

Where have our curlew gone?

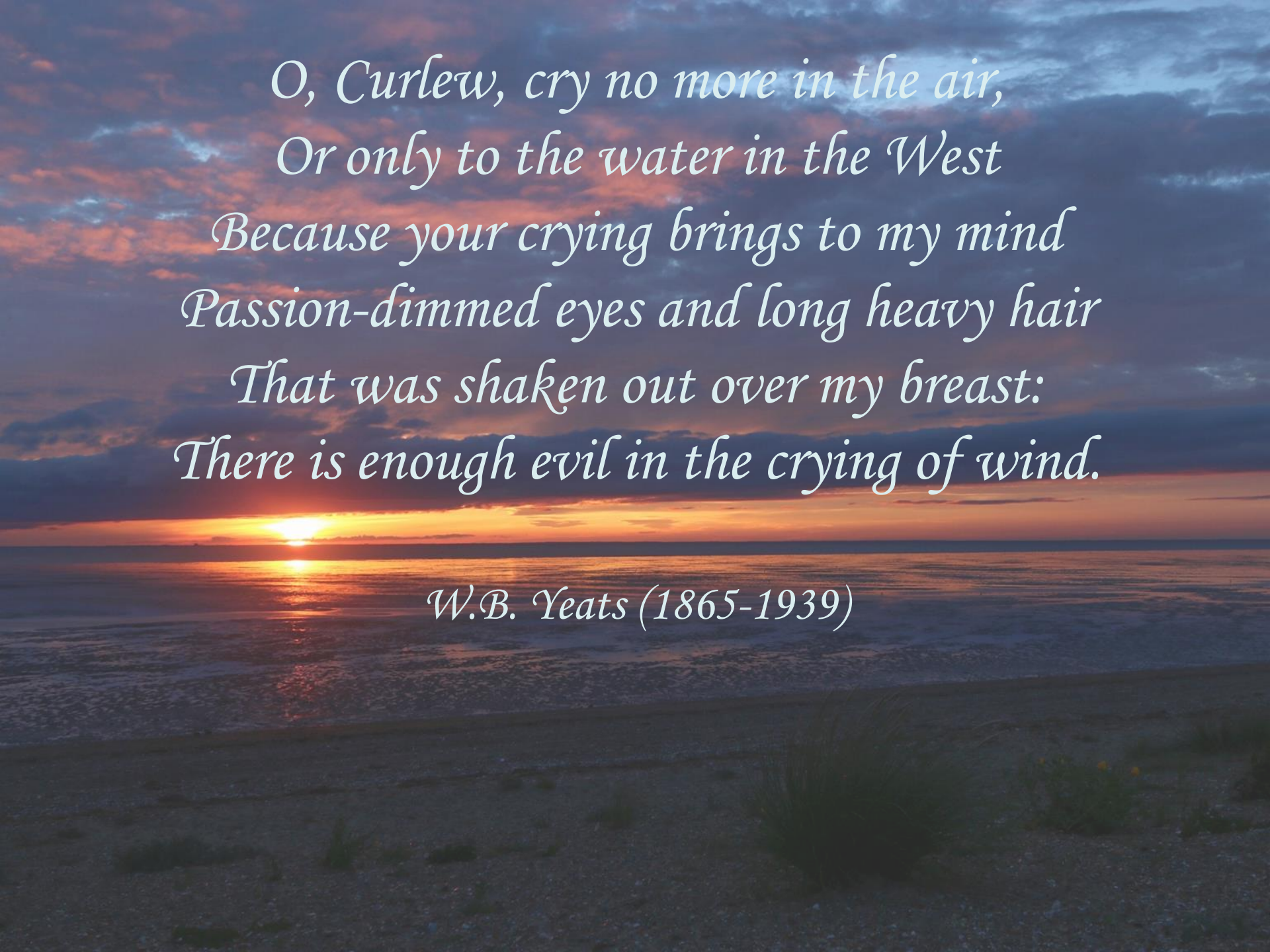


James Pearce-Higgins
Director of Science
British Trust for Ornithology

*Trailing bubbles of music over the squelchy
hillside... music as desolate, as beautiful as your
loved places, mountainy marshes and glistening
mudflats by the stealthy sea...*

Norman Alexander MacCaig (1910-1996)



A photograph of a sunset over a beach. The sun is low on the horizon, casting a bright orange glow across the sky and reflecting on the water. The sky is filled with soft, colorful clouds in shades of orange, pink, and blue. The foreground shows a dark, pebbly beach with some sparse vegetation.

*O, Curlew, cry no more in the air,
Or only to the water in the West
Because your crying brings to my mind
Passion-dimmed eyes and long heavy hair
That was shaken out over my breast:
There is enough evil in the crying of wind.*

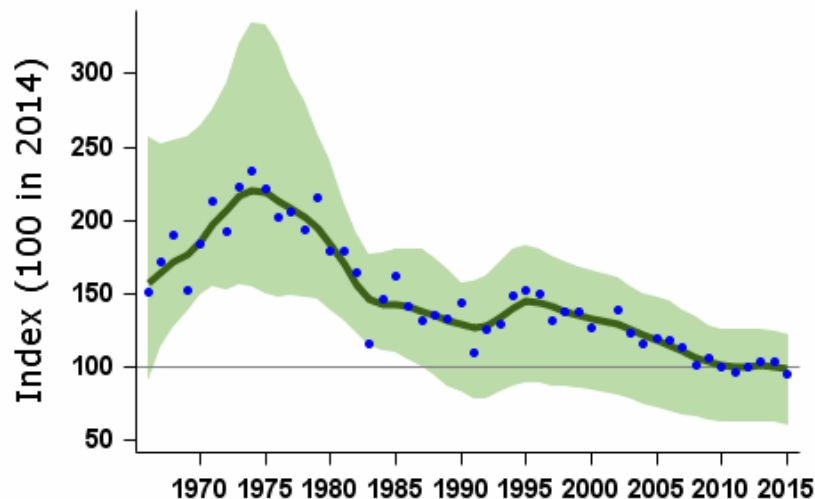
W.B. Yeats (1865-1939)

A tale of loss

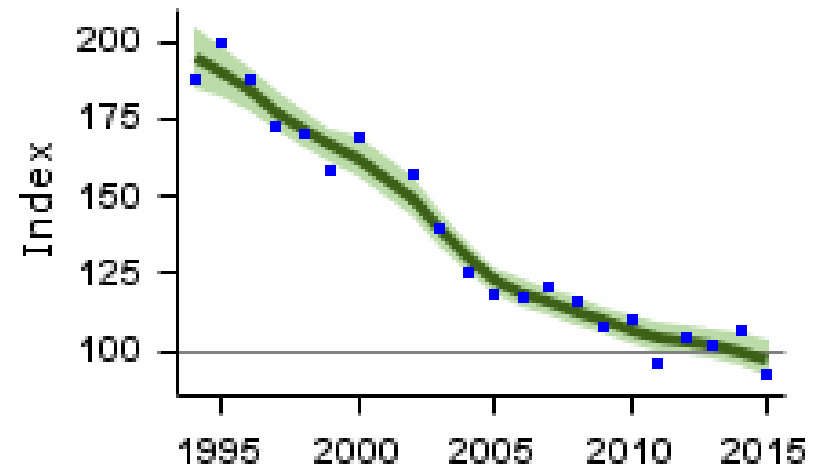
Over the past 20 years, the UK has lost
half its breeding curlew

In Ireland, only 500 pairs may remain

CBC/BBS England 1966–2015
Curlew



BBS UK 1994–2015
Curlew



A group prone to extinction?



Eurasian curlew



Whimbrel



Long-billed
curlew



Far Eastern
curlew



Bristle-thighed
curlew



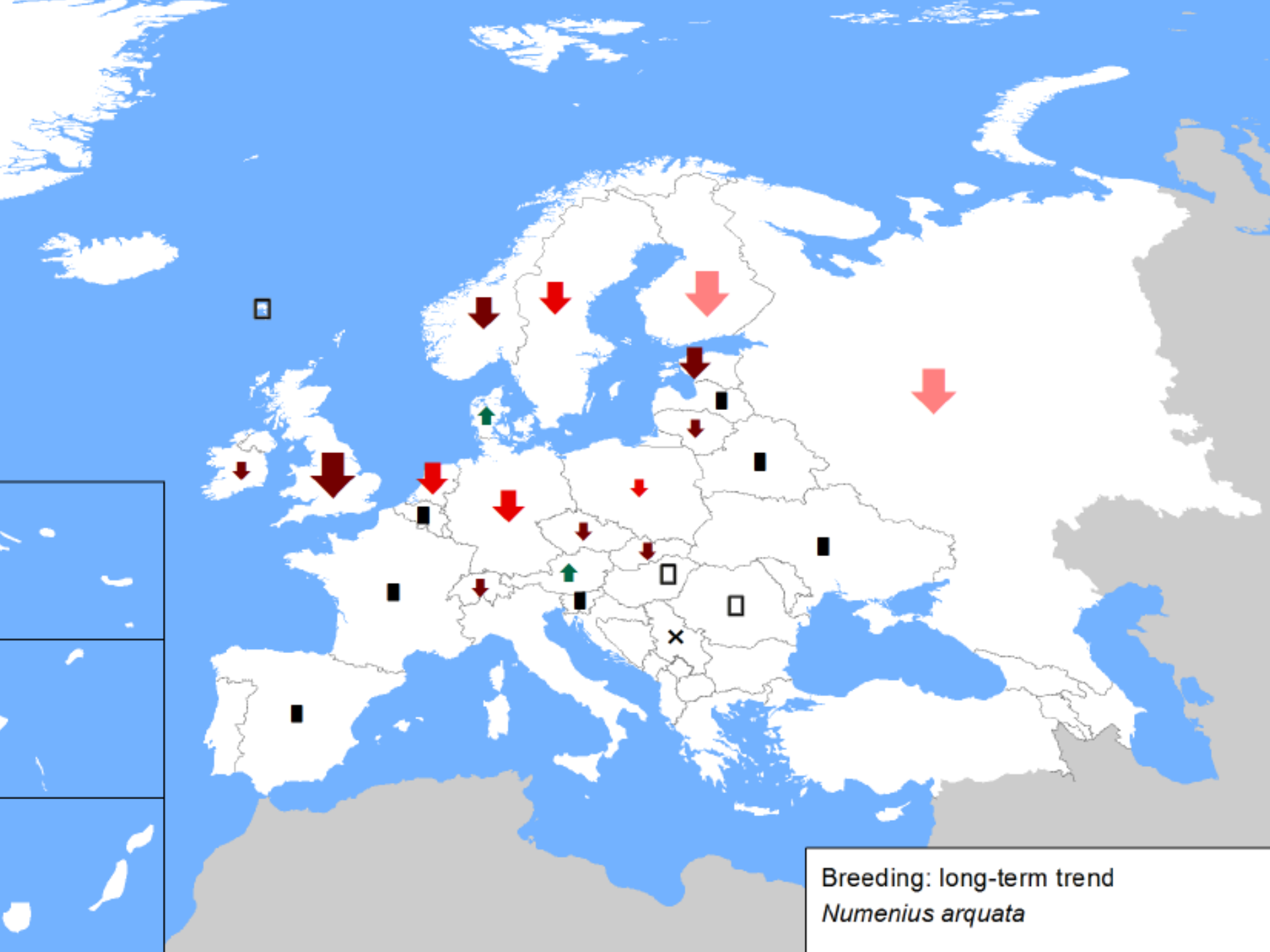
Little curlew



Slender-billed
curlew



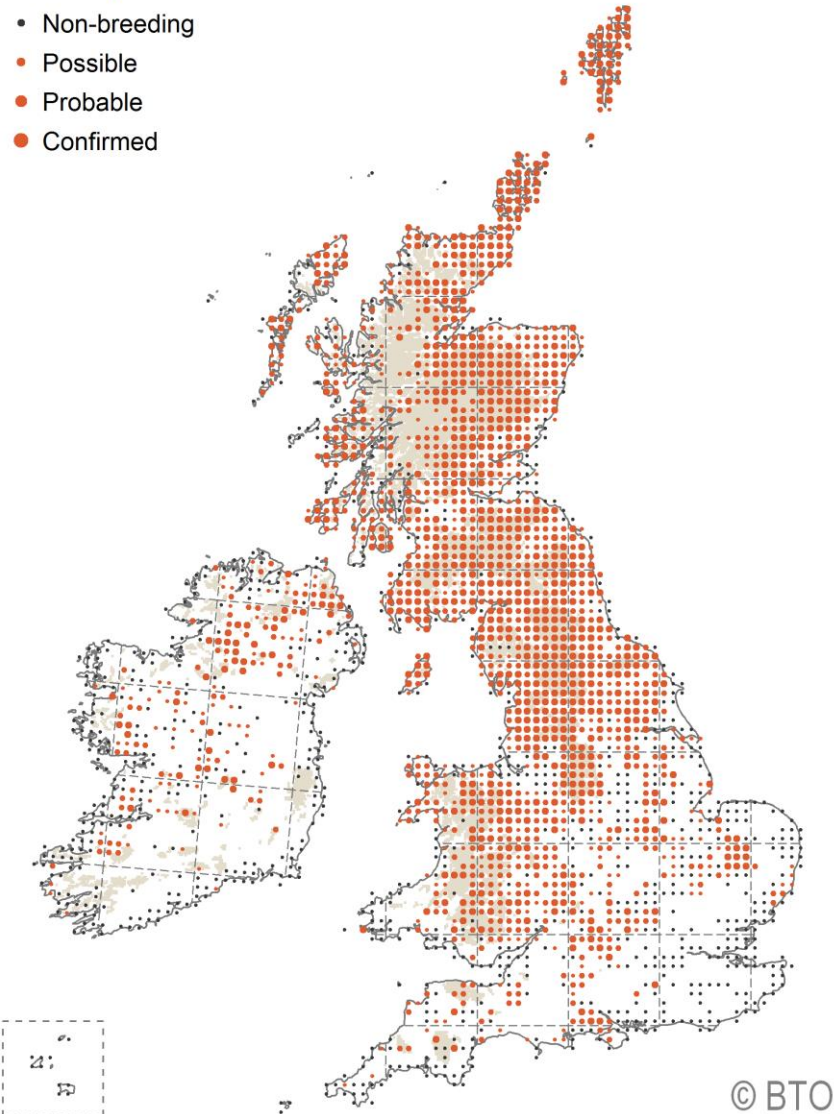
Eskimo curlew



Curlew in the British Isles

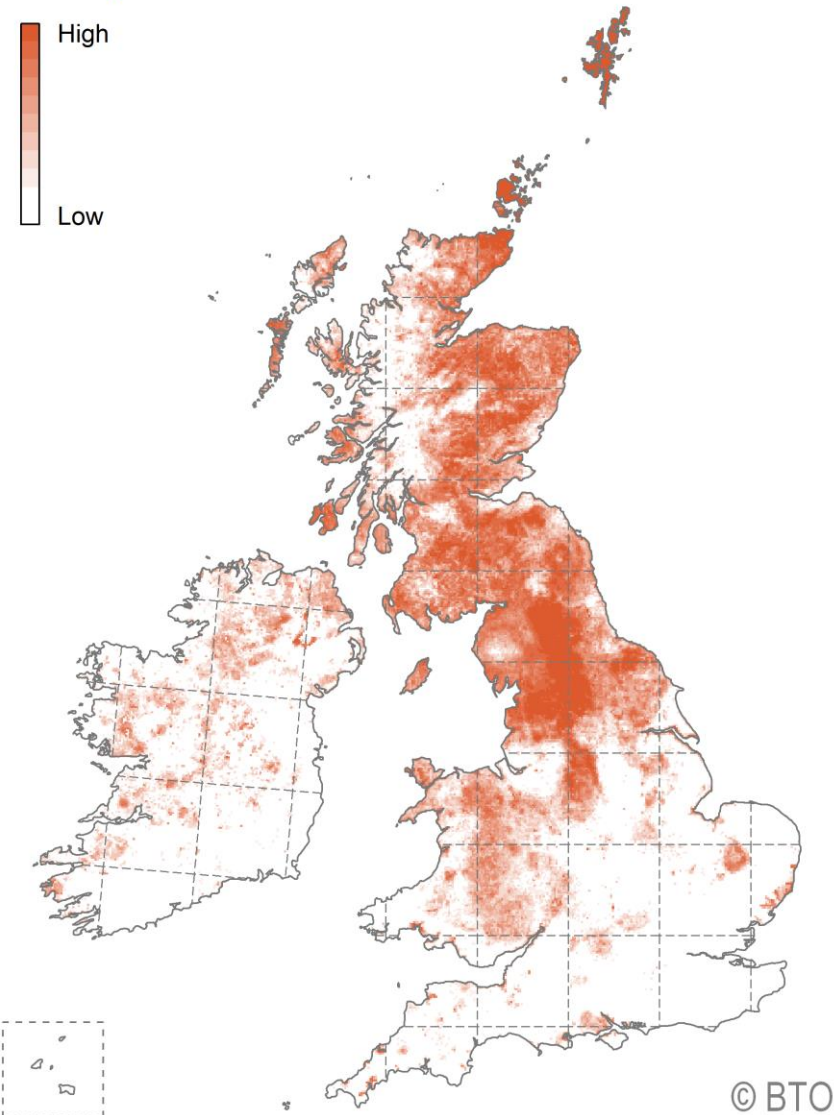
Breeding Distribution 2008–11

- Non-breeding
- Possible
- Probable
- Confirmed



Curlew in the British Isles

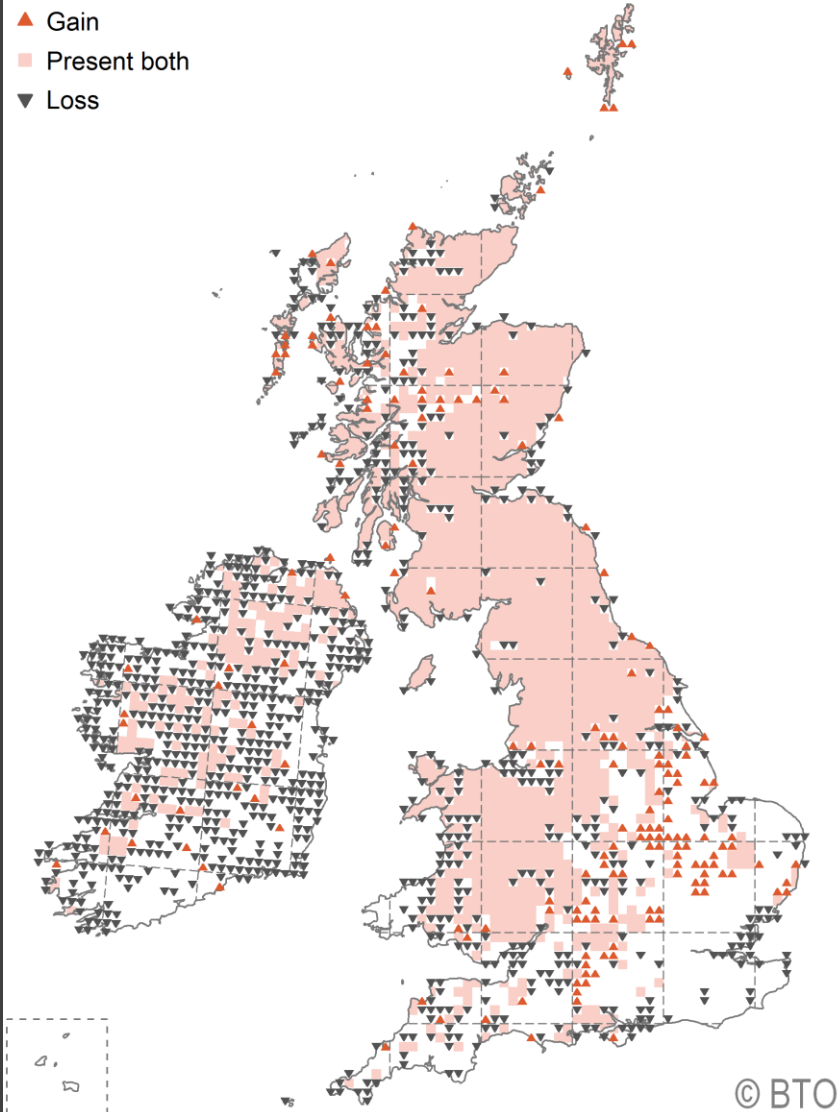
Breeding Relative Abundance 2008–11



The steady loss of Curlew in the British Isles

Breeding Distribution Change 1988–91 to 2008–11

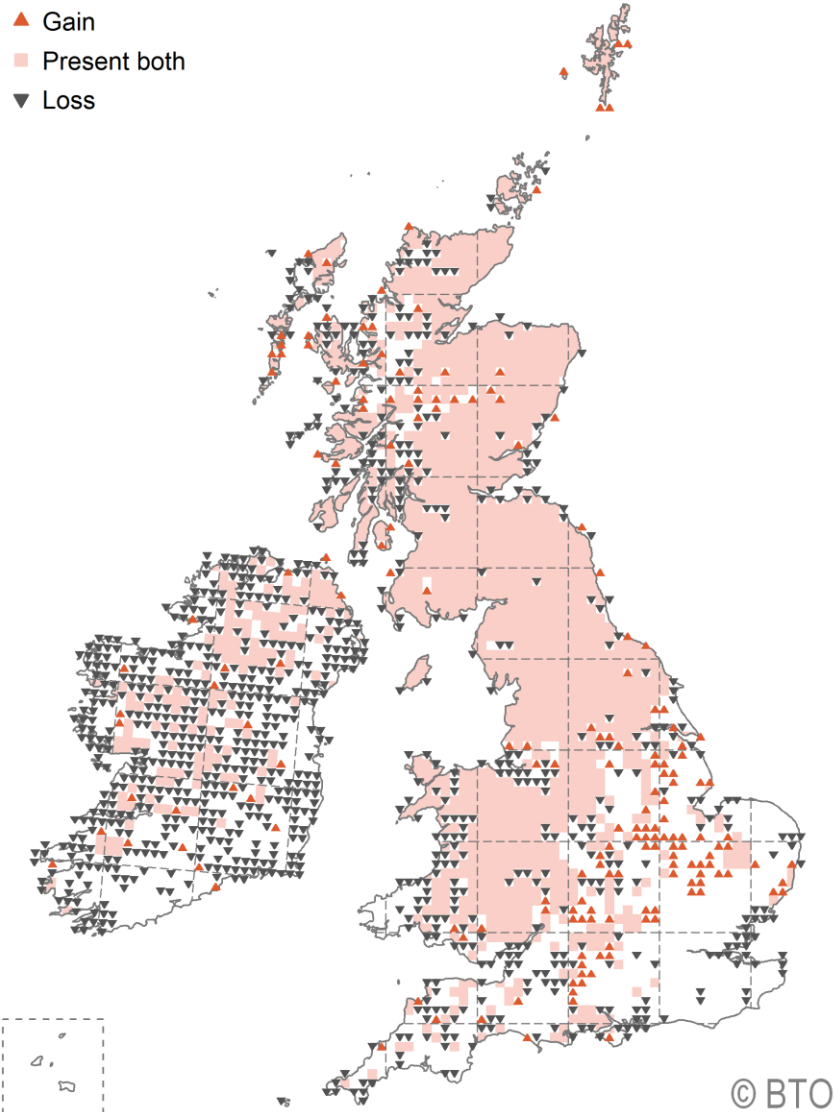
- ▲ Gain
- Present both
- ▼ Loss



78% range contraction in Ireland, 17% in Britain

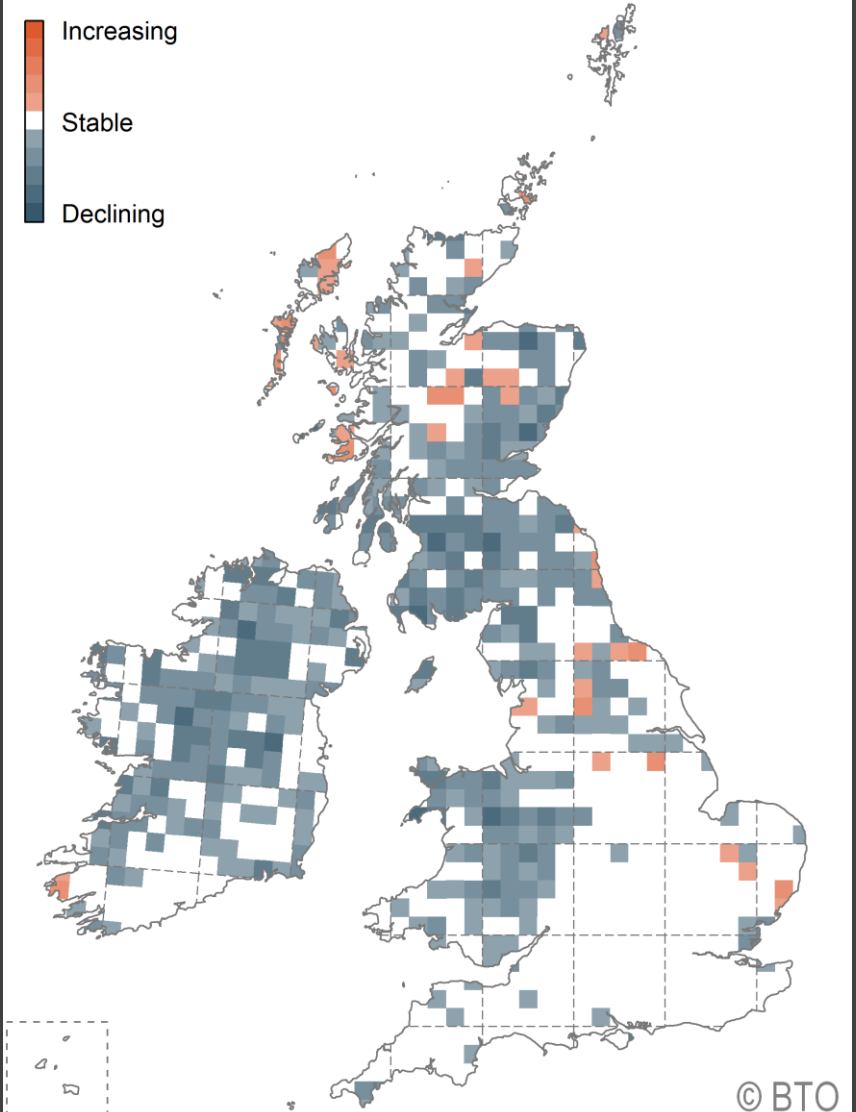
Breeding Distribution Change 1988–91 to 2008–11

- ▲ Gain
- Present both
- ▼ Loss



Breeding Abundance Change 1988–91 to 2008–11

- Increasing
- Stable
- Declining



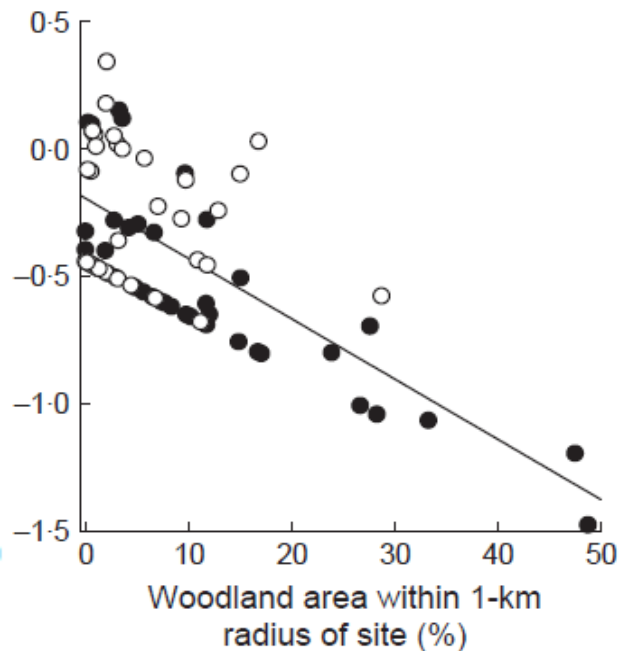
Reasons for decline: habitat change

- Grazing
- Grassland improvement
- Agricultural intensification
- Bog drainage & peat extraction
- Vegetation change



Reasons for decline: habitat change

- Afforestation
 - displacement
 - edge effects
 - predator sources



Douglas et al. 2014 *J Applied Ecology*

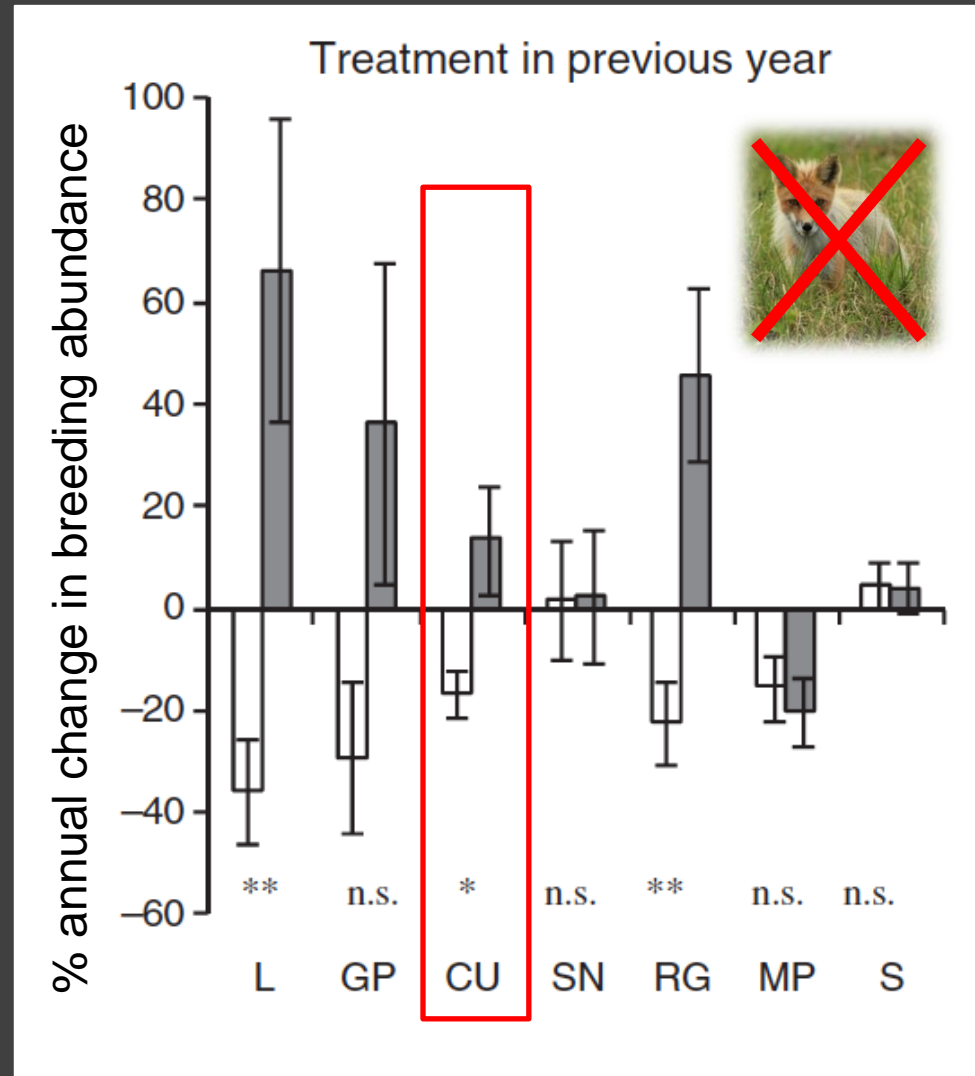


Reasons for decline: predation pressure



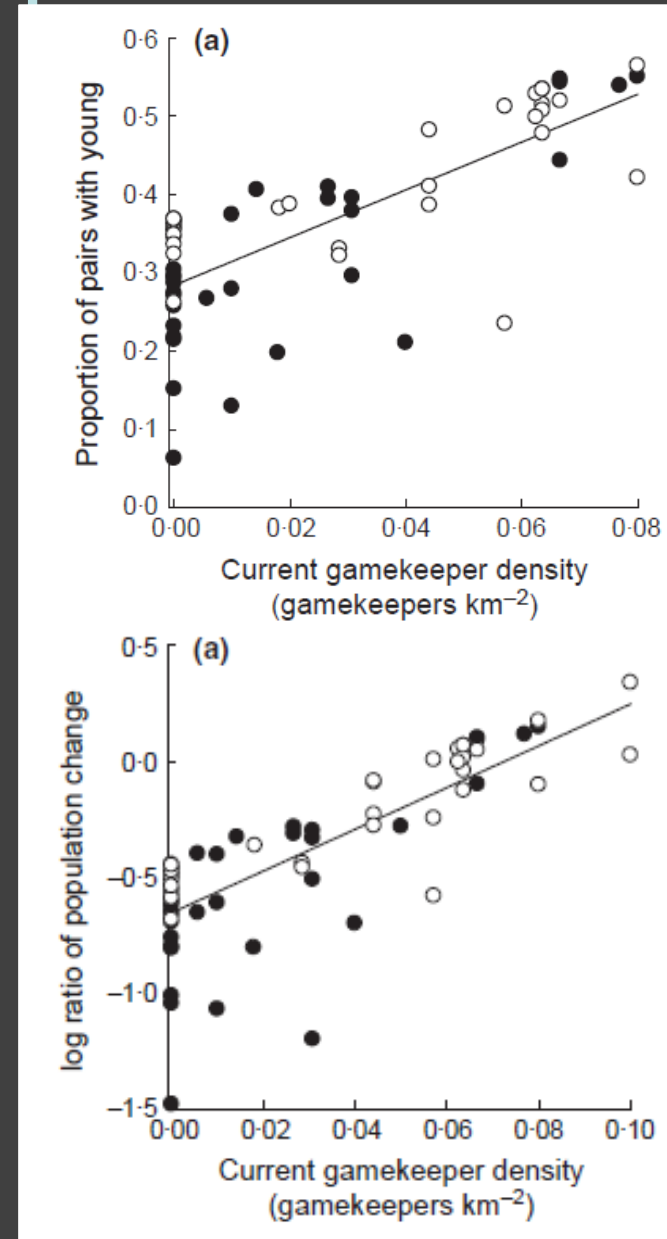
Reasons for decline: predation pressure

- Gamebird management
 - predator control

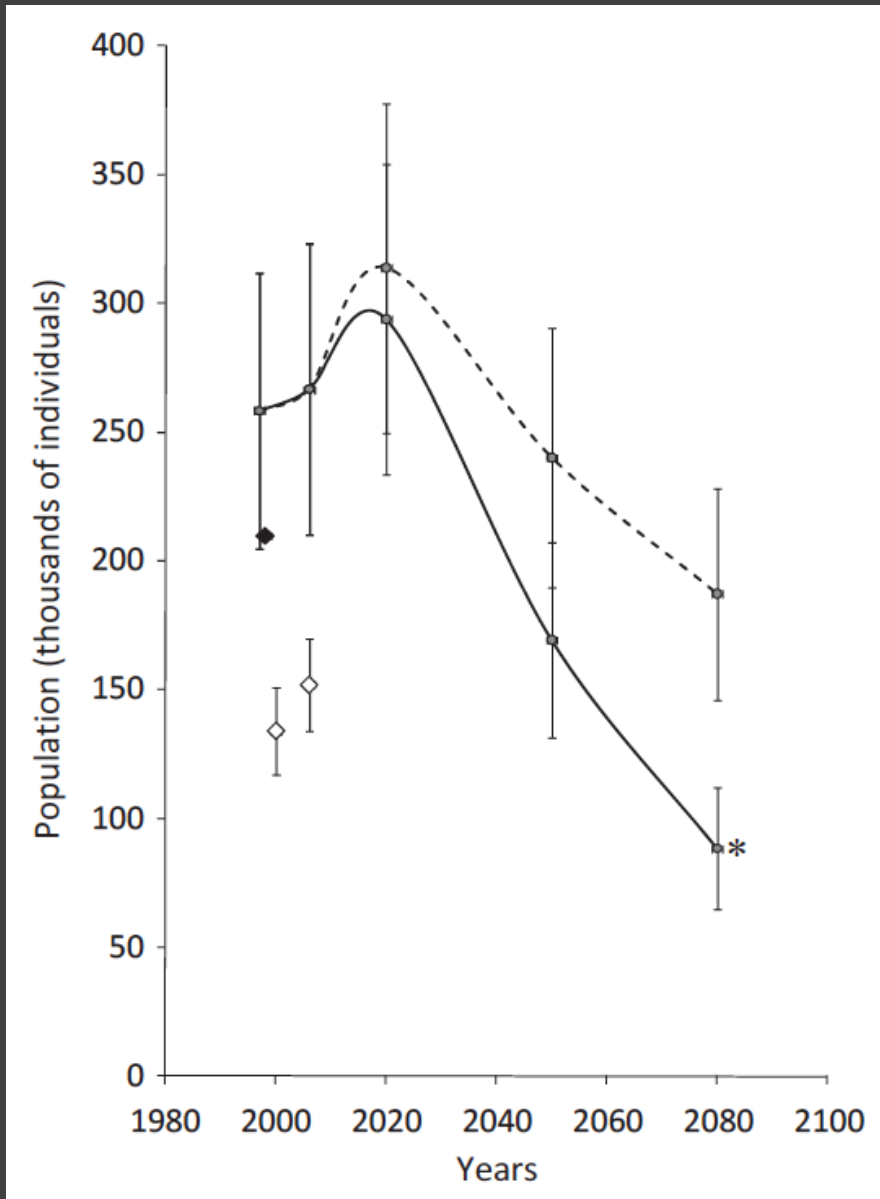


Reasons for decline: predation pressure

- Gamebird management
 - predator control



Reasons for decline: climate change



Projected decline of
> 60% due to a
warmer & drier
climate

Habitat
change

Where have our
curlew gone?

Climate
change

Predation
pressure





The Breeding Bird Survey 2015

The population trends of the UK's breeding birds



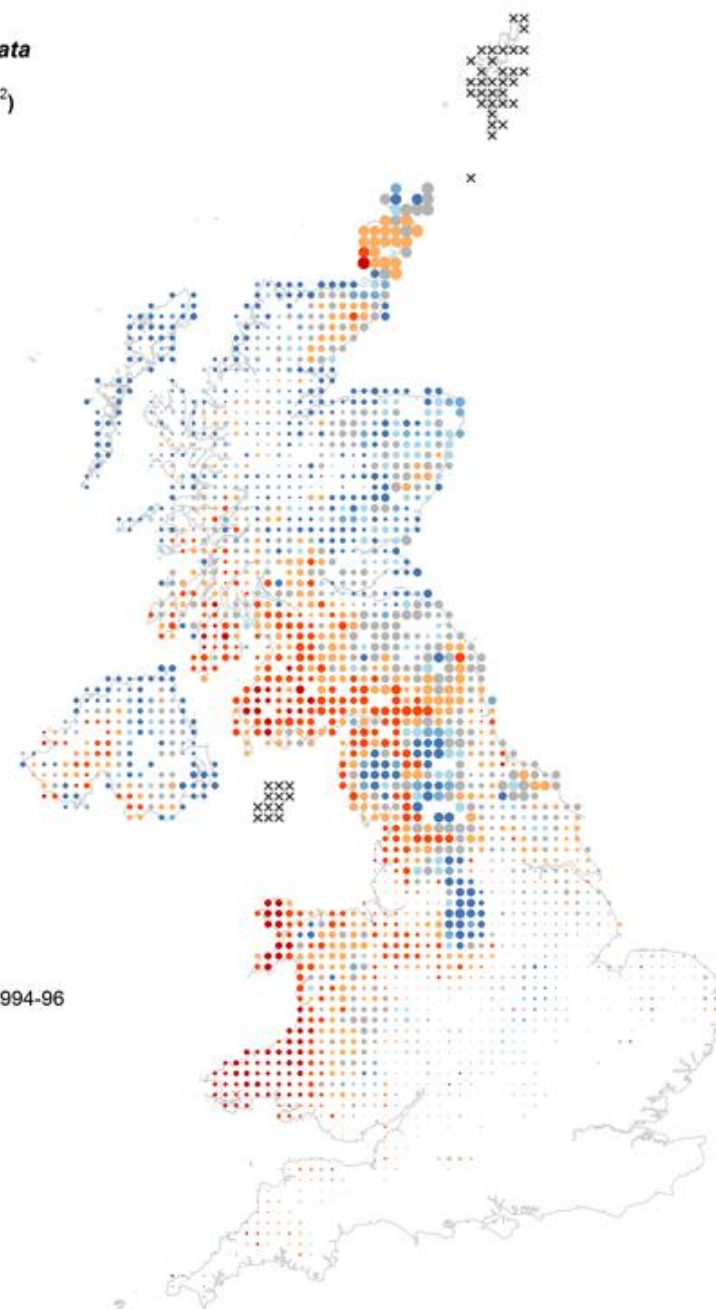
Curlew *Numenius arquata*

Density (birds/km²)

- > 20
- 10 – 20
- 5 – 10
- 2.5 – 5
- 1.25 – 2.5
- 0.62 – 1.25
- 0.31 – 0.62
- 0.16 – 0.31
- 0.08 – 0.16
- 0 – 0.08

Relative change in density

- > 75%
- 50% to 75%
- 25% to 50%
- -25% to 25%
- -50% to -25%
- -75% to -50%
- < -75%
- × insufficient data



Change between 1994-96
and 2007-09

Variable

Effect on curlew
abundance

Arable farming

—

Afforestation

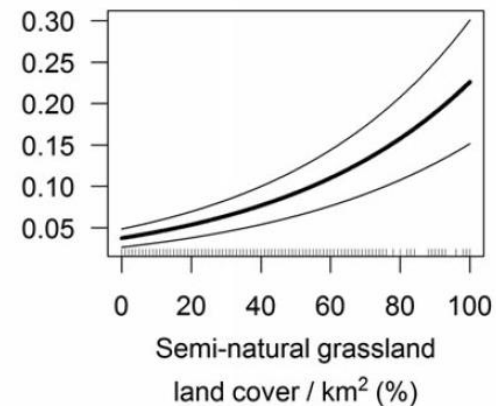
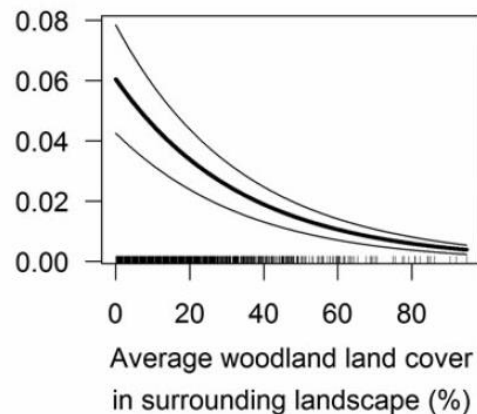
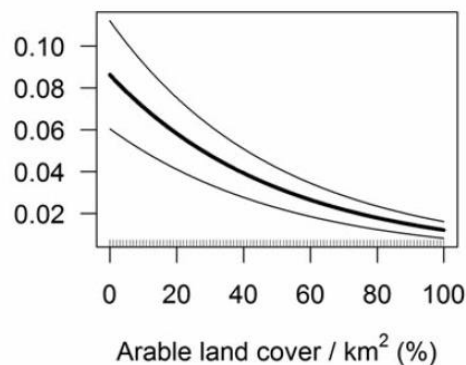
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Semi-natural
grassland

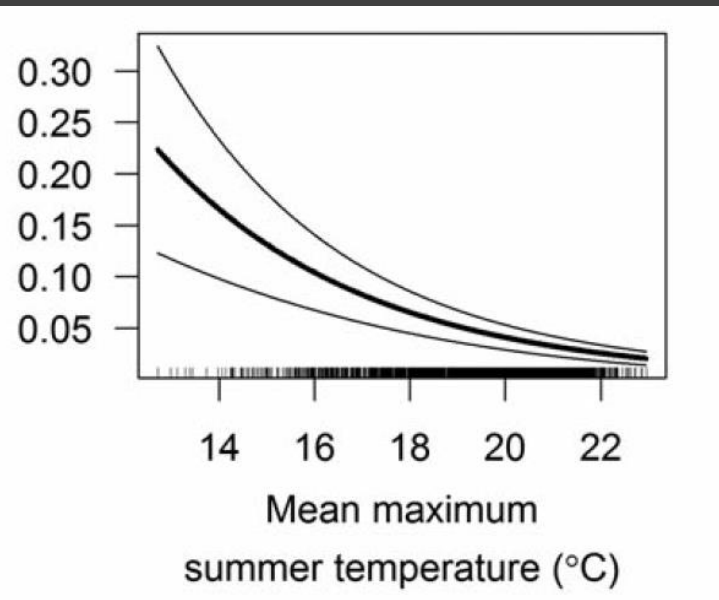
+



b) 2007–11



Variable	Effect on curlew abundance
Arable farming	—
Afforestation	—
Semi-natural grassland	+
Temperature	—



Variable

Effect on curlew
abundance

Arable farming

—

Afforestation

—

Semi-natural
grassland

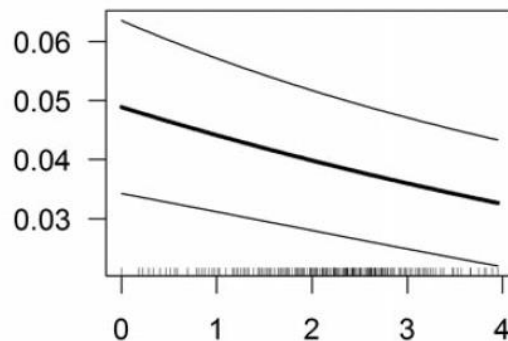
+

Temperature

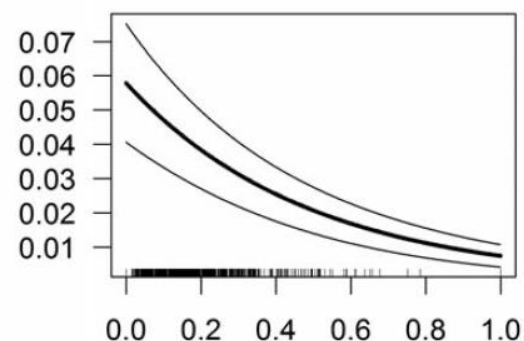
—

Crow & fox
abundance

—



Crow abundance index



Probability of fox occurrence

Variable	Effect on curlew abundance
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Arable farming	—
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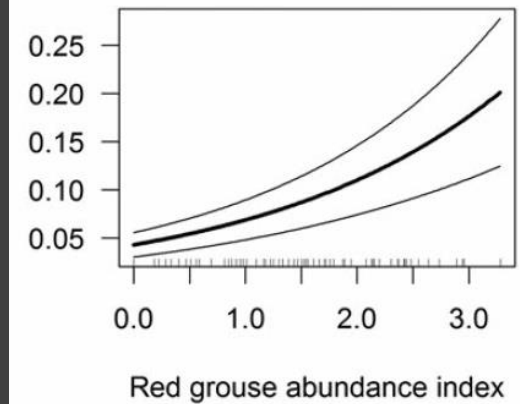
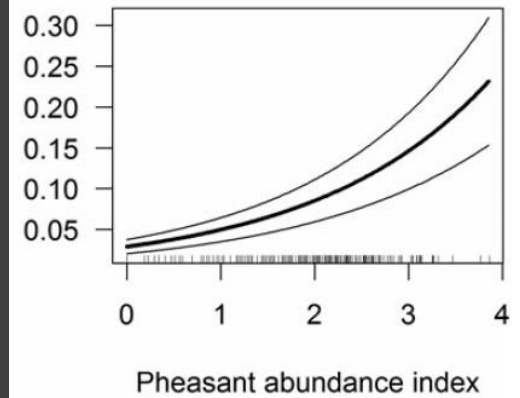
Afforestation	—
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Semi-natural grassland	+
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Temperature	—
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Crow & fox abundance	—
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Gamebird abundance	+
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Variable	Effect on curlew abundance
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Arable farming	—
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Afforestation	—
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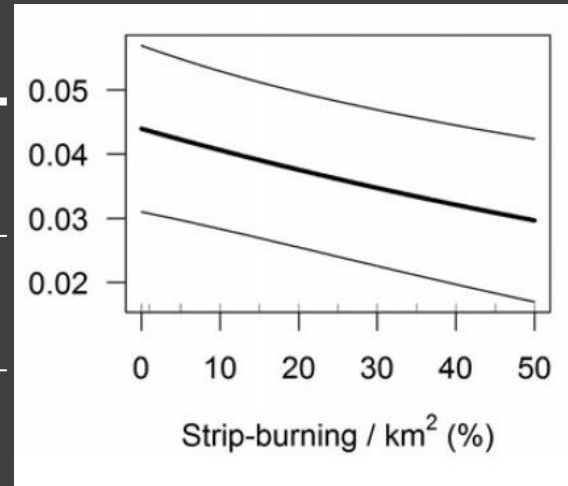
Semi-natural grassland	+
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Temperature	—
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Crow & fox abundance	—
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Gamebird abundance	+
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Strip burning	—
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Variable	Effect on curlew abundance	Population change
Arable farming	—	Decrease
Afforestation	—	
Semi-natural grassland	+	
Temperature	—	
Crow & fox abundance	—	
Gamebird abundance	+	
Strip burning	—	
Elevation / peat		

Variable	Effect on curlew abundance	Population change
Arable farming	—	—
Afforestation	—	—
Semi-natural grassland	+	
Temperature	—	— (rain +)
Crow & fox abundance	—	— —
Gamebird abundance	+	
Strip burning	—	
Elevation / peat		— / —

Where have our curlew gone?

Habitat
change

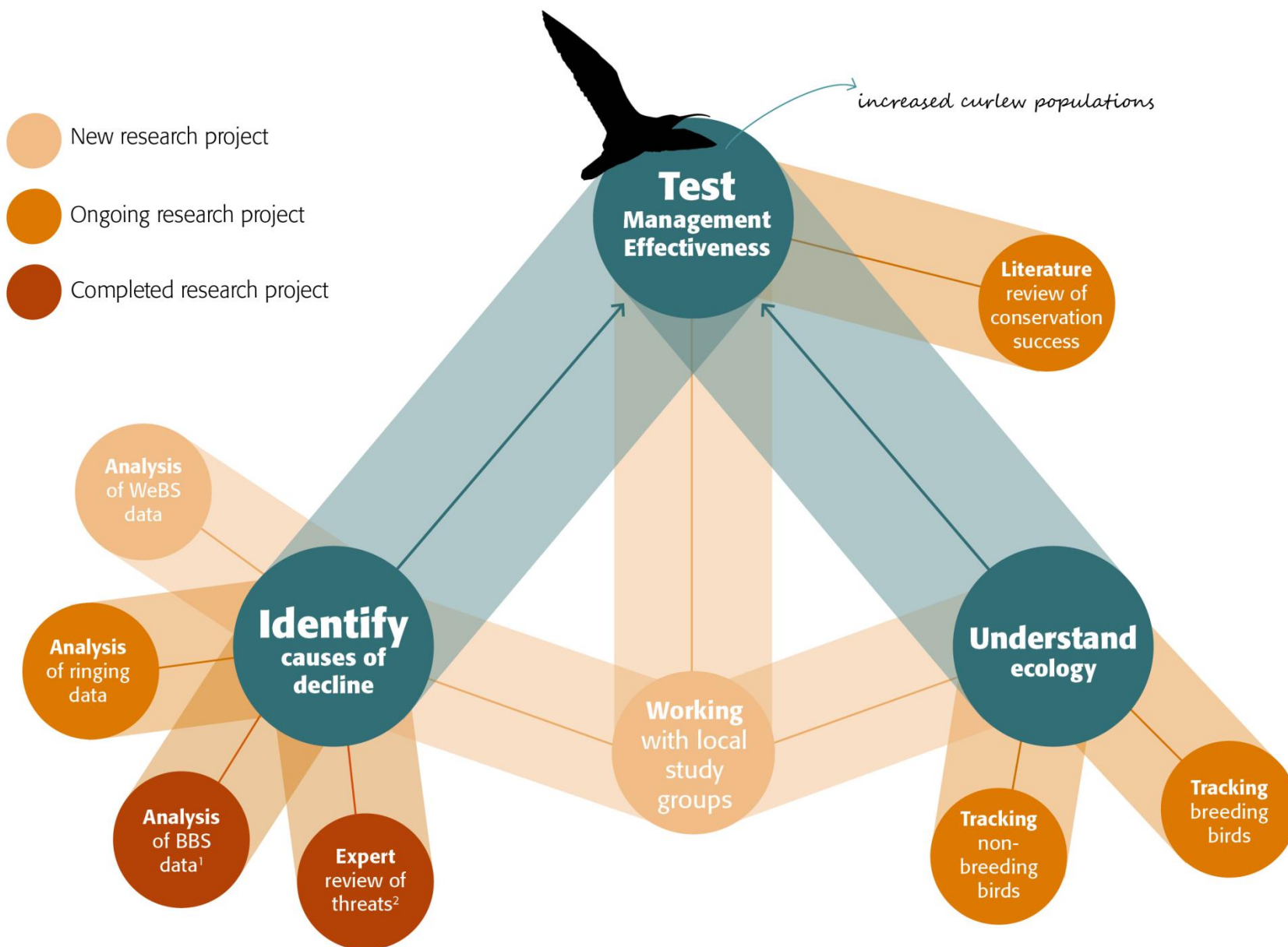


Climate
change



Predation
pressure





¹ Franks et al. (2017) Bird Study

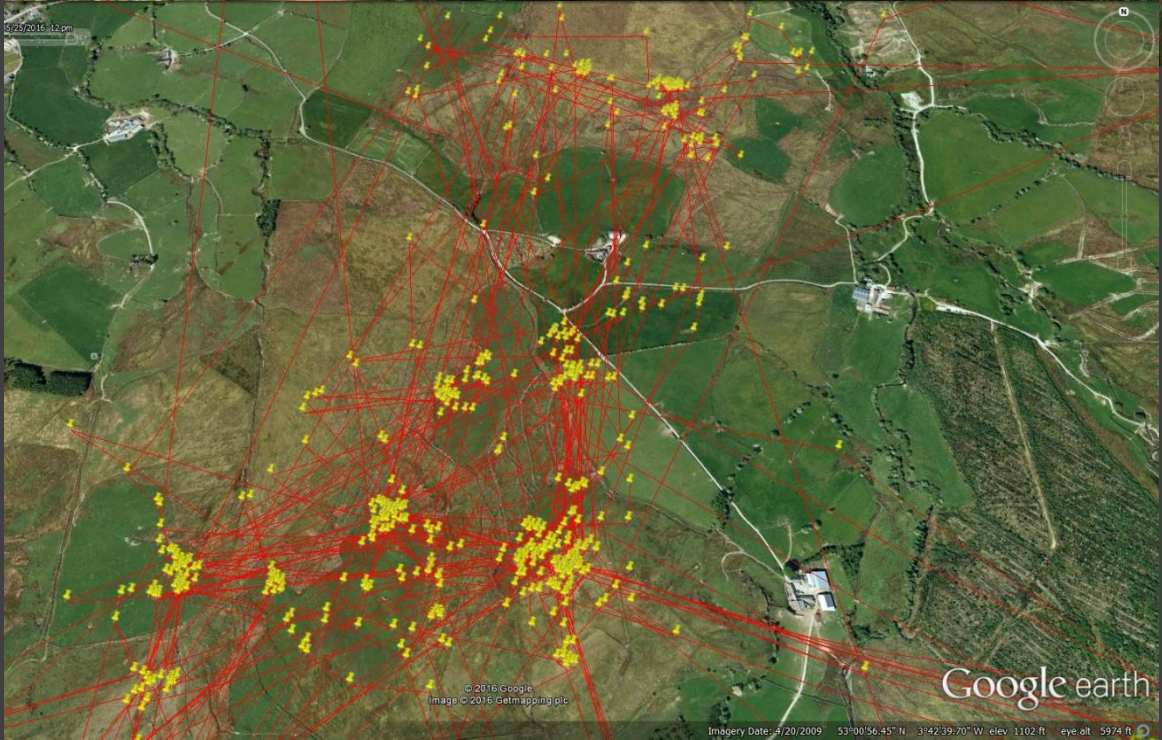
² Pearce-Higgins et al. (2017) Bird Conservation International



Habitat use & home
range

Location every 15
min

2000+ locations

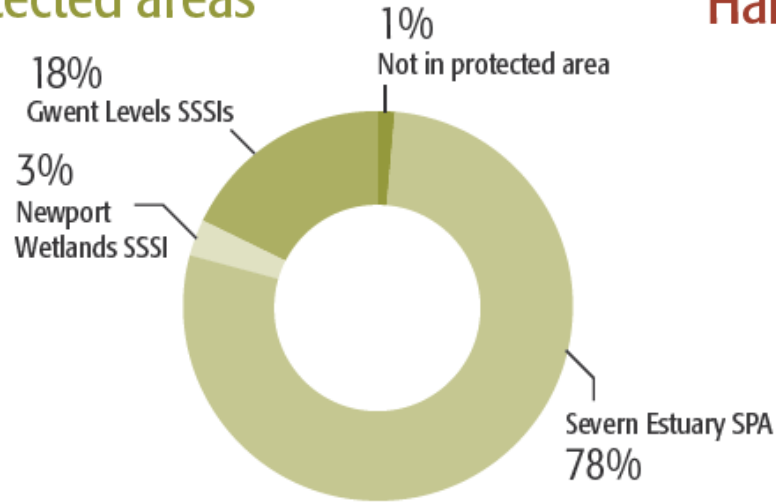


Habitat use & home range of wintering curlew

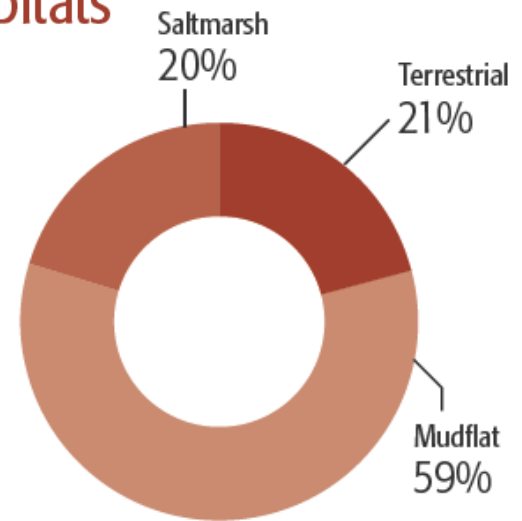
CURLEW



Protected areas



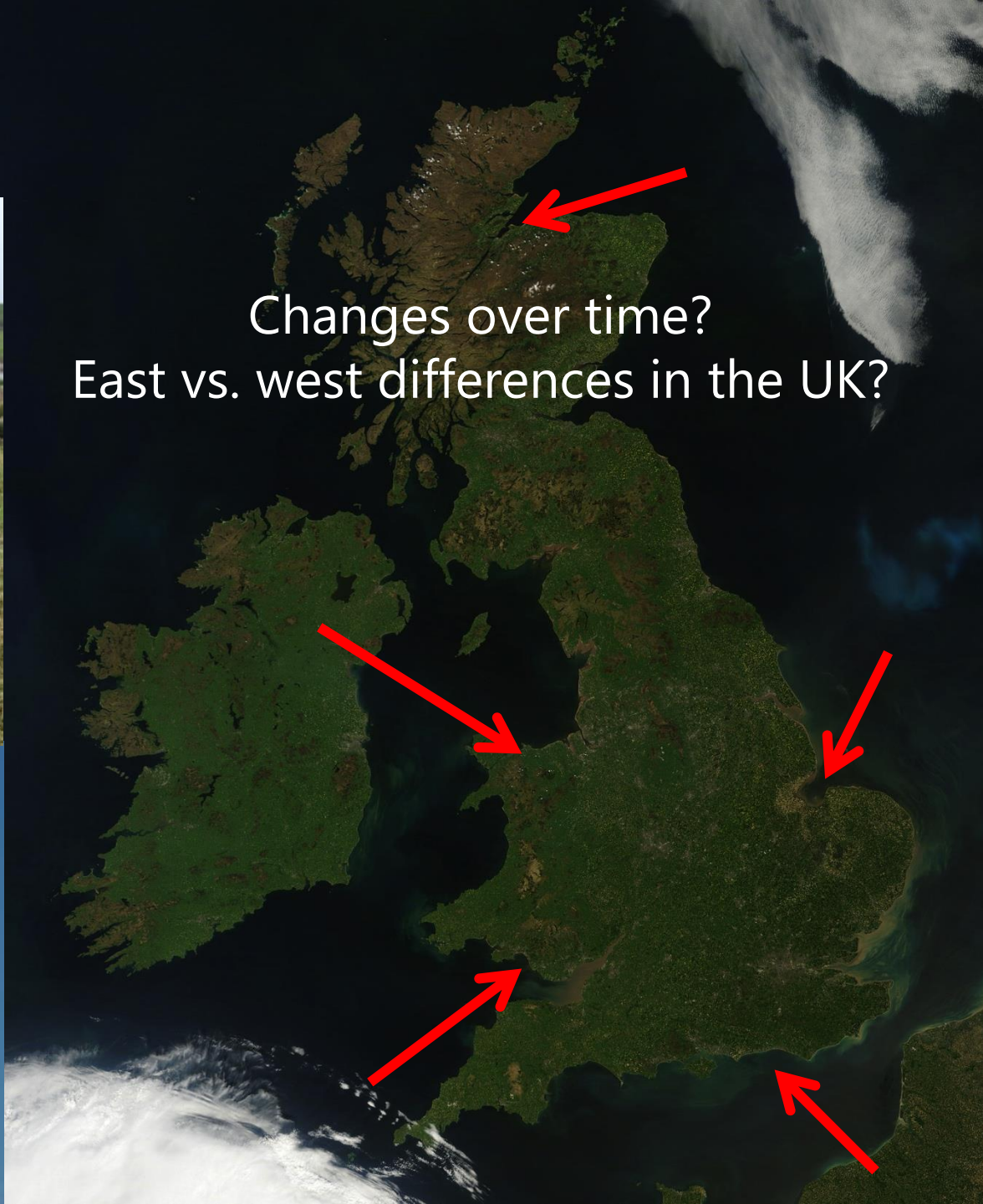
Habitats



Graphic: Tina Smith & Nigel Hawtin



Survival in space & time



Changes over time?
East vs. west differences in the UK?

Working locally



UNDERSTANDING PREDATION

A review bringing together natural science and local knowledge of recent wild bird population changes and their drivers in Scotland



Gill Ainsworth (University of Aberdeen), John Calladine (BTO Scotland), Blaise Martay (BTO Scotland), Kirsty Park (University of Stirling), Steve Redpath (University of Aberdeen), Chris Wernham (BTO Scotland), Mark Wilson (BTO Scotland) & Juliette Young (CEH Edinburgh)



YORKSHIRE DALES
National Park Authority



Cairngorms
NATIONAL PARK

What hope for curlew?





Finding common
ground for a
solution



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Samantha Franks (BTO) led the analysis of curlew data, which has been published in *Bird Study* and is available from:

<http://www.tandfonline.com/doi/abs/10.1080/00063657.2017.1359233>

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Curlew Appeal

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Appeal

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