EU Reference Laboratory for Insects & Mites

Identification of exotic *Agrilus* in Europe:

The role of the European Union Reference Laboratory

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EPPO-REUFIS-BFW Conference 'Safeguarding Forests in Europe: Emerging Risks of *Agrilus* Wood Borers (Buprestidae)' (21–23 April, Vienna)

Funded by the European Union

Reminder: what is EURL?

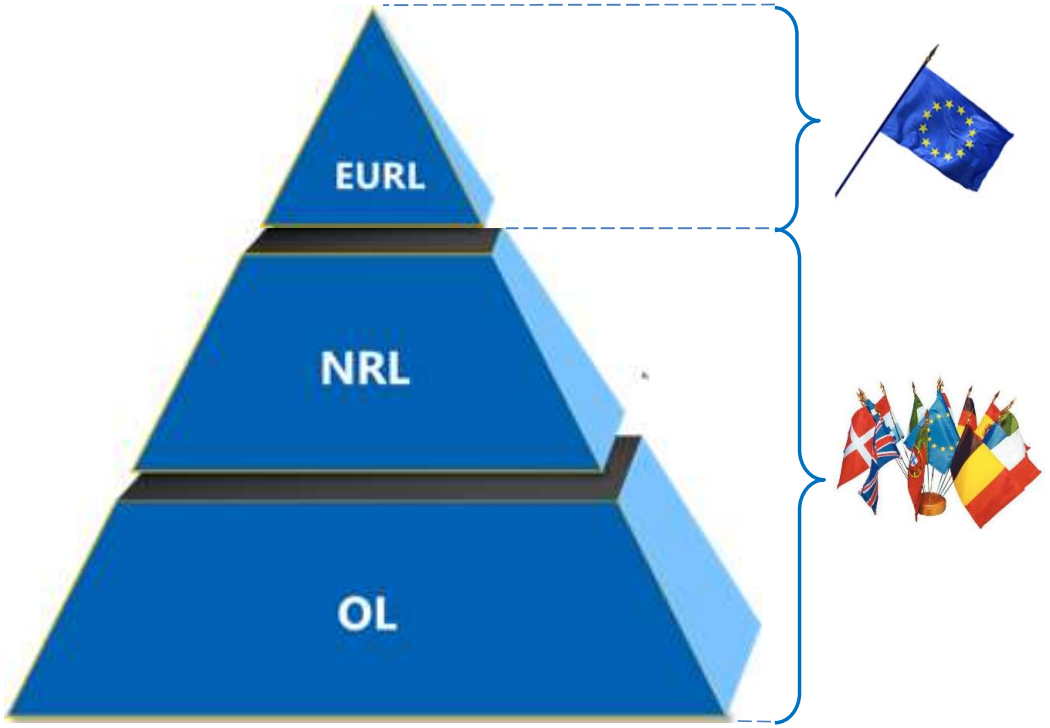
EURL and NRLs (+OLs)

EURL: European Union Reference Laboratory

- (EU) 2017/625: European Commission designates one EURL for each area of plant health (entomology, nematology…)
- Main role: technical assistance and proficiency testing of National Reference Laboratories (NRLs)
- Supervised by EU Commission

NRL: National Reference Laboratory

- (EU) 2017/625: each MS must designate one (or more) NRL(s)
- Main role: enforce the regulation on plant health
- Supervised by National Plant Protection Organization (NPPO)
- A NRL may in turn delegate part of its duty to one (or more) Official Laboratories (OLs)



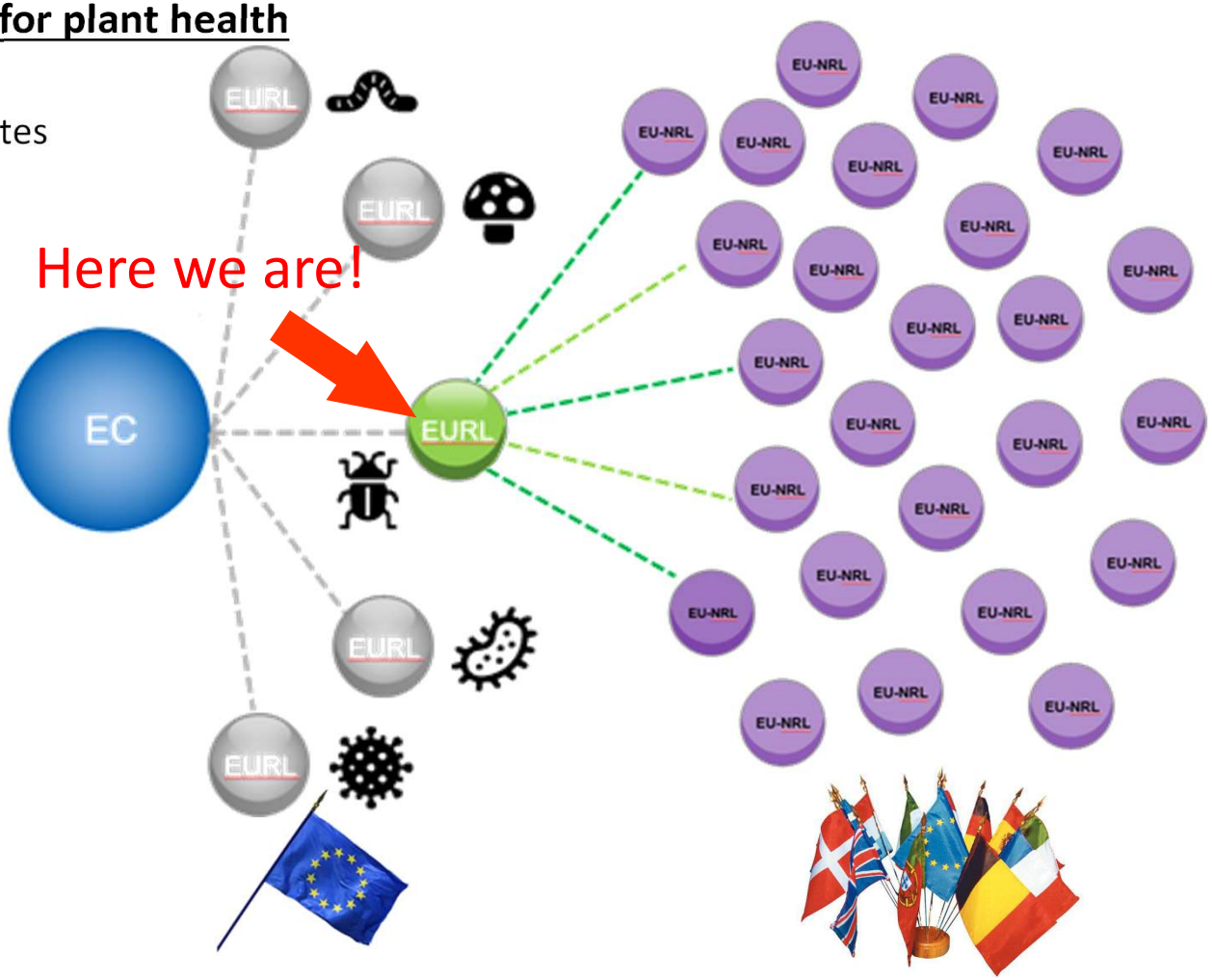
The NRL network

EU Commission provided five EURL mandates for plant health

- Nematods, bacteria, fungi & oomycetes, viruses viroids & phytoplasmas… and insects & mites
- Insects & mites: mandate provided in 2019 to a consortium: ANSES (France) and AGES (Austria)
- ANSES and AGES are also NRLs for their respective country

The NRL network

- 28 laboratories involved:
- Sweden delegates to Denmark
- Ireland mandate extend to Northern Ireland
- Belgium & Slovenia designated two NRLs




EURL technical assistance to NRLs

1. Providing reliable identification methods

General information towards NRLS

- EURL newsletter (two issues/year)
- Website with restricted part for NRL
- **Annual workshop: 2024 devoted to *A. planipennis***

2024: the NRL network welcomed in AGES facilities

EURL
European Union Reference Laboratory for
INSECTS AND MITES

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HOME | PRESENTATION | EURL ACTIVITIES | DOCUMENTS | NRLS WORKPLACE | CONTACT US

EURL WORKSHOP 2024

Vienna is calling back!

From 25 June 2024 to 25 June 2024

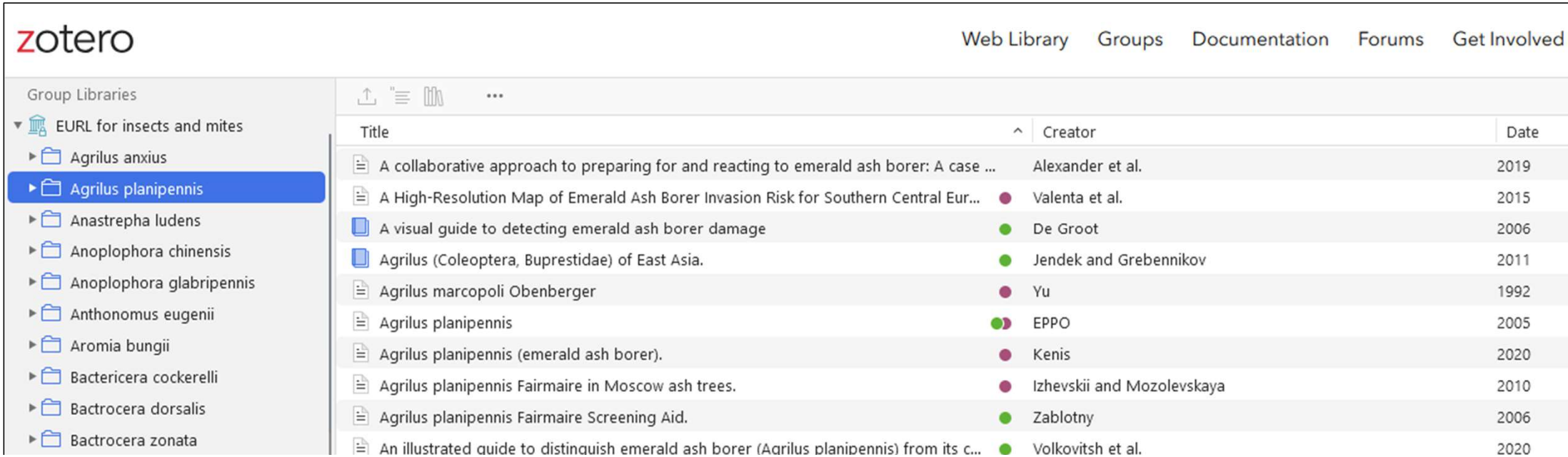
EVENT CONCLUDED

The Annual Meeting 2024 of the EURL for Insect and Mites took place in Vienna on 25th of June.This year´s workshop was featured with a keynote speech on the genus *Agrilus* (Coleoptera, Buprestidae) by Aurelien Sallé, an internationally recognised expert from the University of Orleans. However, the main topic of the workshop was *Agrilus planipennis*, the emerald ash borer. The presentations provided an overview on biology, detection and identification, impact, and risk of entry, establishment and spread. The EPPO network of experts working on surveillance, monitoring, and control as well as Euphresco projects were introduced. A comprehensive validation study on several ID – tests for *A. planipennis* was presented by the EURL.

1. Providing reliable identification methods

Extensive Systemic Literature Search

- Periodic interrogation of OVID® Scopus® and CAB Direct® databases to retrieve publications on diagnostics, distribution and outbreaks report
- Coupled with EFSA Horizon scanning and EPPO Reporting Service outputs
- Bibliography available for NRLs on EURL website (Zotero database)
- ***Agrilus* spp: currently 88 references available**



1. Providing reliable identification methods

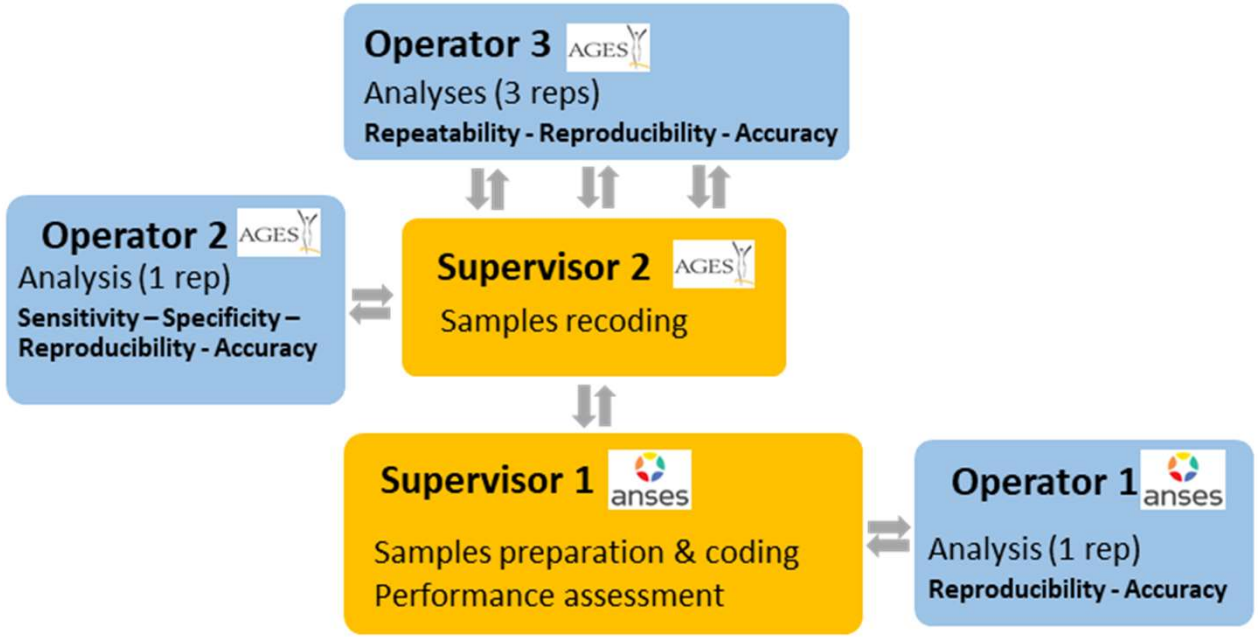
Validation Study (VS) on existing methods

- Performance criteria (i.e. analytical and diagnostic sensitivity/specificity) are assessed for tests included in international diagnostic protocols (IPPC, EPPO) or published tests
- Objective: to test method (not lab proficiency)
- Coded samples sent by Supervisors to at least three Operators
- Operators identify them using method under validation
- Based on the obtained performance characteristics, suitable tests are recommended to EU-NRLs
- Interdisciplinary exchange by performing joint validation of morphological and molecular identification protocols

1. Providing reliable identification methods

EPPO PM 7/154(1) (*Agrilus planipennis*)

- Double VS (morphological / molecular) in 2024
- Molecular: barcoding and LAMP both met 100% performance criteria -> recommended to NRLs
- Morphological: also 100% for criteria, but numerous comments -> update recommended to EPPO



Outline of the VS procedure for EPPO PM7/154(1) (morphology)

2. Developing new methods

Contribution to EPPO PM 7/154(2) *Agrilus planipennis*

- Update of EPPO PM 7/154(1) drafting coordinated by Maarten de Groot (Slovenian Forestry Institute)
- Suggestions following VS comments:
  - Point out reddish tergites as valuable diagnostic character
  - clarify and better illustrate several characters used in diagnostic table

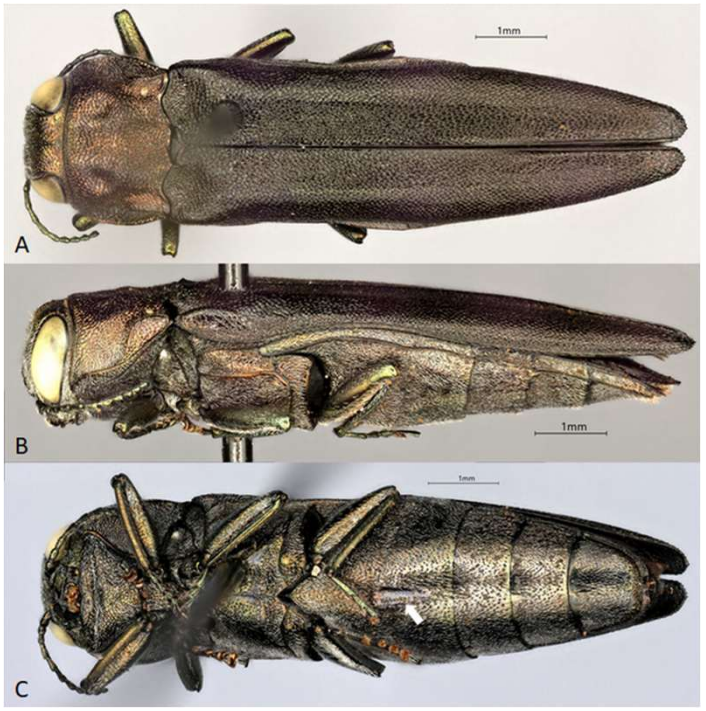
Left to right: *Agrilus planipennis, A. biguttatus, A. viridis*

2. Developping new methods

Contribution to EPPO PM 7/XXX *Agrilus anxius*

- Incoming EPPO method, drafting also coordinated by Maarten de Groot
- EURL part of the drafting team
- Publication late 2026 or 2027?

Agrilus anxius, larva



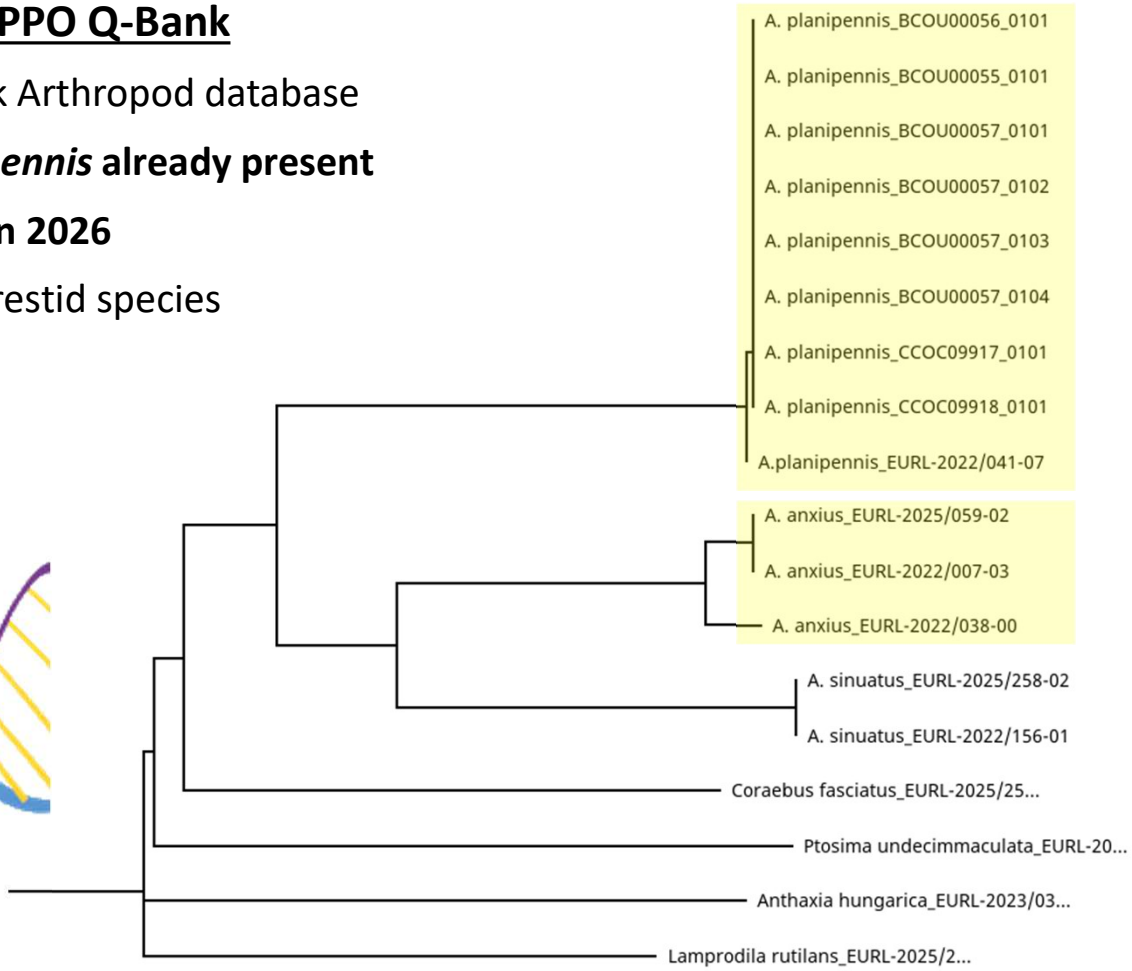
Agrilus anxius, adult

Agrilus anxius, aedeagus

2. Developping new methods

Provision of reference COI sequences to EPPO Q-Bank

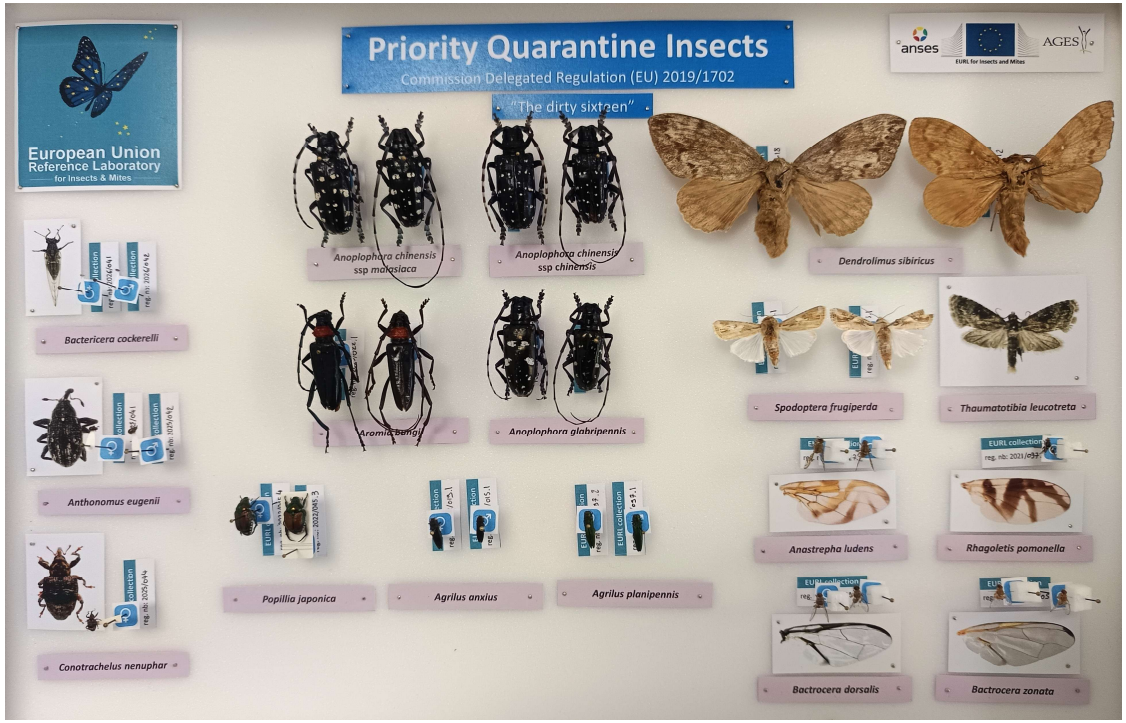
- EURL contributes to curation of EPPO-Q-bank Arthropod database
- **8 COI public COI sequences of *Agrilus planipennis* already present**
- **3 *Agrilus anxius* sequences to be uploaded in 2026**
- Along with COI of morphologically close buprestid species



3. Providing reference material

EURL reference collection

- Specify™ database for a shared AGES/ANSES management
- ***Agrilus:*** **587 specimens, 42 COI sequences, 28 species**
- 48 specimens lent to 11 NRLs



Specify 7

European Union
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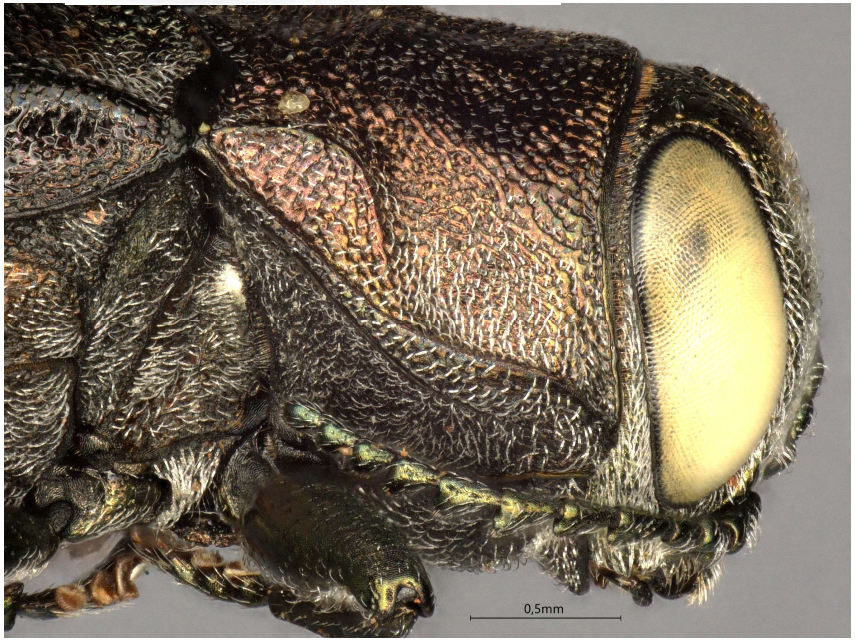
Reference collection

3. Providing reference material

High resolution pictures database

- HD pictures taken with Keyence™ system on reference specimens
- Available on EURL website

Agrilus anxius, larva, detail of terminal process (dorsal)

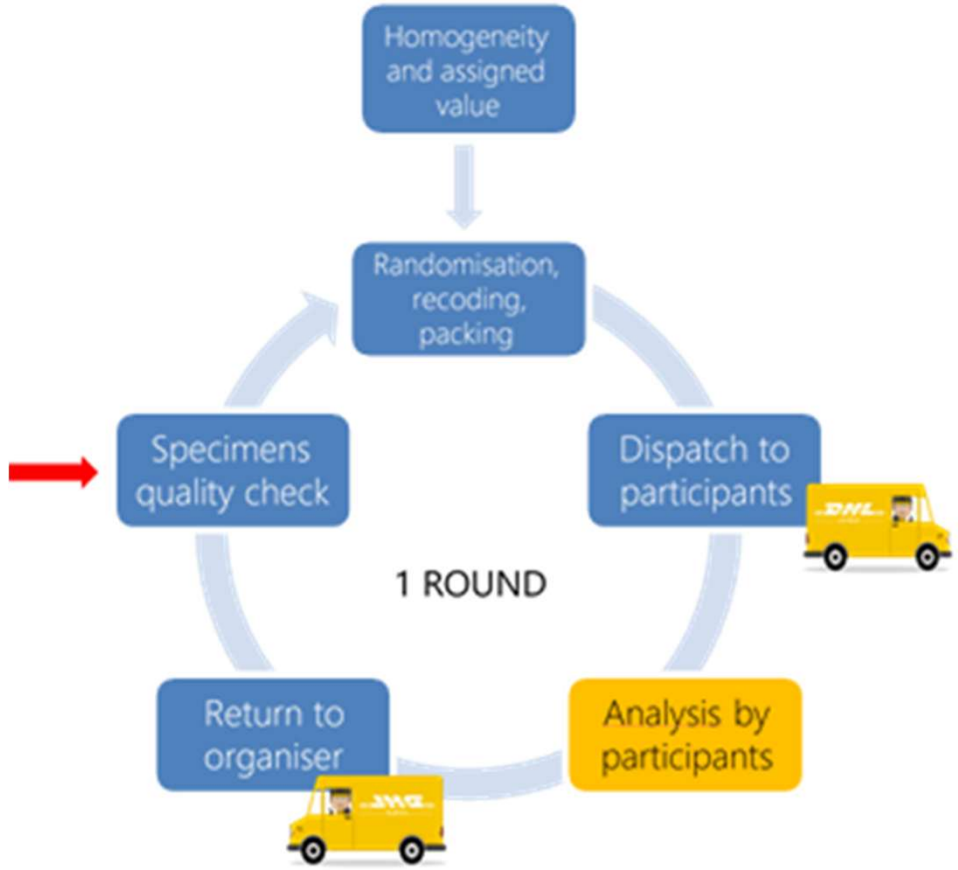


Agrilus anxius, adult, detail of pronotum (profile)

4. Testing the proficiency of NRL

Proficiency Tests (PTs) ISO 17043

- (EU) 2017/625: EURL must assess NRLs' proficiency to identify quarantine organisms (QO)
- PTs organized according to ISO 17043 standard
- Coded samples sent by EURL to NRLs
- NRLs identify them (positive/negative) using any method
- EPPO/IPPC method recommended if available (and preferably validated)
- Participation of EU NRLs mandatory, third countries may participate
- In case of non-conformity, NRL must proceed to cause-analysis and propose corrective actions
- EURL may propose trainings as corrective actions

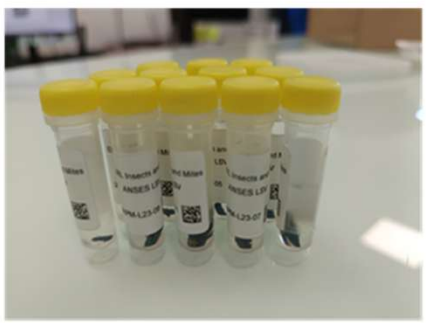


Outline of the PT 24APM (morphological ID of *A. planipennis*)

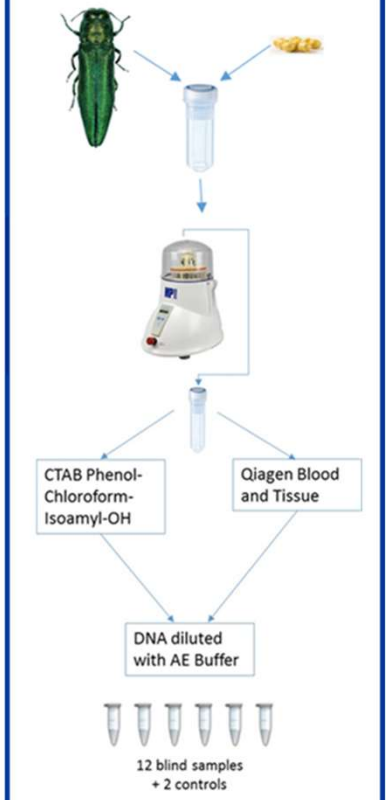
4. Testing the proficiency of NRL

Two PTs organized in 2024 for *Agrilus planipennis*

- Morphological identification of adult (ANSES)
- Molecular identification (AGES)
- Recommended method: EPPO PM 7/154(1)
- Additional instructions provided from preceding VS comments
- Results classified…



Morphological PT



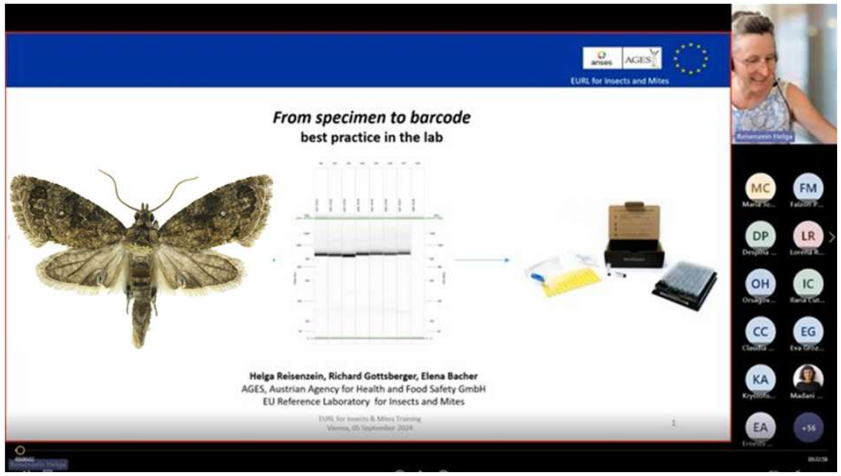
Molecular PT

5. Training sessions

Three formats proposed by EURL

- Hands-on trainings
- Webinars
- Three levels (webinar / “homework” / online debriefing)
- In order to prepare PTs… or as follow-up actions
- **No general training conducted so far on *Agrilus* spp.**

2024: hands-on training for the morphological ID of tephritid larvae



2022: 3L training for the molecular ID of *T. leucotreta*

2025: interactive webinar for the morphological ID of *Bactrocera* spp.

6. Confirmatory analyses

In case of first detection of QO in EU country

- EURL may assist NRLs to confirm outbreak diagnostic
- Both morphological and molecular confirmation provided
- Several examples so far (*S. frugiperda* in several Mediterranean countries, *Pseudips mexicanus* in Ireland, *Dacus ciliatus* in Cyprus…)
- **No request for *Agrilus* spp. so far…**
- … but for how much longer?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