SwissCollNet - Workshop 1|2021

FEEDBACK from the group sessions

SESSION 1 – Financing

With Peter Wandeler

- The administrative workload of submitting a proposal should be as small as possible and therefore as efficient as possible for all parties involved.
- A minimum of 25'000.- for a proposal is fine (see also comment above).
- Small museums have often dedicated their scientific staff to other long-term projects (i.e. exhibitions). Therefore, finding in-kind funds can be problematic.
- In certain cantonal Museums, human resources are limited. As a consequence, only independent personnel can be employed.
- Many museums have an annual budget, yet the project will cover two years. What happens if the cantonal budget is cut during the second year?
- Foundation funds could become very attractive, as every CHF invested is doubled by federal funds. Coordination between the museums applying for foundation funds would be important and could even be beneficial for them.
- An online platform (marketplace) is needed to have an exchange among museums, to find new collaborators or even to share staff or equipment.
- SCNAT could specifically recruit young scientists /university graduates for the projects. The demand for staff in the collections will increase by leaps and bounds with the launch of the projects. At the same time, young academics could be inspired to work in museums (This could be a project in itself!).

SESSION 2 – Digitization/scanning

With Michael Greeff

- How are best practice methods conveyed within the SwissCollNet community?
- Taking images in digitization:
    - What is the purpose of images?
    - What are the costs of taking high-resolution scans and images (money, time)?
    - How should alcohol specimens be scanned/imaged?
- Adding geo-coordinates for place names:
    - Is there an easy way to do this automatically?
    - Would it make sense for SwissTopo to give a presentation on their resources?
- Could SwissCollNet create a shared resource on label images (from different collectors and collections)?

- It was agreed that SwissCollNet should think about how relevant knowledge will be shared among the members.
- It would be a good idea to have SwissTopo give a presentation on how they can assist in digitization.

SESSION 3 – Digitization/CMS, databases

With Nadir Alvarez

- Most participants were members of small/medium institutions
- A lot of questions about the eligible project contents and what will be funded by SwissCollNet
- SUPSI: not a collection-holding institution, interested to see how cultural information related to specimen could be financed through projects
- CMS "SPECIFY" in the centre of a lot of discussions (has several advantages: open source/can be adapted, will probably be largely used in CH, …); a large usage of this CMS in Switzerland could be a strength and a facilitator for future collaborations/interactions
- Idea of creating a "SPECIFY HUB" for the small and medium sized institutions with a shared IT manager and infrastructure (cloud): discussions about submitting a project to SwissCollNet with that objective with the associated expertise of Alexis Beck (GVA, familiar with SPECIFY).
- Citizen science: a lot of institutions will have to do a huge effort to enter data in their databases/CMS. This could be done by volunteers or through a citizen science programme. A common system at the country-wide level could be organized with a procedure (eg. what kind of label digitization needed, an internet platform for the citizens, a system for data quality – eg have the same label read several times by different persons before validating the info)
- Kind of possible metadata that could be associated to the specimen: geolocalisation, media (videos, images, 3D models…), genomes/DNA, …
- Link between the CMS from the collection and the SVNHC:
  - All the desired data in the local CMS
  - A selection of these data will be shared with the SVNHC -> which fields visible? Where? By whom?
  - Important that the data is a propriety of the collection
  - Interoperability, versatility: which data standards for compatibility between the two
  - What happens in case of modifications? Where will it be possible to enter modifications?

SESSION 4 - Training

With Alice Cibois

Only two participants. Discussions on technical and taxonomic expertise. The main questions related to the ways to have a "marketplace" for the expertise, and how to know which institution has which equipment. These points might be added to the survey.

SESSION 5 – Earth sciences

With Beda Hofmann and Pierre Dèzes

We identified the following fields where projects in the direction of what SwissCollNet wants can be formulated:

- Standardization of data in our collections (-> agreement on/development of Thesauri) , especially in the fields of a) Locality information; b) names for rocks/minerals in different languages; c) rock names; d) biographical data of donators/collectors.
- Development of a Geomodule for Specify CMS, as a basis for building standardized Geoscience databases in the largest swiss museums (Geneva/Basel/Bern), with possible other museums becoming interested.
- A revision of all meteorites in different Swiss museums, especially for smaller ones, there is such a need.
- A revision of geoscientific standard materials in Swiss collections. Standard materials are often developed from individual samples, but knowledge of such materials and their properties is not accessible easily.

We agreed that we will discuss options internally in our museums and then meet again in a similar group approximately by mid-August to discuss the ideas for proposals to be made.

SESSION 6 – Palaeontology

With Gabriel Aguirre and Loïc Costeur

- Larger collections were mostly interested on 3D digitalization of museum objects, we discussed applications and costs of 3D scanners and photogrammetry. In particular digitising types and figured specimens appeared as a relevant task, able to provide quick and good results for the international scientific community.

- A person is specifically interested in a project involving 3D models of dinosaur tracks and invited others to possibly participate at a national scale, some found the idea interesting for their institution and could envisage a collaboration on this topic. It was pointed out that although some museums like Jurassica have specimens in collections, some dinosaur tracks are actually in situ, and therefore do not form part of a collection and therefore are in some sort of a grey area.

- Can digital entities be given a catalog number and be treated as part of a collection? Athough not a physical object (maybe at least until it is 3D printed), it would make sense as means of long-term preservation and dissemination of information. Someone stressed the attractive aspect of a joint project on Swiss dinosaurs, that has potential for raising the interest beyond the scientific community itself, and would certainly help stakeholders (particularly policy makers) have a clearer pictures of what can be done under SwissCollNet and how relevant it can become.

- Smaller museums/collections emphasized their interest on expertise. For example, some institutions lack a curator on palaeontology and they find it hard to assess their fossils

without the help of an expert. Various specific collections of local to international interest were cited such as fossil fish from Glarus, the fossil fauna and flora from Oeningen, type material from the Miocene Molasse, liassic ammonites and sponges (Christian Meister could maybe help for liassic ammonites since he is one of the world renown specialist for them) or Eocene mammals from Gösgen. Other collection parts that still aren't unwrapped lie around in collections and should be integrated. It was agreed upon during the discussion that a preliminary assessment before any proposal submission should be carried out by the collection managers.

- Smaller museums were encouraged to apply for funding, specially as leaders of projects because of the clear disadvantages they have for other grant funds, in comparison with larger museums.

- It was also discussed how the sharing of equipment would be made possible. Probably equipment-sharing is more relevant if linked to an expert on its use. This expert may be hired by SwissCollNet partner institutions through a project proposal and he/she would travel and perform the tasks required by the institutions using the shared equipment.

- Although not much discussed, homogenization in collection data (through standards, such as the Darwin Core) and the move to a common platform (such as Specify) are also relevant topics for larger collections and smaller museums appear to be interested in being part of the reflection and further developments in these matters. It also appeared still relatively unclear to some of us what exactly the SVNHC will become, and when it will start being active.

- It appeared quite clear that collaboration was possible and that 2 types of project lines could be followed depending on the actual state of the collections:
    o   one line for institutes with relatively well standardized, organised and inventoried collections where imaging and digitization is the next step,
    o   one line for institutes lacking expertise (specific curators) and with parts of their collections that are still unsorted or organised where basic steps including determination and conditioning are most relevant.

- At the end of the round table, it was agreed that this document will be shared with all those that took part and that we will remain in contact. This group may remain in contact (or expand if relevant) to discuss projects for the upcoming SwissCollNet grant call and to provide support to curators of collections that lack an expert on palaeontology. A shared table to be filled by the attendees will circulate, Loïc and Gabriel will create it and send it out to everyone. Information on possible projects and needs and requirements to carry them out can be provided in order to foster collaboration and start gathering ideas and specific needs.

- Gabriel offered to create a SWITCH shared folder to exchange documents easily. Technical aspects need to be addressed (access to switch in non university contects) before this can happen.

SESSION 7 – Botany I

With Michelle Price

The workshop was an excellent opportunity to exchange ideas but more importantly to form potential collaborative projects as well as to form connections within the botanical/herbarium community in Switzerland that become a permanent fixture and trusted forum for communication. The group used the Mural to brainstorm on needs, ideas and the possible scope for projects as well as on how to facilitate a more general exchange of technical and/or taxonomic skills, know-how in work-flows or processes, or for sharing or loaning infra-structure. One element that was clear from the discussions was the motivation to include "small" institutions in future requests and to ensure that everyone is included in the current calls so that no one is left behind.

The group classified the comments (sticky-notes) into the **types of collections** (taxonomic groups) of interest, the **geographical or historical interest** of collections, the **scope of potential projects**, the **digitisation and digitisation training**, and finally the necessary **networking and collaboration**. The group also outlined the need to facilitate information and tools sharing (such as thesauri for collectors / nomenclature and authors or for geo-referenced localities) so as to streamline the digitisation process and to be more cost effective in the long-term. The group questioned the possible role that SwissCollNet / SCNAT could play in this and the establishment of a "notice board" where needs can be posted and people are also able to indicate what they can provide in terms of informatics tools, digitisation tools or know-how, or other types of expertise.

The final conclusion was that the group would like to invite the other Botany group to continue discussions together, as soon as possible, with the aim of working towards creating a "Botany group" that can dedicate time to information exchange and facilitating across-canton/institution collaborations.

Annex 1: Synthesis of contributions to the Mural of Botany 7
Types of collections

- Bryophyte project on Swiss bryophytes
- Cryptogams, including diatoms
- Collect information on cantonal/regional/national initiatives, floras, atlases etc. for regional prioritisation

Collections of geographical or historical interest

- Cantonal floras (such as ZH, VS)
- Focus first on collections from Switzerland and then on those from outside Switzerland
- Type specimens and historical specimens (from Switzerland and beyond)
- Collections linked to particular historical publications

Scope of potential projects

- Assemble data from different cantons (across institutions) or a given taxonomic group (e.g. genus) to tackle evolutionary questions (e.g. related to climate change)
- Digitise certain collections from different herbaria or collections from a given time period

- Select an historical period as a common point between collections/institutions that will facilitate collaboration towards a common goal. This could also be used for a certain taxonomic group.

Digitisation and digitisation training
- Collaboration with "small" herbaria – set up a scanning facility where collections can be mass digitized using Picturae or a similar system/infrastructure
- Cross-training in herbarium digitisation techniques (databasing and scanning)
- Development of ideas on promoting collaborations between institutions for the digitisation of local herbaria
- Promote the exchange of expertise on digitisation standards and procedures for herbarium specimens

Networking and collaboration
- Form a consortium to incorporate small collections from institutions and small institutions
- Build up a Botany/Herbarium communication platform
- Form partnerships with researchers early on in project development to ensure alignment
- Set-up taxonomy training in key groups
- Searching for taxonomic expertise in the Angolan and Turkish floras (looking to share specialists to revise given taxonomic groups)
- Searching for taxonomic expertise to revise 16,000 type collections

Other questions, offers or needs
- How does one approach the inventory and digitisation of diatom collections?
- How does one scan bryophyte specimens?
- Can an exchange system for expertise in cryptogams (esp. bryophytes) be set up? (a project of the exchange of expertise)
- We are looking to develop shared facilities to sort/tag specimens (e.g. published in checklists, synonym lists)
- We have available a database with a portal linked to GBIF.org
- We have available CitSci portal for geo-referencing types
- We are willing to share infrastructure (photographic station or bioinformatics solutions) with smaller institutions
- How can we best organize geo-referencing of specimens – can this be done via volunteers or herbarium staff?

SESSION 8 – Botany II
With Christoph Scheidegger

Discussion topics

- Technical problems of digitization of herbarium specimens, a photographic system would possibly fit better than a large scale scanning facility which is extremely expensive to run. Experience from CJCB was supporting this.

- Difficulties in assessing the importance of the collections, possibility was discussed of getting help from a large Institution such as CJBG in prioritizing collections once the join-the-dots/collection survey work will be done.
- One question was if co-operation with non-Swiss collections would be possible. For instance, the flora of and around lake of Constance would profit from a collaboration with the collections held in Konstanz (D).
- The advantages that collaborative proposals can have over "isolated projects"

SESSION 9 – Vertebrates

With Manuel Ruedi

1. **Deep digitalisation of the Vertebrate types held in Swiss collections**
   a. Leader: Manuel Ruedi
   b. Send a call to all museums with potential types of Vertebrates
   c. Train someone able to dig out all information associated to the types (entry book, literature, label, jars, etc.).
   d. Describe all details about those types (how it is held, broken, etc.)
   e. Give current "official" name according to most recent lists
   f. Produce good-quality images of specimens, labels, etc. Note that too large images, like CT-scans would generate heavy loads which are costly to store, which the SwissCollNet would not support.
   g. To digitalise such images, a relatively simple setting with 4-5 cameras would be OK
   h. Such a project should be subdivided into different modules according to taxonomic groups, with leaders for each.

2. **Overview of historic Vertebrate collections in Swiss institutions**
   a. Leader: ????
   b. Send a call to all museums have "historic" Vertebrates (perhaps olden than 19th or 20th century?)
   c. Train someone able to dig out basic information associated to the know historic Vertebrates (if any, otherwise, not worth it).
   d. Describe the basic historic references to these old specimens
   e. Revise their conditioning and propose restauration measures for those in most urgent need of be saved.
   f. To digitalise and give a basic image of all these historic specimens

3. **A reference of Swiss Vertebrates in Swiss collections**
   a. Leader: ????
   b. Find 1 (or 1 per biogeographic region) Swiss specimen that is incorporated into a collection with associated tissue available for DNA work (at least ethanol-preserved tissue)
   c. Have this specimen adequately prepared (e.g. skull extracted and cleaned for small mammals)

    d. Have all necessary ID material associated to this specimen (call or song records for frogs or birds) so as to be able to formally ID each Vertebrate

    e. Sequence a barcode (whole mitochondrion, or few popular markers such as COI or mini-16S, etc.) that can be associated to each reference specimens, and thus provide an easy mean of ID (but beware of limitations!) for further eDNA projects in Swiss biodiversity.

    f. Such a project should be subdivided into different modules according to taxonomic groups, with leaders for each.

4. Build a consortium of Vertebrates specialists in Swiss collections

    a. Leader: ????

    b. Perhaps included in the mainframe of the previous projects, it would be useful to strengthen the network of Vertebrate specialists, to provide knowledge and advises for less-trained members in need of help in smaller institutions.

SESSION 10 – Invertebrates I

With Jessica Litman and Anne Jacob

Summary of the discussion:
- Digitization of invertebrates could be long (pin the specimens and the labels off the drawer with a risk of damage) and expensive.
- Digitize a specimen is more than take a picture.
- Define standard information in a database /the data needed to be cleaned before the migration in a new database.
- Importance of thesauri to homogenize terms and standardize translations of place names and other content when databasing

Projects for the network:
- National "type server" for Switzerland with stable url: a database containing all the types in Switzerland.
- The network needs an online market place: to look for partners, for collections, for experts (for example to share an expert in-between two collections, etc.)

Research projects:
- Ants: digitization of specimens (no need of pictures for each specimen)
- Noctuidae: a private collection in an institution and a huge collection in bad shape in another.
- Coleoptera: a collection requires conservation-restoration measures and digitization
- Crustaceans: historical collection in an institution (about 80 drawers) requires conservation-restoration measures and digitization

SESSION 11 – Invertebrates II

With Sophie Giriens and Britta Allgöwer

The following minutes regroup the statements and questions that were raised into four overall points and some conclusions. Most participants have a background in entomology and are responsible for invertebrate and/or entomological collections within their institutions. The questions therefore focus on how to deal with entomological collections within SwissCollNet. "→ Points to consider" aim at outlining the issues that need to be brought to the attention of the SwissCollNet bodies (Steering board, Board of Experts). They are also reflected in "Conclusions".

1. What exactly is the scope of SwissCollNet / research vs. collection mobilization?

- Regarding the statement of Michelle Price during the plenary session, according to which SwissCollNet is dedicated to the mobilization and digitization of collections (and objects within) primarily and not to research in the first place. He raises the question, how entomologists should deal with that as each insect group requires a different approach to data basing. Specifically, many groups need to be revised prior the be put in a database otherwise the database will contain "trash". That means taxonomic research to entomologists.
- Conditioning e.g. in Coleoptera collections is very important. They need to be "gbif-ed".

→ Points to consider:

- The conditioning of collections is very important. SwissCollNet will support projects that revise the taxonomy of collections (Module 1). It will be brought to the attention of the bodies of SwissCollNet that especially entomologists see a lot of need for this within SwissCollNet.
- The term "research" as seen within SwissCollNet needs to be specified in order not to raise misunderstandings.

2. Will we get help in dealing with IT questions and the choice of the "right" data base systems?

- In order to efficiently digitise the museum specimens we need an adequate database. At the moment we use old software and we are thinking about changing to a better one, but we do not know which one to use. Do we get help in informatics and advice regarding which data base system is best to use?
- The taxonomy of insects is very dynamic. It changes constantly. How can the (future) system/tool (to be set up within SVNHC) cope with that?
- The NHM Bern is in a transition phase. So far Oracle has been used. What protocols should be used in the future?
- What is the role of GBIF?
- How can we collaborate with the collaborators of CSCF in the future?
- How to deal with detailed information on one specific object/specimen vs. less detailed information on many specimens/collections?

→ **Points to consider:**
- Interoperability, interface functions
- Transition of databases from one system to another
- Invertebrates, especially insects, require very specific taxonomic approaches/libraries
- Collaborations across institutions
- What is the "ideal" level of details in databasing?

3. What are small/medium sized museums supposed to do?

- What could be a concrete project? What should we do concretely? It is difficult to see how a small/medium sized museum can collaborate in SwissCollNet.
- It looks like only the big institutions will be able to participate in SwissCollNet.
- Disposes of very little resources (50% employment): "I am open for collaborations, but I do not see how I can participate or even be a main applicant in a project besides my regular work".
- How can the in kind / in cash contribution be provided?
- Can the work of voluntary co-workers (i.e., of retired specialists/taxonomists) be counted as in kind contributions? And if yes, how?

→ **Points to consider:**
- How can SwissCollNet encourage interinstitutional projects?
- How can the funding be shared?

4. Which institution has what? How can we network?

- When there are two insect drawers with type specimens of ants by Forel. This is very little and not enough for a project.
- We need pre-digitized information, we need meta data.
- How many museums are there with e.g. nocturnal Lepidoptera collections and of which collectors?

→ **Points to consider:**
- Not knowing what others have, seems to represent an important obstacle in getting involved with SwissCollNet, especially for smaller and medium sized institutions.
- The planned survey of the natural history collections (within phase 2) is expected to help. However, the discussion shows that there is need to explain the difference between the phase 2 collection survey and the one that was performed during phase 1 and that was published in Swiss Academies Reports, Vol. 14, No 2, 2019.

Conclusions

What would be of interest for entomological collections in the context of SwissCollNet?

- Can a specialist for a certain group of insects go to all institutions an determine/condition the respective collections for all the involved institutions? Would that be funded? → For example: Hannes Baur, from the NHM Bern could do this for Chalcidoidea for which he is a specialist. Christoph Germann, NHM Basel for Coleoptera, etc.
- Would the interested institutions have to join in a common project and each one adds a share? E.g., based on the number of collections/objects per institution/partner they want to get determined (according to Module 1) and digitized (according to module 2)?
- Could the conditioning work of the specialist who goes to the various institutions be considered as the in-kind contribution that matches the cash required for the subsequent databasing?
- Can volunteer work be counted as in-kind contribution as well? And if yes, how?
- Need for information on who has which collections: Can the network of the Entomological Society (= "hard core entomologists") be used to identify collections in a) need for conditioning and b) digitization throughout the institutions?
- Need for IT-support and counsel is needed in order to be compatible with the requirements of the future SVNHC. Moreover, the required level of details needs to be clarified.
- Instructions on project organisation with several partners would be helpful. It does not seem to be clear how this can be organized and what is expected from the various partners/roles. This may create reluctance. Would the following organisation scheme be correct? One of the project partners would have to agree on being the main applicant for the project. He or she would be the main counterpart to SwissCollNet. That does not mean that the main applicant would also take on the biggest share. Who does what, who asks for how much funding within a project is up to the project partners. However, each project partner would have to come up with the equivalent of in kind / in cash contributions for their share in the project.