

# Prosiect Twyni Byw Sands of LIFE Project

## DUNIAS Workshop Belgium, May 2022 Invasive Alien Species on Welsh Dunes



SoLIFE: LIFE 17 NAT/UK/000023

The Twyni Byw-Sands of LIFE project has received funding from the LIFE Programme of the European Union

Part funded by Welsh Government





## **Sands of LIFE Project**

**Lead: Natural Resources Wales**

**Duration: 01/09/2018 to 31/12/2022,  
hopefully 30/06/2024**

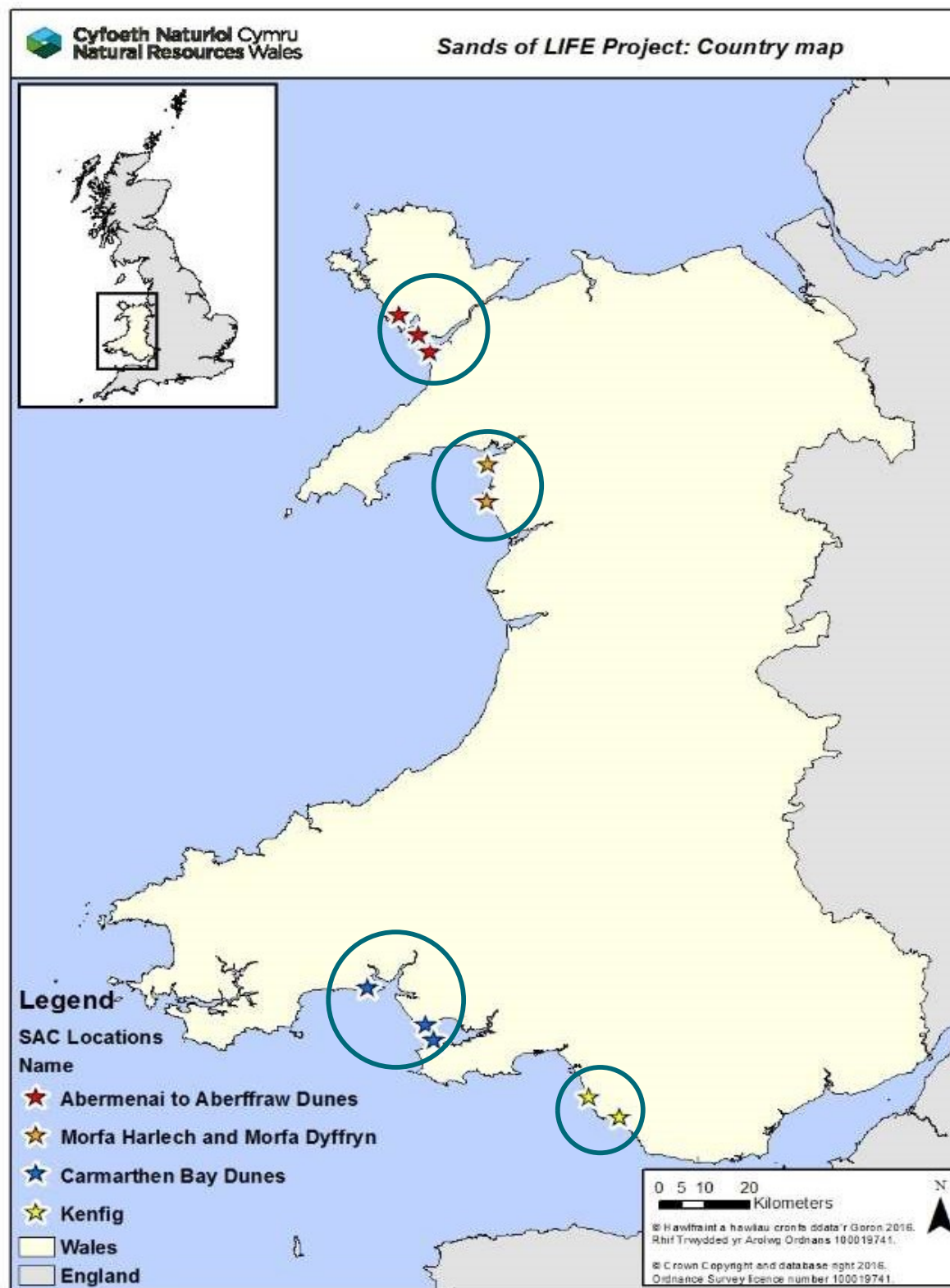
**Total project budget: €6.3 million**

- **75% EU LIFE Programme**
- **25% Welsh Government**



# Sands of LIFE project

- Restore and rejuvenate sand dunes across Wales
- Favourable conservation status for protected, rare and threatened sand dune habitats (5) and species (3)
- On 4 Special Areas of Conservation across Wales
- By re-mobilising the dunes & restoring natural ecological/geomorphological processes
- To bring 2,400ha into favourable condition (62% of Welsh dunes)





# Sands of LIFE project sites

Special Area of Conservation	SoLIFE Project Sites	Area (ha)
<b>Y Twyni o Abermenai i Aberffraw / Abermenai to Aberffraw Dunes</b>	Tywyn Aberffraw	337 ha
	Newborough	1289 ha (633 ha open dune)
	Morfa Dinlle	245 ha
<b>Morfa Harlech a Morfa Dyffryn</b>	Morfa Harlech	578 ha
	Morfa Dyffryn	484 ha
<b>Carmarthen Bay Dunes / Twyni Bae Caerfyrddin</b>	Laugharne - Pendine Burrows	796 ha
	Pembrey Coast	288 ha
	Whiteford Burrows	122 ha
<b>Kenfig / Cynffig</b>	Kenfig	716 ha
	Merthyr Mawr	474 ha





Sand dune resource in  
Wales = 8,100ha

Which is 11% of the UK  
resource (71,600ha)

Sand dunes within project area  
= c. 5,000 ha

Sand dunes make up only  
0.003% of the land surface of  
Wales



# Sand dunes in Wales



# H2110 Embryonic shifting dunes

## UK Condition: Unfavourable





# H2120 Shifting dunes with marram UK condition: Unfavourable





H2190 Humid dune slacks

H2170 Dunes with *Salix arenaria*

UK condition: Unfavourable









# H2130 Fixed dune grassland (grey dunes)

## UK condition: Unfavourable



**Whiteford Burrows**







**S1441**  
**Shore dock**  
**Rumex**  
**rupestris**

**UK condition:**  
**Unfavourable**







**S1395 Petalwort *Petalophyllum ralfsii***  
**UK condition: Unfavourable**



**S1903 Fen  
orchid  
*Liparis  
loeselii***

**UK condition:  
Unfavourable**







**Sand lizard**





Loss of bare sand  
between 1940s and  
2009 = 87%

Lack of dynamic  
conditions = Lack of  
bare sand and  
pioneer conditions  
and reduced  
biodiversity





**Newborough**





**Whiteford Burrows**





Merthyr Mawr



# Merthyr Mawr







**Newborough**

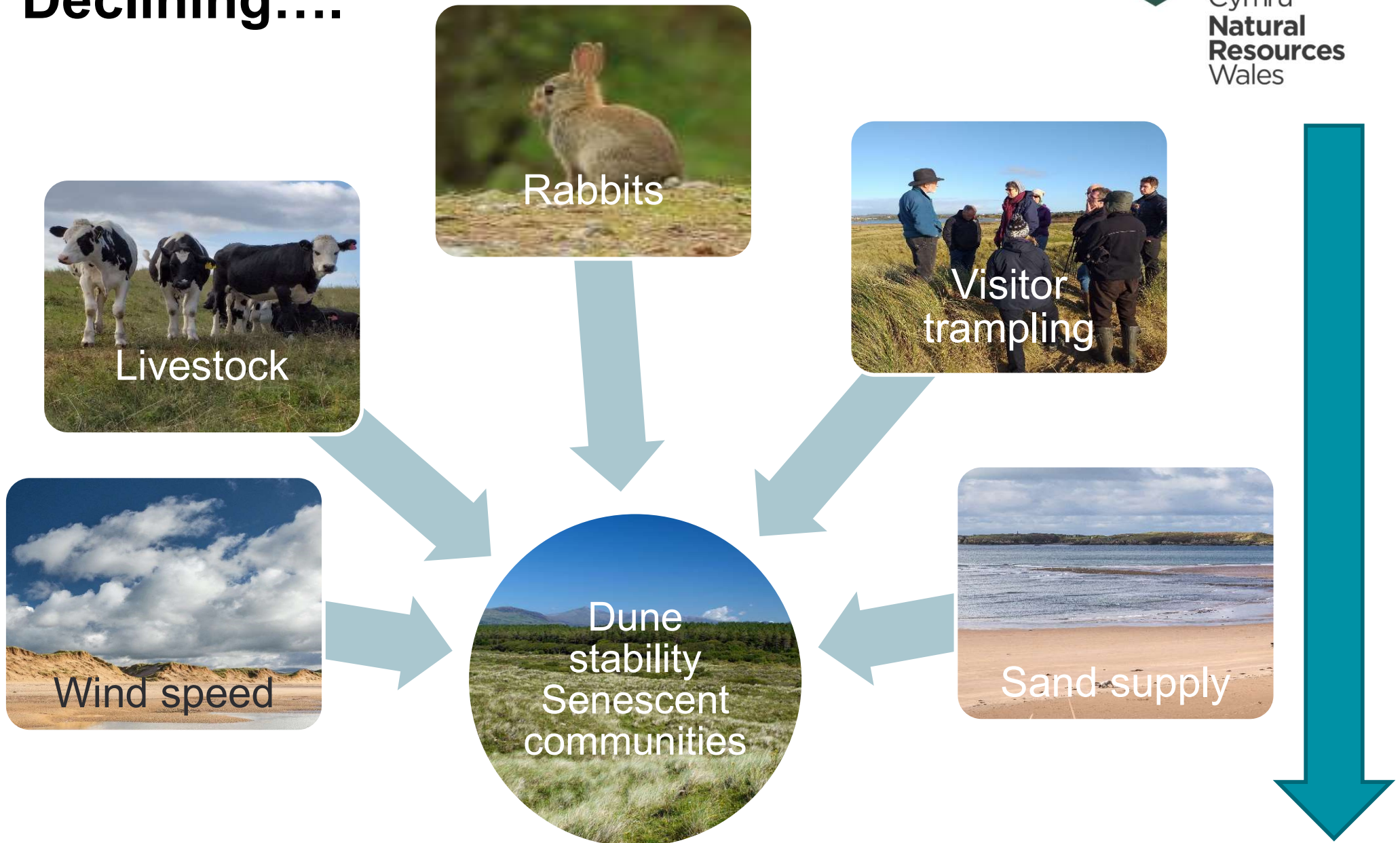


# Morfa Dyffryn



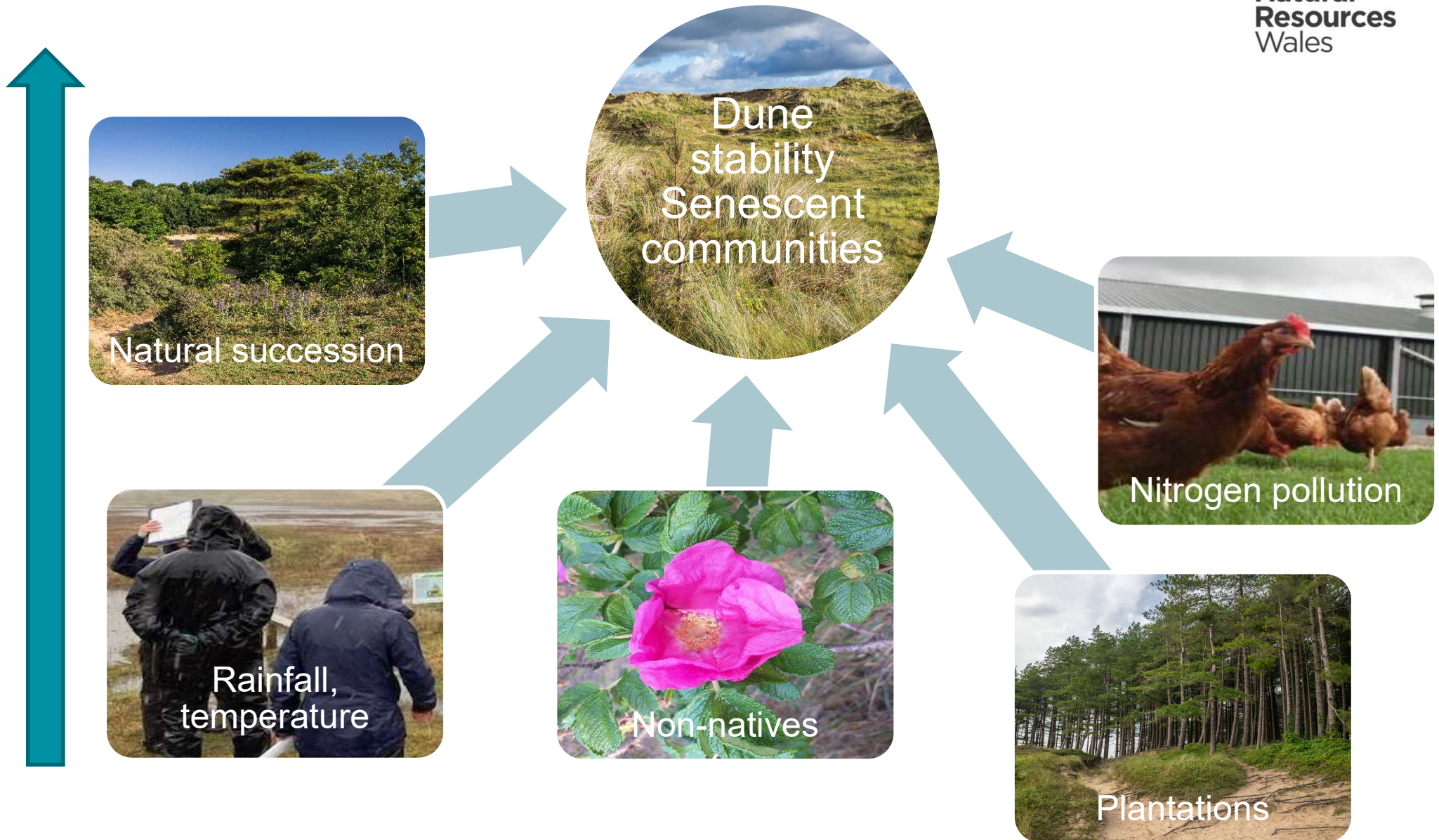


# Causes of unfavourable condition – Declining....





# Causes of unfavourable condition – Increasing...





# Sands of LIFE

## Invasive Alien Species statistics

(including conifer removal and brash removal)

Budget: €782,000 (of this, €151,000 for conifers and brash)

Target hectarage: 81ha (of this, 31ha for conifers and brash)

Budget per ha: €9,600

Overall SoLIFE conservation budget: €1,992,000

Percentage of works which are IAS: 40%

Hectarage so far: 82ha

Cost so far: €427,000



# Invasive Alien Species – most problematic species on SACs in Wales



# Sea Buckthorn – *Hippophae rhamnoides*



- Native in Eastern Britain but not Wales
- Very invasive
- Planted for stabilisation purposes



# Sea Buckthorn – *Hippophae rhamnoides*



Mature, impenetrable beds, extending over hectares  
**Pembrey Burrows**





**Laugharne-Pendine Burrows**





**Laugharne-Pendine Burrows**





North Wales: Clumps of medium-age  
Eutrophication effect – understory of nettles etc  
**Newborough Warren**





**Newborough – Twyni Penrhos**





After years of treatment  
**Pembrey Burrows**





**Rosa rugosa**

Discrete clumps / can be extensive  
in some areas

Garden escapee  
Amenity planting



**Montbretia –  
*Crocosmia x  
crocasmifolia***

- Spreading clumps
- Garden escapee,  
waste dumping
- Resistant to  
treatment, could  
spread







**Corsican pine – *Pinus nigra***

Planted for timber and stabilisation purposes

Plantation establishment is source of many other IAS







**Stabilisation** – fixes natural geomorphological processes  
Affects hydrology of slacks  
Shading, acidification, smothering (needle drop etc)



## SoLIFE Proposed Conifer Felling Plan: Whiteford Burrows



### Legend

-  Proposed\_Conifer\_Thinning\_Area
-  Proposed\_Conifer\_Felling\_Area



Prosiect Twyni Byw - Sands of LIFE Project  
(LIFE 17 NAT/UK/000023)

Mae'r prosiect wedi derbyn cyllid gan y rhaglen Cymuned Ewropeaidd LIFE ac yn rhannol gan Lywodraeth Cymru.

The project has received funding from the LIFE Programme of the European Union and part funded by Welsh Government.

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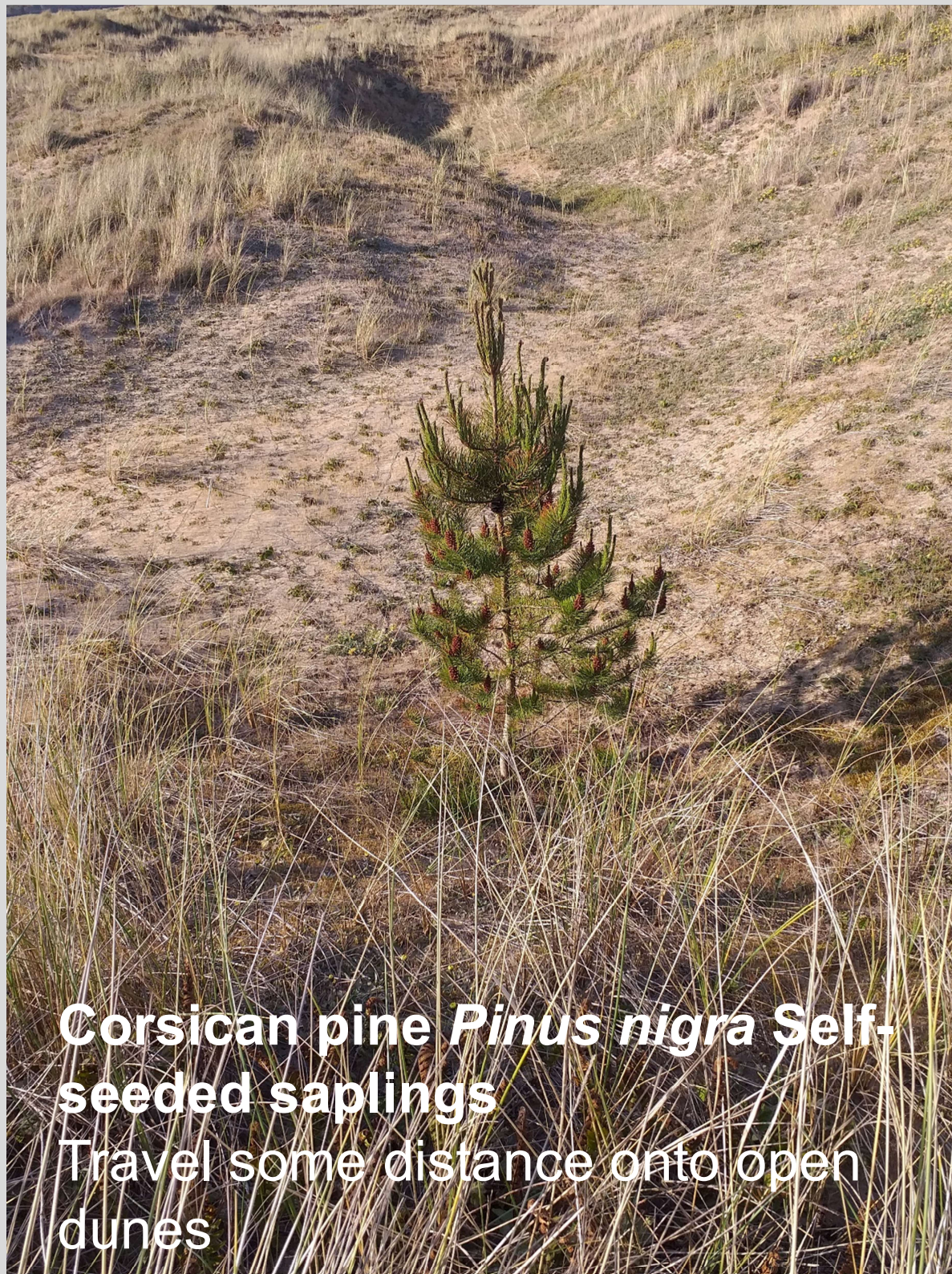


# Conifer stumps and brush

Eutrophic-  
ation,  
encourage  
bramble etc







**Corsican pine *Pinus nigra* Self-seeded saplings**

Travel some distance onto open dunes





*Cotoneaster horizontalis* at  
Tywyn Aberffraw







***Cotoneaster simonsii* in  
Newborough Forest  
Extensive growth as understorey  
under conifers  
Resistant to treatment**



**Cotoneaster and Western Red Cedar *Thuja* - in mix of native and alien scrub in dune habitat**





# **Invasive Alien Species – less problematic species (for now)**





**New Zealand Flax *Phormium***  
Scattered individuals – increasing slowly – spread on coast



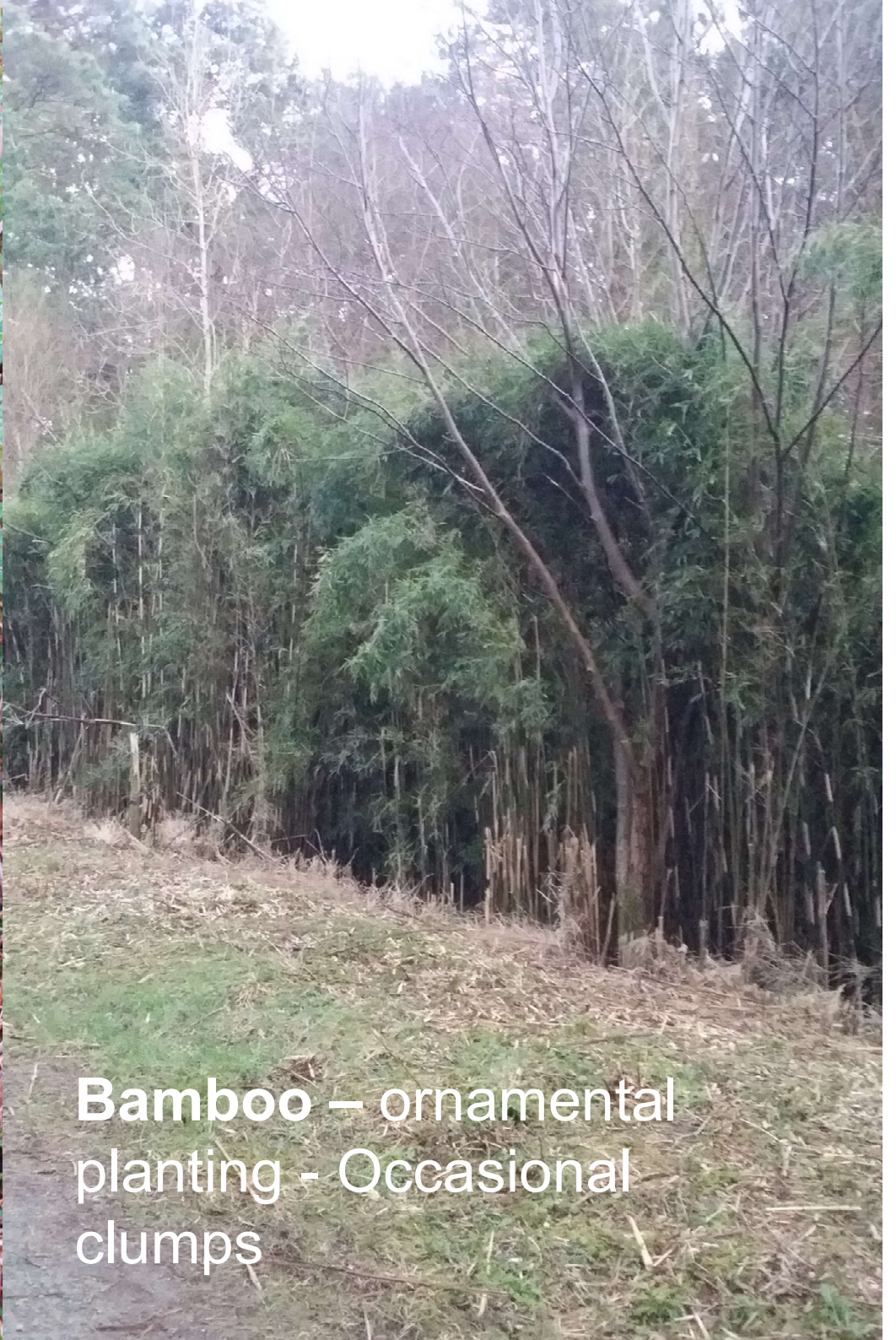


**Yucca** – planted as ornamental, not actively spreading





**Tree lupin** – planted for stabilisation – ex-plantation site High potential to spread throughout area



**Bamboo** – ornamental planting - Occasional clumps





**Privet - Ligustrum**



**Red-hot poker**





***Buddleja davidii* - Newborough**



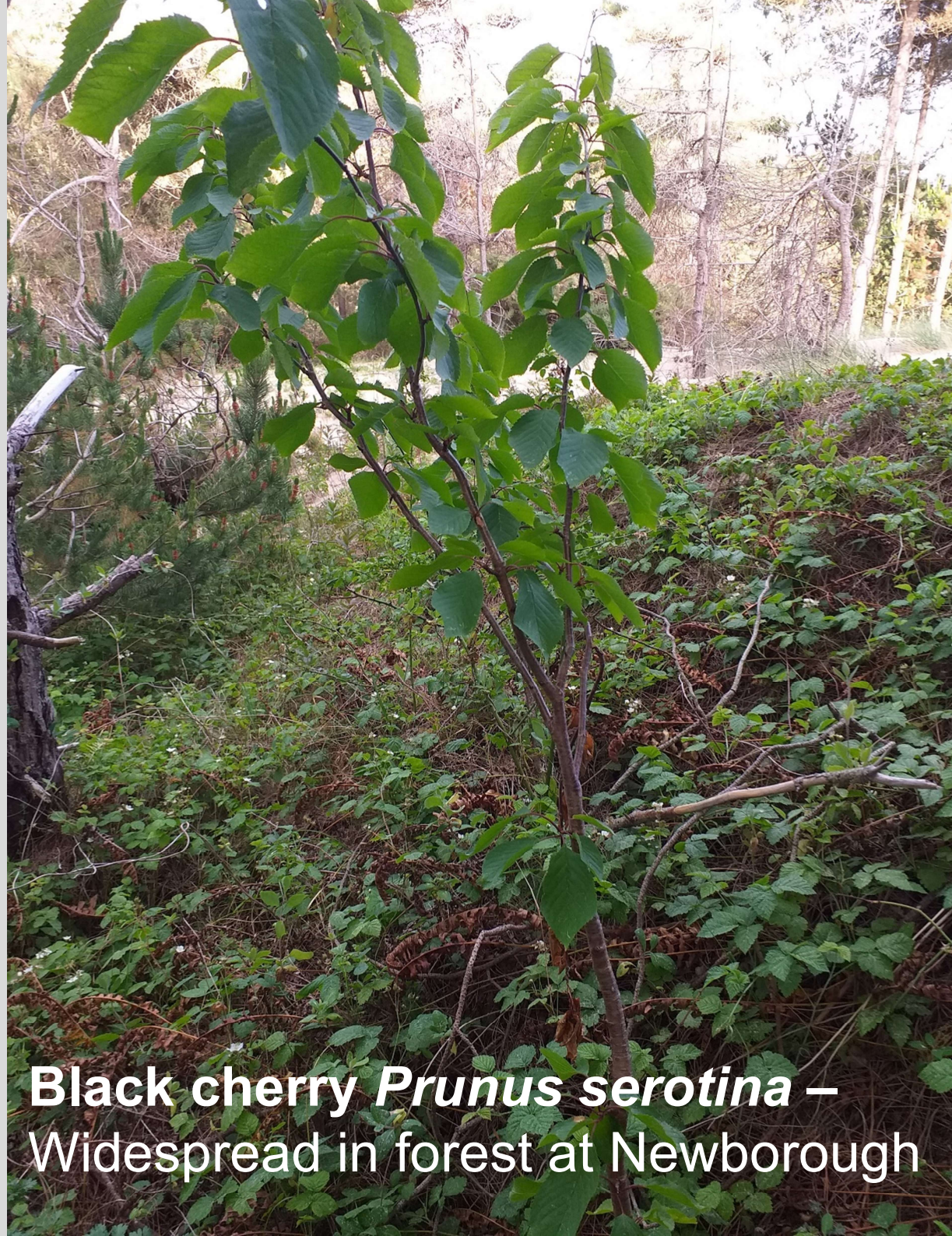
**White/hybrid poplar  
*Populus alba* –  
Newborough**





**Aquilegia Newborough**





**Black cherry *Prunus serotina* –  
Widespread in forest at Newborough**





Michaelmas daisy – *Aster novi-belgii* - small clumps at Morfa Harlech



A photograph of a field of Japanese knotweed (Reynoutria japonica). The plants are dense and green, with some white flowers visible. In the foreground, there is a small clump of yellow flowers. The background shows a cloudy sky and a distant horizon.

**Japanese knotweed *Reynoutria japonica* – small clumps**



# Native species acting like Invasive Alien Species



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***Clematis  
vitalba***  
**Morfa  
Harlech**

Increasing  
problem –  
serious  
threat



**Cyfoeth  
Naturiol**  
Cymru  
**Natural  
Resources**  
Wales



# Broom *Cytisus* at Morfa Harlech - previously conifer plantation





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## Observations



- Hotspots are built up areas, roadsides, and mobile dunes (where carried by sea)
- IAS disproportionately affect open sand habitats
- Establishment of plantations have brought many IAS in addition to the conifers themselves
- Confer felling creates large, sudden IAS issue due to disturbance, light, eutrophication effects
- Cause of increase elsewhere is less unclear (N pollution/ climate change)
- IAS are worse where there is insufficient dune management generally e.g. grazing
- Smaller sites/undesigned site are in worse condition
- The more you look the more you find



**Diolch**

**Thank you**

