



Australian Government
**Department of Agriculture,
Fisheries and Forestry**

Risks posed by the structural components of sea containers

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Rama Karri

Director, Australian Department of Agriculture, Fisheries and Forestry



Factors that make sea containers a suitable habitat

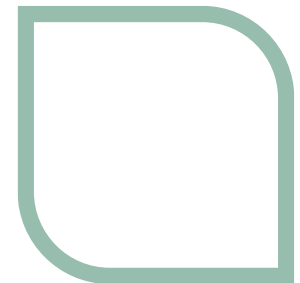
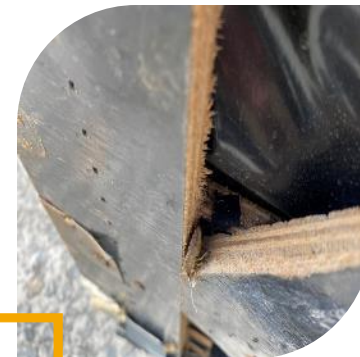
Food residues

Moisture and condensation

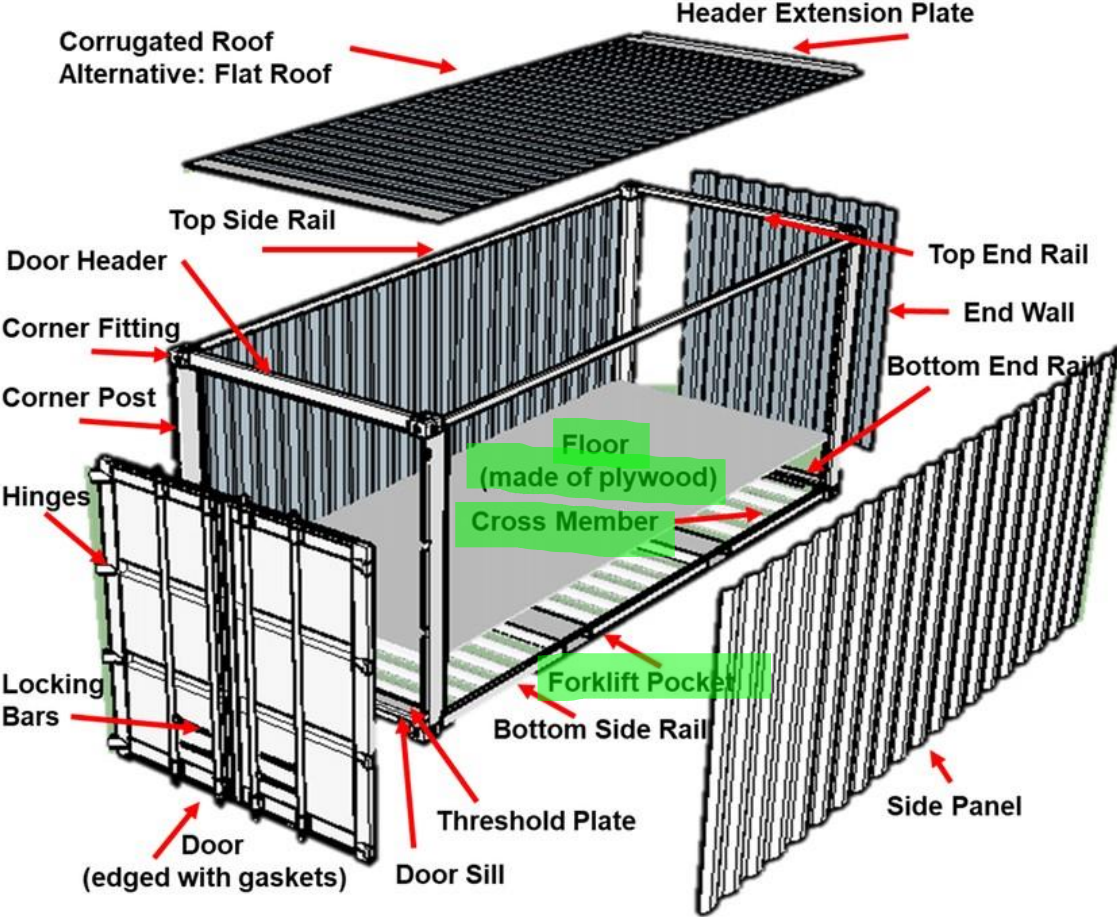
Dark and undisturbed spaces

Gaps and openings

Temperature and climate



Typical cargo sea container



Source: www.researchgate.net

Sea container (internal)

Subspaces



Sea container (internal)

Access to sub-floor spaces



Cracks



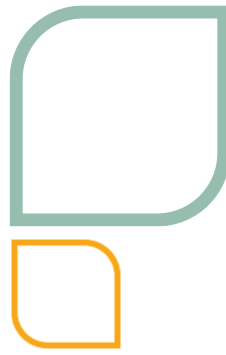
Broken seals



Nail holes



Sea container (external)



Underside Crossbeams



Vents



Issues with a typical container



Gaps between floorboard and container wall



Underfloor subspaces



Underside



Historical sea container data

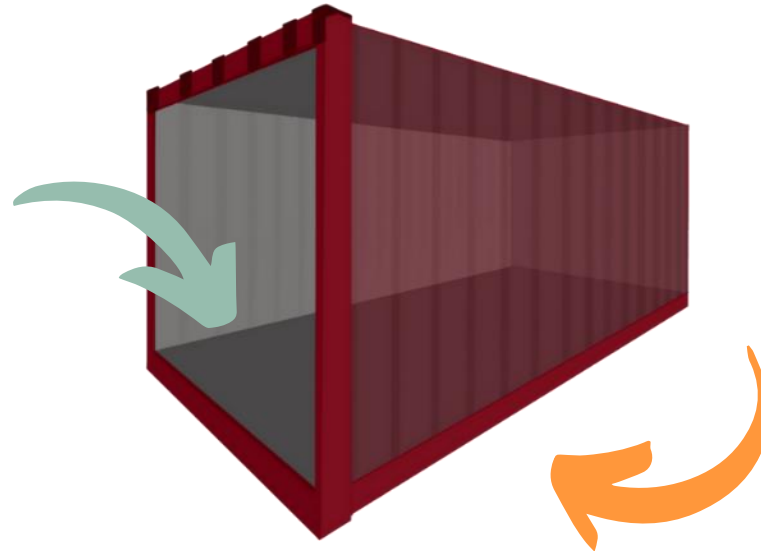


Historical data of sea container inspections for shipments entering Australia were analysed. Containers were from 42 countries that the department considers high-risk.

We found that:

Over 90% of internal risks
are associated with

Internal floor surfaces



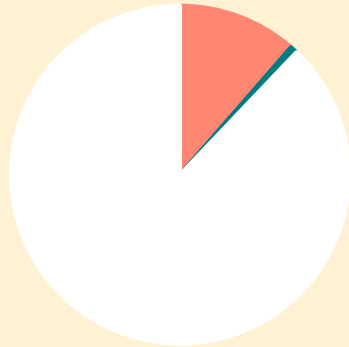
Over 90% of external risks
are intercepted on the

External bottom side

Approach rate trial survey results

Khapra beetle

- Surveyed over 2000 containers to identify rate of sea containers arriving in Australia potentially contaminated with khapra beetle.
- Collected and tested vacuum dust samples from internal floor and door seal.
- Used molecular technology to determine presence.

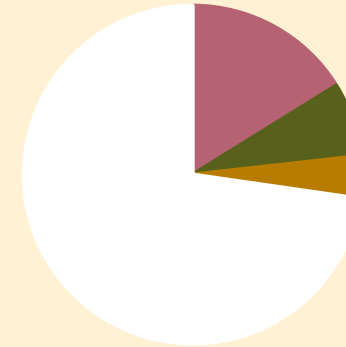


11.4% of containers were eDNA positive

0.7% of containers were eRNA positive

Hitchhiker pests

- Randomly selected 99 containers from the khapra beetle approach trial for internal and underfloor sampling.
- Assessed a broader range of hitchhiker pests than the khapra beetle trial.
- Used molecular technology to determine presence.



16 samples eDNA positive underfloor & internal

7 samples eDNA positive internal only

4 samples eDNA positive underfloor only

Hot spots - potential solutions



1

Replace underside cross beams with a more uniform smooth surface to reduce pest attractions.



2

Replace timber floors with a less suitable habitat, such as steel floors, to discourage pest infestation.

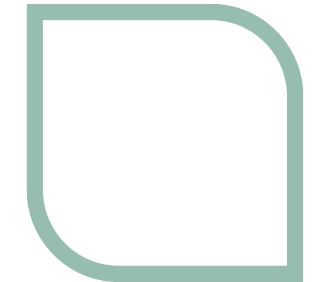
Next Steps....

Surveys to collect efficacy data on different surfaces

Floorboards – steel, bamboo, bamboo coated with CFRP film....

Underside – crossbeams with uniform surfaces

Vents



Thank you

