Approach to blue stain fungi on ISPM 15-certified wood packaging in Australia

Authors: Christopher Howard, Leisa Porter, Vanessa Brake, Jennifer Morrison and Bernd Sunderhauf

Presenter: David Letham

Australian Government
Department of Agriculture, Fisheries and Forestry

Blue Stain of Wood

Caused by dematiaceous fungi that infect the sapwood of trees.

Staining usually occurs after felling.

Several morphologically similar fungal genera are associated with Blue Stain:

- *Ophiostoma, Ceratocystis, Leptographium,* & a few others;
- All characterised by long-necked perithecia.

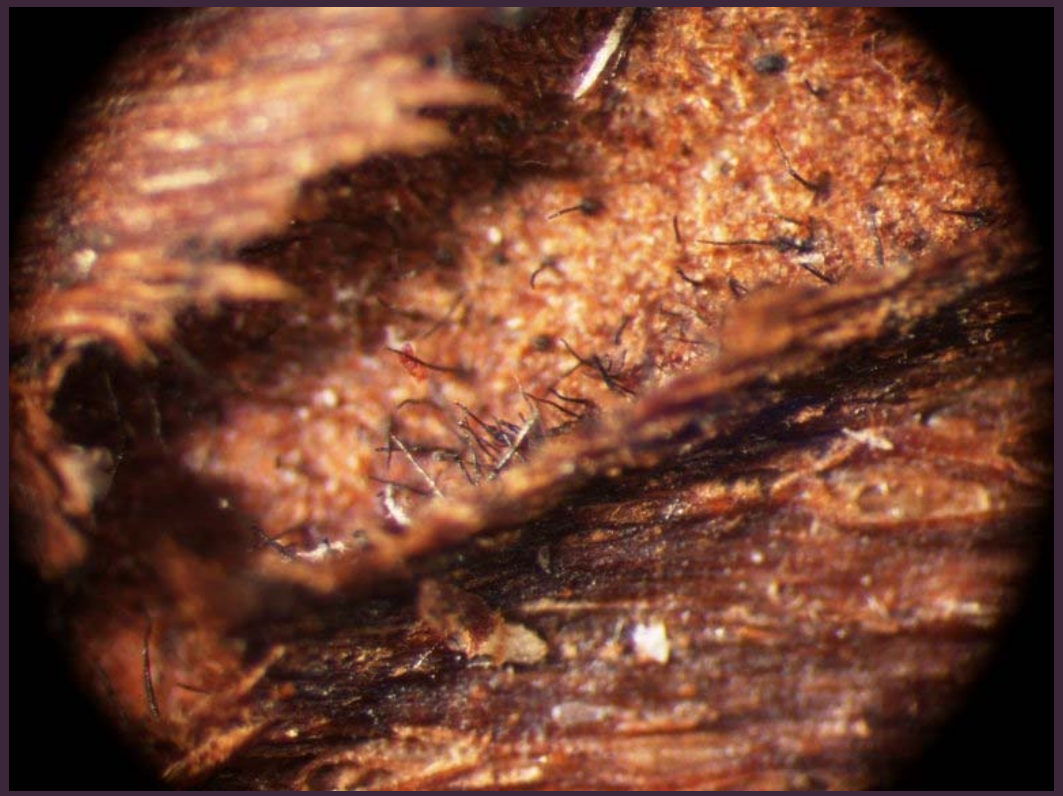
Blue Stain of Wood

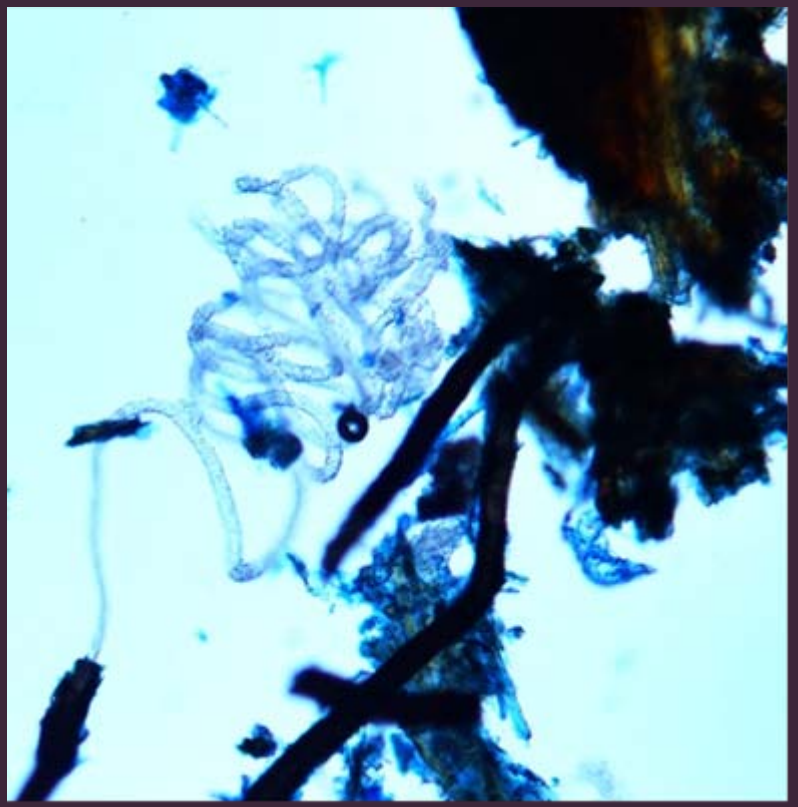
BSF are insect vectored – bark beetles

Indicative size of bark beetle

Blue Stain of Wood

Active blue stain fungi – perithecia





Wood Packaging

All wood packaging for commodities imported to Australia must be treated as outlined in ISPM 15.

Most common treatments are:

- Heat Treatment (56° 30 mins); or
- Methyl Bromide fumigatation.

Material has to be bark free

(within tolerances)

Blue Stain of Wood Packaging

2004 – Australia adopted ISPM 15 standard for wood packaging

2008 - BA consulted by AQIS about BSF on wood packaging. BA advised that ISPM 15-certified wood packaging with active Blue Stain Fungi (perithecia observed) should be actioned due to pathogenic species within the Blue Stain complex

2009 –concerns were raised within AQIS due to the large volume of actionable items.

Present – Grains and Forestry were asked to review current advice on active blue stain fungi.

Blue Stain of Wood Packaging

Issues facing DAFF regarding policy:

- What BSF species Australia has, native or established, is uncertain
- Morphological identification time consuming
- Molecular methods reliant on accurate databases
- Without importation of vector, wood packaging is probably not a pathway - discussed at IFQRG 2011
    - Unknown what role native bark beetles may play

Brisbane visit

Outcomes:

- Wood packaging with BSF is very common;
- Highlighted the inconsistencies with inspections;
- No quick way to identify fungi to species;
- Plant Pathologists that are asked for diagnosis ‘err on the side of caution’ when perithecia are observed.

Identification of biosecurity risk to Australia

Research is required to fully determine if there is a risk to Australia.

i.e. What species of BSF does Australia have?

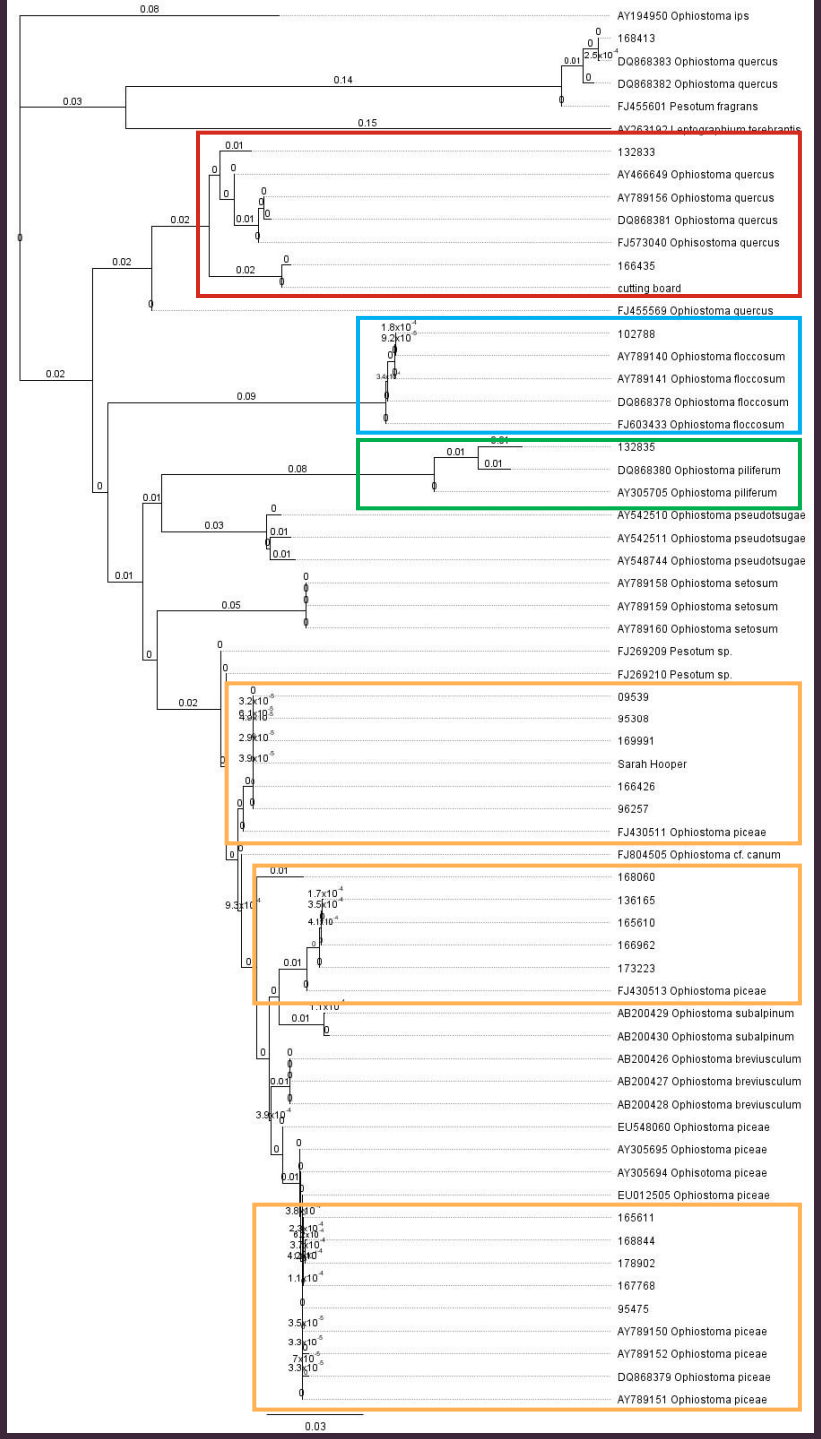
What species of BSF are detected on wood packaging?

And, is there a potential for native bark beetle vectors to transfer the fungi from the wood?

Some of this research has begun.

23 isolates of blue stain fungi were obtained from wood packaging entering Australia with active blue stain fungi were obtained during a workshop in 2011.

Phylogentic analysis (beta tubulin gene) placed most of these isolates with known blue stain fungi species.



Ophiostoma quercus

Ophiostoma floccosum

Ophiostoma piliferum

Ophiostoma piceae

Ophiostoma piceae

Ophiostoma piceae

Australia's current policy on blue stain fungi

Actioning of certified wood packaging has been ceased.

As more information becomes available, DAFF biosecurity may review the risk to Australia for all timber to determine if a technical justification for actioning of blue stain fungi on wood packaging is required.