

**BeeXML Standardization meeting - Minutes**  
**10 September 2019, 13:00 - 15:00**  
**Apimondia Conference, Montréal, Canada**

**Attendees**

- *Walter Haefeker* (online), President of EPBA, member of the European Bee Health Platform, beekeeper in Bavaria, initiated standardisation process a while ago and created a working group on that issue.
- *Joseph Cazier*, organizer of the meeting, director of the CARE Center, joined Walter in his efforts after their encounter in Turkey during Apimondia 2017
- *Janis Kronbergs*, Latvian beekeeping association, representative of Nordic Baltic beekeepers council, founder of BeeKing - apiary records, interest in shaping the right data format for Nordic Baltic region beekeeper associations needs as well as BeeKing and other apps presented in Nordic Baltic region
- *Dirk de Graaf*, Department of Biochemistry and Microbiology, University Ghent, B-Good Coordinator, EU Horizon 2020 project aiming at “Giving beekeeping guidance by computational-assisted decision making”
- *Robert Brodschneider*, Bienenstand.at, University of Graz, Austria, COLOSS executive committee
- *Noa Simon-Delso*, CARI, BeeLife European Beekeeping Coordination and European Bee Health Platform, aiming to gather, standardise and communicate bee-centric data under The Bee Hub initiative practically applying BeeXML, collaborates in data gathering, partner of EU IOBee Project to develop new technologies for bee health assessment
- *Giovanni Formato*, coordinator of EU-funded BPractices, “keeping records is a good beekeeping practice”, underscores the importance to standardise data and data collection
- *Marten Schoonman*, co-founder of Beep foundation, chairman work package data collection at B-Good, happy to have discovered BeeXML, experience with the IATI standardisation process, interest in improving how data is stored and shared
- *Amanda Stolz*, Broodminder, here to know how data and standardisation are handled and discussed in the group
- *Lorenzo Pons*, Mellisfera, a startup for building UX experience for companies
- *Max Rünzel*, Associate Research Fellow at CARE, Executive Advisor to The World Bee Project
- *James Wilkes*, CEO and founder of HiveTracks, founding member of the Bee Informed Partnership, Professor of Computer Science at Appalachian State University, involved in beekeeping technology development and the collection of beekeeping data for over ten years
- *Michael Rubinigg*, Austria, Scientific Officer at the Austrian Beekeeping Federation (BÖ), Affiliate Research Associate at CARE, professional beekeeper, assistant to the veterinary authority, founder of IT company with data collection platform on bee health and other data, works on data collection and risk assessment platform for Varroa

- *Marco Pietropaoli* (online), working with BPractices and Giovanni Formato, working for Traceability, working with HiveLog app to collect data for apiaries
- *Andrea Varesio* (online) APISFERO, developer of BeeV for the determination of varroa counts on bottom boards
- *Juan* (online)

## Agenda

1. Make progress on standardisation progress itself
2. Find a way to continue the work of the standardisation group
3. Presentation of the Bee Hub initiative

### Progress on Standardisation progress itself

- First thing: creating a minimal BeeXML dataset
  - What is it that we are actually tracking?
  - What is the commonality?
    - Track hives, track boxes as we cannot yet track bees:
      - specific locations and specific times.
- Minimum BeeXML dataset could have an ID on the hive, a timestamp and a location
  - What does everyone's core dataset look like?
  - What are the current datasets going to look like?
- Looking at common datasets
  - Proposal: version 0.1 should have the following fields
    - ten most common items
  - Emails to the group: proposal and sample of the dataset of how each partner tracks hives

### Noa

- Two different ways
  - "Life" data: achieved electronically and more likely to be standardised
  - Static data: project, observations, etc. are much harder to standardise

### Walter

- Intuition: forget about anything that may be complicated around the globe
- Excel spreadsheet: what are the minimum columns we have
  - What does my dataset look like?

### Marten

- Definitions are important
  - How do you define a hive? Has that been defined?
  - Dictionary and a list of vocabulary are needed.

### Walter

- Agrees. Definition of a hive is not a biological definition, but a practical definition for tracking processes, physical box as the definition of the hive.

#### **Joseph**

- BeeXML allows tags for different options

#### **Robert**

- Not ten fields but less
- Is there an existing hive in the location?
  - Who tells us that there actually is a colony inside the hive?

#### **Walter**

- What is the data we are currently tracking? If we have all done that, it will become obvious what is standardisable and what is specific to just one project
  - Recording information about hives for some purpose
    - excel or another spreadsheet
- What we track - What people do - creates a common denominator, focusing on the common elements

#### **Joseph**

- Reasonable approach?

The group agrees.

#### **Joseph**

- HCC - When you inspect a hive, what steps do you follow when visiting a hive
- Very high-level assessment, beekeeper centric approach to health assessment
- Interesting to be included in the standardisation process

#### **Walter**

- Date, Hive ID, Apiary ID, Observer, Recorder

#### **James**

- Thinking about the event as a change in state

#### **Walter**

- And the minimal information that you would like to record around an event to make it useful

#### **Michael**

- Hive ID, Apiary ID, Entity ID, Geographic position, zip code (via GIS database to retrieve), who has made the observation, timestamp of observation, someone may

interfere with the observation. A central repository for universal and unique hive ID's would be useful.

## Candidates to standardise fields (see Marten's presentation for details)

### Discussed during meeting



- Apiary
  - Location (with GPS location, zip code?)
- Hive
  - Hive ID (must be unique)
  - Hive name
  - Event (e.g. moving colony from hive 1 to hive 2 or moving hive 1 from location a to b, can also be sensor readings)
    - Timestamp
- Colony
  - Colony ID (must be unique)
  - Colony name
  - Queen ID
  - Queen name
- Operator
  - Observer
  - Recorder
  - Beekeeping type (commercial, backyard, organic)
- Project
  - Project name

Apiary	Hive	Colony	Operator
Location (with GPS Location)	Hive ID (must be unique?)	Colony ID	Observer
Zip code	Event (e.g. moving colony from hive 1 to hive 2 or moving hive 1 from location a to b)	Queen ID	Recorder
	Timestamp		

### Presentation by Marten on Beep digital logbook ([see this link](#))

- Standardisation occurs at the level of exported data from a system
  - what are the required fields?
- User, Apiaries, Hives (Hive name and hive ID), Inspections, Concatenated ID
- IATI XML as a useful example (International Aid Transparency Initiative)
- Results should be legally and technically open (creative commons license)

### Walter

- Excellent presentation
- 80/20 rule, we can handle exception down the road
- Focus on the viable minimum

- Which fields would you share?
- What do these fields include?
- Not get stuck in exceptions

### **Joseph**

- Let us publish the process in BeeBook or anywhere else

### **Robert**

- Maybe volume 1
- Healthy bee resources

### **Walter**

- Pull the format from XML and the definitions

### **Noa**

- See Healthy B Toolbox (EFSA: <https://www.efsa.europa.eu/en/efsajournal/pub/4578> )
  - Beekeepers: one part/ approach
  - Scientists: other parts/ approach may differ

### **Walter**

- Where does standardising make sense from a hive tracking and research point of view?
  - What taxonomy can be used?
  - Different taxonomies of different programmes.

### **Robert**

- Setting up the standard and the semantics affects the thinking behind it

### **James**

- Let us agree on what we agree on - apiary can be a good example to not be obligatory

### **Comment**

- Management of the hive with the accountability, one of the main problems is moving around hives (50 000 km per year), including expenditures per trip to cost each hive.

### **Lorenzo**

- Created hive, an entity you have to build up from a frame/colony

### **Walter**

- A good example of what to expect, deriving hive ID does not matter you could not export the data. In the end, you know what box your frames are in.
- As you can derive the data, you can still participate

### **Juan**

- AFB in this nuc
  - Beekeepers have to know which hive this frame came from.

#### **Walter**

- Hive-level event
  - Model with the most intersections with what everyone is doing

#### **Joseph**

- Parallel definitions can be encoded and can be watched over time, we can agree to them as we move ahead

#### **Michael**

- The basic rule of good laboratory practice should be obligatory
  - Who has created and modified the record and how and when was it deleted?
- Bookkeeping rules
  - Where does something come from and where does it go?

#### **Marten**

- Things start to mix about how people work
- No matter what kind of programme you use, the export should be the standard
- Whoever wants to exchange bee-related data, exported data should be interchangeable

#### **Giovanni**

- Mandatory user/beekeeper classification hobbyist, professional, organic, conventional

#### **Noa**

- Professional and organic are subjective concepts, should be added locally or established through the practices described by the beekeeper/user, depending on the local/regional regulation in place.

#### **Walter**

- What is really needed for version 0.1?
- During this meeting, the group should elect on a new coordinator. As you can see already, there is lots of expertise
- Walter does not have a bandwidth to lead this group

#### **Joseph**

- Three points to discuss
  - Leadership change
  - Short-term next steps
  - Bee Data Journal

#### **Noa**

- What is the added value of a data journal?

### **Joseph**

- Often a publication only includes parts of the entire data set
- A dataset that includes data that were not used in the publication can still be published in a data journal
- In addition, every publication would need to submit data in BeeXML format
- A Bee Data Journal thus becomes a means to ensure a steady supply of new data sets
- A small publication fee would be a means to finance the work on the data standardisation

Group endorses Bee Data Journal

Here are the 10-20 elements we have looked at together/agreed

### **Walter**

Objective: Press release by Apimondia announcing the data standardisation effort

### **Joseph**

- Article in BeeCulture Magazine on top of that
- Lucy (Master student at Appalachian State University) to develop a prototype BeeXML standard

### **Walter**

- BeeXML.org domain can be donated to this working group
- “This is my baby but at some point, you have to leave it out in the world”

### **Communication recommendation**

- Respond within 72 hours, not replying is acceptance

### **Leadership**

- Marten and Joseph agree to be co-chair and chair
- Max agrees to take upon the secretary role

### **Next steps**

- The minutes will be shared with everyone and - once a year - a review of the member list will take place.

### **Noa**

- Presentation of the Bee Hub initiative (currently at a PoC status):  
[https://docs.google.com/presentation/d/1\\_GfnF1ovG1RFbzI7c\\_dk57qHmOYW5gDYiNGNUgMLUXY/edit?usp=sharing](https://docs.google.com/presentation/d/1_GfnF1ovG1RFbzI7c_dk57qHmOYW5gDYiNGNUgMLUXY/edit?usp=sharing)

The first steps in developing the PoC are meant to practically apply BeeXML to a limited number of already existing datasets (life and static datasets coming from different owners, suppliers and countries)