knowledge" was often mentioned but it does not appear in the 2022 Work Plan?	The alliance is referenced in Activity 1f including plans for the 3rd Global Biodiversity Informatics Conference (GBIC3). Several other activities in the 2022 plan also involve activities associated with the alliance (e.g. 2a on data standards, 2c on cataloguing collecions, 5c on indicators)
Australia	Activity 4a: Ensure data persistence	ALA supports this activity and notes that all major cloud technology companies have advanced research and sustainability programs.	Thank you for your support and comment which is noted
Sweden	Activity 4b: Assess data quality	GBIF-Sweden support and promote integration of the data validator in tools connected to GBIF, including the IPT, through use of the validator API.	Thank you for the support
Canada	Activity 4b: Assess data quality	o2021 progress: can you clarify or expand upon how these activities (e.g., DiSSCo prepare project) will assess data quality?	We acknowledge that this is on the fringe of data quality, and more focused on record "completeness" and categorisation of datasets into clear levels. However, we note it here as an update to raise awareness of this community work, recognising that more complete data would lead to a higher quality integrated data product in general
Netherlands	Activity 4c: Enable data curation	An often heard comment by the scientific community is that data at GBIF is not accurate, has many errors and therefor is not suitable for scientific purposes. With the contribution of images (and sounds) it is now possible to remotely either confirm or correct taxonomic identifications and georeferences. This will allow users of GBIF to interact with the data (FAIR) and further improve the quality of data shared with GBIF. This will require persistent GBIF record IDs and the use of ORCIDs to provided annotations on GBIF data to allow tracking and attribution.	Thank you for the observations and suggestions which are noted. GBIF will stay engaged in the global conversations on this topic.
Canada	Activity 4c: Enable data curation	o2021 progress: please provide clarity on how this section is linked to 2020 work items	Activity 4c remains an ongoing line of work. Stable, persistent identifiers for occurrence records require data standards, supporting data models and workflows as well as community buy-in. In 2020, GBIF focused on improved processes for occurrence ID stability within the system as well as consolidated processing pipelines between systems (ALA), while maintaining technical links to external annotation and feedback systems where available by publishers. This alignment work continued in 2021, while beginning work on use case collection for data modeling. All this is preparation necessary for entering into considerations for a stable base that allows specimen annotations and collaboration around data curation.
Australia	Activity 4c: Enable data curation	ALA will be exploring data curation and annotation functions in regards to Data Quality, servicing industry and government and further engaging with taxonomic and biodiversity experts.	Thank you for the information. We will keep in touch with ALA developments as we continue this work.
Sweden	Activity 5a: Engage academia	Engaging academia is a primary interest of GBIF-Sweden, and via SBDI we offer a great number of national and international graduate and post-graduate training events (workshops, short courses). We would be happy to contribute by adding those for use in funded programmes and as guidance for nodes.	Thank you for the suggestion and offer which we will gladly take up
Canada	Activity 5a: Engage academia	oIn the Strategic Plan, the priority is to "engage with expert communities". Will there be engagement consideration beyond academia in the Work Plan?	Engagement through the current strategic plan period has gone well beyond academia, for example through the CBD, WHO and GEO BON; and in upcoming work will engage further e.g. with FAO on soil biodiversity.

Canada	Activity 5a: Engage academia	oRationale: as the strategic plan calls to engage more widely with expert communities, consider widening the lens beyond academic societies o2021 Progress: This description of progress does not appear to relate directly to the 2021 work items. In particular, there does not seem to be follow up on: developing re-usable materials for supporting use of GBIF-mediated data, and best practices on data citation and publication of research data, in academic curricula; equipping Biodiversity Open Data Ambassadors with updated resources; academic-based projects with external funding opportunities; and engaging with professional societies to advance knowledge of GBIF functionalities o2021 Work items: will items from 2021 that were not addressed be carried over?	The 2021 progress section has been amended to clarify progress on specific work items
Argentina	Activity 5a: Engage academia	Something focused on LAC?	We would be pleased to discuss specific suggestions for the region; the general materials being developed in this activity are intended to be applicable and adaptable to all regions
Australia	Activity 5a: Engage academia	ALA supports this initiative	Thank you for the support
Sweden	Activity 5b: Document needs	See part of comment below 1d: GBIF-Sweden remains supportive of work started on aligning and flagging sensitive species information but would like to also suggest a similar approach to deal with foreign and invasive species classification (black lists, gray lists).	Thank you - see also our response to your comment on 1d
Canada	Activity 5b: Document needs	oRequest clarity on whether this refers to "documenting the needs" versus "identifying what documents are needed" o2021 progress: concur the additional work on soil biodiversity would be welcomed o2022 work items: consider also seeking partnership with IPPC which deals with weeds	The activity refers to 'documenting the needs' - this title has carried over from previous work plans in the strategic plan period. Thank you for your support on the soil biodiversity work, and the suggestion regarding the IPPC, which is noted.
Argentina	Activity 5b: Document needs	"Coordinate work of the expert group on mobilization and use of data on zoonotic diseases based on outputs from the systematic review commissioned in 2021" and the funds to mobilize this type of data that was mentioned on 2020? When will the call be made? IUCN Invasive species working Group: + info .... is it global or will it be convened at the national level?	The call for data papers related to human health will be made in 3rd quarter 2021, exact date to be confirmed in collaboration with partners at WHO; the IUCN invasive species specialist group is global, and convenes national expert teams in nearly all countries (experts listed in the national lists linked from the 'invasive species' tab on GBIF country pages)
Australia	Activity 5b: Document needs	ALA supports this initiative	Thank you for the support
Mauritania	Activity 5c: Support biodiversity assessment	Nous souhaitons nécessaire le soutien des investigations dans les pays où la biodiversité st relativement très peu connu.	Thank you - we aim to provide such support where needed, and would appreciate specific suggestions for where we could improve
Sweden	Activity 5c: Support biodiversity assessment	GBIF-Sweden support biodiversity assessment such as described in the work programme and will be happy to participate/contribute wherever possible. We do have (in theory) connections to GEO BON but are not at present actively collaborating.	Thank you for the support
Canada	Activity 5c: Support biodiversity assessment	oThe 2022 workplan presents an improved, wider scope than the 2021 Work Plan but there may be still too much focus on the IUCN Red List	Thank you for the feedback - we would be interested to understand where you feel we are focussing too much on the IUCN Red List
Canada	Activity 5c: Support biodiversity assessment	o2021 progress: suggest additional mention of IPBES, which carries out a lot of biodiversity assessments, and to which we believe GBIF has contributed data and analysis. o2021 work items: consider adding a work item on contributing to biodiversity assessments carried out by IPBES	Thank you for the suggestion - we do engage continuously with IPBES through the data and knowledge task force (as noted for example under Activity 3a) but we have added items both in 2021 progress and 2022 plans to reflect this engagement more fully.
Argentina	Activity 5c: Support biodiversity assessment	GEO BON: + info ... which are these national, regional, thematic nodes ... For LAC only Colombia has a node ... "Following an open call, Dr Francisca Astorga of Universidad de Chile was selected to carry out this review, which will help to inform GBIF's future work in meeting the biodiversity data needs of the biomedical research community." I do not remember having received any communication from this selection but from the call. https://assets.ctfassets.net/uo17ejk9rkwj/13EzJwO4wVfPd4sfIt1LSo/ed164227cada7e43a540b27838d9ba52/Call_systematic_review_Human_health.pdf	Regarding GEO BON, part of the work in 2022 will be to map the existing and emerging 'BONS' to GBIF nodes and regions; indeed Colombia is currently the only national BON in the LAC region, although a sub-regional 'Tropical Andes Observatory' is also under development; regarding the selection of Dr Astorga we will be including this announcement in our next newsletter.
Australia	Activity 5c: Support biodiversity assessment	ALA supports this initiative. It notes that local Australian initiatives been included in the program that are utilised for biodiversity assessment including ALA EcoCommons analysis platform and EcoAssets program which supports analytics ready data.	Thank you for your support and the information which is noted
Sweden	Activity 5d: Assess impact	GBIF-Sweden is aware of, and promotes assessment of our impact and will contribute to disseminating such information as possible. We are strongly positive to such initiatives from GBIFs as we are limited in our own capacity to assist.	Thank you for your support
Canada	Activity 5d: Assess impact	oConsider adding "and its impact on increasing the number of Voting Participants to the statement: Complete and promote communication materials demonstrating GBIF's impact across thematic communities	Thank you for the suggestion - we have added similar language
Canada	Activity 5d: Assess impact	Under 2022 work items: Suggest including additional language emphasizing the inclusion of potential new country members in engagement audiences	This seems closely connected with the previous comment so we feel it is addressed by the additional wording to the final work item

Argentina	Activity 5d: Assess impact	"Explore options for a 'Nodes Award Scheme' to recognize progress, performance and innovation across the community." How? Complete and promote communication materials demonstrating GBIF's impact across thematic communities and on the nodes that are already part of the community? What are its benefits? "Based on the citation trends observed by July 2021, the number of research papers citing GBIF use was anticipated to exceed 1,200 during the whole year, compared with 987 in 2020". Lack of use, reuse and training ... to improve these values ... In Argentina, together with members of Wikimedia Argentina, we are carrying out a series of meetings on the use and reuse of data, perhaps generating this type of training in different languages.	On the Nodes Award Scheme, this was a suggestion emerging from the NSG and we will explore the options in 2022; the intention of the thematic communication materials are is to support and strengthen engagement both of existing and potential participants by emphasising GBIF's value across sectors and a broad stakeholder group; thank you for the example of promoting data use in Argentina, we certainly welcome suggestions for how such initiatives could be more widely replicated.
Australia	Activity 5d: Assess impact	ALA supports this initiative	Thank you for your support
Netherlands	Areas to expand activity	Although GBIF mediated data is considered to be FAIR, there is little opportunity for interoperability with the data. Ongoing digitization of NHC through imaging allows external GBIF users to annotate and curate records shared through GBIF. This holds opportunities to further develop GBIF as an interactive research infrastructure, to improve the data quality, and to attribute taxonomic experts for their contributions.	Thank you for the comment which is noted
Netherlands	Areas to expand activity	To further assess impact of the use of GBIF mediated data beyond the use in scientific papers through #CiteTheDOI it would be useful to analyze all download records. Currently all download through the GBIF portal are logged and can be analyzed. Downloads generated through the API and the linked RGBIF library are not included in the statistics. It would be great if API downloads and predicate settings can be logged as well.	Thank you for the comment. Download metrics are already used to analyse use by country and included in regular statistics. Breaking these down further would be challenging given the minimal information currently requested from registered users of GBIF.org, but could be explored if considered a priority. Other suggestions here will be evaluated for later response.
Argentina	Areas to expand activity	I consider starting to add activities in terms of the use of Wikipedia (and derivatives, such as Wikiespecies and Wikidata). It should also be noted that Wikimedia Commons offers a space to upload images for free and with attribution. In addition, strengthen the use of indicators, such as those of Wikidata and ROR for institutions. More and better working relationships with OBIS nodes	Your suggestions re Wikimedia Commons are noted, thanks. We are fully committed to expanding relationships with OBIS nodes.
Canada	Financial situation	•Regarding overall budget level similar the one adopted in GB27 – would request more specifics is the budget higher or lower? By how much? •Priority 1: oWhat are the results and progress in increasing the number of Voting Participant countries? •Supplementary Income: oRegarding the additional expenditures enabled by supplementary funds received or budgeted – additional details are requested identifying as funds received or funding disbursed. oSuggest that this section include expenditures for meetings with authorities in non-member countries to demonstrate the benefits to them to become Voting Participants.	These points are addressed in the Executive Secretary and Chair's report to GB27
Argentina	Financial situation	I consider that waiting for the total of the contributions that were approved in 2020, under the reality of COVID19 at the world level, was too optimistic. To achieve stronger global engagement we have to think of strategies that allow nodes / publishers to engage with GBIF even when the contribution is not paid. Asking that the MoUs be signed by ministries, conditions the availability of funds to political agendas, often to the detriment of the activities of the nodes. The number of new positions in the staff is confusing ... first I see that it is in communications and today the call for an administrative position appears ... how many positions in total are those that will be called in 2021 and what should be included in the 2022 budget? https://www.gbif.org/news/33JLnIbtsyPHG2iHQWr4rx/gbif-secretariat-is-recruiting-an-administrative-assistant	This point is addressed in further edits to the introductory section, and in the Executive Secretary report to GB27
Andorra	Other	I have no feedback to make on the current 2022 Work Programme draft.	
Spain	Other	General Comment We miss in the plan a table detailing: activity, budget assigned from core funds (exc. salaries), budget assigned from other sources (e.g. Supp. Fund, Projects, etc.), staff time (in PMs, an approx. indication), and person responsible at GBIFS. Without this information, it is difficult to provide meaningful comments or questions. We therefore suggest that such table is included in the GBIF Work Programme 2022, for the benefit of all members. Related to this matter, it is striking that activities under priority Area 4 are missing in paragraph "Planned expenditure".	The breakdown of spending across the priority areas of the Strategic Plan is further elaborated in the Executive Secretary report to GB28. Note that since the 'planned expenditure' section refers only to expenses beyond salary costs, many work items in all strategic areas will not appear in these figures. The activities relevant to priority area 4 are listed in the 'overview of 2022 work items', as well as in the detail of the activity sections. As we move into a new implementation phase, the Secretariat will look at improved ways of tracking expenditure across all these areas.

Canada	Other	General: • The work plan does not appear to be visibly aligned with GBIF's five year strategy 2017-22. This was also true for the 2021 work plan. Better alignment with the strategy would add better comprehension. For example, in this document, the numbered Priorities are aligned but the Activities under each individual priority are not specifically aligned. • Suggest that there be greater emphasis placed in the 2022 work plan towards reaching out to potential new member countries. There is a need for new members in GBIF, in particular China, and to defray the very high membership fees Overview (page 3): • Canada appears to be absent from the 2021 Annual Work Program lists of Participant Contributions and Participant Plans. Is this an oversight? • The GBIF Strategic Plan for 2021 did not explicitly identify adding to the number of countries as Voting Participants in Empowering the Global Network. This should be a primary means of increasing GBIF's budget. Hopefully the new Strategic Plan will remedy this gap. • Suggest that a greater emphasis be placed on identifying the value added by the work done by GBIF to strengthen the document throughout.	1. As shown in the diagram in the introduction, the Strategic Plan 2017-2021 set out broad priorities for the five year period, which were subsequently (the following year) developed into a five-year Implementation Plan, first presented with the 2017 Work Programme and updated for each successive year (with an extension to 2022). The activities reported in each annual Work Programme, including this one, are consistent with those detailed in the first version of the Implementation Plan - however only the five numbered Priorities align directly with the original Strategic Plan. In developing the implementation plan for the next period 2023-2027, we will be seeking clearer alignment with the strategic framework presented to GB28. 2. We agree with the high priority required to bring in new Voting Participant countries, and have amended parts of the Work Programme to reflect this. We will continue to seek support from existing GBIF participant countries to help with this essential outreach. 3. The participant contributions are inserted directly from the annual request for submissions via a form sent from the Secretariat. We do not appear to have received responses from Canada this year. If your node did not receive such a communication and/or submitted information that has not been included, please contact us so that it may be included in the final published work programme document. 4. The activity 'Expand National Participation' has been included within the 'Empowering the Global Network' priority throughout the current implementation plan and has been a constant focus of Secretariat engagement. Work on improving GBIF's value proposition and continued outreach in all relevant fora is firmly directed at this challenge. 5. While the format and structure of this Work Programme are largely dictated by the multi-year implementation plan, we will look at improving the 'value added' component in future work programme documents.
Argentina	Other	I see a lot of interactions with European initiatives or those directed from there (Dissco, BiCIKL, IPBES, Data4Nature, SYNTHESYS +, CETAF, LifeWatchERIC) and a lot of absence of other similar initiatives in other regions ... is it for lack of them or for language reasons? It also seems important to me that we have a bigger space to support citizen science initiatives. Thanks to GBIF, RICAP (Red Iberoamericana de Ciencia Abierta y Participativa http://cienciaparticipativa.net/) was created. I believe that we should try to find spaces for interaction with the regional networks of Citizen Science and projects. I still cannot find a GBIF portal attractive to decision makers ... when are we going to be able to answer the questions that ministries or GEF funds ask when organizing their calls for funds?	As a European based Secretariat GBIF is able to apply as partner to EU grants with EU partners, in particular nodes. These opportunities are approached on a case by case basis with the first prioroty to be that the work aligns with our Strategic Plan and Work Programme. The Secretariat is usually not eligible to apply for national/regional funding programs outside Europe. However, we support node involvement in projects outside Europe with letters of support if requested and if the work aligns with the work program - and we would very much like to work with Participants to identify additional sources of funding that may be tapped with joint activity, including through GEF and other agencies. More on this issue is included in the Executive Secretary report for GB28. Regarding the observation on 'a GBIF portal attractive to decision makers' it would be helpful to understand what is suggested here, as GBIF is clearly positioned at the data-science interface so does not seek to provide information directly used by decision-makers, as this is a space occupied by other organizations. However, if the suggestion is that GBIF should more clearly articulate its value to funders and ministries in relevant communication materials, we fully agree and are working strongly in this direction.
Sweden	Planned expenditure	Financial situation/Planned expenditure: GBIF-Sweden is supportive of Priorities 1-5 and Supplementary income budgeted expenditures in general, but worried about increased necessary feature development and engagement being dependent on supplementary funding as core funds will not suffice – in particular regarding Priority area 2.	Thank you for the observation, which seems to be a good topic for discussion around the new strategic framework and resource mobilization strategy.
Canada	Planned expenditure	Planned Expenditure (page 6): •Priority 1: oSuggest addition of: Support for demonstrating to authorities on non-Participant countries the benefits to them of becoming Voting Participants (especially China) •Priority 2: oSuggest addition of: Facilitate the integration of genebank records into GBIF (reference Priority 2 activity to "Develop and promote shared architecture to enable all biodiversity knowledge to be integrated and managed as a linked digital resource" •Priority 5: oPlease provide further clarity on how "Support for phylogenetic integration with occurrence data" contributes to "deliver relevant data"	Wording has been strengthened in relation to engaging potential voting participants; Regarding the suggestion on facilitating the integration of GenBank records into GBIF, essentially the same content is already being incorporated into GBIF through the European mirror of INSDC via the European Nucleotide Archive (ENA) and the MGNify databases; more information has been added regarding the phylogentic integration plans.
Belgium	Planned expenditure	On page 4, PA2: It is not clear what this Web Developer contract(€30K) covers. Could you clarify?	This is needed to meet the demands of hosted portals, continued upgrading of GBIF.org and the collection catalogue, among other work. It supplements the additional salary support from the BiCIKL project for work related to the Catalogue of Life.
Argentina	Planned expenditure	There is no detail for priority 4, is it because there are no funds for the activities? Are the funds for the YRA and EB from GBIF? I ask because other years came from external funds.	The planned expenditure shows only expenses beyond salary in each of the priority areas. The work items relating to priority 4 are detailed in the 'overview of 2022 work items' and in the detail of the activity sections. Funds for the award schemes have been a combination of core and supplementary funds in previous years, and for this work programme are provided from core funds.

Sweden	Secretariat staffing	GBIF-Sweden is impressed by the commitment, efficiency and good working spirit demonstrated by the secretariat staff – hence we are supportive of the plan to maintain/increase manpower provided that the core funding is sufficient.	Thank you for the support.
Canada	Secretariat staffing	•Suggest that more emphasis be placed on whether the Secretariat intends or wishes to increase the number of staff, and if so how that would be funded. The mention under Work Item 1(e) did not provide sufficient details on this item.	Additional information has been provided in the introduction and in the Executive Secretary's report to GB28
Argentina	Secretariat staffing	I understand that this is the time when the GBIF Secretariat staff has its greatest number and goes hand in hand according to the number of activities. What does not go hand in hand is the representativeness of GBIF's globality in the staff. The amount of progress that was achieved, for example, with Russian institutions led by Dmitri S. is clear, but unfortunately we do not see this representativeness for other regions. In the case of LAC, after the dismissal of Alberto Gonzalez-Talaván, I have not seen a member of the Secretariat who is the reference for the Ibero-American community and I am very sorry that they have not replaced those capacities.	Improved geographical diversity of Secretariat staff is a priority in our recruitment procedures, balanced with evaluation of applicants for all advertised positions based on qualifications and performance. We do not feel it appropriate to comment on individual staff in a public setting.