naturama Museum+Natur

scnat académie des sciences naturelles

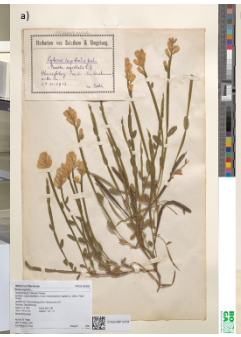
UNIVERSITÄT BERN

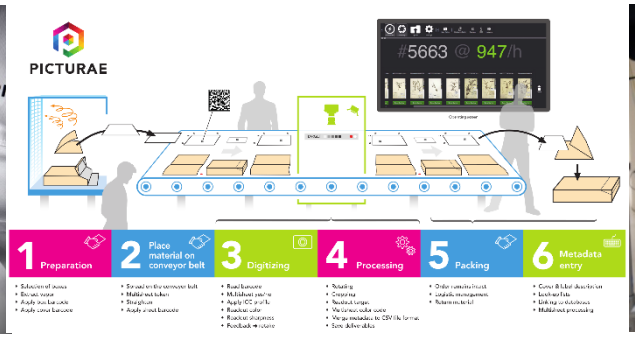
BOGA Botanischer Garten Bern

Sharing experiences on rapid digitization of herbarium specimens by conveyor belt

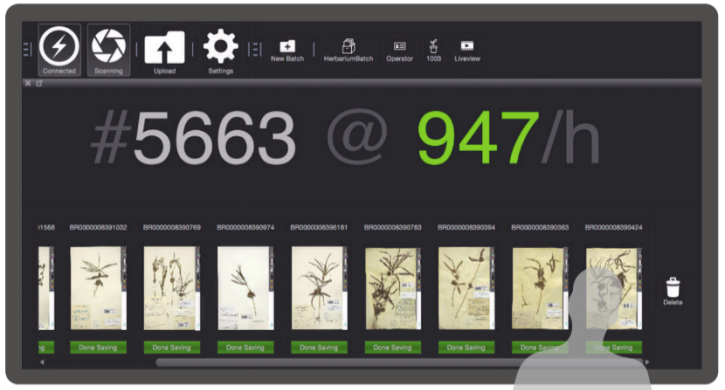
SwissCollNet Workshop Bern, 19.01.2024

Katja Rembold & Christian Sprecher

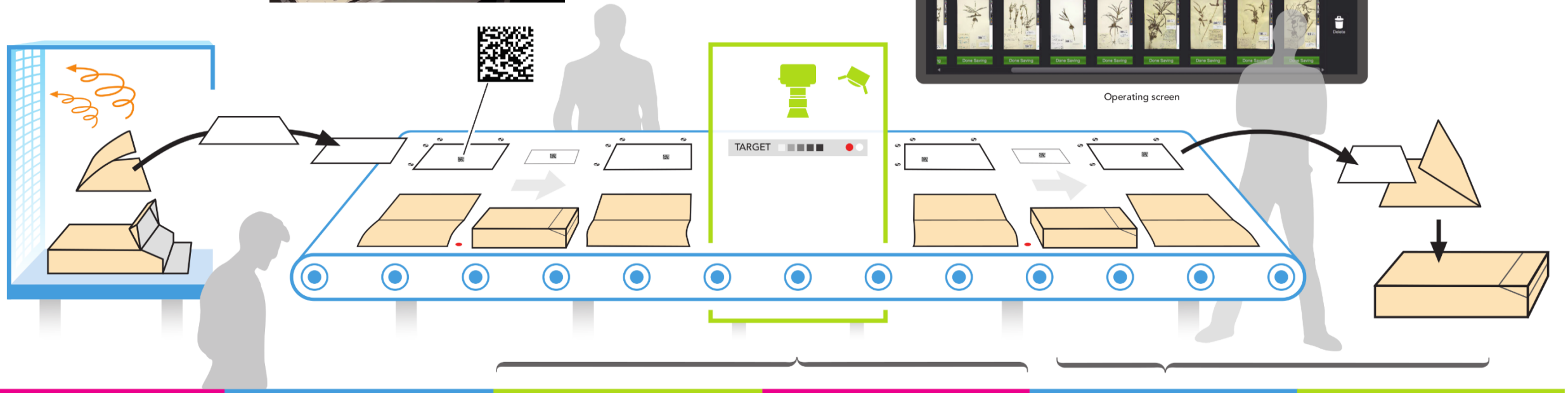




PICTURAE



Operating screen



1 Preparation

- Selection of boxes
- Extract vapor
- Apply box barcode
- Apply cover barcode

2 Place material on conveyor belt

- Spread on the conveyor belt
- Multisheet token
- Straighten
- Apply sheet barcode

3 Digitizing

- Read barcode
- Multisheet yes/no
- Apply ICC profile
- Readout color
- Readout sharpness
- Feedback ➡ retake

4 Processing

- Rotating
- Cropping
- Readout target
- Multisheet color code
- Merge metadata to CSV file format
- Save deliverables

5 Packing

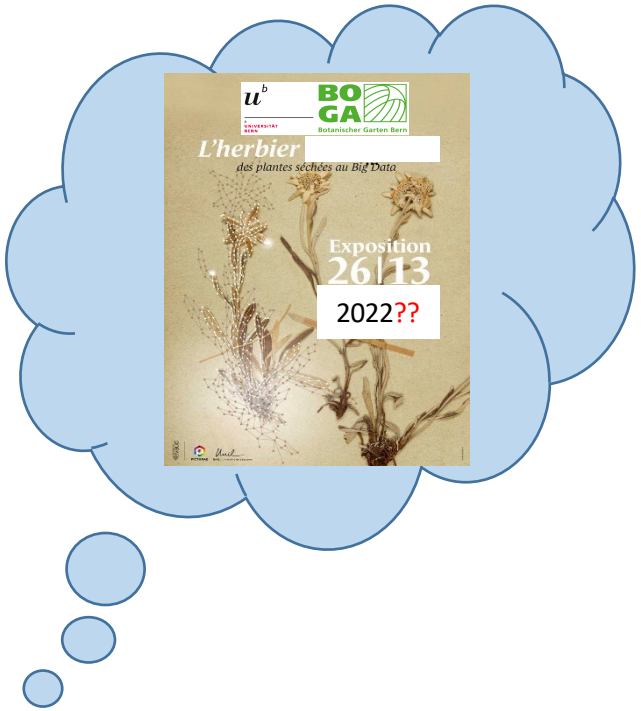
- Order remains intact
- Logistic management
- Return material

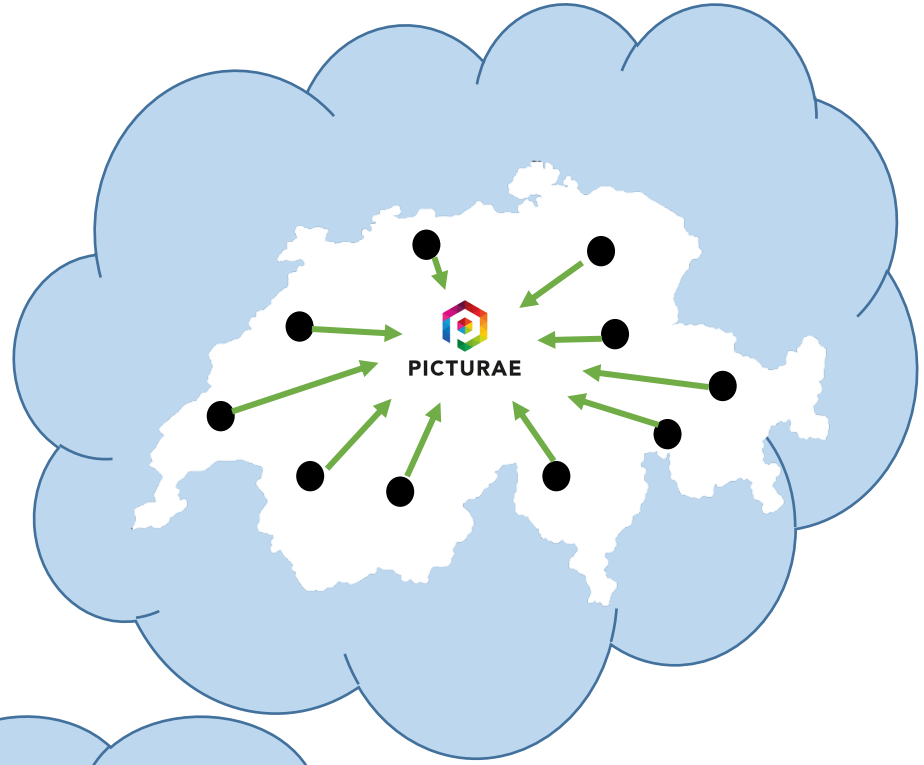
6 Metadata entry

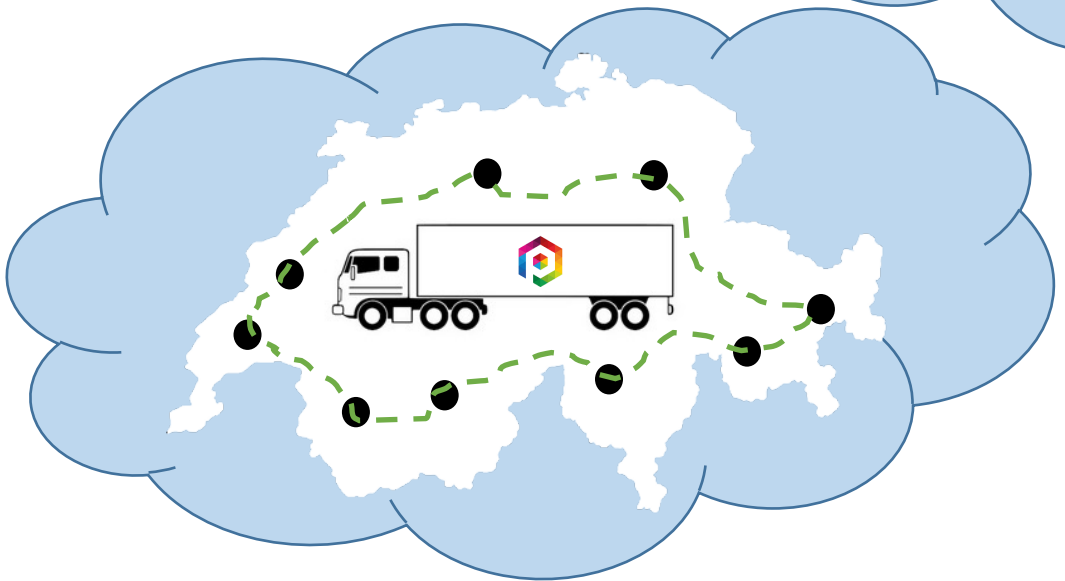
- Cover & label description
- Look-up lists
- Linking to databases
- Multisheet processing

Background

MUSÉE & JARDINS
BOTANIQUES
CANTONAUX LAUSANNE PONT-DE-NANT
L'herbier vaudois 2.0
des plantes séchées au Big Data
Exposition
26|13
février avril
2018
PICTURAE
UNIL | Université de Lausanne


L'herbier
des plantes séchées au Big Data
Exposition
26|13
2022??

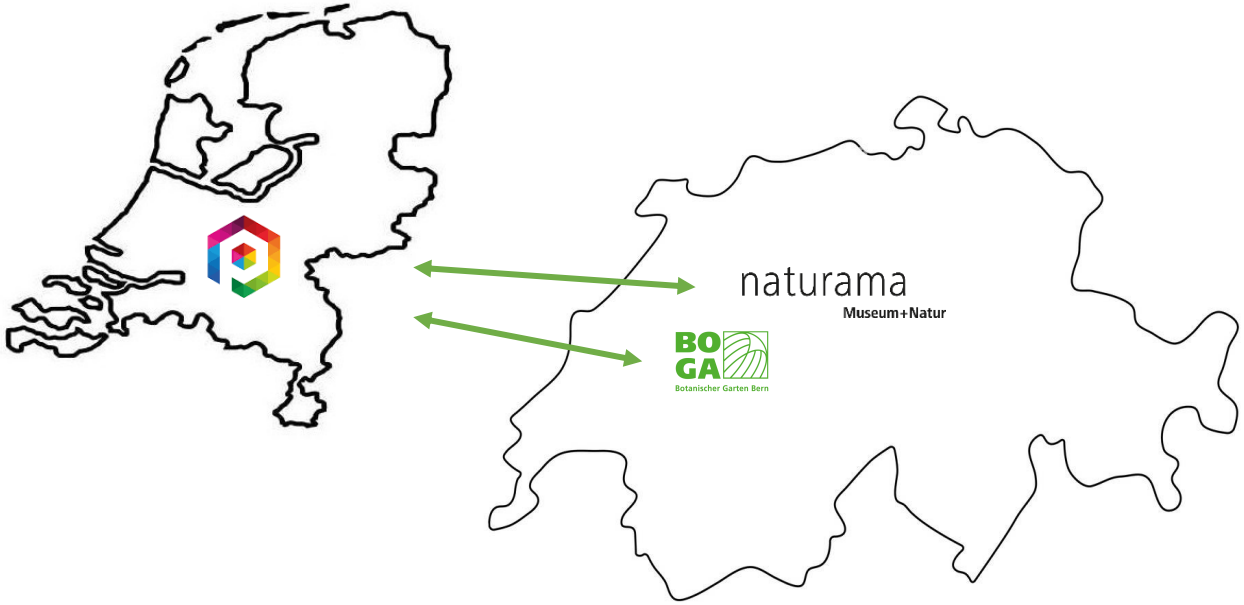

PICTURAE



Background

Bota Jardin Botanique de l'Université de Fribourg
Bota Botanischer Garten der Universität Freiburg

- First online meeting with Picturae on **28th September 2021** with 11 institutions
- Not necessarily suitable for all collections
- 2 project partners: naturama Museum+Natur & BOGA Botanischer Garten Bern
- SwissCollNet project SCN122-BE
- 05.2022 – 04.2024



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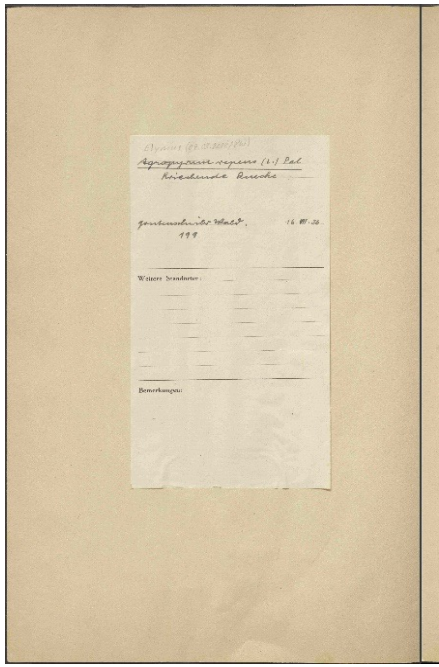
Preparations

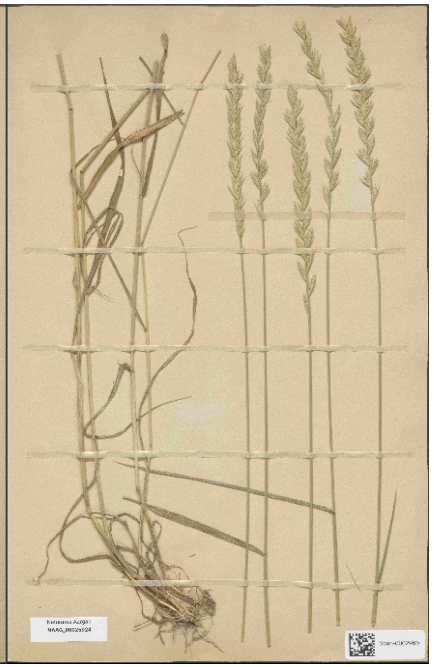
- Employment of two staff members
- Set up the contract and workflow with Picturae
- Delays due to paternal leave of project manager and management changes at Picturae
- Meantime: packing and cleaning of collections
- New accurate cost calculation with Picturae
- Contract revised and signed in August 2022

Ruth Weber (Naturama)

Sven Imdorf (BOGA)

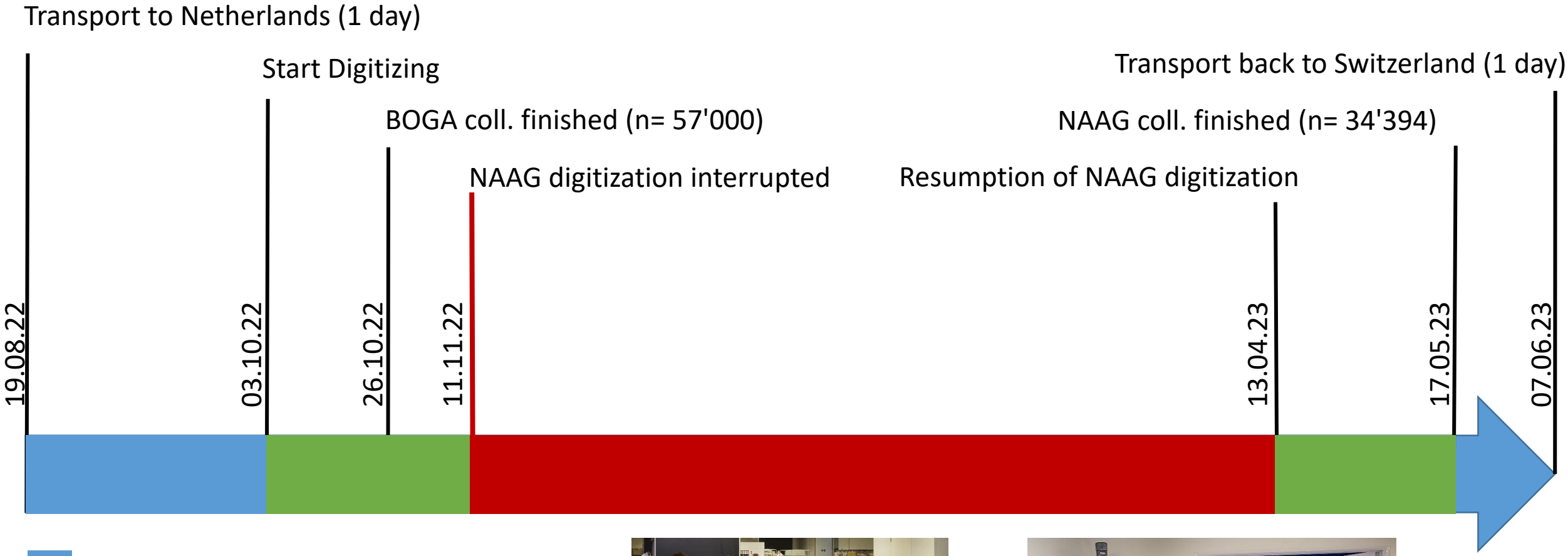


Envelope cover



Envelope inside

Timeline photographing process



Transportation and preparation

Photographing

Digitization interrupted

Conveyor belt

Photo station

Photographs

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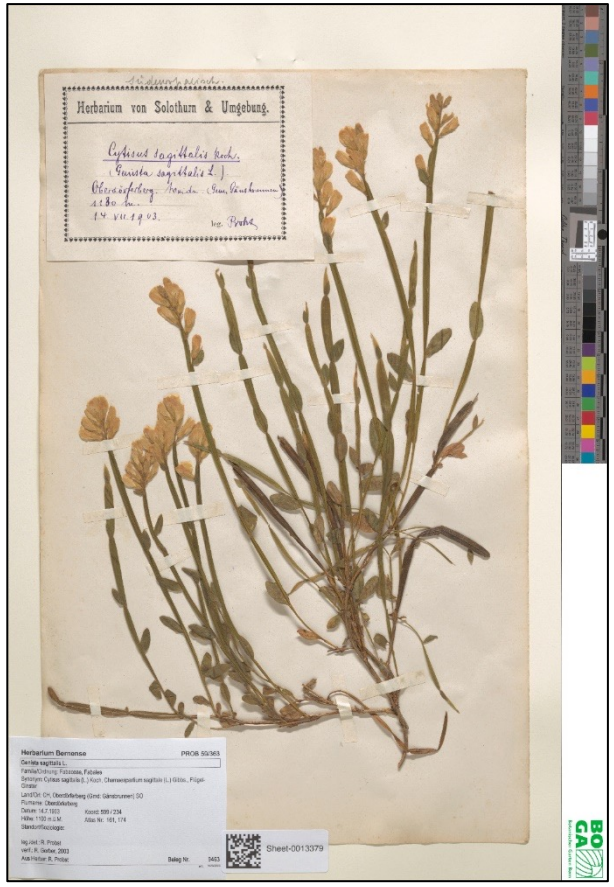
Museum+Natur

- 34'394 herbarium specimens in 9 weeks
- Tabeltop scanner speed: 477 specimens per day

BO GA
Botanischer Garten Bern

- 56'794 herbarium specimens in 3 weeks
- Conveyor belt speed: 3800 specimens per day

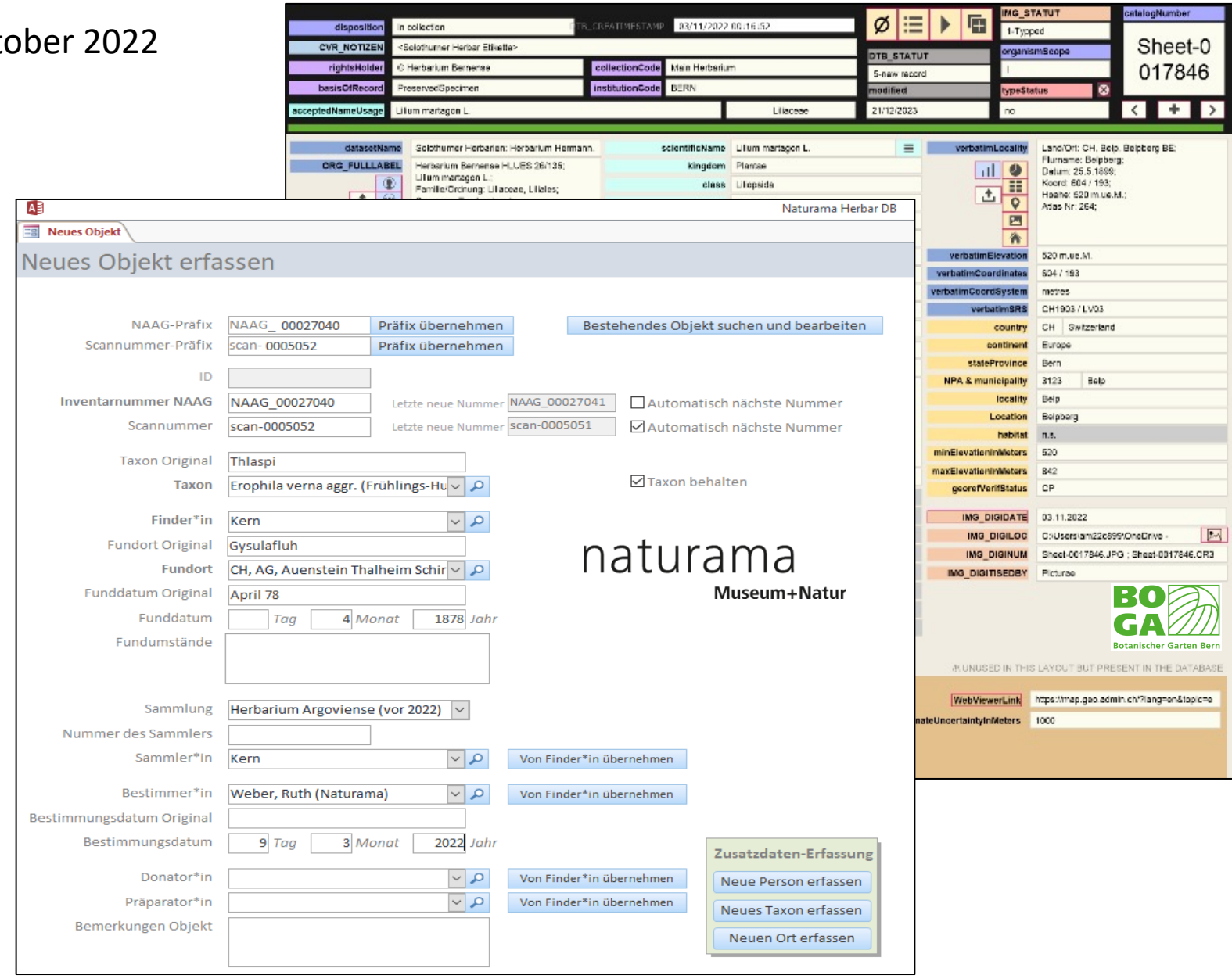


Data transcription

Started with delivery of first photographs in October 2022

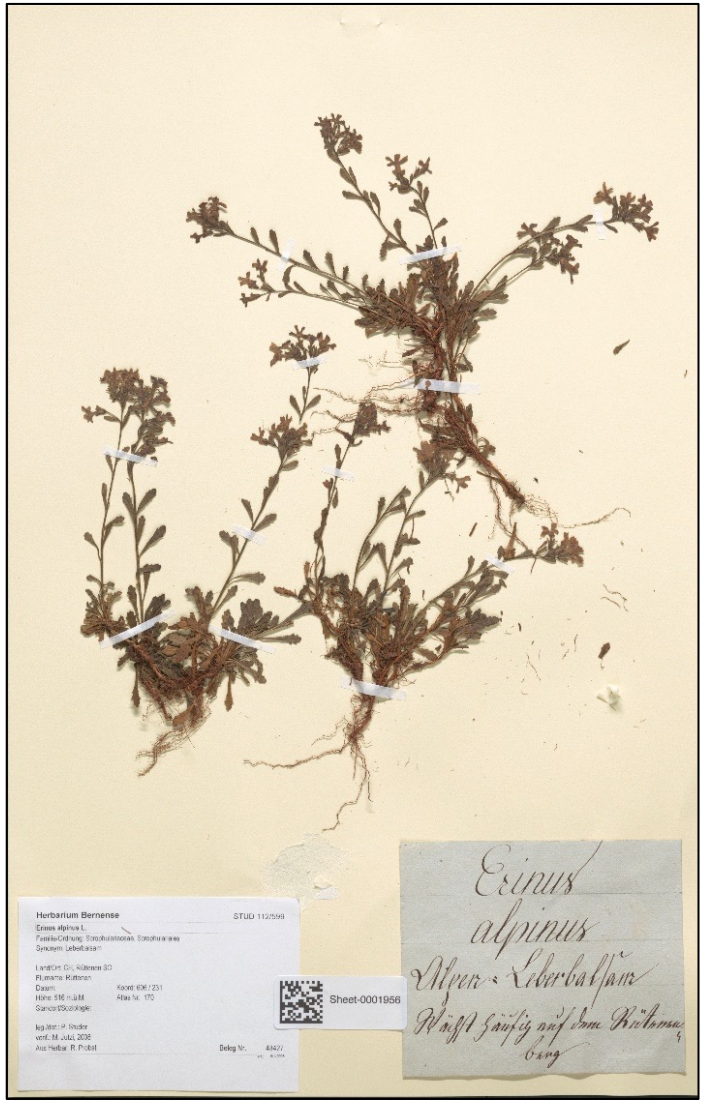
Extremely time consuming process:

1. Creating new database
2. Connecting new and old inventory numbers
3. Transcribing label data information
4. Taxonomic update
5. Georeferencing (?)



Problems encountered

- Differences in initial and final cost calculations
- Heterogenity of specimens in Naturama collection
- Digitization-stop due to biocides
- Extra costs for pin removal
- Very low error rate (< 0.03%)
- Transcription takes longer than estimated

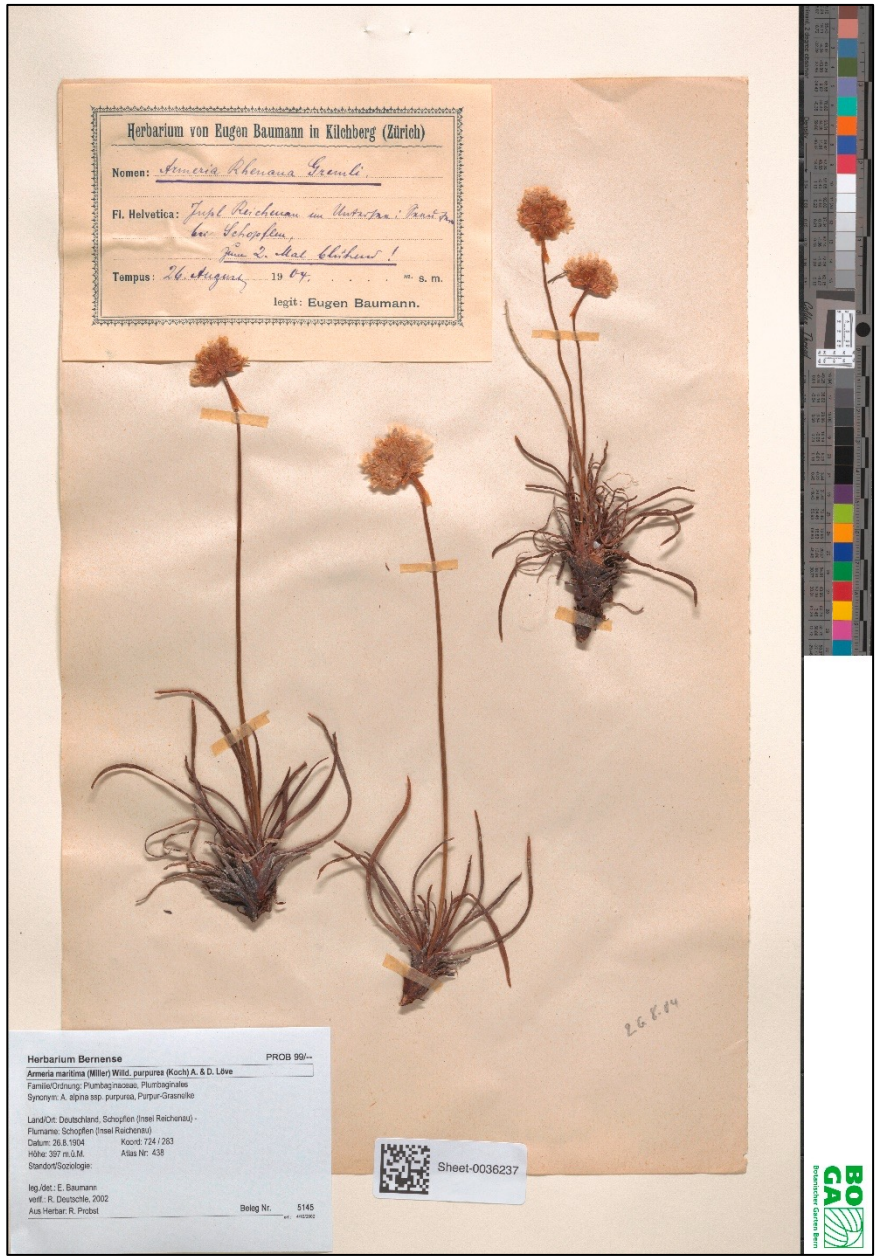


Successes

- 91'394 herbarium sheets photographed
- Collaboration of institutions saved transport costs and emissions
- Up to 40 times faster than with photo station
- Python code from Anne Morel

Conclusions

- Saves time and money
- Good quality photographs
- Low error rate
- Conveyor belt not suitable for all kind of specimens
- Photographing process is really fast – entire process adds up
- Communication is important
- Would do it again!



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Botanischer Garten Bern

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scnat
académie des sciences naturelles

Burgergemeinde Bern

SWISSLOS
Fonds des Kantons Solothurn

Thank you very much for your attention!