# TEES RIVERS TRUST

BIOLOGICAL CONTROL OF INVASIVE NON-NATIVE SPECIES (BINNS)

Chloe Lawrence

# BIOCONTROL OF INVASIVE NON-NATIVE SPECIES (BINNS)

Green Recovery Challenge Fund

Department for Environment Food & Rural Affairs

The National Lottery Heritage Fund

Environment Agency

NATURAL ENGLAND

NORTHUMBRIAN WATER living water

2018: Northumbrian Water Funding

2019: Northern Contractor for CABI

2021: we received £179,000 for the project from Green Recovery Challenge Fund.

Creation of:

- X11 Himalayan balsam biocontrol sites - rust fungus
- X5 Japanese knotweed biocontrol sites - psyllids
- Best Practice Handbooks

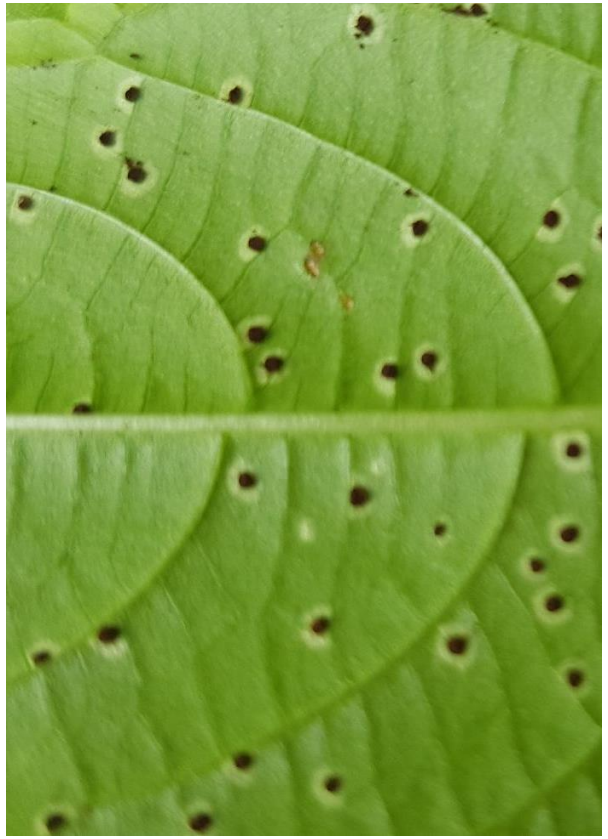
2022: Northumbrian Water Funding

# Japanese knotweed: Psyllids

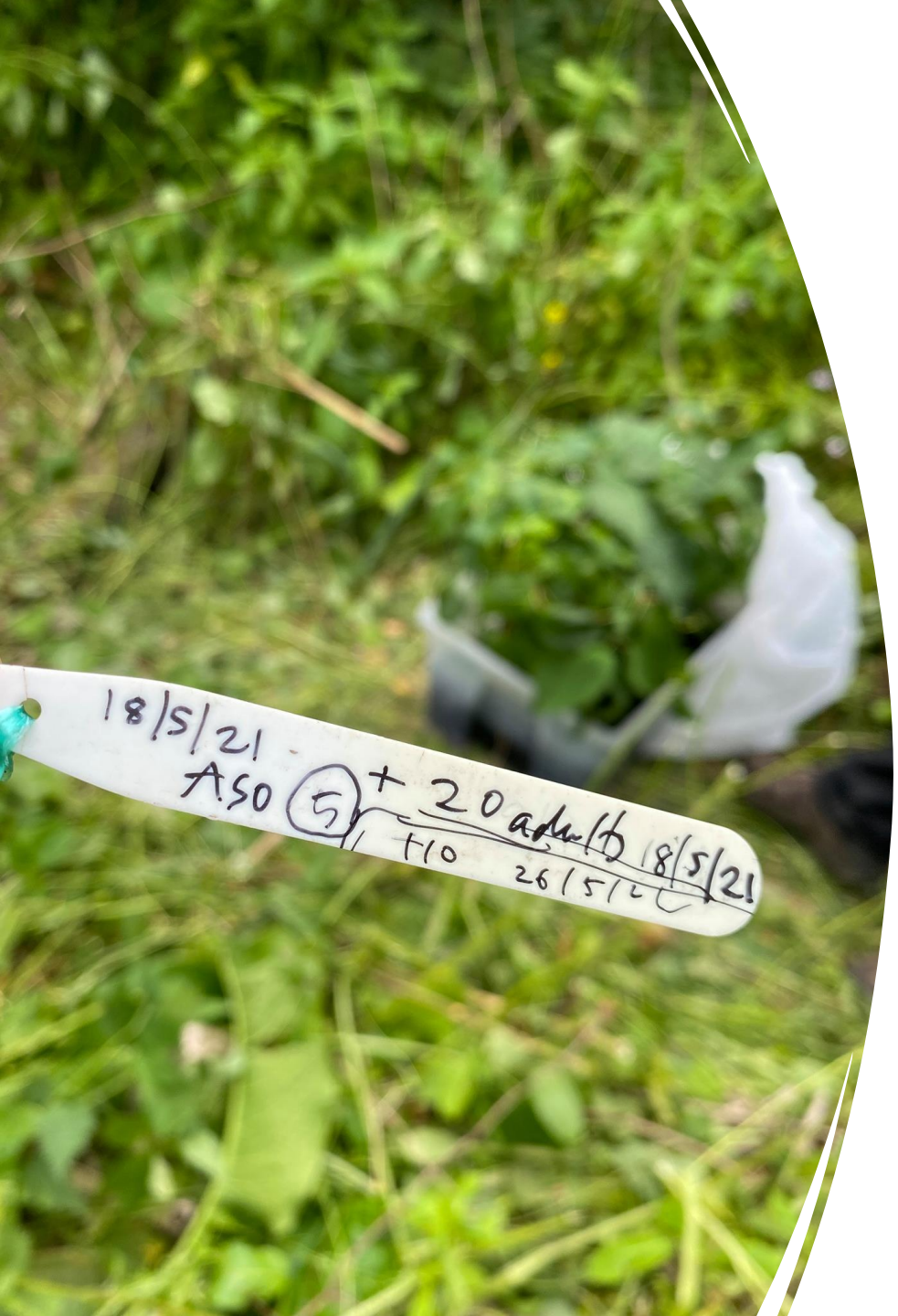
- Spends life cycle on the plant – no impact to native species.
- Sap sucking – sucks the sap out of the Japanese knotweed strands weakening and reducing growth.
- Needs humid environments, similar to native range e.g., riparian habitats
- 5 Sites currently throughout Tees catchment (GRCF)

# Himalayan balsam: Rust Fungus

- The rust fungus released reduces seed production and stand density
- Improves chance of native species to grow, increasing biodiversity and reducing the impact of erosion
- The method is an alternative to manual or chemical control which can be labour intensive and time consuming
- Long-term and self-sustaining solution as rust fungus has 5 stage life-cycle infecting new seedlings each year
- 13 sites currently throughout the catchment area (with the intention of having more in the future).
- *This will not permanently remove Himalayan balsam!




# Himalayan balsam: Rust Fungus




# Biocontrol Challenges

- Site compatibility (flood risk, public access, susceptibility)
- Establishment (both psyllid and rust fungus)
- Predator impact (psyllid)
- Difficult to monitor due to size/movement/range (psyllid)
- Takes time for them to establish (both psyllid and rust fungus)
- Data Loggers (and finding them!)



# Success…

- Establishment of Original Rust Site (self sustaining with no top ups since 2019)
- Translocation of 5 infected leaves from original site to a close site – infection present
- All 11 biocontrol sites released in 2021 overwintered with reinfection in Spring/Summer 2022
- Further funding from Northumbrian Water Branch Out Fund for 13th Site in 2022.
- Comparison of sites close together to see impact of biocontrol this early on has been promising.

# NEXT STEPS... 5 YEAR REGIONAL PROJECT

- Local Action Groups
- Local Authorities
- Community Groups
- Landowners

- Involving
  - INNS Management
  - Job Creation
  - Education/Awareness Raising
  - Drone Mapping! AI to predict INNS Growth
  - Biosecurity and Prevention

- Targeting
  - Giant hogweed (Spraying)
  - Japanese knotweed (25 Biocontrol Sites - 5 Per Catchment)
  - Himalayan balsam (50 Biocontrol Sites - 10 per Catchment)

# Acknowledgements






# QUESTIONS?

- John Musham: Project Manager

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- Chloe Lawrence: Project Officer

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