

Adaptive planning for a wilder future, where opportunities for wildlife are maximised.

Mike Alexander FRSB FCIEEM





Adaptive planning for a wilder future, where opportunities for wildlife are maximised.

optimised.

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Our responsibility must be to keep options open for the future, to provide <u>optimal</u> conditions for wildlife, wherever and whenever we can. (We don't want everything everywhere but there should be a somewhere for everything.)

I believe that we should take account of the processes which deliver the natural variability that is an essential feature of any ecosystem. As far as possible, we should <u>enable natural processes</u> to deliver tomorrow's wilder places.

Monitoring: surveillance undertaken to ensure that <u>formulated</u> <u>standards</u> are being maintained

Plans must respond to legislation, policies, strategies etc.

#### ADAPTIVE ENVIRONMENTAL ASSESSMENT AND MANAGEMENT

Edited by C.S.HOLLING

1978

International Institute for Applied Systems Analysis



# Characteristics of Adaptive Management <u>Essential:</u>

- Clear and specific <u>objectives</u>
- Monitoring with a feedback link to management
- Learning is an explicit objective
- Management is not delayed by uncertainty
- Adaptation

Adaptive management is grounded in the admission that humans do not know enough to manage ecosystems (Lee 1999)

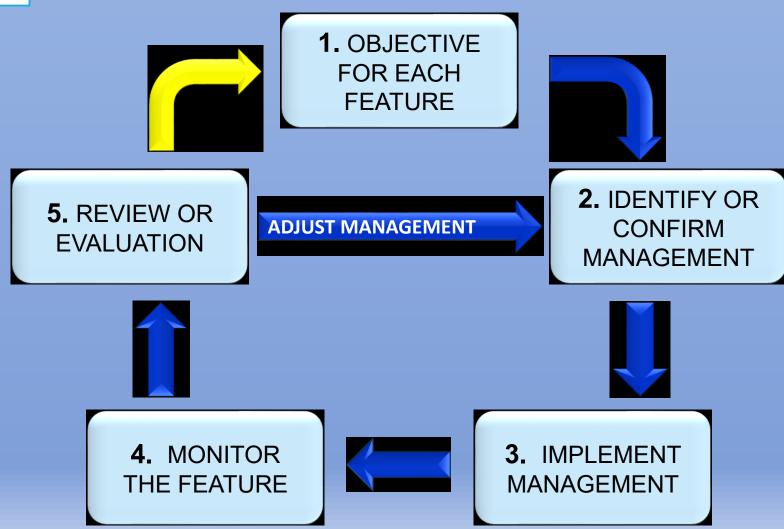


#### Adaptive management - a minimal approach





#### An ADAPTIVE Management System





**1.** OBJECTIVE FOR EACH FEATURE



**5.** REVIEW OR EVALUATION

**ADJUST MANAGEMENT** 

2. IDENTIFY OR CONFIRM MANAGEMENT





**4.** MONITOR THE FEATURE



**3.** IMPLEMENT MANAGEMENT

## CHANGE

Environment

Human values & perceptions

Evolution?

Change – an inevitable product of life?





**1.** OBJECTIVE FOR EACH FEATURE



**5.** REVIEW OR EVALUATION

**ADJUST MANAGEMENT** 

2. IDENTIFY OR CONFIRM MANAGEMENT



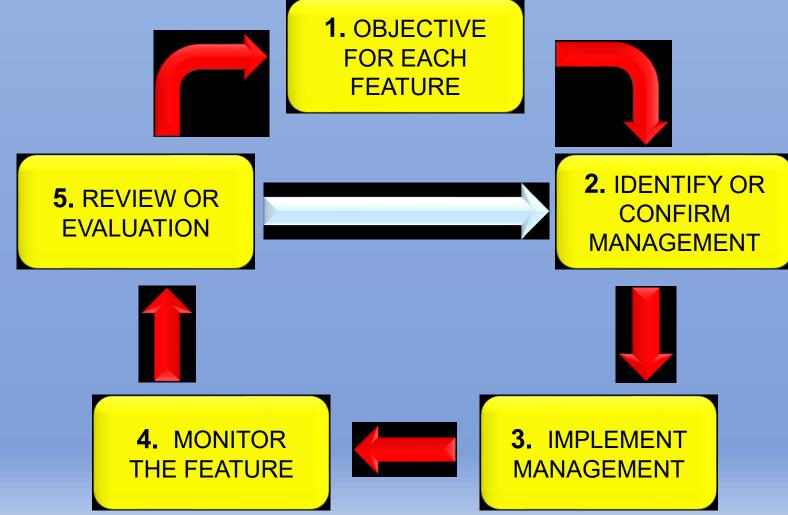


**4.** MONITOR THE FEATURE

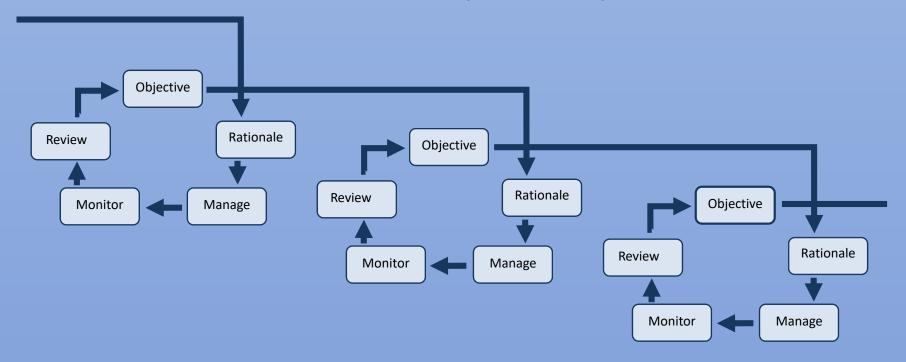


**3.** IMPLEMENT MANAGEMENT





## Management planning should be a continuous cyclical, iterative and developmental process.







SKOMER ISLAND — A CASE STUDY

### **SKOMER ISLAND**

National Nature Reserve

SITE OF SPECIAL SCIENTIFIC INTEREST

Special Area of Conservation

SPECIAL PROTECTED AREA

Marine Conservation Zone

MARINE SAC

PEMBROKESHIRE COAST NATIONAL PARK

### GUILLEMOTS URIA AALGE





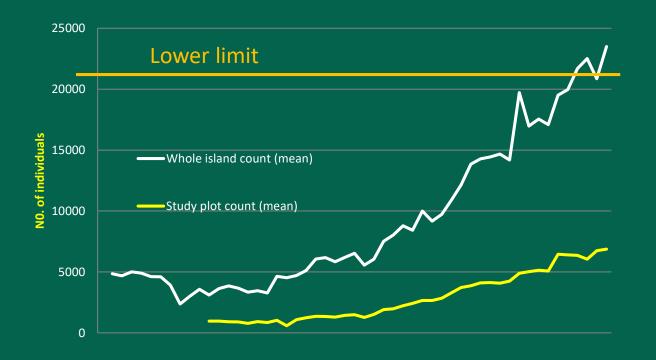
#### Objective for Guillemots:

- Skomer Island supports a resilient and viable breeding population of Guillemots.
- The population is stable or increasing and its status as a component of the wider UK population is not declining.
- Adult survival and breeding productivity is sufficient to help ensure the longterm survival of the populations.
- The distribution of the population on the island is maintained or increasing.
- All the factors which are influencing, or have potential to influence, the Guillemots or their habitat are under control. In particular, their colonies are not disturbed by human activities, both on the island and from the sea, and there are no mammalian land predators on the island.

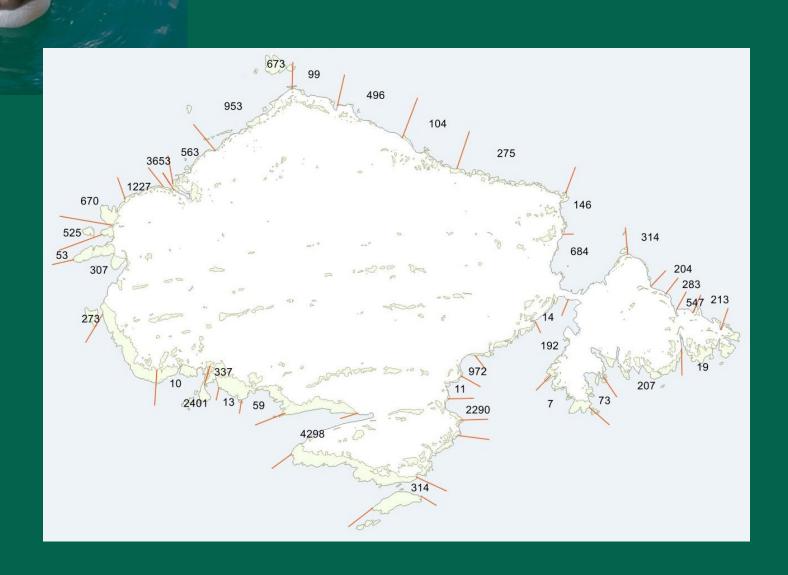


#### Performance Indicators (Metrics)

#### SIZE OF GUILLEMOT POPULATION 1963 - 2018



## DISTRIBUTION OF GUILLEMOT POPULATION 2018





#### Monitoring projects

Productivity (0.8)

0.82 chicks per pair

Adult survival (85%) 87%

#### Surveillance projects

Phenology

first egg

5 May

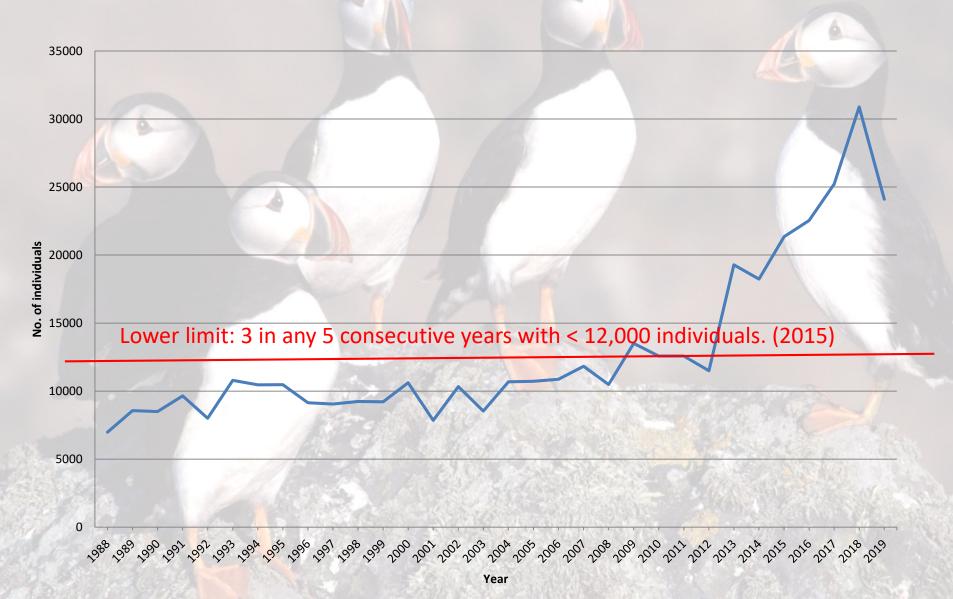
first chick

4 June

first fledging

28 June





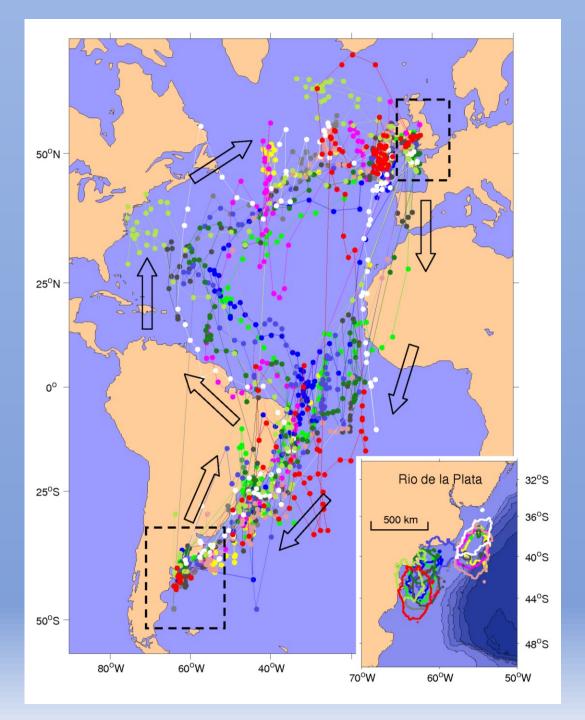
#### Base line?



#### MANX SHEARWATERS

SKOMER POPULATION - c350,000 pairs



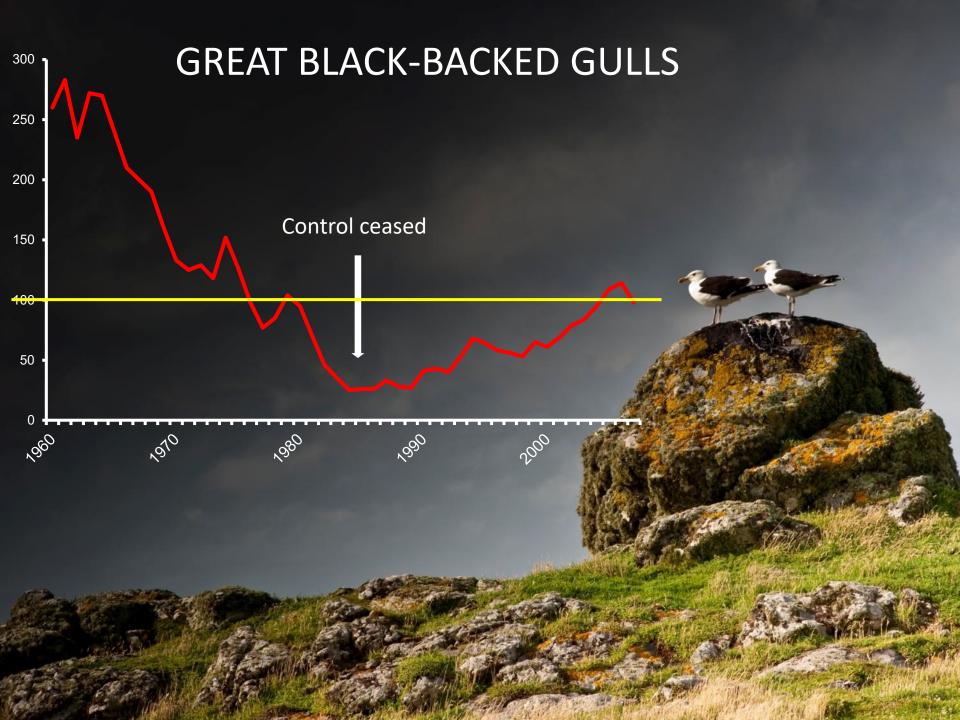


Guilford, T., Meade, J., Willis, J., Phillips, R. A., Boyle, D., Roberts, S., Collett, M., Freeman, R., & Perrins, C. M. (2009) *Proc. Roy. Soc. B.* **276**:1215-1223



## NO GROUND PREDATORS







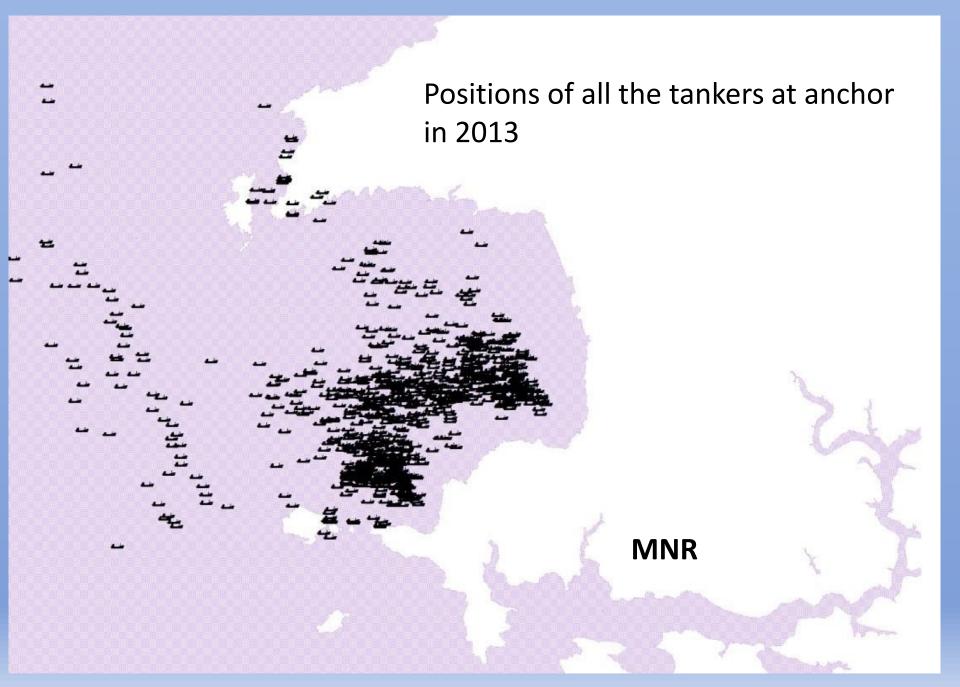
### Tankers mooring in St Bride's Bay

An example of species adaptive management

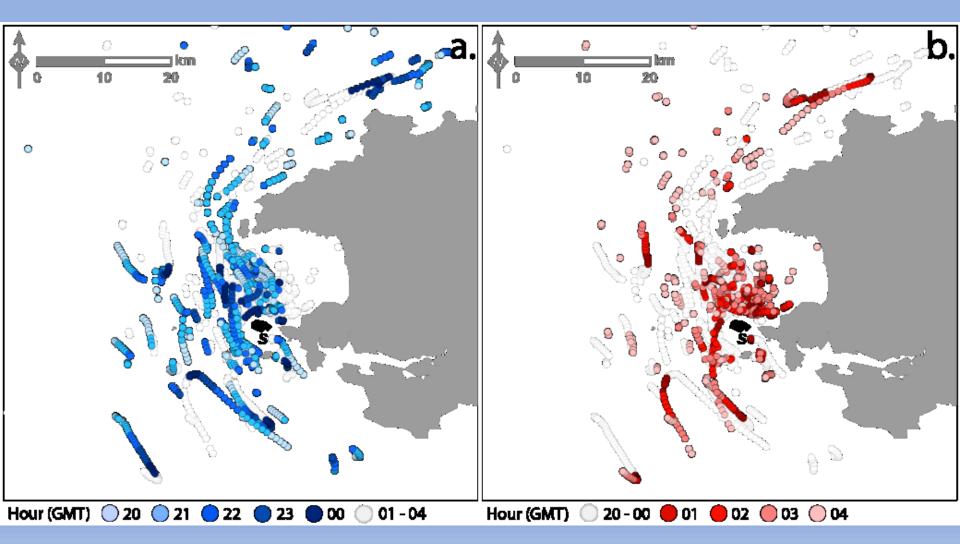


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## Shearwater rafting map, using a sample of birds tracked by GPS



Rafting prior to visit

Rafting after visit



#### Skokholm and Skomer

Map 1/1

Côd Safle y GE UK9014051 EC Site Code

(Bresennol ac Arfaethedig)

G/N

Ardal Gwarchodaeth Arbennig arfaethedig (AGAa) potential Special Protection Area (pSPA)

AGA bresennol **Existing SPA** 

423.04 ha

AGA arfaethedig Potential SPA

13,924.77 ha

Arwynebedd cyfan **Total Area** 

14,347.81 ha

(Existing and Potential) Hydred Gorllewin 05° 17' 30" West

Longitude Lledred Latitude

51 44 11"

Gogledd North

N.G. Mae'r ffigurau Lledred/Hydred i gyd wedi deillio o System Geodesig y Byd 84 (WGS 84)

N.B. All Latitude/Longitude figures have been derived from World Geodetic System 84 (WGS 84).

Tafluniad map: Aildafluniad Y Grid Cenedlaethol Prydeinig Projection: Re-projection British National Grid

Rhif diweddaraf

03/10/2013

Version number

Graddfa 1:75,000 Scale

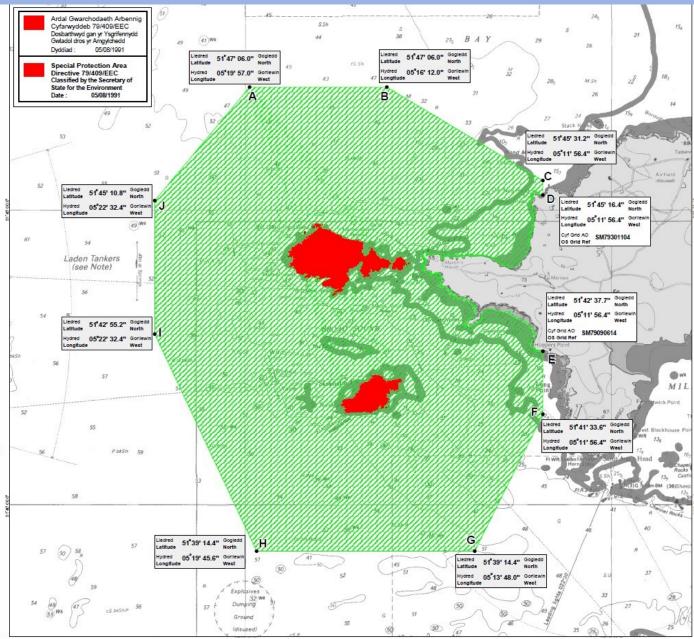
Noder: Data wedi ei gipio ar raddfa 1:2,500 a rhoddwyd ar raddfa 1:75,000. Mae mapiau graddfa-fawr swyddodol ar gael gan CNC. Mae graddfa'r map yn cywir pan argraffu yn A3. Note: Data captured at 1:2,500 scale and placed on 1:75,000 scale. A definitive large scale map is available on request from NRW. The scale of this map is only correct when printed out at A3.

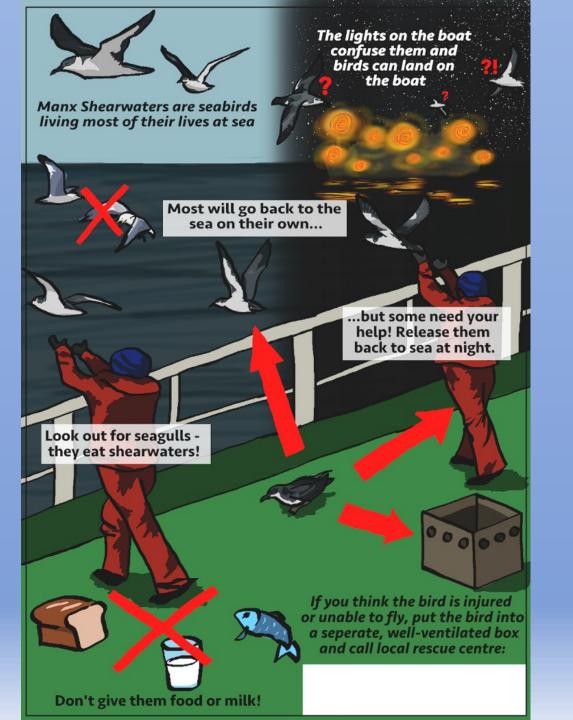
Noder: Gall y ffin newid lle mae'n dilyn llinell Marc Penllanw Cymhedrol ac/neu lineil Marc Distyll Cymhedrol. Note: Where the boundary follows the lines of Mean High and/or Mean

Low Water Marks it is subject to change.

Main' syrinytch him yn dellio; yn rhannol, o Ddeuryddiau Hewfreint y Coron gyda Chanleidd Swyddfe Hydrogreffigy Dwyrnas Unedg a Ffincilwe Cwang El Menthyd (www.ubro.gov.ut). Cedeir pob hawl. This product has bean derfred, in part, from Crown Coryon-pythyd Madriai with the permission of the UK Hydrographic Office and the Controller of Her Majesty's Stationery Office (www.ukho.gov.ut). All rights reserve RYSULDD. No yw dwydda Hydrogaethg y Deyrnas Uniadg wed dlysu'r wycodaeth yn y cyntrych han en rid ym faeth y chffiddae y ryghr a chywlede wh flaghrighthu ur bylw addaeddau arro a wrai wrdyn. WARNING: The Unifydrogaethe Cliffe has not veriffeld he information within his padect and does not accept laibility for the accuracy of reproduction of any modifications made these flat. A second of the control of the co







## VEGETATION is a FACTOR

### VEGETATION is also a FEATURE

For over 50 years conservation management on Skomer has sought, in places, to maintain something which is representative of a time when agriculture was in decline.



Should we attempt to recreate the past?



Which version of the past, if any, might we want for tomorrow?

## The objective for habitats on Skomer:

To enable the natural development of all the plant communities, in so far as any change is compatible with maintaining optimal conditions for the breeding seabird populations and all other legally protected features (wildlife and archaeological).



Visions for wilding (enabling natural processes) e.g. a coastal dune system.

# Visions for extremely dynamic coastal dune systems:

- A sufficient area of sand dune habitat exists to support the full complement of dependent plant communities and typical dune species.
- The system consists of a dynamic, shifting mosaic of sand dune communities where the actual composition and structure is governed by natural processes.
- The distribution of plant communities and populations of typical species are also governed by natural process.
- The factors that influence, or may influence, the sand dune system are under control.









Washing sheep 1891

## Grazing by Domestic stock

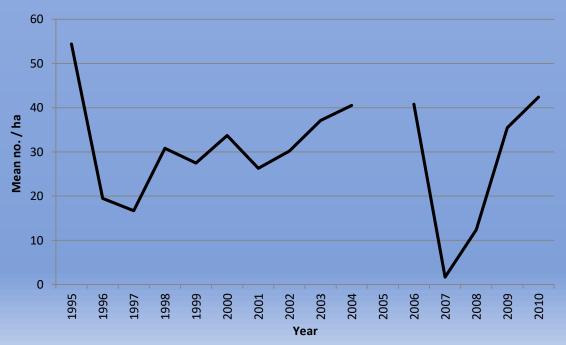


## **RABBITS**

Introduced c 1180

First record of rabbit 'farming' 1387

Rabbit harvesting ceased 1954





## As a positive factor?

The most important of all features on Skomer, the seabird populations and particularly the Manx Shearwaters, have thrived in the presence of rabbits



### Could we exterminate the rabbits?

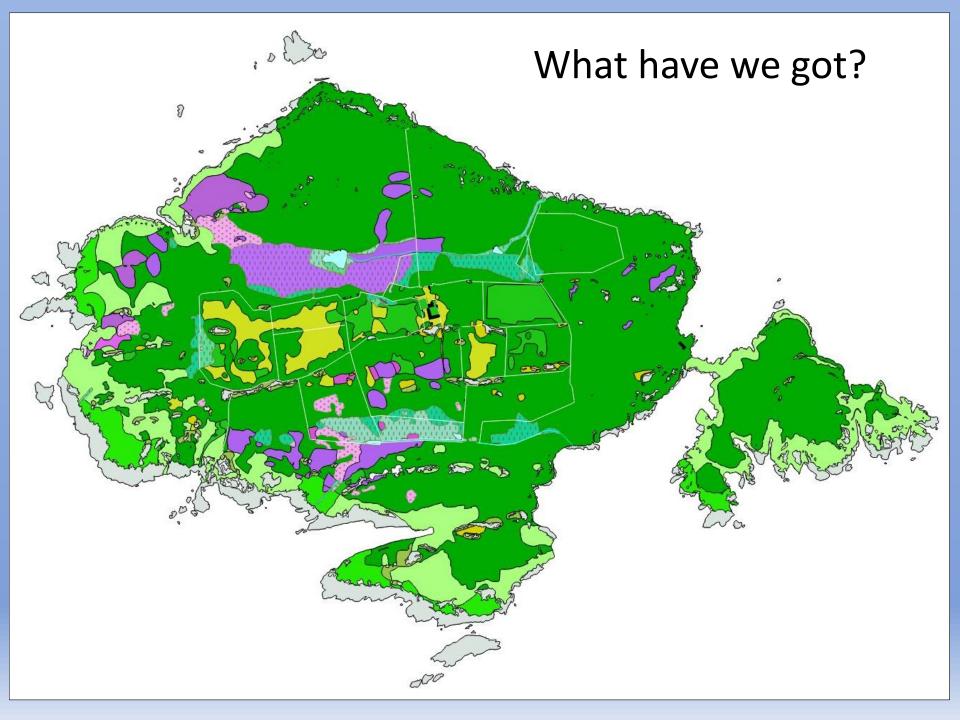
Trapping?

**Shooting?** 

Poisons including gas?

Do we regard rabbits as alien invaders or treat them a naturalised or 'new natural' species? Do we have any choice?





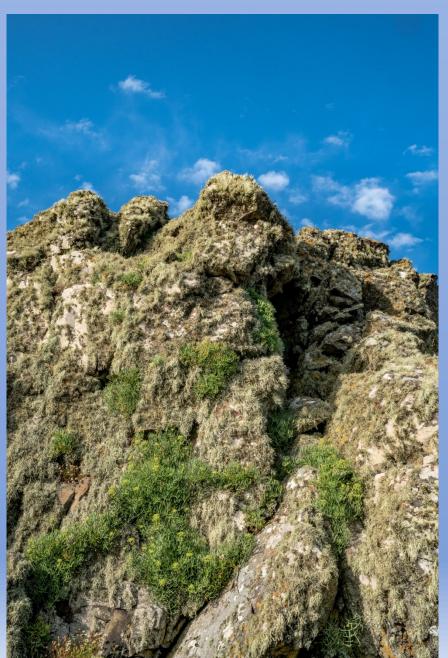
#### MARITIME CLIFF AND CREVICE COMMUNITIES

Rock sea-spurrey cliff crevice community (MC1 Crithmum maritimum – Spergularia rupicola maritime rock crevice community)

Orache bird-cliff community (MC6 Atriplex prostrata-Beta vulgaris ssp.maritima sea-bird cliff community)

Chickweed bird cliff community (MC7 *Stellaria media-Rumex acetosa* seabird community)





#### SEA CLIFF GRASSLAND COMMUNITIES

Sea-pink grassland (MC8
Festuca rubra – Armeria
maritima maritime grassland)

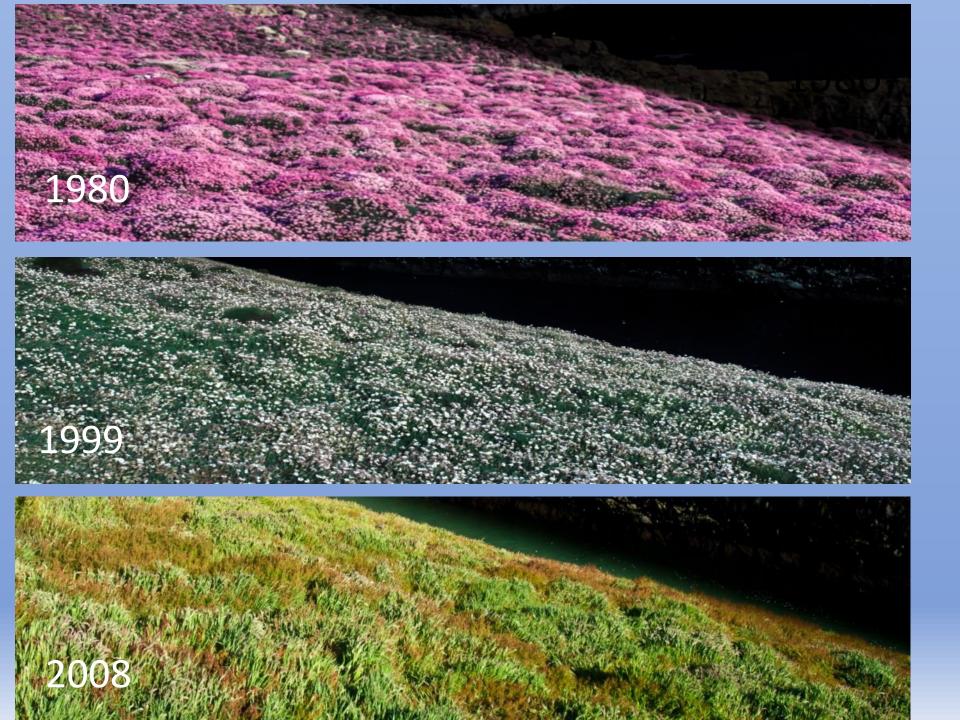
Yorkshire fog cliff grassland (MC9 *Festuca rubra – Holcus lanatus* maritime grassland)

Bluebell cliff grassland (MC12b Festuca rubra-Hyacinthoides non-scripta maritime bluebell community, Armeria maritima sub-community)



# Yorkshire fog cliff grassland (MC9 *Festuca rubra – Holcus lanatus* maritime grassland)



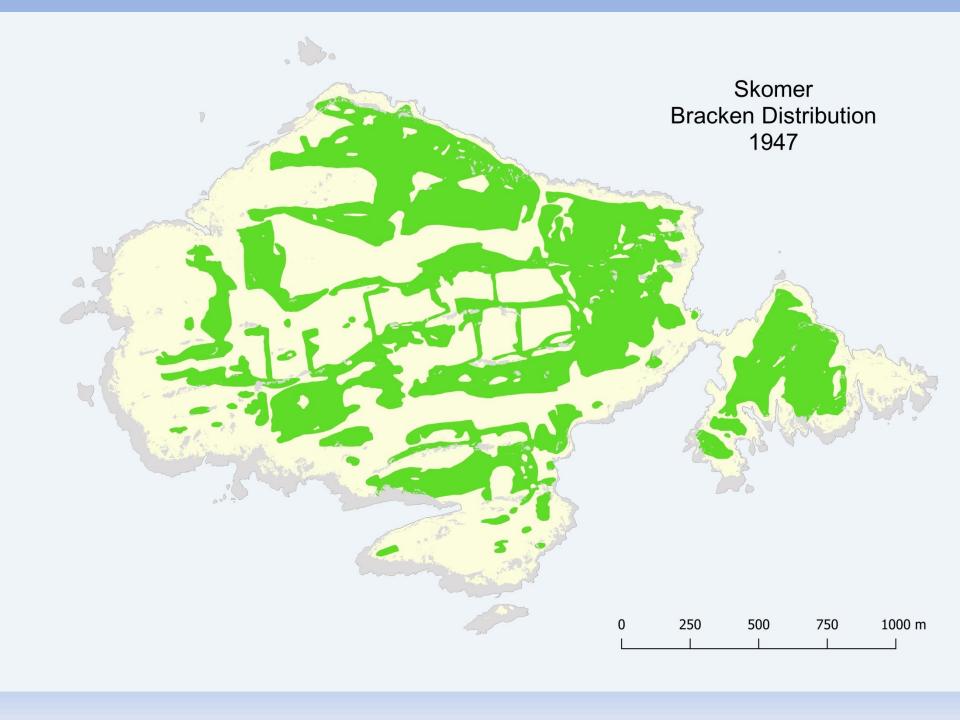


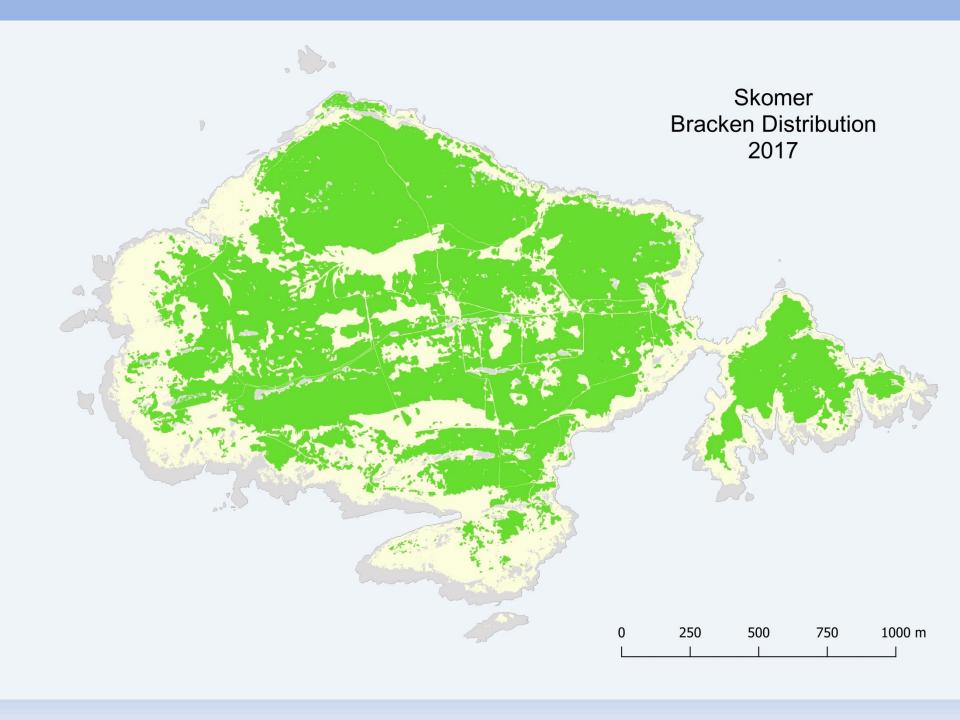


Bent-fescue grassland (U1 Festuca ovina – Agrostis capillaris - Rumex acetosella grassland) Bent-fescue pasture (U4 Festuca-Agrostis-Galium grassland)

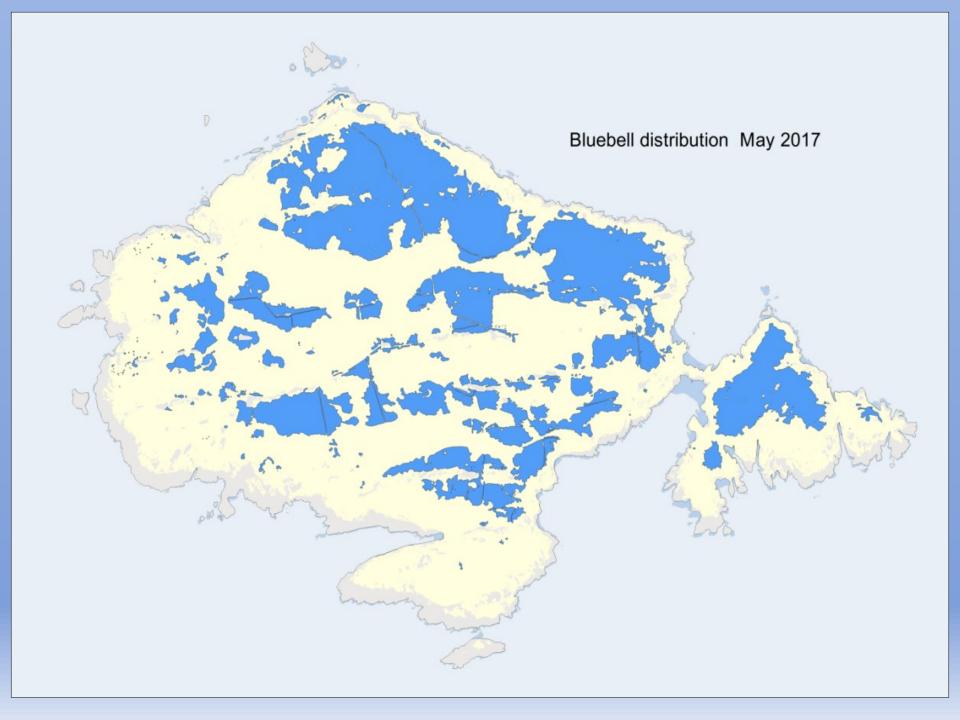
# 1889 Bracken absent in most areas

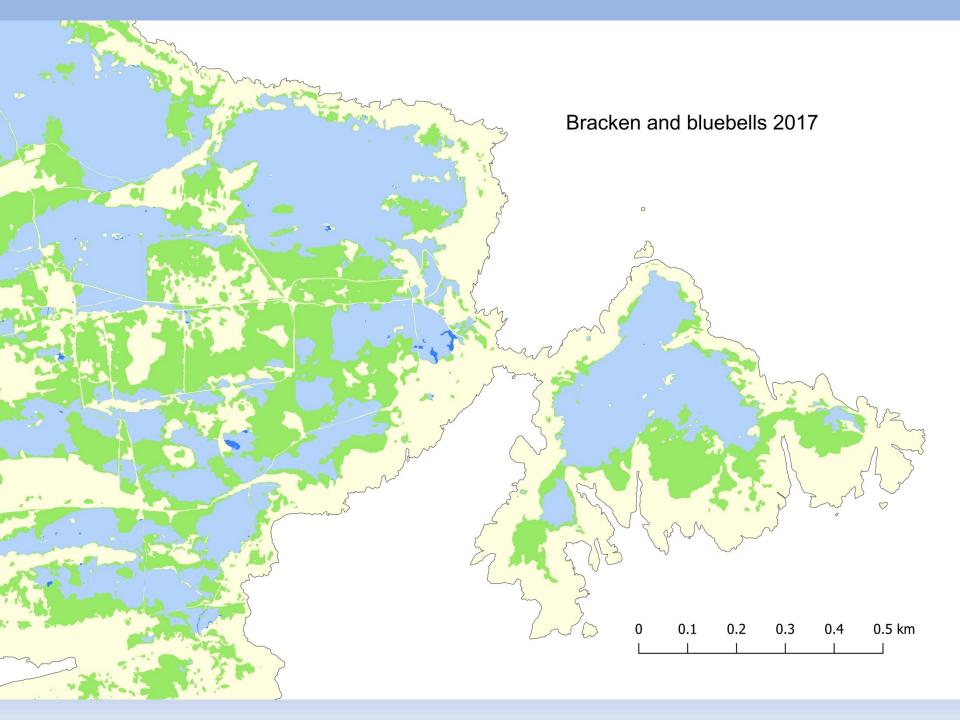












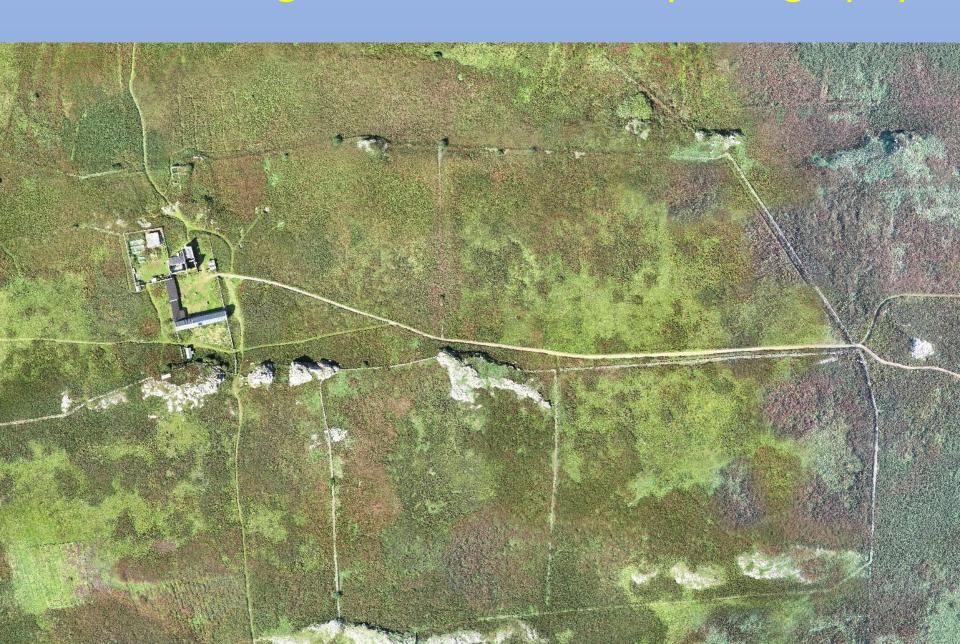




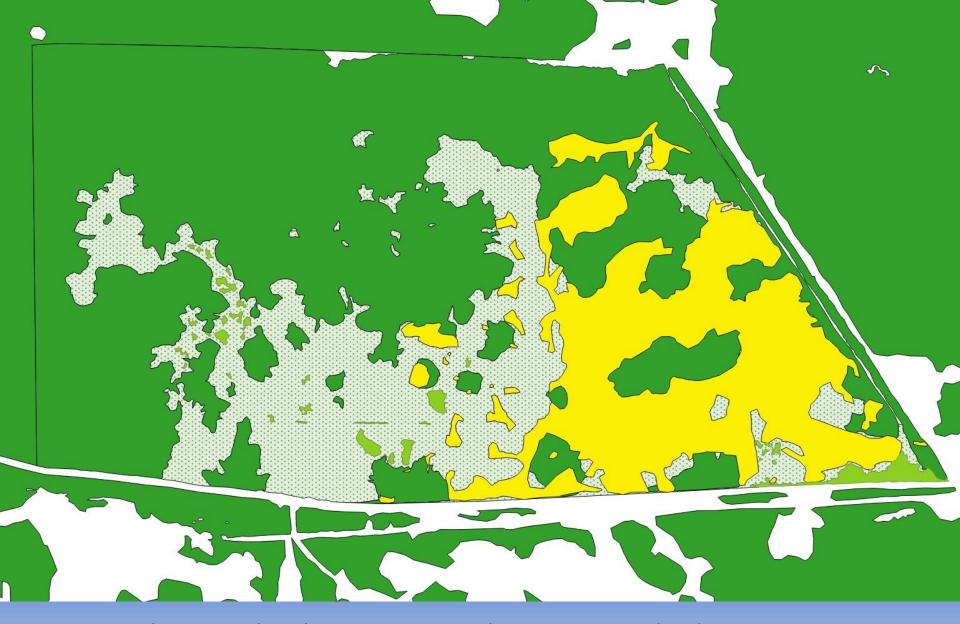
# Surveillance

- A representative network of fixed vegetation quadrats
- Fixed point photography
- Best of all:

# Low-level high-resolution aerial photography

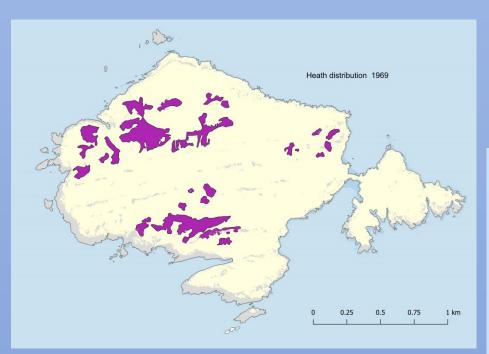


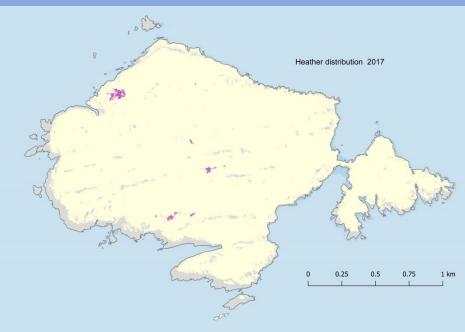


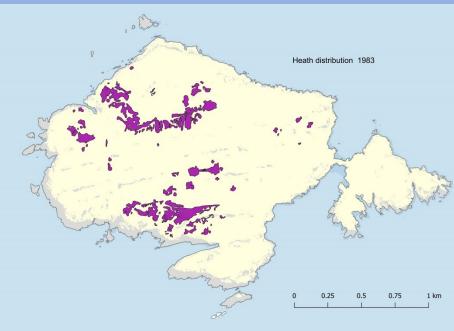


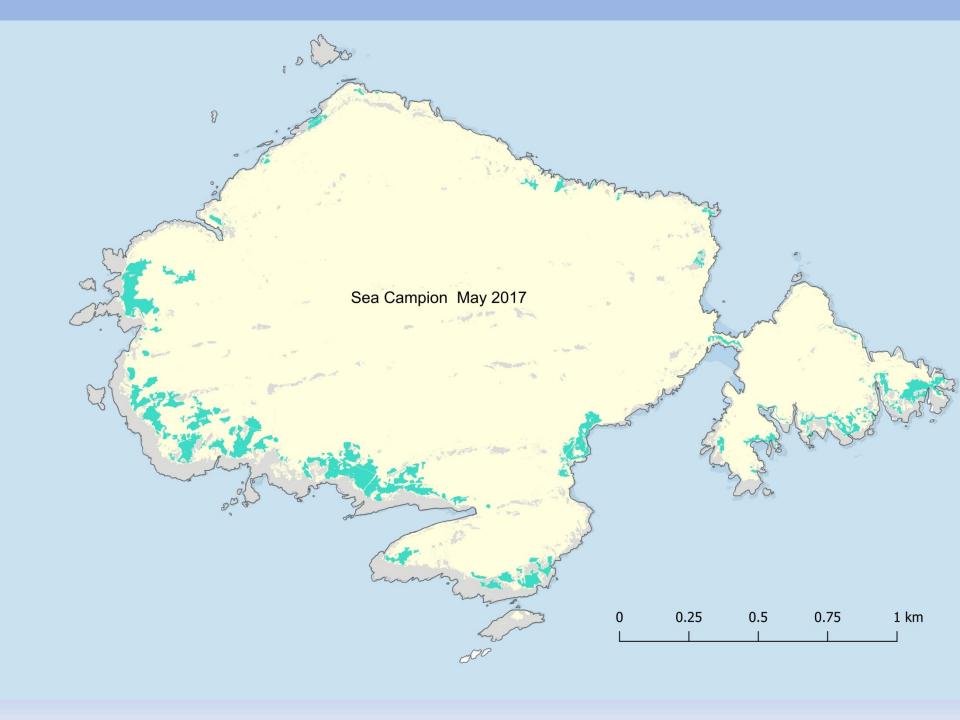
Dark green – bracken Spotted green – woodsage Pale green – grassland Yellow - ragwort



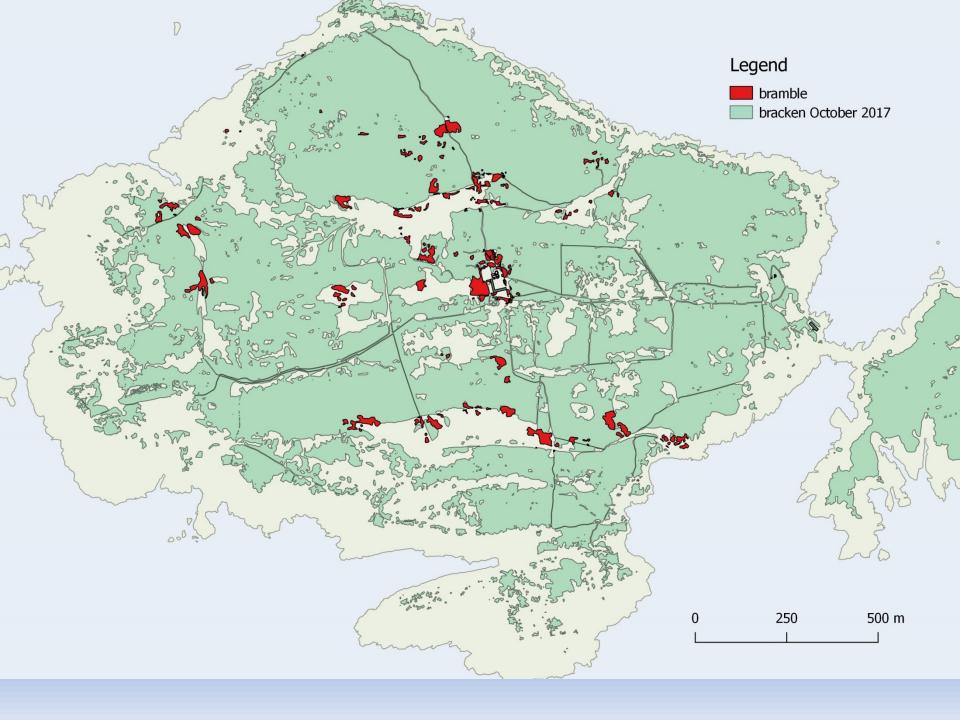












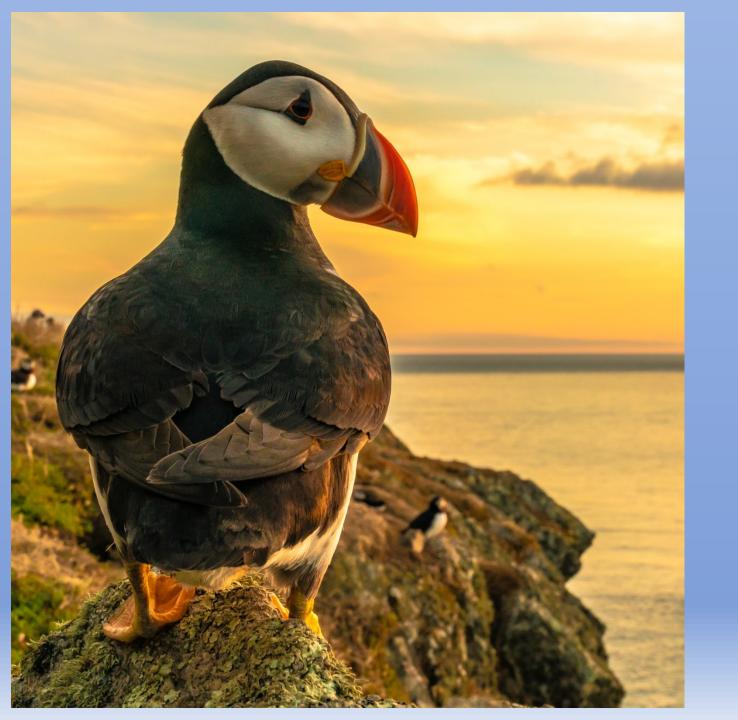




### A few key points

- When our policy is to enable natural processes (wilding) our freedom to apply the policy can be severely constrained by the presence of legally protected species.
- Once we commit to a limited intervention option the future becomes unpredictable, and it is both impossible and undesirable to set detailed, quantified objectives.
- As a generality, surveillance replaces monitoring.
- When there are conflicting interests limited monitoring can be introduced.
- There must be a surveillance or monitoring project for all the factors which influence the feature.

We must see Skomer through Skomer eyes, and we must not be disappointed when the vegetation does not match something that happens somewhere else on mainland cliffs, or that happened at some earlier time on Skomer. We will recognise that the vegetation on Skomer offers something unique and very special. This is something that should be celebrated, enjoyed, cherished and enabled. Skomer WILL be managed to become one of tomorrow's wild places, a future small wilderness.





#### THANK YOU FOR LISTENING



