EURL for Insects and Mites

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Bridging Expertise: The Power of Cross-Organisational Collaboration

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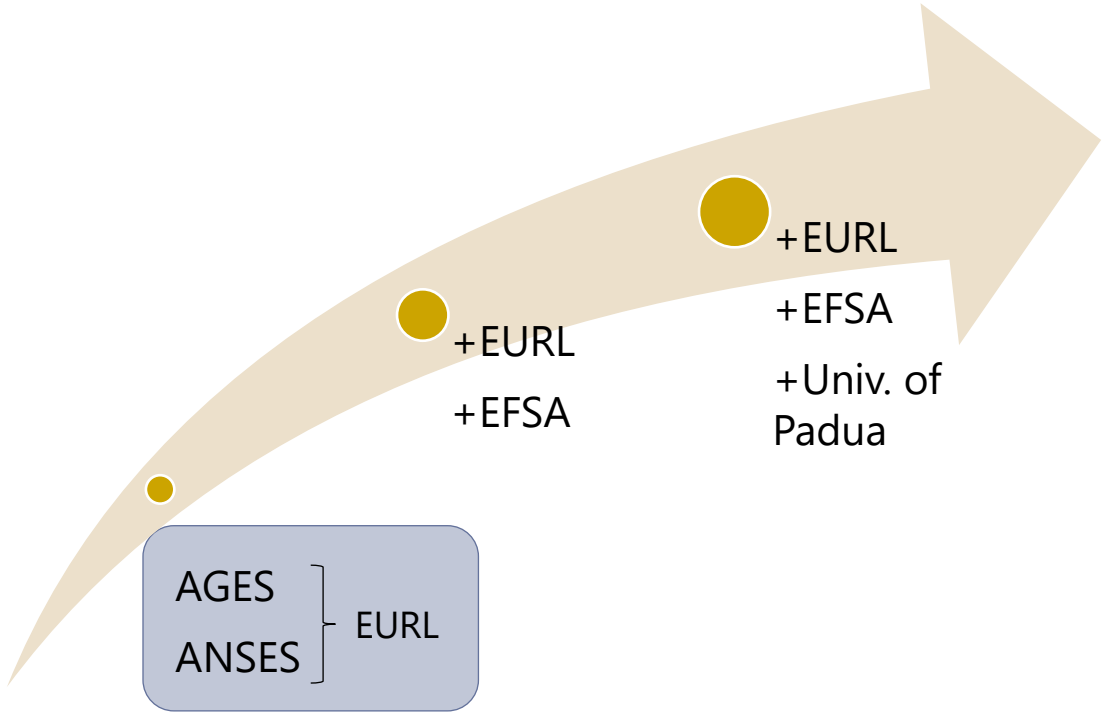
1 AGES 2 ANSES 3 EFSA 4 University of Padua

Cross-Organisational Collaboration

Formal cooperation versus synergy-driven collaboration



Organisation	Type	Level
AGES (Austria)	Public Agency	National
ANSES (France)	Public Agency	National
EURL - IM	EU Reference Lab	European
EFSA	EU Agency	European
University of Padua	University	Academic

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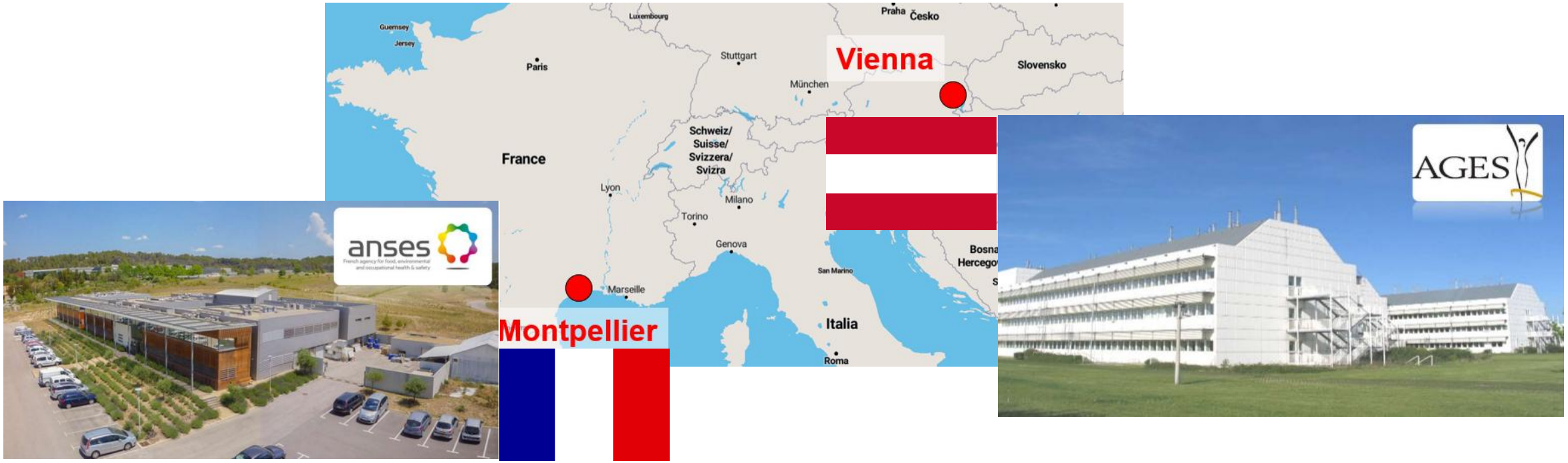
Formal Cooperation on a mandate

EURL for Insects and Mites: a consortium between ANSES and AGES

- the Entomology and Invasive Plants Unit of **ANSES** Plant Health Laboratory (Montpellier, France)
- the Institute for Sustainable Plant Production of **AGES** (Vienna, Austria)

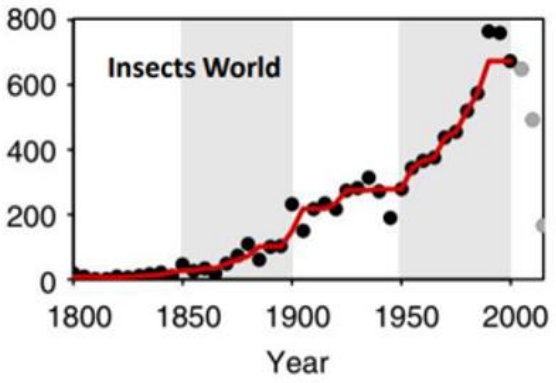
Designated under the Commission Implementing Regulation (EU) 2019/530 of 27 March **2019**

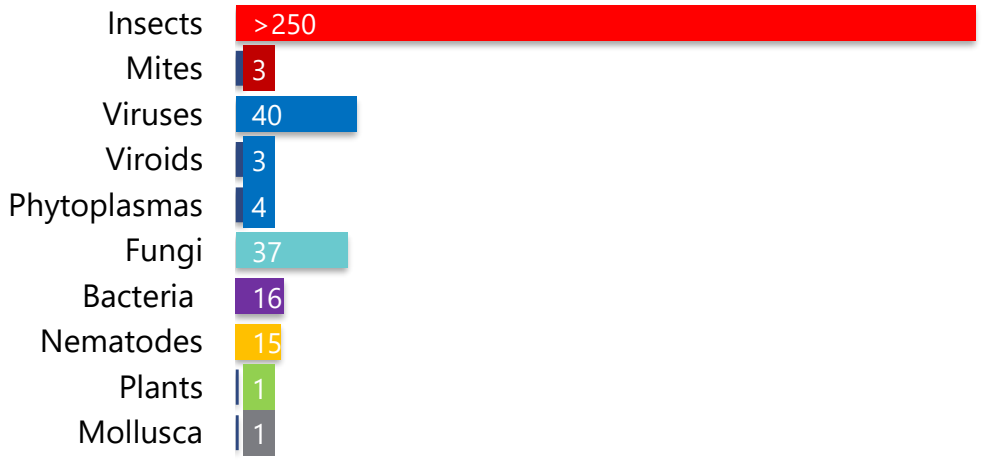


The Challenges of Identifying Insects

...too many, taxonomy, intraspecific variation, cryptic species, size...

Temporal dynamics of invasive insects*





- >250 insect & mite taxa, including 16 priority pests are listed in Europe

*Seebens, H., Blackburn, T., Dyer, E. *et al.* No saturation in the accumulation of alien species worldwide. *Nat Commun* **8**, 14435 (2017).

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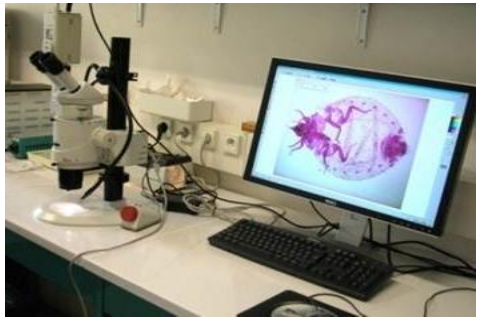
Bridging Expertise

EURL-IM: complementary scientific expertise



anses

ANSES morphological identification

AGES, molecular identification

AGES

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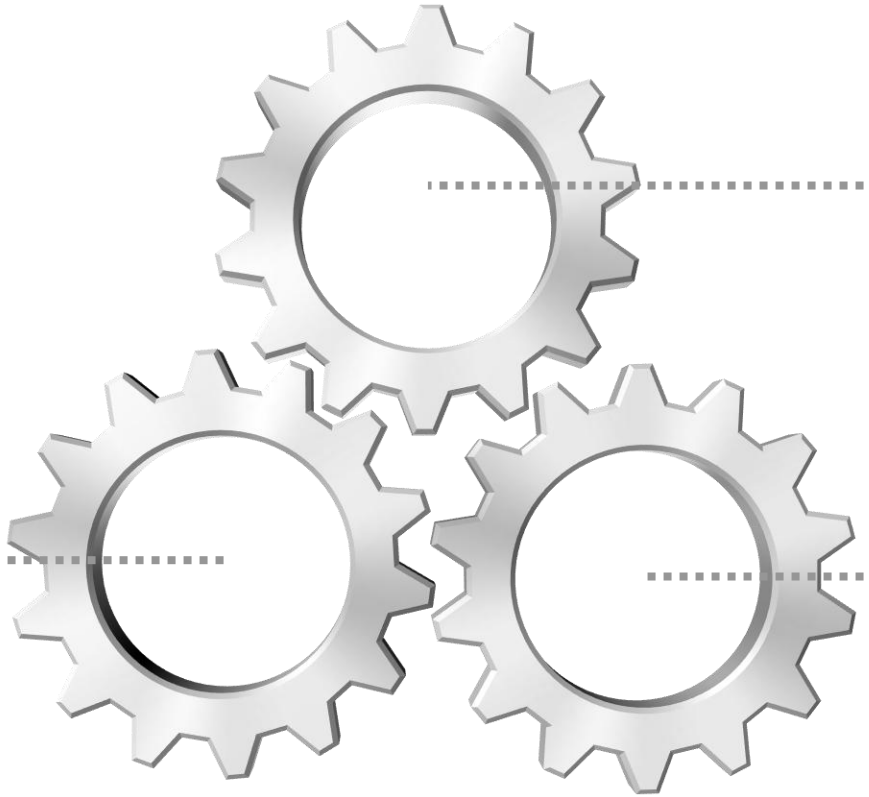
Bridging Expertise

A joint validation study as an innovative concept

Morphological and molecular tests validated in the same study and on the same sample set

ANSES

- Morphological ID
- Sample provision



AGES

- Molecular ID

AGES

- Morphological ID
- Sample provision

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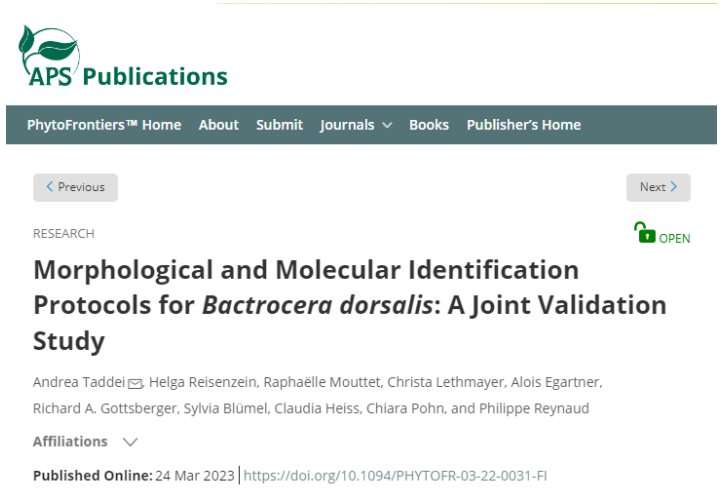
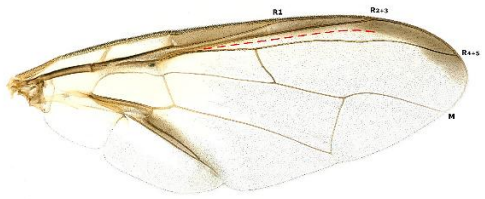
Bridging Expertise – Successes and Failures

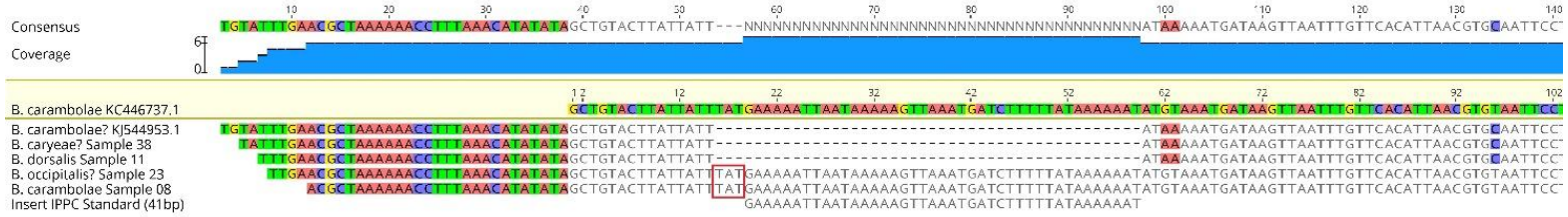
Success story: *Bactrocera dorsalis*

- Interdisciplinary exchange and a two-way control over assigned values of samples
- Generated EURL reference sequences from thoroughly identified species
- Contribution to improve international diagnostic standards (IPPC and EPPO)



https://doi.org/10.1094/PHYTOFR-03-22-0031-FI





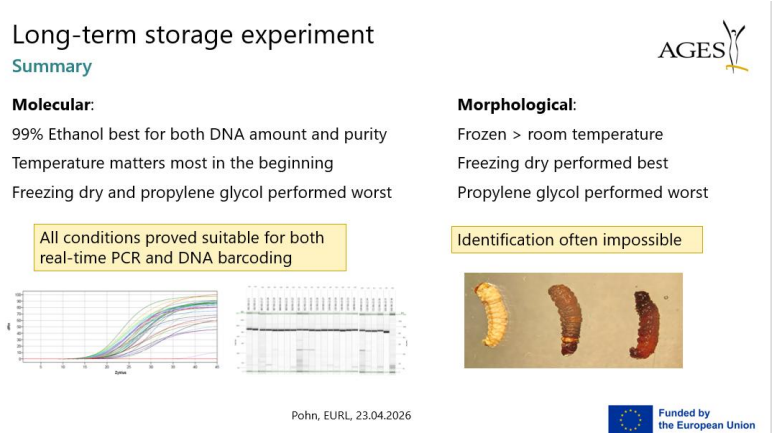
Reisenzein, EURL, 24.04.2026

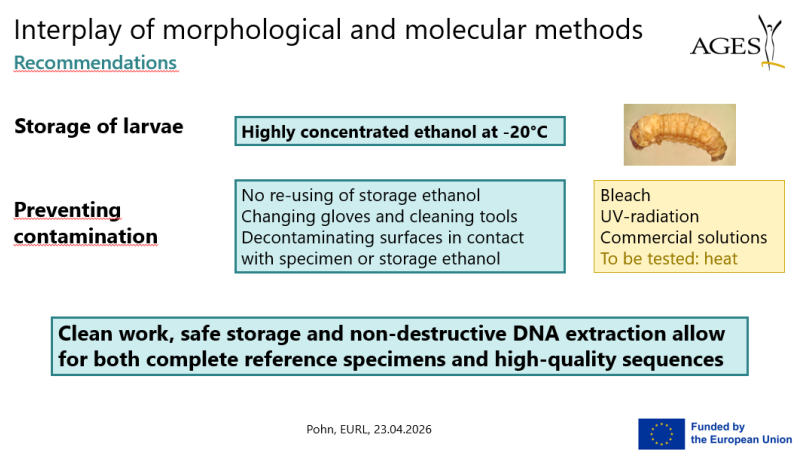
Bridging Expertise – Successes and Failures

Failure story: *Thaumatotibia leucotreta*

- Contamination issues when applying highly sensitive PCR-tests
- **Molecular validation study could not be finalised**
- A look at the interplay of morphological and molecular methods
- Workflow suitable for both disciplines
- **Recommendations**

→ Presentation: Chiara Pohn



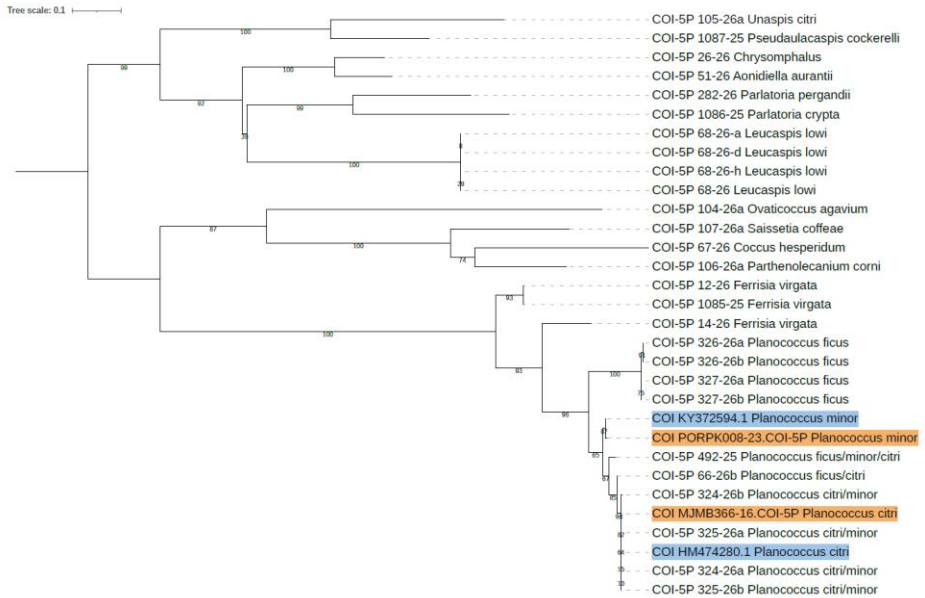


Reisenzein, EURL, 24.04.2026

Bridging Expertise – Future Activities

New: Joint training format

- Training on morphological and molecular ID on Scale insects in parallel sessions
- Both training groups will meet regularly for excange
- A joint diagnosis will be carried out based on a case study



Cross-Organisational Collaboration

Collaboration with EFSA on Scolytinae : a fruitful partnership

- Accurate diagnostics of regulated plant pest are essential for the effective plant health regulation
- The EFSA Panel on Plant Health conducted a group pest categorisation for the EU territory of non-EU Scolytinae on non-coniferous hosts (6495 known species).
- EURL contribution by assessing available morphological and molecular diagnostic tools for a short list of 88 Scolytinae species proposed by EFAS for regulatory consideration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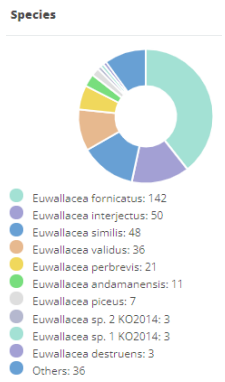
Pest categorisation of non-EU Scolytinae on non-coniferous hosts

EFSA Panel on Plant Health (PLH), Claude Bragard, Paula Baptista, Elisavet Chatzivassiliou, Francesco Di Serio, Paolo Gonthier, Josep Anton Jaques Miret, Annemarie Fejer Justesen, Christer Sven Magnusson, Panagiotis Milonas, Juan A. Navas-Cortes, Stephen Parnell, Roel Potting, Philippe Lucien Reignault, Emilio Stefani, Hans-Hermann Thulke, Wopke Van der Werf, Antonio Vicent Civera, Jonathan Yuen, Lucia Zappalà, Jean-Claude Grégoire, Andrea Battisti, Chris Malumphy, Massimo Faccoli, Virag Kertesz, Matteo Marchioro, Isabel Martinez, Giacomo Ortis, Davide Rassati, Enrico Ruzzier, Alan MacLeod ... See fewer authors

First published: 16 September 2024 | https://doi.org/10.2903/j.efsa.2024.8889 | VIEW METRICS

Database inventory: nb of species sequence records (Bold database)



Dichotomic keys for different geographic regions


Gattungstabelle

1 V.Hü. eng gestellt, einander berührend. . . . 36 Xyleborus Eichhoff
— V.Hü. voneinander durch ein breites Interkoxalstück getrennt. 37 Xylosandrus Reitter, S. 97

36. Gattung: Xyleborus Eichhoff
(Anisandrus Ferrari)

Artenreichste G. der Fam. Scolytidae; in den Laubholzwäldern weltweit verbreitet, größerer Artenreichtum in den Tropen, im holarktischen Raum nur im nördl. Teil der Nadelholzzone fehlend. Vorwiegend an Laubhölzern, einige wenige Arzen oligophag an Koniferen.

♂♂

1 Hsch.V.Rd. gerundet, selten in der M. etwas eingebuchtet. 2
— Hsch.V.Rd. in eine hornartige Verlängerung ausgezogen, dahinter mit kräftigem Eindruck. 5
2 Hsch. stark abgeflacht, steil aufsteigend, H.-Ecken kräftig abgerundet, Umriß trapezförmig. Fld. plump, nur ganz wenig länger als breit, wesentlich breiter als der Hsch., größte Breite hinter der M., H.Rd. sehr breit gerundet, der Länge nach gleichförmig kräftig gewölbt, gestreift-punktiert, Zwischenräume gerunzelt und mit je 1 Reihe feiner Pünktchen, mit langen, abstehenden Haaren an den S.. 1,8—2,1 mm.
1 dispar Fabricius
— Hsch. in Normallage so breit wie die Fld. oder nur wenig breiter, Fld. schlank, wesentlich länger als breit. 3
3 Hsch.V.Rd. breit gerundet, leistenartig vorgezogen, dahinter mit breitem Quereindruck, dann ansteigend gewölbt, Summit in der M., Fld. walzenförmig, Absturz kurz gewölbt, mit 2 bis 3 kräftigen Höckern auf der Naht und einigen kleinen Körnchen am 3. Zwischenraum. 3,0—3,5 mm.
2 eurygraphus Ratzeburg
— Hsch. ohne Quereindruck hinter dem V.Rd.. 4
4 Hsch.V.Rd. enger gerundet, S. nach vorne leicht trapezförmig verengt, Scheibe ganz leicht gewölbt, mit zerstreuten feinen Pünktchen, aus denen

36:7

Source: Freude, Harde & Lohse (1981)

Assessment whether reliable morphological or molecular tests are available for their identification

Cross-Organisational Collaboration

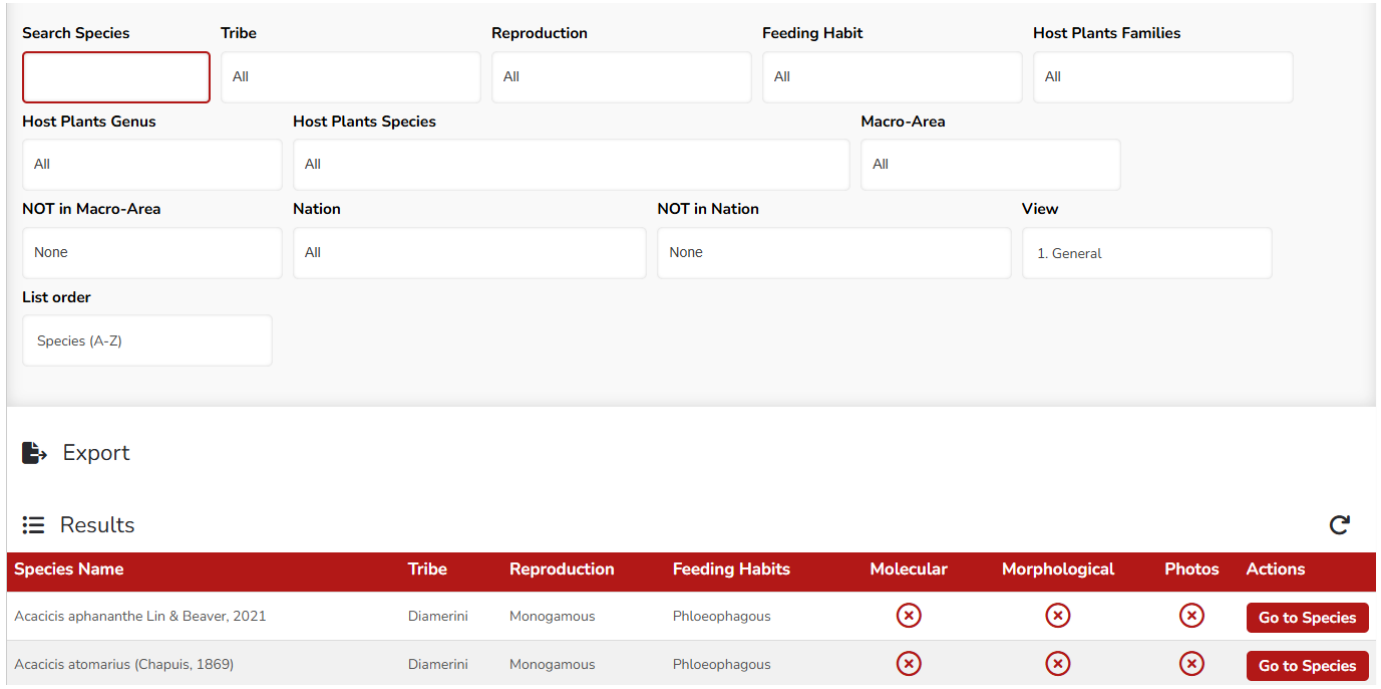
Enriching a global database on Scolytinae – Scoly-HUB

- Global database on Scolytinae developed by University of Padua (DAFNAE) and EFSA
- Contribution by integration of diagnostic features (morphological / molecular tools, reference pictures).

Scoly-HUB

Worldwide information on Scolytinae

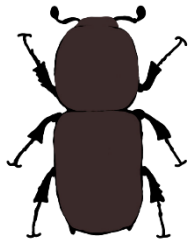
https://www.scolytinaehostsdatabase.eu/site/it/home/



Scoly-HUB

Information collected for each species:

- **Basic taxonomy** (tribe, genus, species)
- **Feeding habits:** host tissues used by the insect (phloeophagy, xylomycetophagy, xylophagy, spermatophagy, myelophagy, …)
- Type of **reproduction** (monogamy, bigamy, polygamy, inbreeding)
- List of **host plants**
- **Distribution** at national level and national **climatic categorisation**



6491

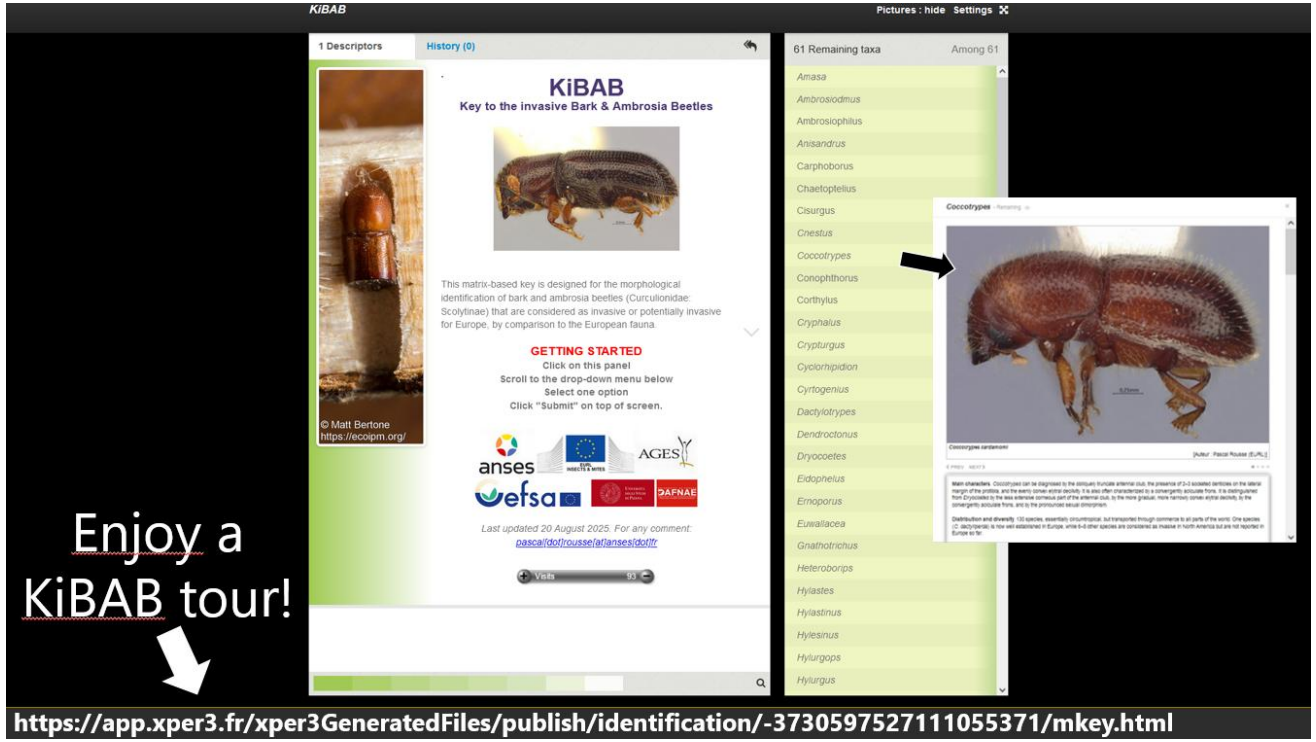
21.717

35.304

Cross-Organisational Collaboration

KiBAB: interactive identification tool for Scolytinae

- KiBAB, an online interactive key based on the biogeographical data of Scoly-HUB
- Key is dedicated to the identification of the genera of Scolytinae considered as invasive in Europe



Bridging Expertise: The Power of Cross-Organisational Collaboration

… a key driver for innovation and efficiency

- Strengthens scientific knowledge bases
- Fills critical knowledge gaps
- Saves resources and fosters efficiency
- Combines diagnostic, regulatory and academic expertise
- Supports EU National Reference Laboratories
- Enhanced plant health preparedness

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At the end of the day…

…a collabo

- Experts from
  Plants Unit c

tainable

a)

Coming together is
a beginning,
staying together is
progress,
and working together
is success!

anses

EURL for Insects and Mites

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