



Australian Government
Department of Agriculture,
Fisheries and Forestry

Hitchhiker Management Program in Australia

July 2023

Sarah Bruce

Principal Director; Department of Agriculture, Fisheries and Forestry



Hitchhiker pests defined

A hitchhiking pest is not a random contaminant, they have an association with containers and/or goods that can be **understood based on their biology and behaviours.**

A contaminating pest is *'a pest that is carried by a commodity, packaging, conveyance or container, or present in a storage place and that, in the case of plants and plant products, does not infest them'* (IPPC 2021).



Biological characteristics



Attraction to inanimate cargo, containers or conveyances.



Ability to survive extended international travel journeys.



Ability to distribute and establish upon arrival in destination country.



Functional groups and high-level pathways

Hitchhiker functional group	Container external surfaces	Container internal surfaces	Inanimate goods
 Overwintering			✓
 Nesting	✓	✓	✓
 Egg-laying	✓		✓
 Sheltering	✓		✓
 Internal storage pests		✓	✓

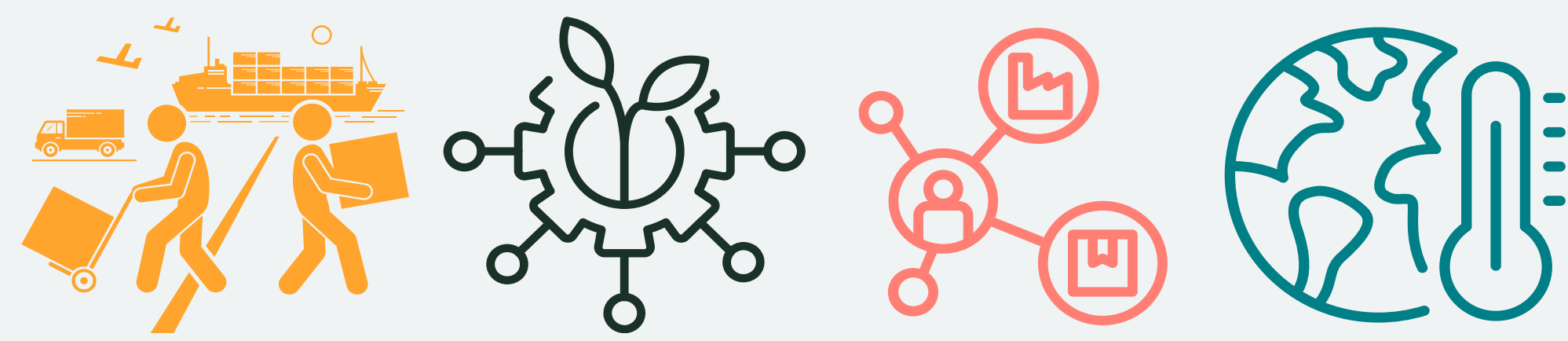
Estimated economic consequences



Hitchhiker pests have the potential to inflict significant damage

Global risks and challenges

The risk of hitchhiker pests spreading around the world is increasing due to:



The image contains four distinct icons on a light grey background. The first icon (orange) shows a truck, a ship, and two people with a cart and boxes. The second icon (black) shows a gear with a plant growing from it. The third icon (red) shows a network of nodes with a person and a factory. The fourth icon (teal) shows a globe and a thermometer.

Increasing volumes & changing patterns of trade

Intensification of agriculture

Supply chain complexities

Climate change

Hitchhiker Pest Program

Through innovation and collaboration, the Hitchhiker Pest Program aims to build a stronger biosecurity system to protect Australia from hitchhiker pests in sea containers and their cargoes.

The program encompasses a comprehensive range of projects, categorised into the following themes:





Risk and control framework

We are creating a new framework to guide how we manage the risks of hitchhiker pests associated with sea containers, their cargoes and associated packaging. It will classify sea containers into 3 categories:



Low risk

Industry managed with departmental assurance



Medium risk

Jointly managed by approved industry participants and the department



High risk

Require higher levels of direct regulatory intervention by the department



Data & analytics

Hitchhiker pest survey



External container inspection by Qube Logistics in QLD.



In partnership with Qube Logistics, we are conducting a survey to obtain more data on hitchhiker pests arriving in Australia via sea containers.



Involves inspection of the external surfaces of sea containers from a selection of countries that are **not** on the department's Country Action List (CAL).



Over 1,600 containers inspected to date with over 200 detections of live pests and contaminants. Results will help inform risk-settings in the new framework.

The data & analytics category of the program also includes:



Container data project



Approach rate trial



Camera projects

Hand-held hyperspectral camera system

- Developing a hand-held device for detecting pests and seeds in difficult to inspect areas and goods.
- Uses Artificial Intelligence and analyses wide spectrum of light to detect target pests and seeds.
- Led by Australian software development company, Intelligent System Design.



Image sourced from isd.ai

Camera system and detection algorithm

- We trialled the Biosecurity Automated Threat Detection System (BATDS) in collaboration with Trellis Data to test its potential for screening imported containers at ports.
- BATDS uses automated cameras and machine learning to scan outside surfaces of containers for pests and contaminants.



Container design and eDNA

Sea container design improvement project

- The problem: many areas in sea containers can provide a refuge for pests & places for contaminants to gather. For example:



Crossbeams collect soil and provide refuge for pests.



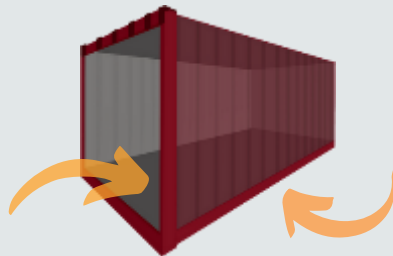
Cracks in internal wooden floors attract certain pests.



Contamination can go undetected under floorboards.

- Our solution: working with Murdoch University to research modifications to containers to reduce such spaces, such as:

Replacing timber flooring with a less suitable hitchhiker habitat e.g. steel.



Replacing cross beams with a more uniform, smooth surface on container undersides.

Environmental DNA (eDNA) and point-of-care technology



- We are testing and validating **eDNA technology** to allow for the rapid, cost-effective and reliable detection of hitchhiker pests in sea containers.
- This technology will also be assessed for point-of-care application for detection of eDNA and eRNA.



Collaborative
arrangements

Offshore arrangements



The Hitchhiker Program is focused on establishing offshore quality systems in new countries and ports to better manage risks associated with sea containers.



Under an offshore quality system, sea containers will be cleaned and treated offshore by the participant prior to loading, in accordance with the department's minimum hygiene requirements.



All containers arriving from high-risk countries are subject to mandatory inspection on arrival in Australia, unless they are processed through offshore quality systems.



Managing risks offshore provides the highest biosecurity risk protection. It also offers commercial benefits for participating entities.

Thank you

Sarah Bruce

Principal Director, Hitchhiker Working Group

