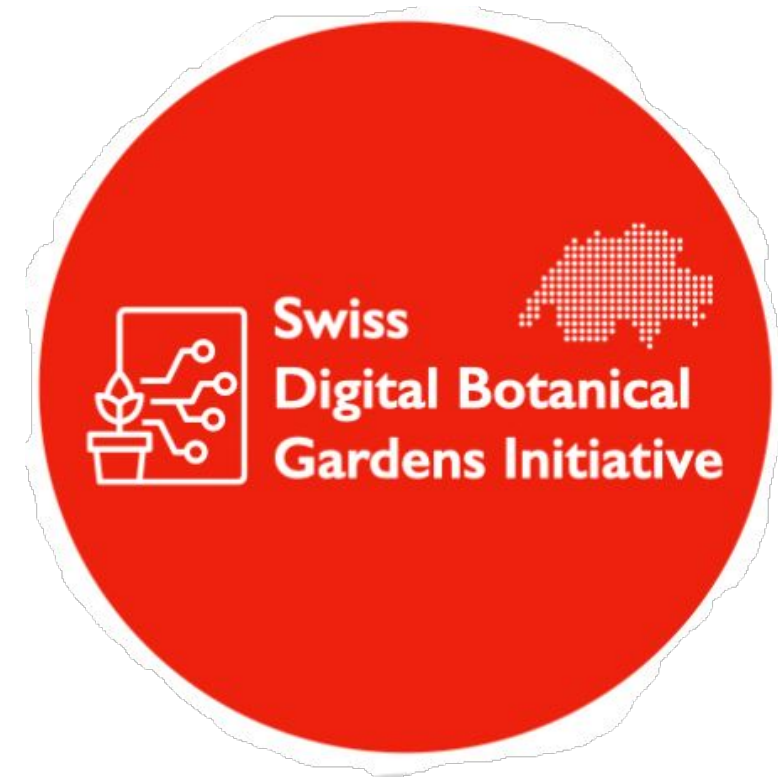
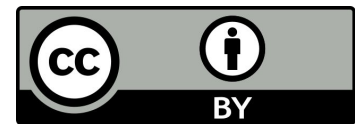


The current state of the Digital Botanical Gardens Initiative



Phenobs Symposium - 15 May 2025 - doi: [10.5281/zenodo.15420634](https://doi.org/10.5281/zenodo.15420634)



[Daniel Mietchen](#), [Héloïse Coen](#), [Edouard Brühlhart](#), [Pierre-Marie Allard](#), [Adriano Rutz](#)

Background



Botanical gardens as platforms for ecological research - a metabolomic perspective



Lab work

- high controllability
- high reproducibility
- usually low biodiversity
- low ecological relevance

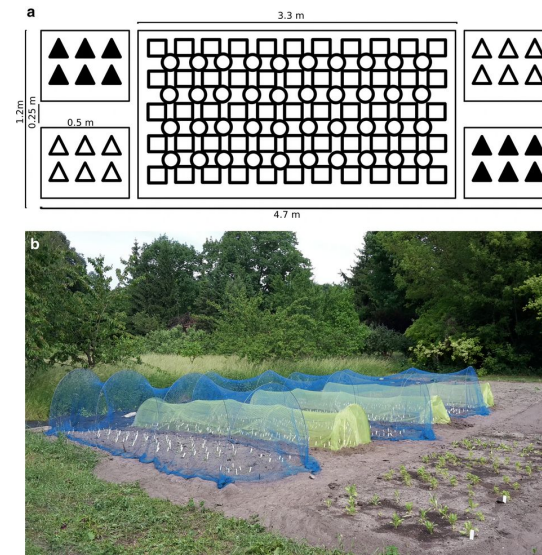
Field work

- high ecological relevance
- (potentially) high biodiversity
- low controllability
- low reproducibility

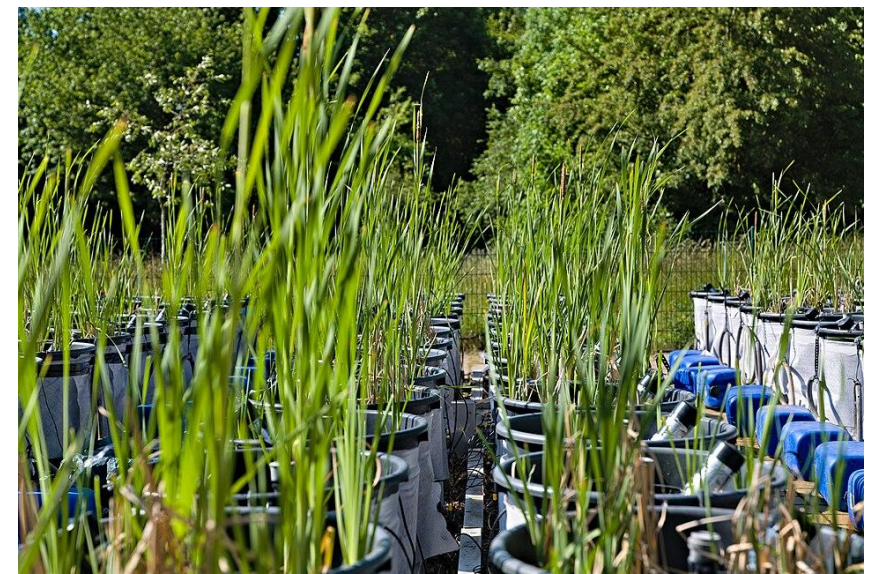




Field sampling



Common gardens

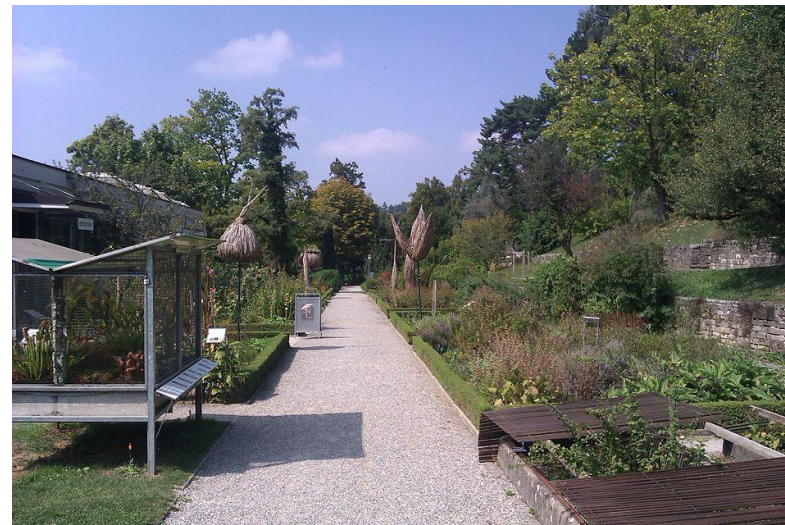


Mesocosms

Balancing between hotspots of biodiversity and analytical capacity



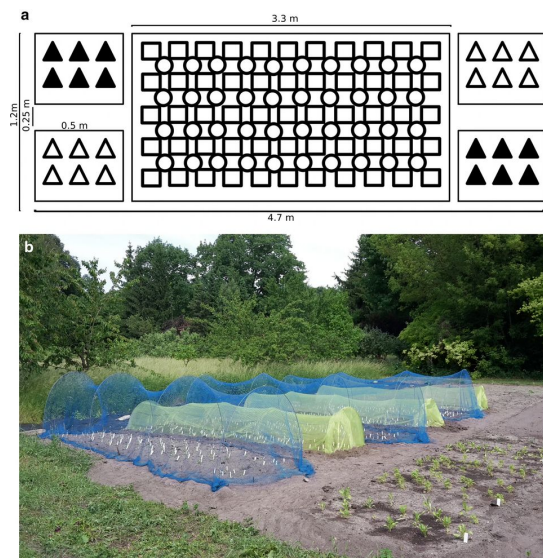
Greenhouses



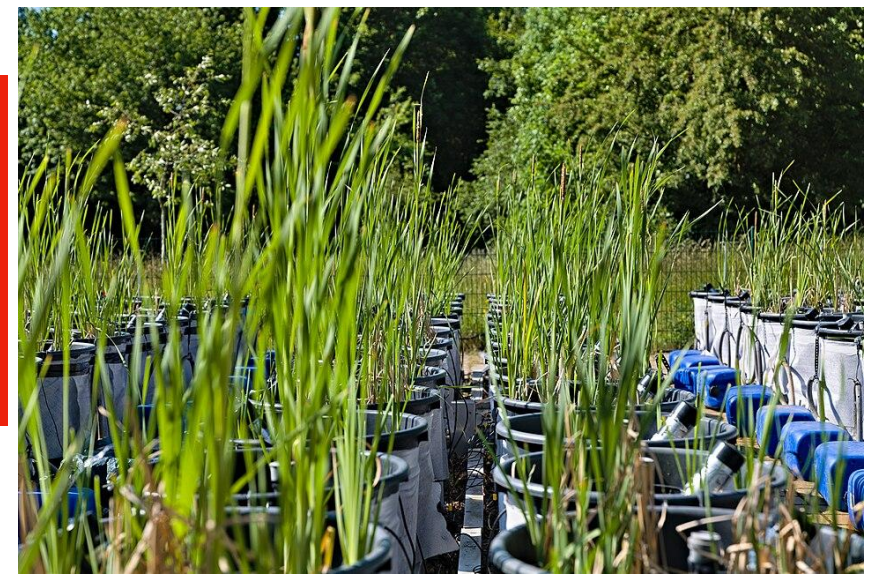
Botanical gardens



Institute for chemical ecology



<https://dbgi.org/>



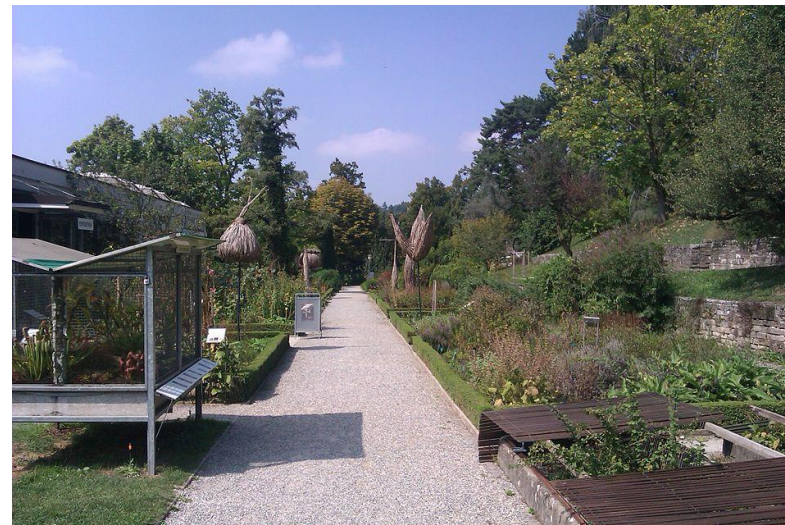
Field sampling Common gardens

Mesocosms

Balancing between hotspots of biodiversity and analytical capacity



Greenhouses



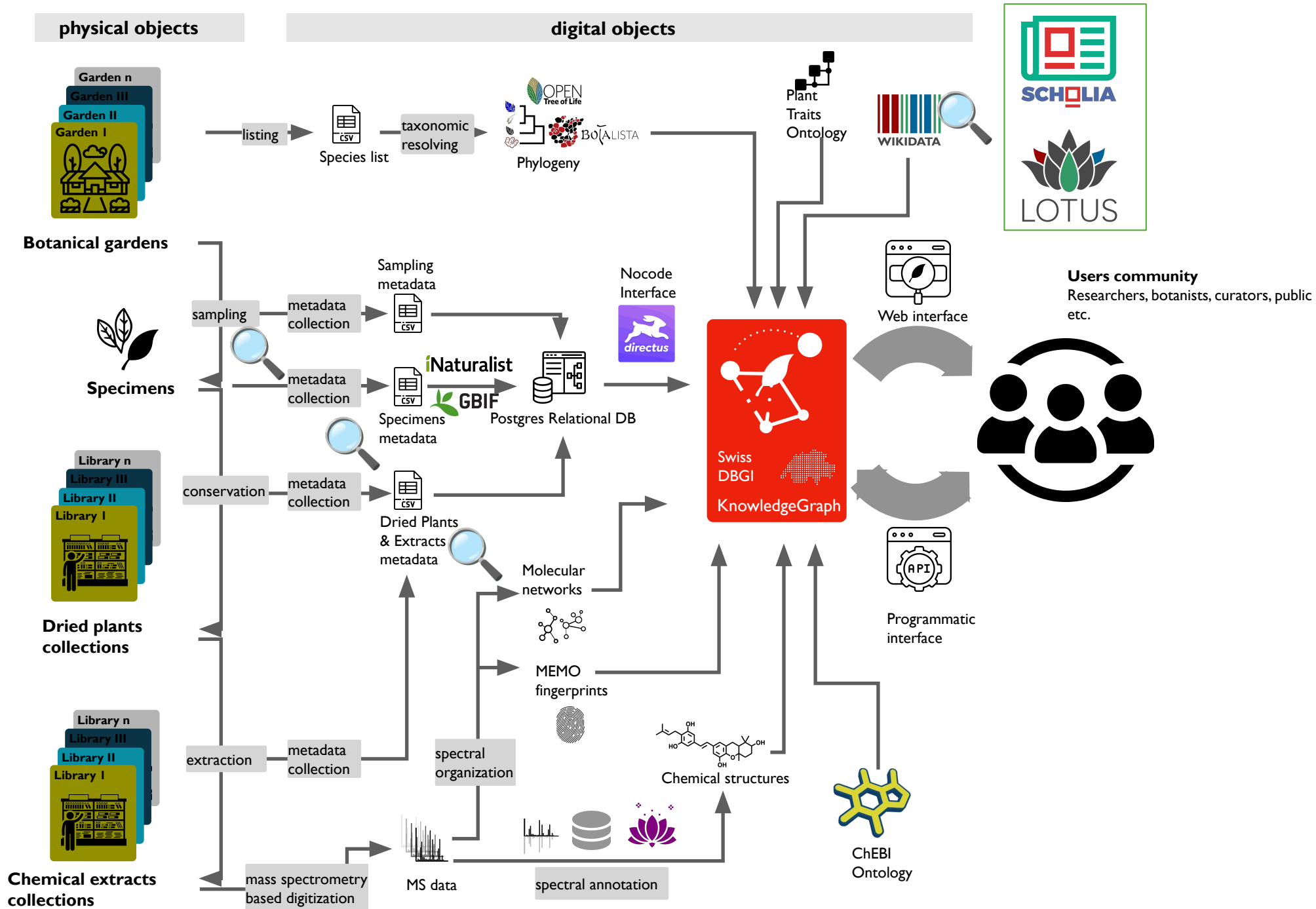
Botanical gardens



Institute for chemical ecology

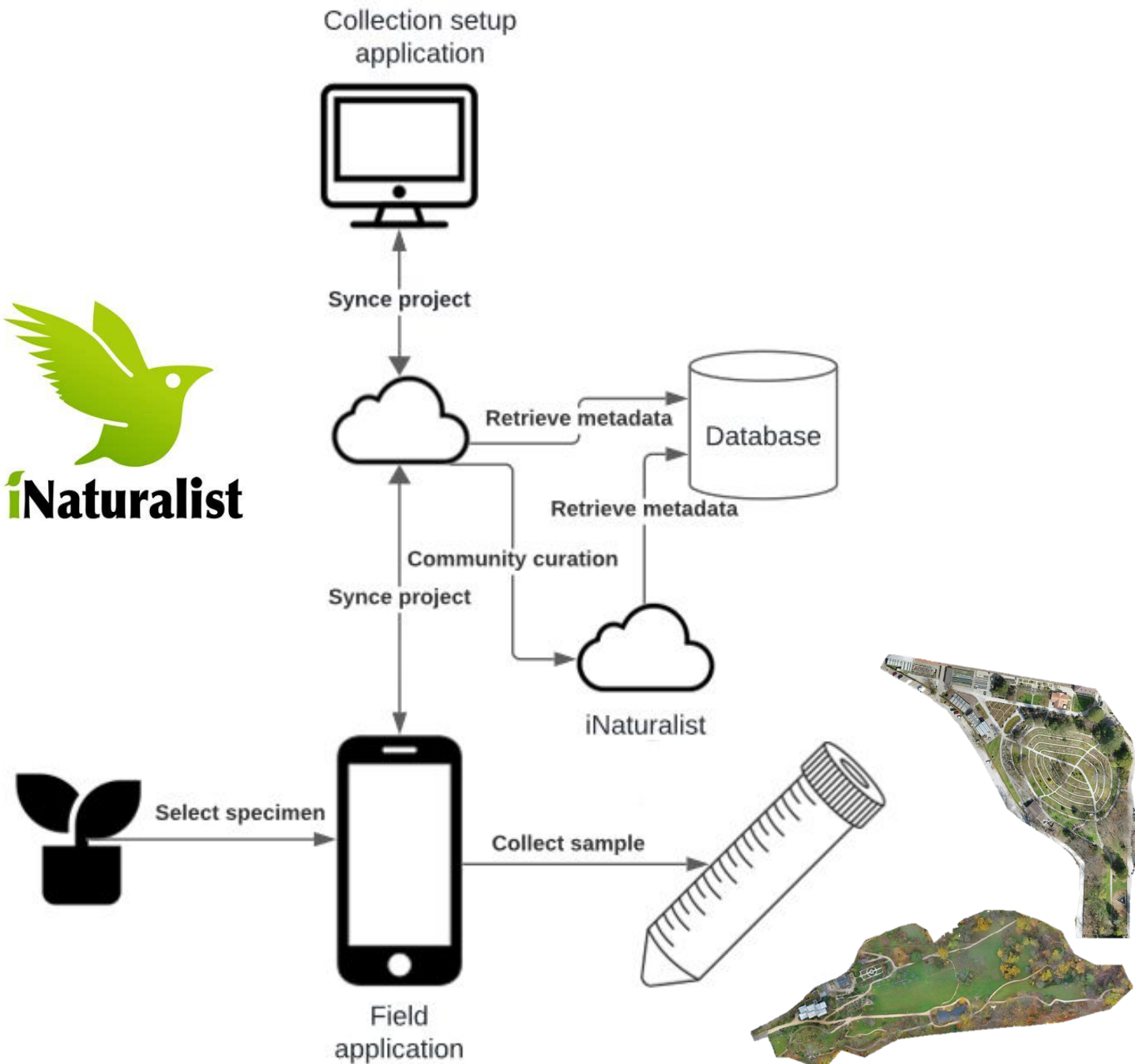
Basic idea

- Establish robust workflows for routinely collecting metabolomic data
- Prototype and test in botanical gardens in Switzerland
- Automate and scale up
- Branch out from there



Setting up the collection protocol

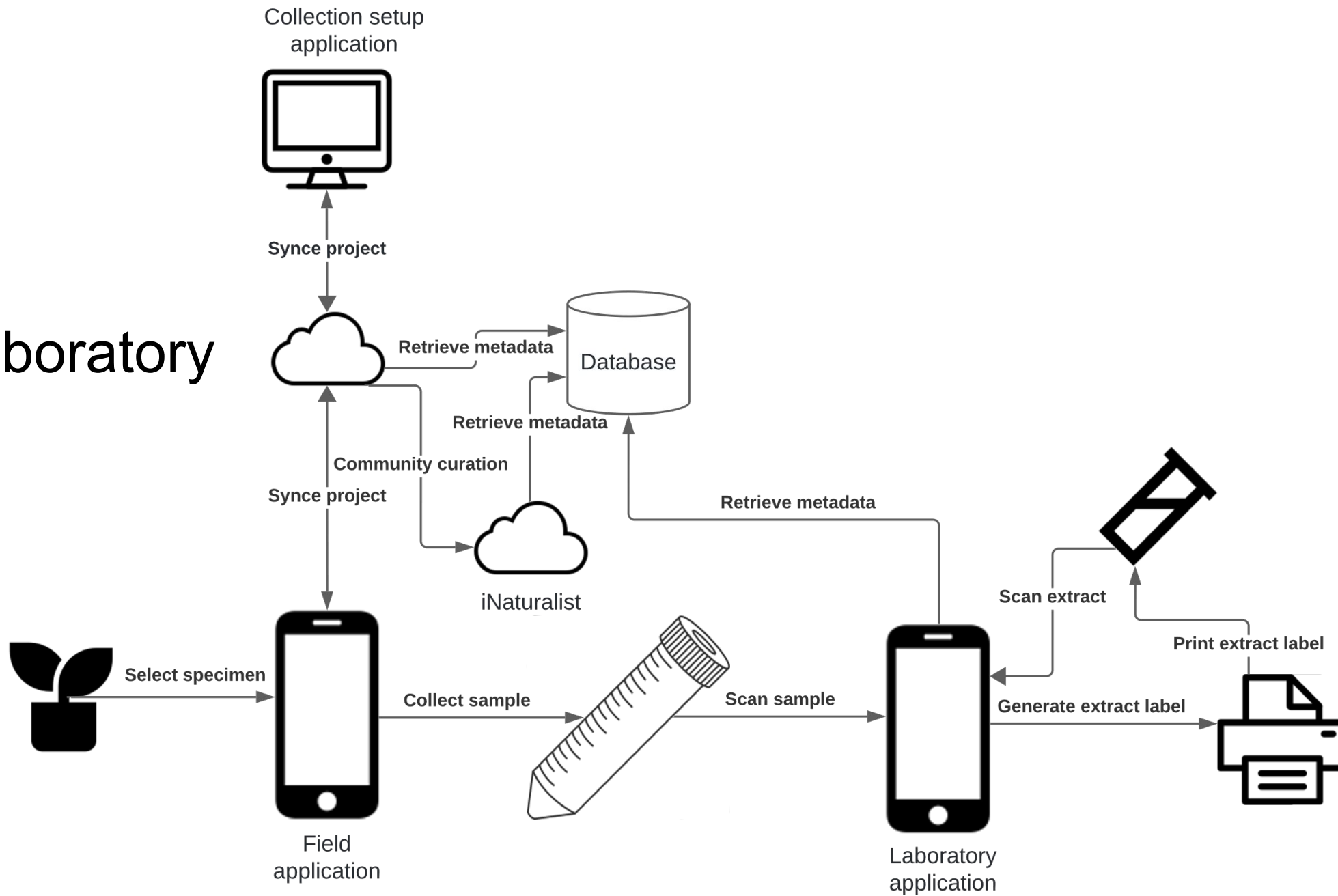
- From specimen to sample with taxonomy and geolocation



Setting up the extraction

- From sample to metabolic profile

Laboratory



Sample tracking at scale

A thick, hand-drawn style orange line that underlines the text "Sample tracking at scale". It starts under the first letter 'S' and ends under the last letter 'e', following the baseline of the text.

Physical objects...

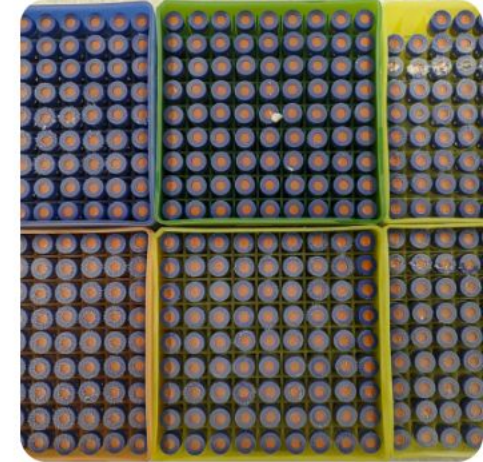
Botanical gardens



Specimens



Dried specimens
collection



Chemical extracts
collection



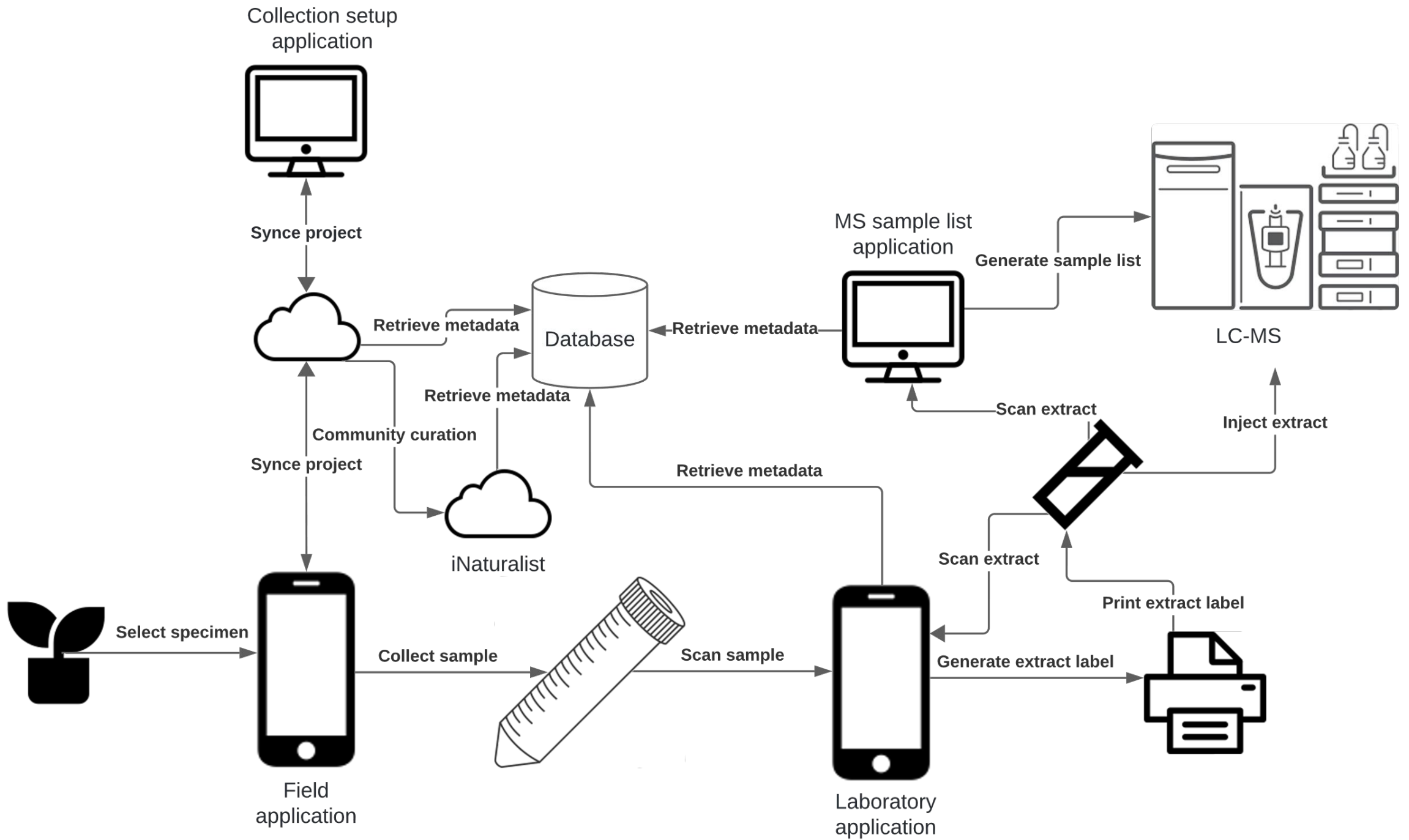
...need to be connected



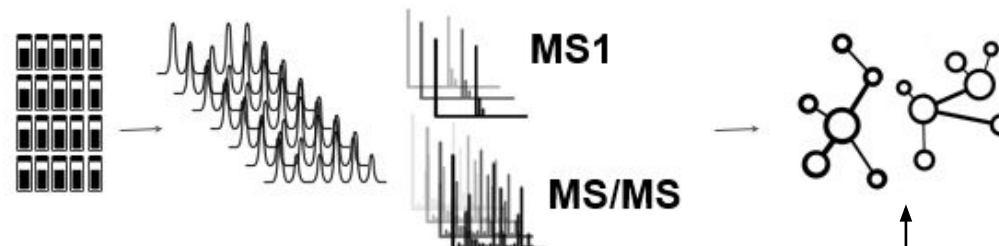
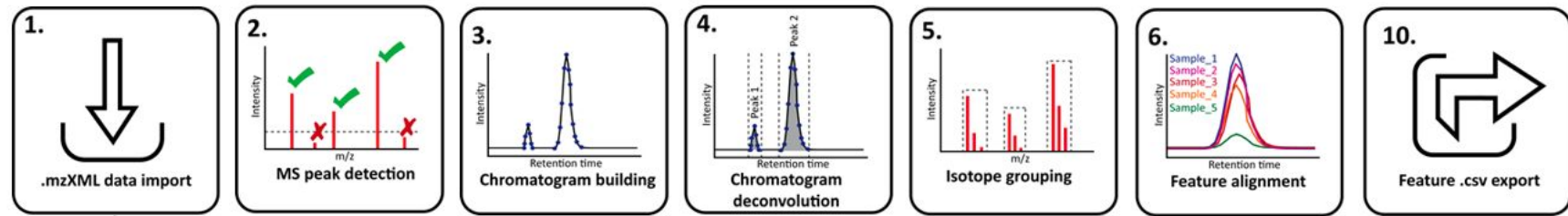
... in a digital way that works in the field and in the lab

Setting up the data analysis

A thick, hand-drawn style orange line underlining the text.



Mass spectrometry data treatment



Current status





Digital Botanical Gardens Initiative

Information

Mitglieder  24

This project has for objective to collect observations made in the frame of the Digital Botanical Gardens Initiative (<https://www.dbgi.org/>).

Mehr lesen >

Nur
Projektmitglieder

 Projekt-Jour...

Übersicht

2.599
BEOBACHTUNGEN

1.784
ARTEN

105
BESTIMMER

11
BEOBACHTER

 Statistiken

Aktuelle Beobachtungen

Alle ansehen



Toad Lily
Tricyrtis latifolia

 1 15 T



Altai Onion
Allium altaicum

 1 15 T



Henry's Lily
Lilium henryi

 1 15 T



Japanese Iris
Iris sanguinea



 1 15 T

Tricyrtis latifolia

Hobbyqualität



dbgi

 1.197 Beobachtungen  

Beobachtet: Apr. 30, 2025 - 14:56 CEST Hinzugefügt: Apr. 30, 2025 - 15:02 CEST



Notizen

Original observer:

Aktivität



dbgi hat eine Bestimmung (ID) vorgeschlagen

 Initiative 15 T 



Tricyrtis latifolia
gehört zu: Liliengewächse (Familie Liliaceae)



Kommentar

Eine Bestimmung vorschlagen

[Einloggen](#) oder [registrieren](#), um Kommentare hinzuzufügen.

Community-Taxon

Was ist das?

Die Community-ID erfordert mindestens zwei Bestimmungen.

Projekte (1)

 Digital Botanical Gardens Initiative

Stichwörter (4)

[emi_collector:Héloise Coen](#) [emi_collector:inat:](#)
[emi_collector:orcid:](#) [emi_external_id:dbgi_008870](#)

Top-Bestimmer für *Tricyrtis latifolia*

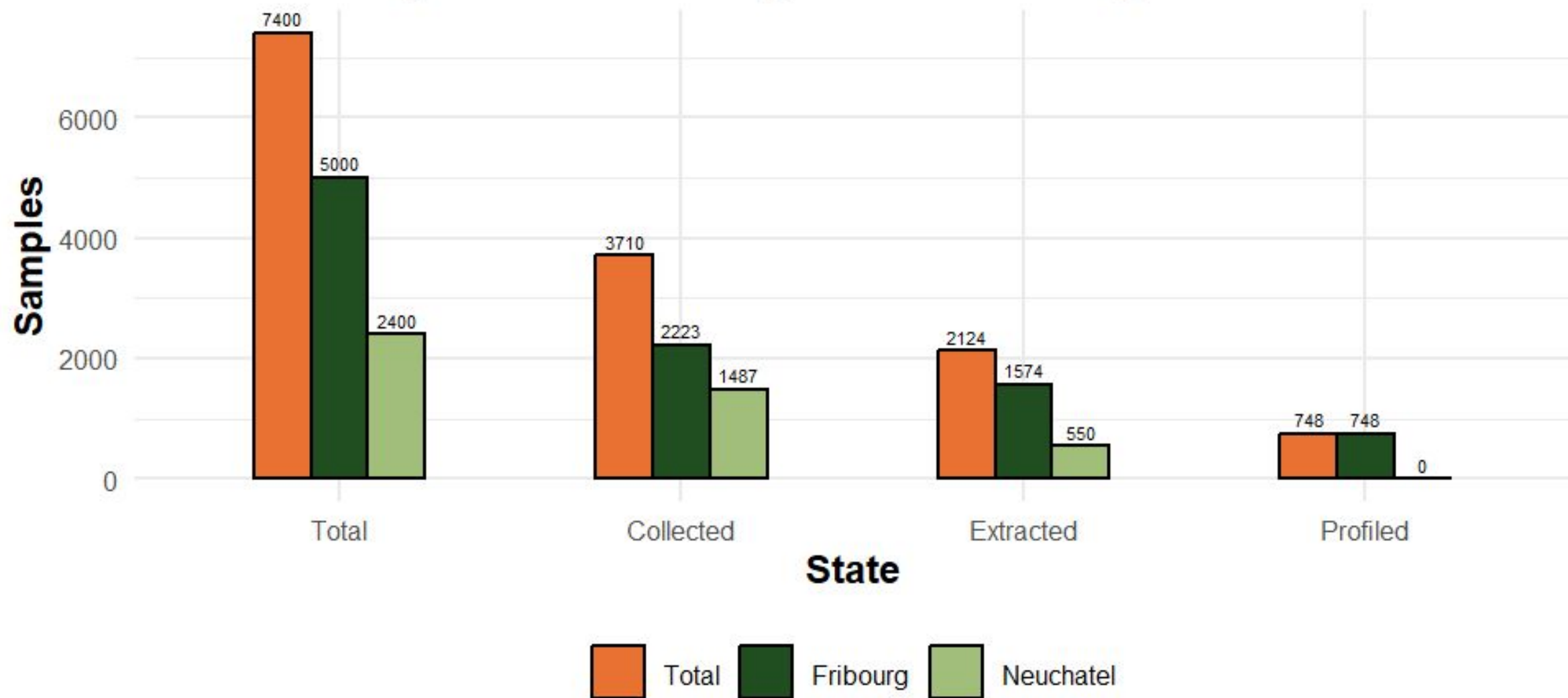
Info zum Urheberrecht

Beobachtung von dbgi - keine Rechte vorbehalten

 [Lizenz](#)

Mostly plants like this
but some fauna too.

Coverage of the botanical gardens of Fribourg and Neuchatel



Side projects

Test our methods
outside botanical
gardens



EMI Vinesh – June 2024

- Collection with a large team over a whole day
- Collecting plants, insects and fungi
- **252** specimens collected
- Currently being extracted and profiled



How to get involved

- Review our data and workflows
- Consider how you could fit in
 - Do you have/ do anything
 - metabol(om)ic?
 - at scale?
 - many species
 - many samples
 - many sites
 - many people
 - many timepoints
 - many methods
 - ...
 - involving knowledge graphs?
 - that zooms in on metabolic aspects of some taxonomic or ecological contexts?
 - if yes, how does that fit with DBGI/ EMI?
 - if no, would you like to?
- Consider how DBGI/ EMI might fit into what you are doing/ planning
- Keep DBGI/ EMI in mind as a teaching resource too

Thanks for your attention!

Contact:

- Web:
 - <https://dbgi.org/>
 - <https://earthmetabolome.org/>
- Email:
 - dbgi@protonmail.ch
 - daniel.mietchen@fiz-karlsruhe.de
- Social:
 - <https://earthstream.social/@dbgi>
 - https://earthstream.social/@earth_metabolome
 - <https://mastodon.social/@EvoMRI>
- Zenodo
 - Community - <https://zenodo.org/communities/dbgi-zenodo-repository/>
 - These slides - <https://doi.org/10.5281/zenodo.15420634>