Scottish Invasive Species Initiative

So, what does a strategic invasive plant control project look like anyway?

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Le taic bhon Chrannchur Nàiseanta fro Mhaoin-Dualchais a' Chrannchuir

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Outline

- What we **won't** be discussing
  - Chemical control kills plants

- What we **will** be discussing
  - **Our control strategy –**

  Our approach to control (top to bottom of catchments, prioritisation, stakeholder engagement etc)

  - **Evidence gathering –**

  Our approach in recording control effort, monitoring target species abundance and combining with images to present compelling case studies

  - **Voluntary land management agreements –**

  Tackling the problem and transitioning responsibility back to landowners / beneficiaries of improvement work

What makes invasive plants successful?

- High seed count / robust rhizomes
- Early, vigorous growth
- Large leaves / tall dense growth
- Can grow on unfavourable ground
- Unpalatable to native grazers
- Lack of native pests

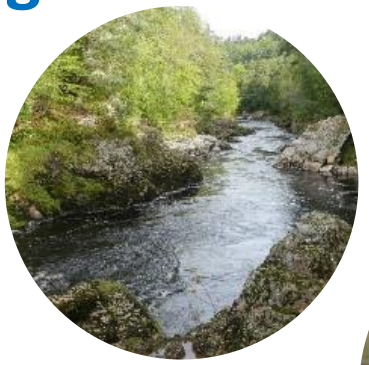
Combinations of these traits mean species can outcompete native flora and establish and then dominate in new habitats and locations

Understanding plant dispersal mechanisms – the pathways we block using biosecurity measures and effective control

Seeds

Plant fragments

Rhizome fragments



Waterborne

Wildlife

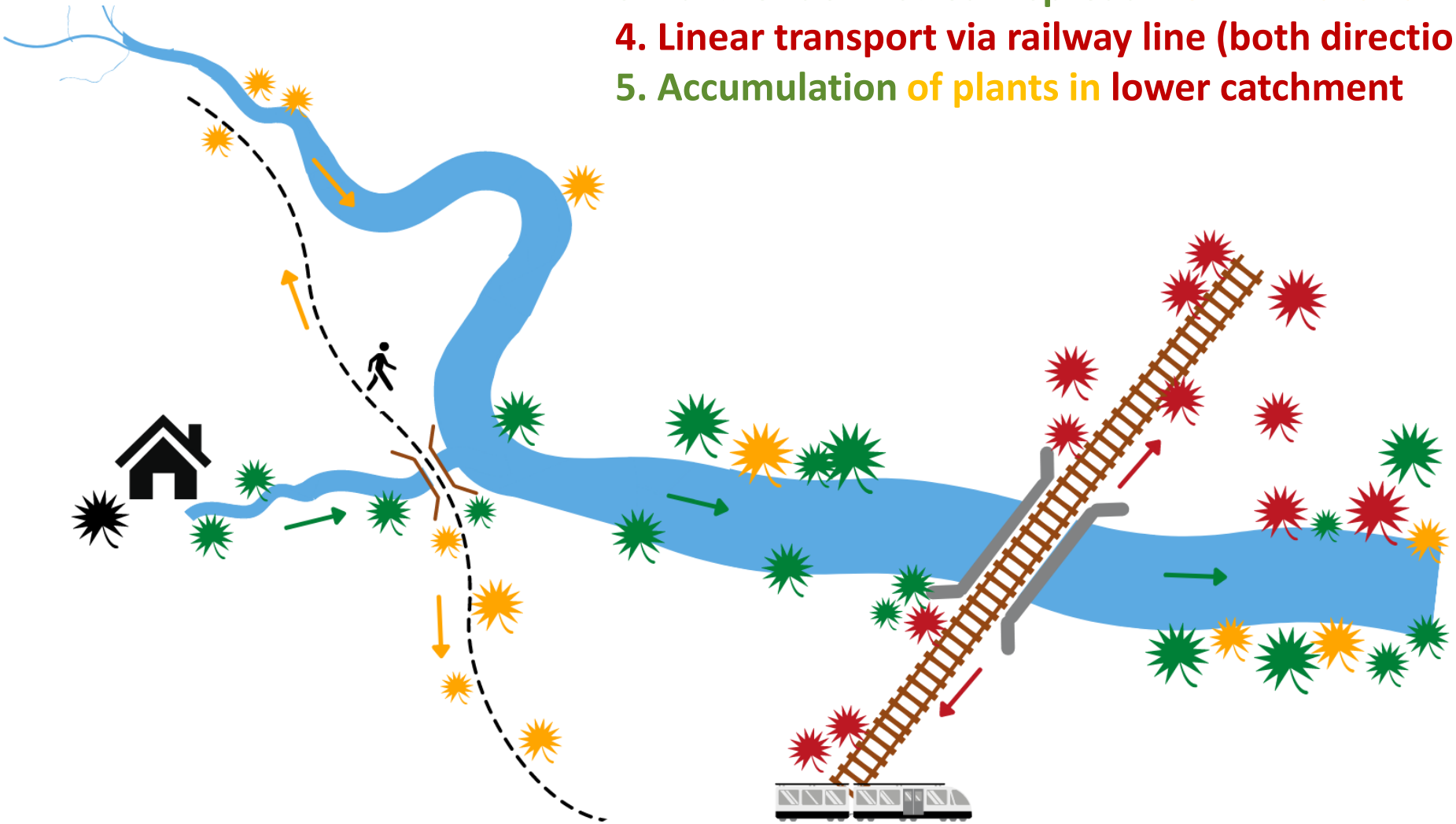
Recreation

Equipment and clothing

Transport

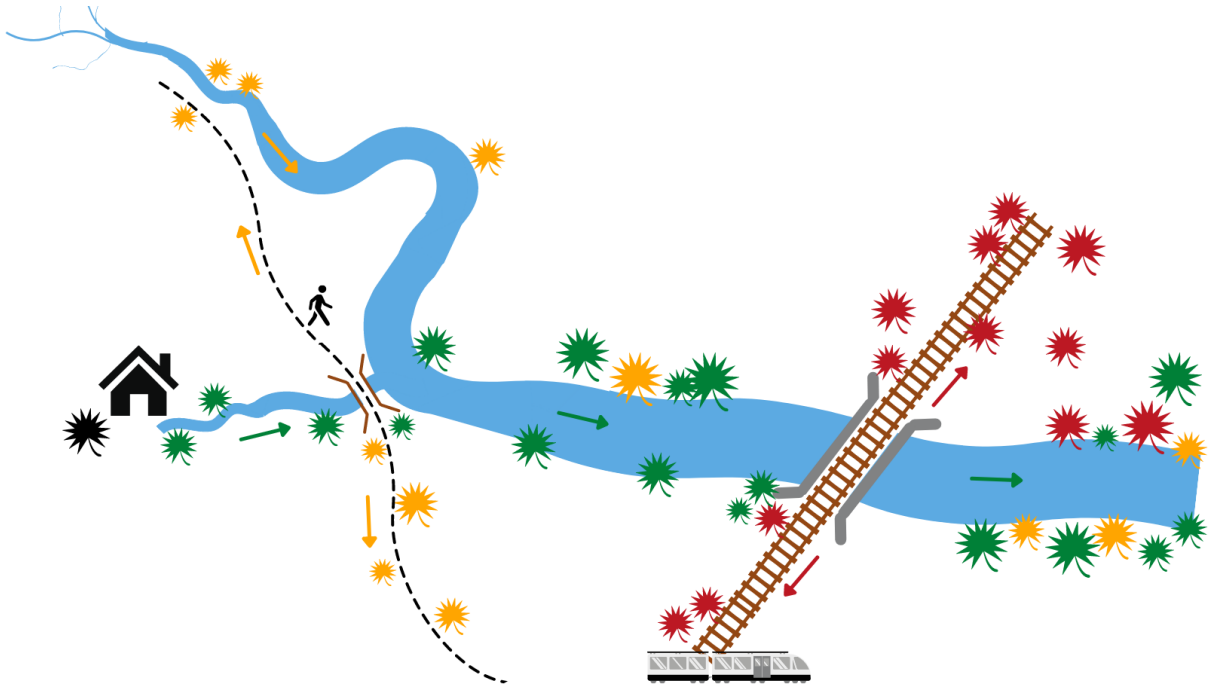
Start in the right place – think about dispersal

1. Initial garden planting – seed / water dispersal (downstream)
2. Human dispersal from footpath (both directions)
3. Further downstream spread from initial and new populations
4. Linear transport via railway line (both directions)
5. Accumulation of plants in lower catchment



Do it the right way - the first time

- Find the source of the problem
- Identify the vectors of dispersal
- Work systematically from source to sea



How do we quantify effort and record progress?

- Being able to robustly demonstrate that control sites are improving and on a pathway to eradication is vital

- All sites have records of –
  - method of control,
  - time taken to undertake control (& who by),
  - chemical volumes used.

- Monitored sites have undertaken DAFOR* assessments of plant abundance

(* DAFOR Scale of abundance – D = Dominant (50 – 100% cover), A = Abundant (30 – 50% cover), F = Frequent (15 – 30% cover), O = Occasional (5 – 15 % cover), R = Rare (<5% cover), N = not present)

Japanese knotweed at Dunkeld Bridge, River Tay

2019	2020	2021	2022
20 hours control 7.6L neat herbicide Foliar spray DOMINANT (50-100%)	10 hours control 1.6L neat herbicide Foliar spray RARE (<5%)	4 hours control 0.4L neat herbicide Foliar spray OCCASIONAL/RARE (15<5%)	1.2 hours control 0.1L neat herbicide Foliar spray RARE (<5%)

2019 to 2022 –

- **94% reduction in control time**
- **99% reduction in chemical volume**

Giant Hogweed, Inglismaldie, River North Esk

2019

60 hours control
12.1L neat herbicide
Stem injection
Foliar spray
DOMINANT (50-100%)

2020

8 hours control
0.7L neat herbicide
Foliar spray
OCCASIONAL/RARE (15-<5%)

2021

1.5 hours control
0.3L neat herbicide
Foliar spray
OCCASIONAL/RARE (15-<5%)

2022

4 hours control
0.67L neat herbicide
Foliar spray
RARE (<5%)

2019 to 2022 –

- **93% reduction in control time**
- **96% reduction in chemical volume**

American Skunk Cabbage, Moulin Brun, Pitlochry

2019

16 hours control
3.0L neat herbicide
Foliar spray
DOMINANT (50-100%)

2020

10 hours control
0.5L neat herbicide
Foliar spray
OCCASIONAL (15-5%)

2021

1.5 hours control
0.1L neat herbicide
Foliar spray
RARE (<5%)

2022

3 hours control
0.25L neat herbicide
Foliar spray
OCCASIONAL (15-5%)

2019 to 2022 –

- **81% reduction in control time**
- **92% reduction in chemical volume**

What are we finding – there are no surprises here!

- Identify best control method
- Multiple treatment years – monitoring is vital
- Control works – if it is systematic and organised
- Reduce problem to manageable scale and then manage until eradication
- Work collaboratively across a catchment
- Site case studies at - https://www.invasivespecies.scot/case-studies

Barriers to land manager control and how we remove them

- What prevents landowners / managers doing the work?
  - Unaware of the problem
  - Don’t know how
  - Don’t have the skills or qualifications or capacity
  - “Why should I do something when no one else is?”

- Solutions – how to remove these barriers -
  - Get evidence - survey the catchment, identify the source(s) and all affected areas
  - Provide technical advice on how to take action
  - Provide training, equipment and chemical
  - Assist landowners / managers and volunteers on site
  - Ensure coordinated action is taking place by multiple owners

Transfer of responsibilities to land manager and landowners -

- For invasive plant control programmes to be sustainable we need to break cycles of reliance on ongoing funding to manage the same locations.
- Our approach is to -
    1. Prioritise and support initial site control using contractors and staff and with volunteers and land managers
    2. As infestation declines it becomes more manageable by others - who we have invested in through training, equipment loans and joint working
    3. Prepare “voluntary management agreements” for land managers/land owners to set out future control needs and agree responsibilities to deliver this

Buy in for these agreements is no longer a theory

- 50+ such agreements signed, 30+ others issued and under review
- Allows future work to move to new areas with control in initial areas coordinated but not delivered by us.
- We believe land managers / owners will buy in
  - If obstacles to control are removed
  - If they can see a clear plan and progress
  - If they are given the tools they need
  - If they can see collaborative effort taking place around them being coordinated by staff who know the catchment, the stakeholders and who are committed to getting the job done
  - If they are asked to!

Summary

- Understand the problem and what needs to be done to address it
- Identify stakeholders and landowners / managers
- Implement appropriate control method and strategy – manage as a joined up unit, not a series of isolated problems
- Record work/effort to chart and demonstrate progress
- Make sure control through to eradiation is sustainable by bringing landowners / managers and communities on board

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