



# SURVEILLANCE RESIDENTIAL REPORT

## Details

Name	Antonette Walford
Organisation	Agriculture Victoria, Department of Energy, Environment and Climate Action
Residential title	Invasive, exotic snails
Residential location(s)	UK and Europe
Residential dates	21 <sup>st</sup> April – 13 <sup>th</sup> May 2024

### About this report

This report is designed to capture outcomes from the surveillance residential and provide feedback to facilitate improvement and targeting of future training.

The Subcommittee on National Plant Health Surveillance (SNPHS) manages the Surveillance Residential Program, to provide plant health surveillance specialists an opportunity to develop their expertise and knowledge.

The Surveillance Residential Program is an initiative of Plant Surveillance Network Australasia-Pacific (PSNAP). The Department of Agriculture, Fisheries and Forestry provided funding for PSNAP professional development activities under the Plant Biosecurity Response Reform Program.

If you have any questions regarding this report template, please contact the Diagnostics and Surveillance Networks Coordinator [PSNAP@phau.com.au](mailto:PSNAP@phau.com.au).

The information provided in the executive summary will be published on the PSNAP website to inform the broader membership. If you do not want this information published, please inform the Diagnostic and Surveillance Networks Coordinator at [PSNAP@phau.com.au](mailto:PSNAP@phau.com.au).

## EXECUTIVE SUMMARY

**Please provide a summary of your residential (300 words or less).**

*This summary will be included on the PSNAP website*

The primary aim of this residential was to improve capability in exotic, invasive molluscs and obtain specimens for reference collections in Australia. I travelled to London to visit the Natural History Museum on the way through to Cardiff, Wales where 4 days were spent with Dr Ben Rowson collecting and preparing snails and slugs from the field to send to Australia for the national and Victorian reference collections, both for physical and DNA barcoding. A week was then spent in Germany. A brief 2-day visit was made to Senckenberg Museum in Frankfurt to obtain some spare snail shells from the museums collection for reference collections and also observe and photograph some specimens in the collection. Three days were spent at the Stuttgart Natural History Museum with Dr Ira Richling where more snails were collected on a field trip and prepared in the laboratory to send to Australia. I also attended a session at a Germany Barcode of Life conference and spent time networking with entomologists after hours. Two days were then spent in Italy with Lara Maistrello to observe brown marmorated stink bug (BMSB) in the field and collect and send specimens back to Australia of *Halymorpha halys* (BMSB), *Harmonia axyridis* (harlequin lady beetle), *Drosophila suzukii* (spotted wing drosophila) and *Varroa destructor* (Varroa mite). A day was spent at local cherry orchards learning about Integrated Pest Management systems used to manage BMSB. Another day was then spent visiting the local Regional Plant Protection services in Bologna where I delivered a presentation about Agriculture Victoria's Chief Plant Health Officer Branch and my role in the department. Finally, I attended the International Day of Plant Health (IDPH) event in Rome at the Food and Agriculture Organisation Headquarters (FAO). Here I met with members from the International Plant Protection Convention secretariat and Australian representatives in agriculture at FAO.

## OBJECTIVES OF THE RESIDENTIAL

**What was included as part of the residential activity (200 words or less)?**

Visits to four museums in London, Wales and Germany to establish relationships with collection managers and malacologists. These visits also included the collection and preparation of a large number of or live snails and slugs and some dead shells that were sent back to Victoria to be included in national (Department of Agriculture, Fisheries and Forestry) and Victorian (VAIC) reference collections. These specimens were sent in the mail; labelled and preserved to be distributed once they arrive. Travel to Italy to meet with Lara Maistrello to collect specimens of *Halymorpha halys*, *Harmonia axyridis*, *Drosophila suzukii* and *Varroa destructor* which were also sent back to Victoria. While in Italy, I also met with varroa mite experts at the Council for Agricultural Research and Economics (CREA) and heard about pests and diseases of honey bees and their research on management of varroa mite. I then delivered a presentation to the local plant protection services in the Reggio Emilia region and had an opportunity to network with these representatives and hear about their work. Finally, attendance at the IDPH event in Rome with FAO and IPPC where I met with representatives of both organisations in the agricultural and biosecurity fields.

### What pests or pest groups were covered by the residential (100 words or less)?

- Exotic invasive snails from HPP lists and lacking in local collections. Over 40 species were collected and sent back to Australia to be added to national and Victorian reference collections.
- Other invertebrates collected were:
  - *Halymorpha halys*
  - *Harmonia axyridis*
  - *Drosophila suzukii*
  - *Varroa destructor*

## SUMMARY OF ACTIVITIES

### What activities were undertaken as a part of the residential (200 words or less)?

I met with malacologists at museums in Wales and Germany to collect, identify and prepare snail and slug specimens to send to Australia to incorporate into the national (Department of Agriculture, Fisheries and Forestry) and Victorian reference collection. This involved field collections and acquiring specimens from museums that could spare species on my list that couldn't be collected in the field. I also spent time with a BMSB expert in Italy where I secured specimens of all nymph stages of BMSB, spotted wing drosophila, harlequin lady beetle and varroa mite. I spent time with entomologists at a conference and formed relationships with representatives from a range of organisations and institutions in agriculture and biosecurity including:

- Cardiff Natural History Museum
- London Natural History Museum
- Stuttgart Natural History Museum
- Senckenberg Natural History Museum
- University of Modena and Reggio Emilia
- Regional Plant Protection Services- Reggio Emilia- Italy
- Council for Agricultural Research and Economics (CREA) in Italy
- Food and Agriculture Organization of United Nations
- International Plant Protection Convention

Participation in an entomology conference in Germany, an apiary and varroa mite information session at CREA and the International Day of Plant Health event in Rome.

### Did you do anything differently from the agreed activities? If so, what changed and why (200 words or less)?

While in Germany, an entomology conference was running at the Stuttgart Natural History Museum and I had the opportunity to join in on any relevant presentations and network with participants who were a mixture of museum staff and PhD students in entomology. I attended one session and attended a social dinner as an opportunity to make more professional contacts.

There was also an opportunity while in Italy for me to visit the Council for Agricultural Research and Economics (CREA) and meet with varroa mite experts to hear about varroa mite management and obtain some specimens of *Varroa destructor*. I was also able to participate in a field demonstration of a sugar shake test and what a healthy hive should look like.

## OUTCOMES AND OUTPUTS

### **Describe the outcomes and outputs of the Residential (400 words or less).**

*For example, enhanced surveillance skills, new linkages between organisations or improved surveillance procedures. There may also be specific outputs, such as a new surveillance protocol or trapping technique.*

Valuable contacts and relationships with experts were made during the residential which can assist with future diagnostics and surveillance in biosecurity including:

- Museum contacts for access to collections and experts in molluscs in London, Wales and Germany. These contacts will assist with future diagnostics and support with mollusc related work.
- BMSB expert contacts which can be used for future BMSB work and in the event of an incursion or establishment where management options need to be considered (eg. biological controls)
- Varroa mite research contacts for future varroa mite management considerations to support an Integrated Pest Management approach for improved outcomes.

During collection of snails, a method of collection was demonstrated and used using a vacuum which was very effective and could be considered as a surveillance option for snail responses.

Many specimens were collected to add to national and Victorian reference collections that will assist in more accurate and timely diagnostics. The snail and slug specimens with tissues can also be used to add to DNA barcoding databases which are very low in this group worldwide. These reference barcodes assist with diagnostics and improved responses to detections through better understanding of the intercepted pest. Specifically, approximately 40 species of molluscs were obtained to be incorporated into reference collection here in Australia, including many species listed on priority pest lists in Industry Biosecurity Plans. A list of the molluscs collected are included and attached to this report.

All nymph stage of BMSB were collected for our collections which we don't have many of in collections as we generally intercept and keep adult specimens. Recognition of nymphal stages is useful for public report triaging and training biosecurity personnel what to look for.

#### **Contacts:**

Dr Ben Rowson, Malacologist - Cardiff Natural History Museum

Dr Ira Richling, Malacologist – Stuttgart Museum of Natural History

Dr Lars Krogmann – Director- Stuttgart Museum of Natural History

Jonathan Ablett – Senior curator of mollusca – London Natural History Museum

Sigrid Hoff- Collections Manager – Senckenberg Museum of Natural History

Lara Maistrello – Associate Professor (Entomologist and BMSB expert) – University of Modena and Reggio Emilia

Dr Osama El-Lissy and Arop Deng- International Plant Protection Convention

Ruth Mallett- Australian Agriculture Adviser at FAO in Rome.

## OUTCOMES AND OUTPUTS

**Are there any tangible outputs and other outcomes that can be shared on the PSNAP website? If so what are they (200 words or less)?**

*Outputs may include new documents, reports, presentations, manuscripts, protocols, training guides etc.*

Link to a useful page on mollusc identification developed by Dr Ira Richling (if PHA maintains a list of resources). It is in German but has great images and is still useful.

[Systematics | Nature Portal Southwest \(naturportal-suedwest.de\)](http://naturportal-suedwest.de)

Laminated illustrated guides (one from Wales and one from Germany) to land snails that can be copied and distributed.

Invertebrate specimens for reference collections as outlined in the section above and attached.

**Please contact the Diagnostic and Surveillance Networks Coordinator [PSNAP@phau.com.au](mailto:PSNAP@phau.com.au) regarding any tangible outputs and other outcomes that can be shared on the PSNAP website.**

**Are there further ways that you could build on the outcomes of the residential (approximately 150 words)?**

*For example, new skills will contribute to the development of a National Surveillance Protocol etc.*

Assist with review of the exotic snail NSP.

Provide information and contacts on alternative management approaches (non-chemical) for varroa mite in Australia through research contacts made in Italy.

## FEEDBACK

**If you were to undertake the same/similar residential again, what would you keep the same (200 words or less)?**

*This question is optional*

Being flexible to attend and take advantage of other beneficial activities that might come up during the residential. This was great! And resulted in some more linkages and contacts.

**If you were to undertake the same/similar residential again, what would you change (200 words or less)?**

*This question is optional*

Perhaps not squeeze quite so much into such a short time frame! It was both a blessing and a curse! I achieved a lot but was also very tired!

**Please rate your overall experience**

Poor

Average

Good

Excellent