RARE PLANT TRANSLOCATIONS: SUCCESSES AND FAILURES

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bec CONSULTANTS

RARE PLANT TRANSLOCATIONS: BEC CONSULTANTS LTD

- Waterford – Meadow Barley (2000)
- Limerick – Meadow Barley (2005)
- Aughinish Alumina – Meadow Barley (2007)
- Aughinish Alumina – Great Burnet (2005)
- Limerick – Triangular Club-rush (2002)
- Grand Canal – Opposite-leaved Pondweed (2009)

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RATIONALE

- Rescue translocation of rare plants is often suggested as a strategy for mitigation
- Presented as a ‘tried and tested’ measure rather than as a last resort
- Convey to planning authorities uncertainties, complexities and long-term commitment required

REPORTING SUCCESSES AND FAILURES

78%

Average survival rate reported in literature

33%

Average survival rate reported in questionnaire survey

How successful are plant species reintroductions?
Godefroid *et al*. (2011)

TERMINOLOGY

- Translocation: The deliberate transfer and release of a living organism(s)
- Receptor site: The site where translocated organism(s) is released
- Donor site: The site from which translocated organism(s) originates

Based on McLean (2003)

PLANTS…

- Flora Protection Order (none are Annex II species)
- Rarity
- Species traits

…AND PROCESSES

- Translocation of FPO species by licence from NPWS
- Consultation ASAP: genetic study? trial translocation? collect & store seed?
- Prepare Method Statement
- Conditions of licence: based on Method Statement, also monitoring duration, reporting to NPWS

CONSIDERATIONS FOR RECEPTOR SITES

- Suitable soil conditions
- Suitable hydrology
- Potential for loss of genetic diversity
- Potential for loss of geographic range
- Management of site post-translocation (?)
- Long-term security (?)

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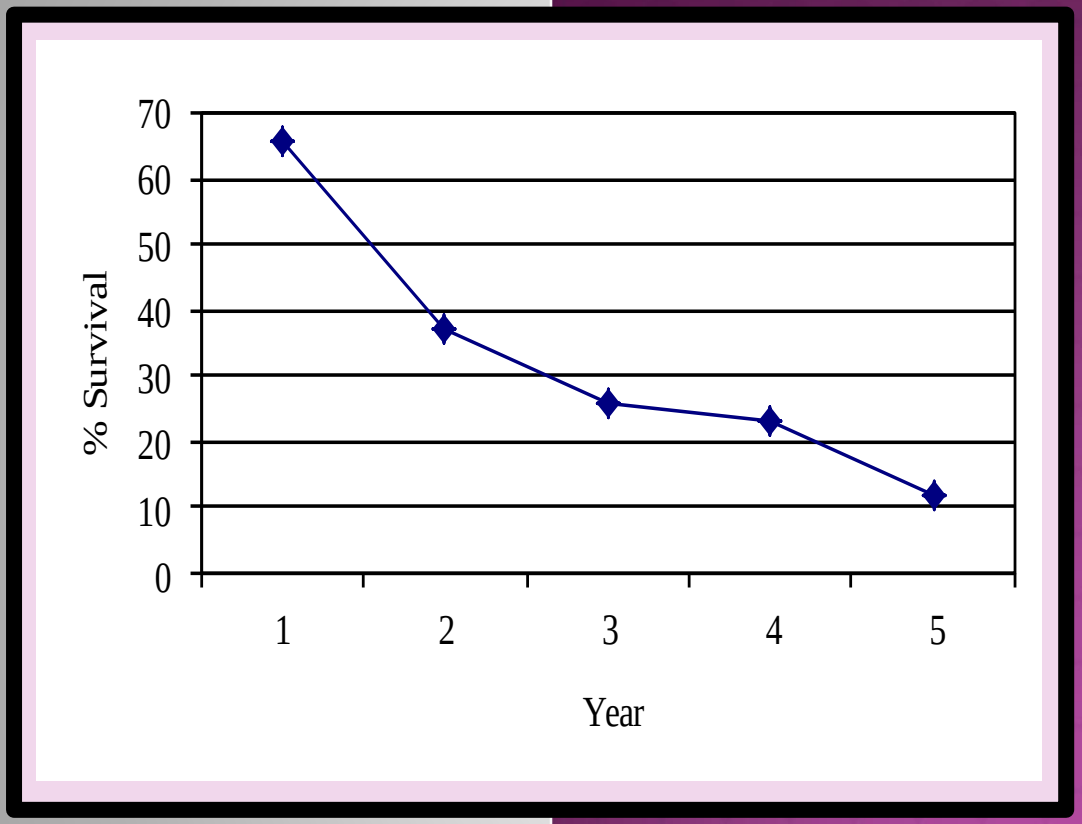
CASE STUDIES: WATERFORD MEADOW BARLEY

- Carried out October 2000
- 33 plants translocated
- 60 plants raised from seed
- Seeds stored in Irish Rare and Threatened Plant Genebank TCD
- Receptor site in a grid so individual plants re-located

WATERFORD MEADOW BARLEY MONITORING

- Monitored each August 2001 – 2005
- Presence of plant identified by flowering stem
- Recorded number of flowering stems on each plant

MEADOW BARLEY RESULTS



- 93 plants translocated
- 66% survived to year 1
- 12% survived to year 5

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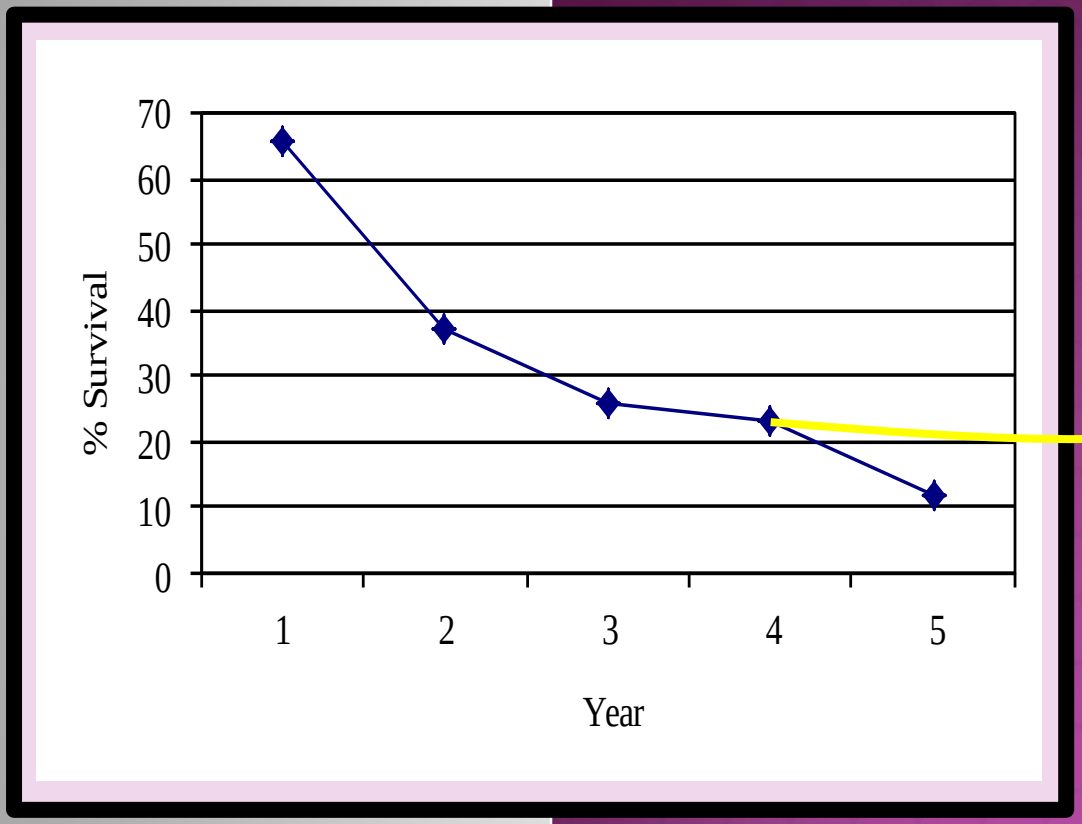

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SITE MANAGEMENT

- Farm manager changed
- Cattle removed = reduced grazing
- Winter debris from River Suir not being broken up
- Large herbs e.g. *Oenanthe crocata* not being broken up by cattle movement
- Meadow Barley being outcompeted

CONCLUSIONS: WATERFORD MEADOW BARLEY TRANSLOCATION

- Consistent appropriate management required
- Continued decline in population within monitoring period
- Five year monitoring insufficient to develop firm conclusions

LIMERICK MEADOW BARLEY

- Emergency translocation
- Plants appeared after fencing of the construction wayleave: grazing reduced
- Receptor area within the LMA selected
- No grazing, inaccessible for vehicles
- Management of strimming and raking implemented

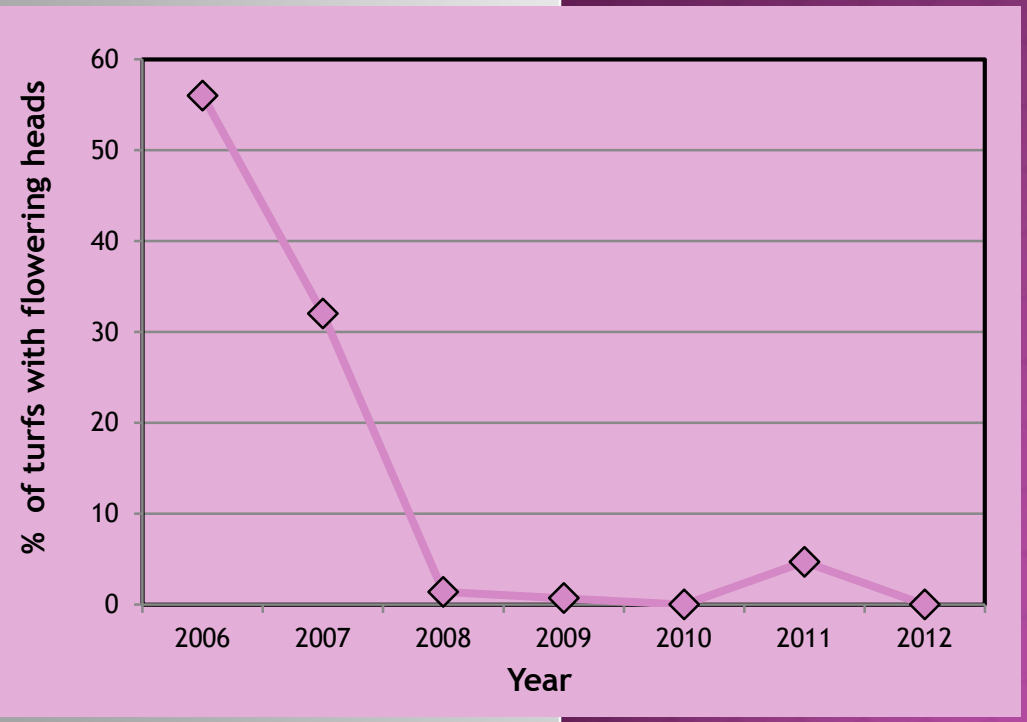
LIMERICK: MEADOW BARLEY

2007

2012

- Sward became more rank and taller: unsuitable for Meadow Barley
- Ownership of receptor site: local farmer> construction company> Local Authority
- Inconsistent management

LIMERICK MEADOW BARLEY: ALTERNATIVE APPROACHES



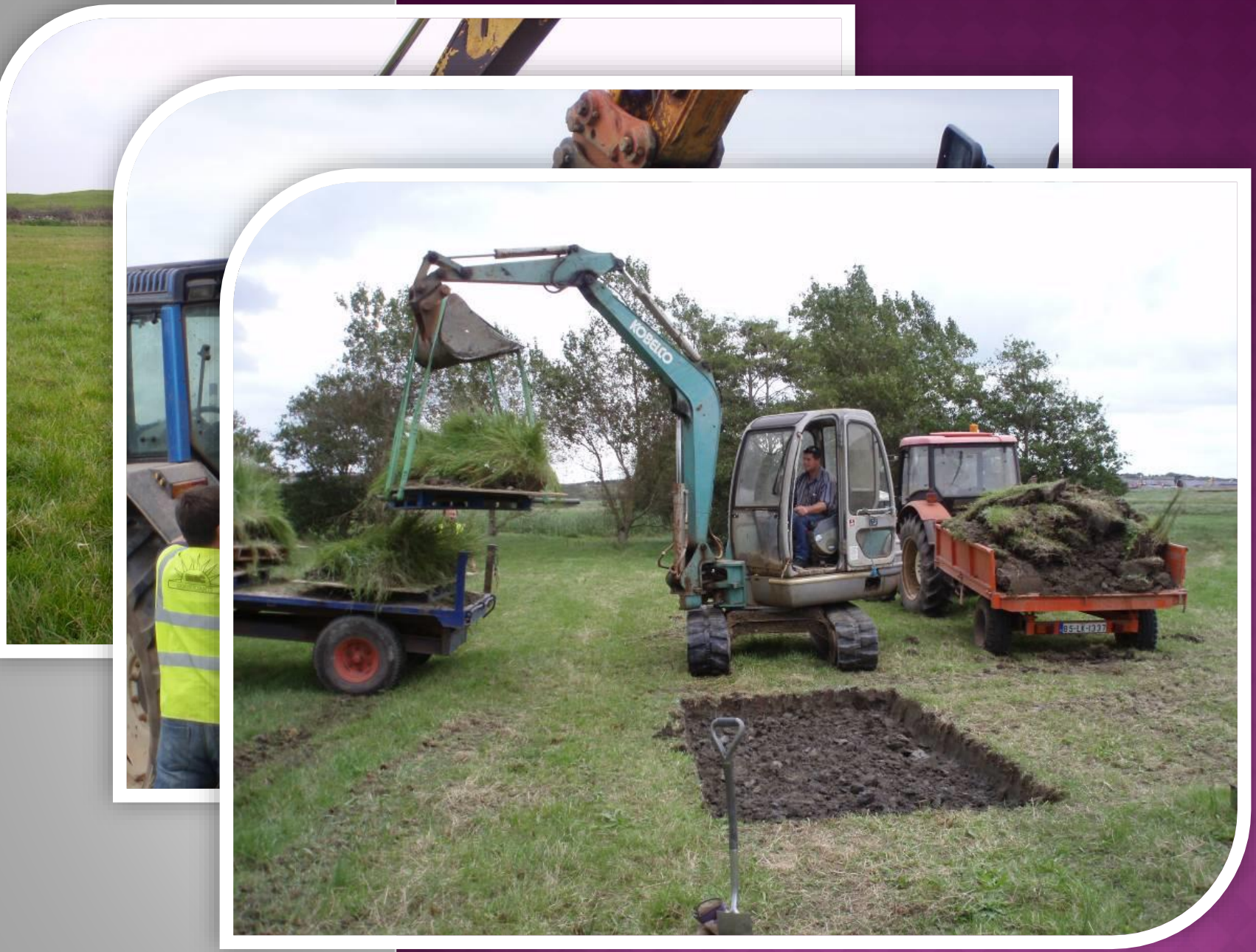
- Translocation failed
- Plants may still be present in sward just not producing flowering heads
- A different receptor site?
- Implement suitable management and bolster population with plants from seeds which are in storage
- Allow the population to be destroyed? (licensing authority decision)

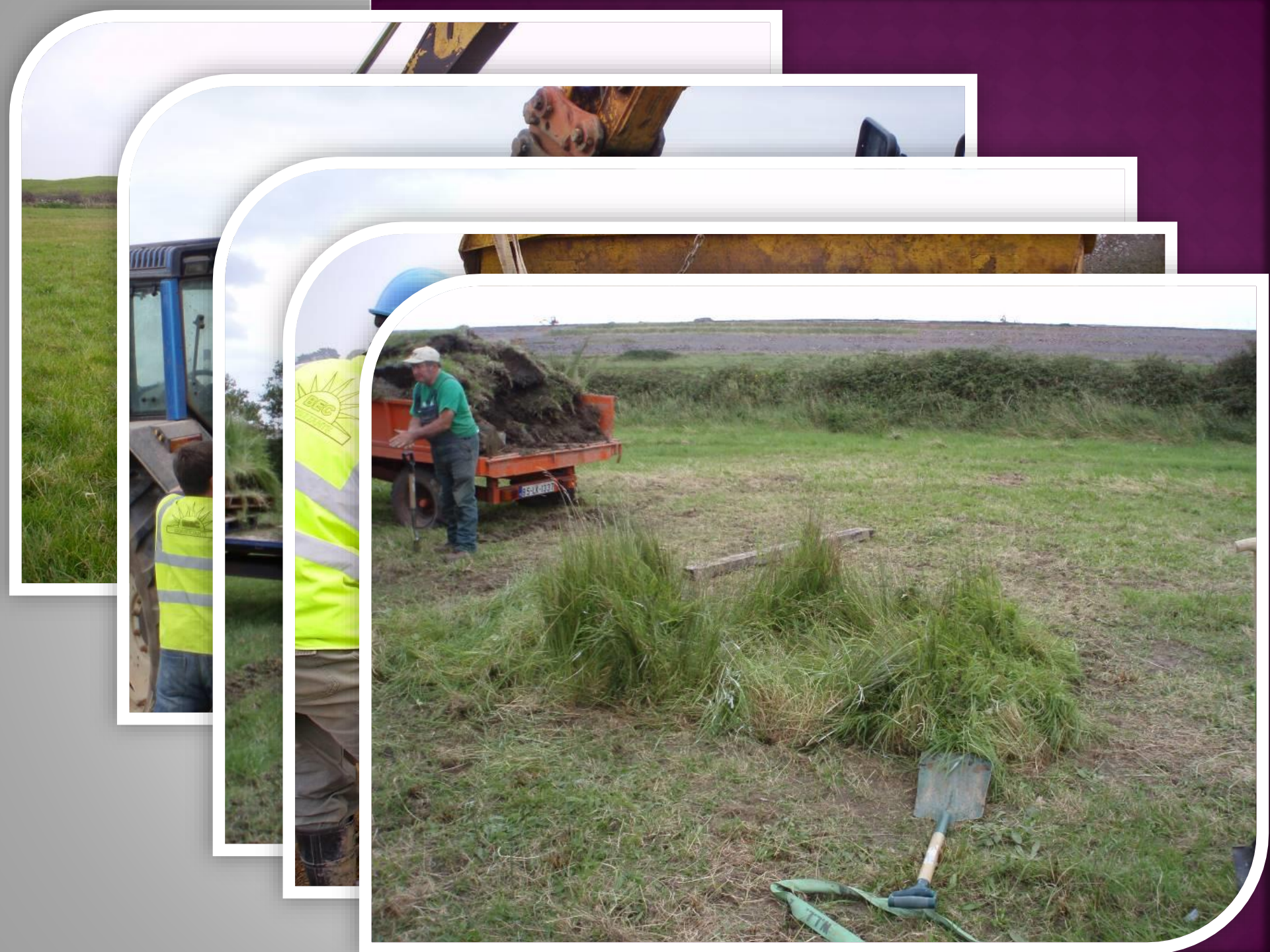
GREAT BURNET: A GREAT SUCCESS!

- Aughinish Alumina Bauxite Disposal Area extension
- Trial translocation, seed collection
- Management Plan in place for receptor area
- Consistent ownership

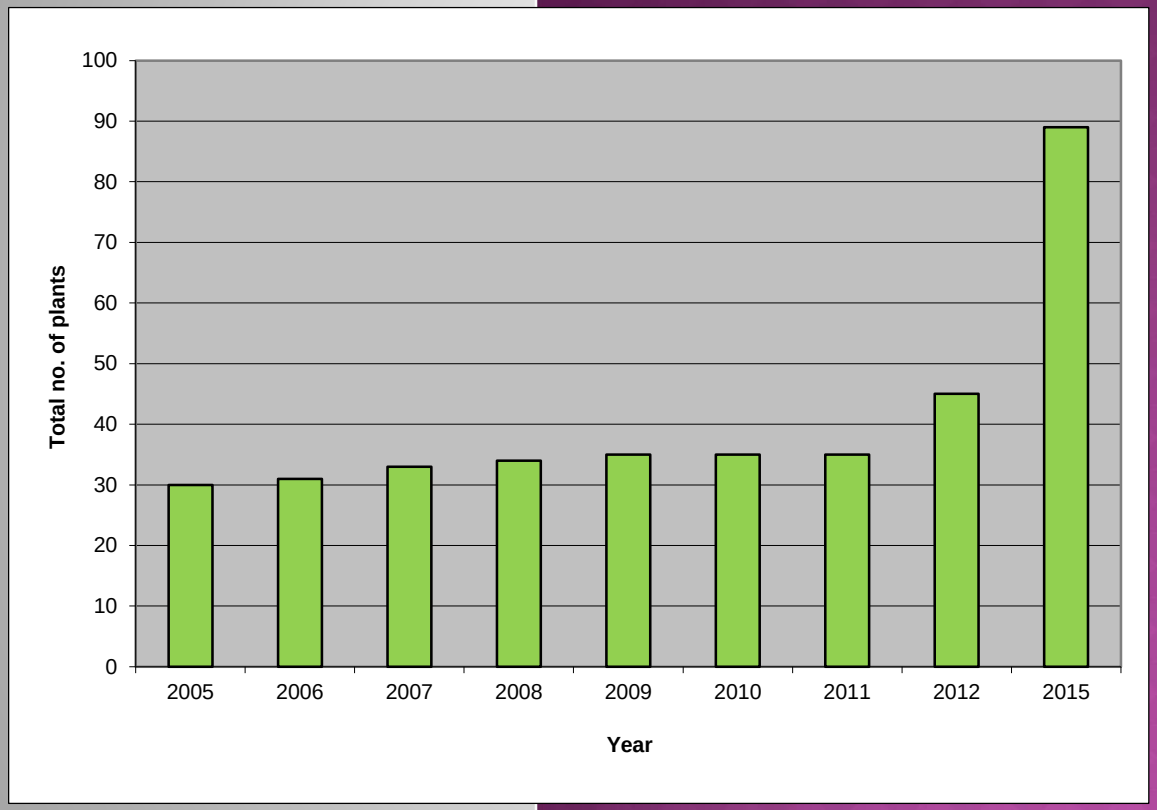

RAPID
HITCH


VALTRA


KOBELCO



GREAT BURNET MONITORING



Total number of plants

Clear seed-recruitment in later years

Monitoring also recorded increases in biomass and no. flowering stems

GREAT BURNET MONITORING

Successful translocation with seed-recruitment, plants functioning as part of the ecosystem

Plant has a robust rhizome; suited to translocation

Suitable management through Management Plan

Knowledge gained of benefit to the broader long-term conservation of this plant

LIMERICK TUNNEL: TRIANGULAR CLUB-RUSH

- Restricted distribution
- Proposal to translocate and store plants; return to original locations post construction
- Minimise ‘transplant shock’
- Prevent plants becoming terrestrialised adapting to freshwater conditions
- Maintain mono-specific sward


KOMATSU
PC
340
LC

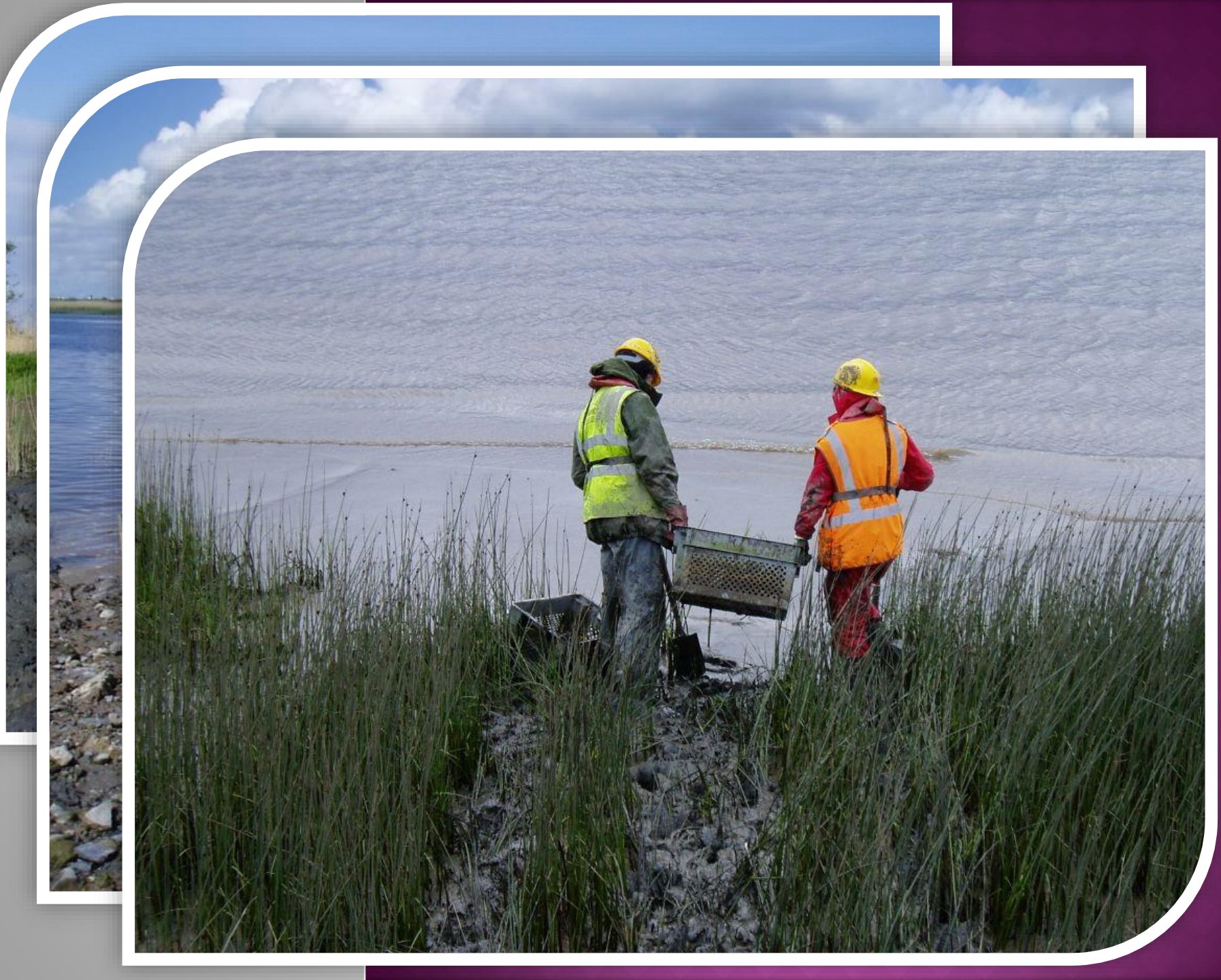

KOMATSU

STORAGE

- Plants removed from foot-print of the road 2007
- Stored for 2 years
- Daily inundation with water from the Shannon Estuary to replicate tide
- Monthly weeding during the growing season
- ~95,000 stems
- Plants returned to estuary in 2009


VOLVO
107
VOLVO


LIMERICK




May 2009


August 2009


August 2010


August 2013

August 2009

August 2012

TRIANGULAR CLUB-RUSH: CONCLUSIONS

- Mixed results
- Significant initial losses from some locations; plants washed away
- Continued losses over monitoring period, even after initial establishment
- Considerable rhizome expansion: 580% increase in area for some groups
- No active management required

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- If translocation fails is there a ‘Plan B’
- Would planning applications be viewed differently if proposals for translocation included an estimated chance of success?

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- Method statement to have long-term view: ownership, management
- Monitor a control population
- Longer monitoring periods: improve scientific knowledge
- MSc thesis: *A Review of Irish Translocations* using reports held by NPWS

THANK YOU FOR LISTENING

Thanks to:
Aughinish Alumina
Direct Route
National Roads Authority

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