

Climate change impacts on New Forest habitats and species

Prof Russell Wynn



Wild New Forest



1. Introduction



“Climate change is the biggest long-term threat to the New Forest National Park. The impact of climate change on the New Forest is likely to be wide reaching, with warmer, wetter winters, hotter, drier summers, rising sea levels, and an increasing frequency of extreme weather events.”

New Forest National Park Authority website, see link [here](#).

2. Global drivers of biodiversity change

The assessment's authors have ranked, for the first time at this scale and based on a thorough analysis of the available evidence, the five direct drivers of change in nature with the largest relative global impacts so far. These are, in descending order:

- 1. Changes in land and sea use**
- 2. Direct exploitation of organisms**
- 3. Climate change**
- 4. Pollution**
- 5. Invasive alien species**



IPBES Global Assessment 2019 (see [here](#))

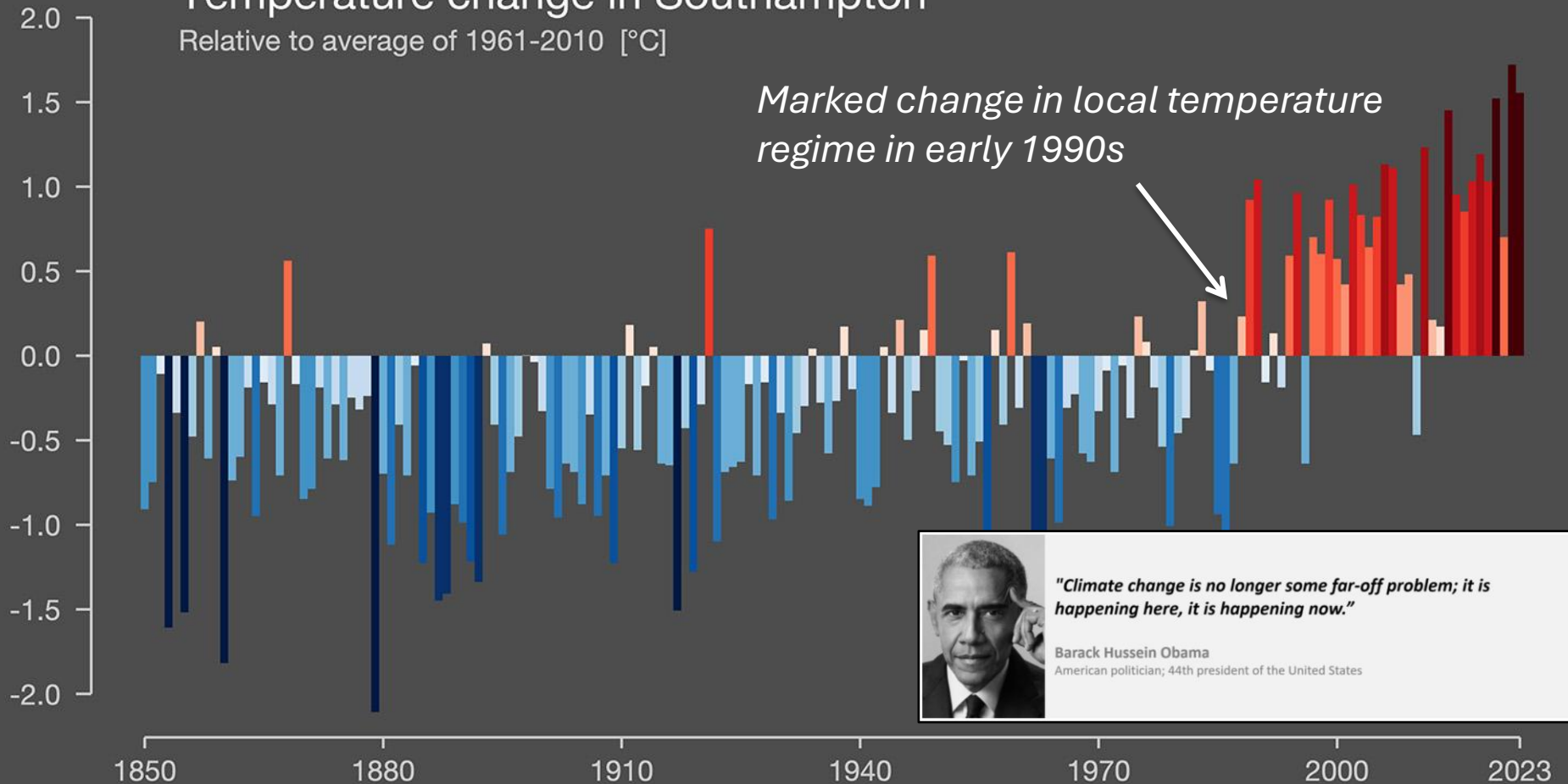
“Our results suggest that climate change might become a more important driver of biodiversity loss than land-use change by mid-century (2050)”

Pereira, H.M., et al. (2024) Global trends and scenarios for terrestrial biodiversity and ecosystem services from 1900 to 2050. *Science*, 384, 458-465 (link [here](#))

3. Local climate change in the New Forest

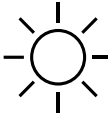
Temperature change in Southampton

Relative to average of 1961-2010 [°C]



Credit: Ed Hawkins at University of Reading (showyourstripes website [here](#))

Table showing average annual and seasonal temperatures and rainfall in the New Forest National Park over the past four decades. Raw data from [UK Met Office](#).

		Baseline	Recent Past	+5 years	+25 years	+55 years	+75 years
		1981 - 2000	2001 - 2020	2030	2050	2080	2100
	Temperature	°C	°C	°C change	°C change	°C change	°C change
	Annual Average	10.2	10.9	+0.9	+1.3	+2.2	+3.0
	Spring Average	9	9.7	+0.6	+1.0	+1.7	+2.2
	Spring Maximum	13.5	14.5	+0.7	+1.0	+1.7	+2.2
	Summer Average	16	16.5	+1.2	+1.9	+3.1	+4.4
	Summer Maximum	21	21.5	+1.4	+2.1	+3.5	+4.9
	Autumn Average	10.9	11.6	+0.9	+1.5	+2.4	+3.0
	Autumn Maximum	14.9	15.7	+1.1	+1.6	+2.5	+3.0
	Winter Average	4.9	5.5	+0.8	+1.3	+1.8	+2.3
	Winter Maximum	8.1	8.8	+0.8	+1.2	+1.7	+2.1
	Precipitation	mm	mm	% change	% change	% change	% change
	Annual Average	880.2	899.4	+1	+0	+1	-1
	Spring Average	178.6	174.8	-2	-2	-7	-8
	Summer Average	154.2	182.8	-13	-20	-29	-43
	Autumn Average	283.8	268.5	+2.3	+2.7	+5.6	+8.1
	Winter Average	257.4	274.6	+9.1	+10.2	+16.9	+19.5

4. Climate change impact on New Forest habitats



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Coastal habitats



“The Draft Pathway is Managed Realignment with Saltmarsh Creation. Under this approach, new embankments would be constructed further inland. The old defences would then be breached to allow the land in between to flood and transition to intertidal habitat.”



“Due to the high conservation value of Normandy Lagoon, in the short-term realignment of the defences is limited to land south of Lymington Yacht Haven adjacent to the existing lagoon.”

Hurst Spit to Lymington Strategy website [here](#).

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Woodland habitats



Storm-blown Beech in Mallard Wood
15 Jan 2020



Fallen Beech leaves in Busketts Wood
22 Aug 2022



Beech snap in Mark Ash Wood
Photo: Steve Laycock

The droughts of 1976 and later years have finished off many old trees, while the canopies of the beech woods have been opened up by the great storms of 1987 and 1990.”

Read, C. (1999) Ancient New Forest Trees. Proc. Hampshire Field Club Archaeol. Soc., 54, 63-74. See [here](#).

“Of the total of 24 beeches recorded by Chris Read, 21 were recorded as fallen or dead on our (2024) resurvey, and a further two partially collapsed, giving a failure rate of around 65% in 25 years.”

Revisiting the ancient beech and oak trees of the New Forest. New Forest Biodiversity Forum blog. See [here](#).



Measuring an ancient Oak at Balmer Lawn
Photo: Steve Laycock

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Heathland habitats

Controlled burning on 06 Feb 2023
Photo: Richard Coomber



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Grassland habitats

Horse paddock on 24 Feb 2025



- Wet winters = waterlogging
- Dry summers = parching
- > intensification
- > soil degradation
- > biodiversity loss

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Wetland and riverine habitats

Cut-off meander at Longwater Lawn on 27 Mar 2020





Flooding at Longwater Lawn on 16 Feb 2020

5. Climate change impacts on New Forest species



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Colonisation by southern species

Cattle Egret



Little Egret



Spoonbill

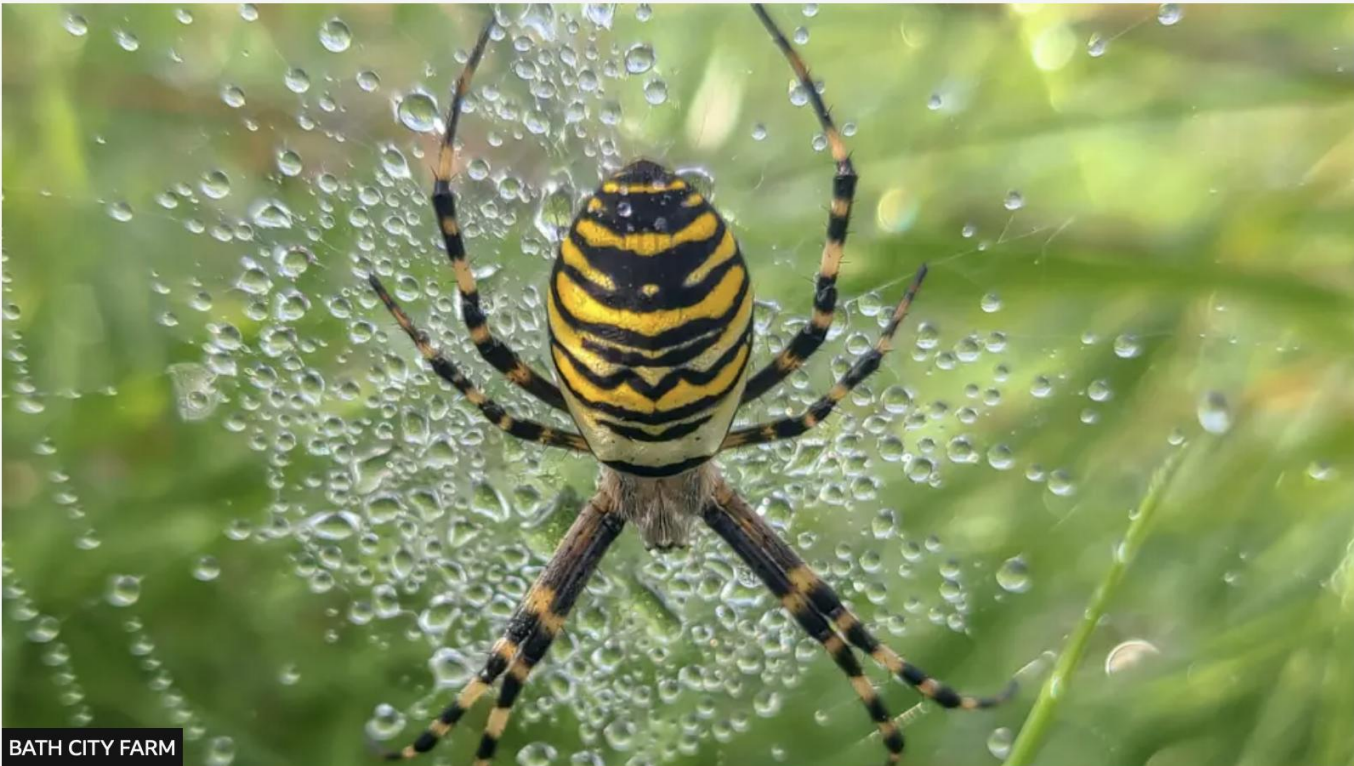


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Climate change warning as ~~insects~~ migrate north

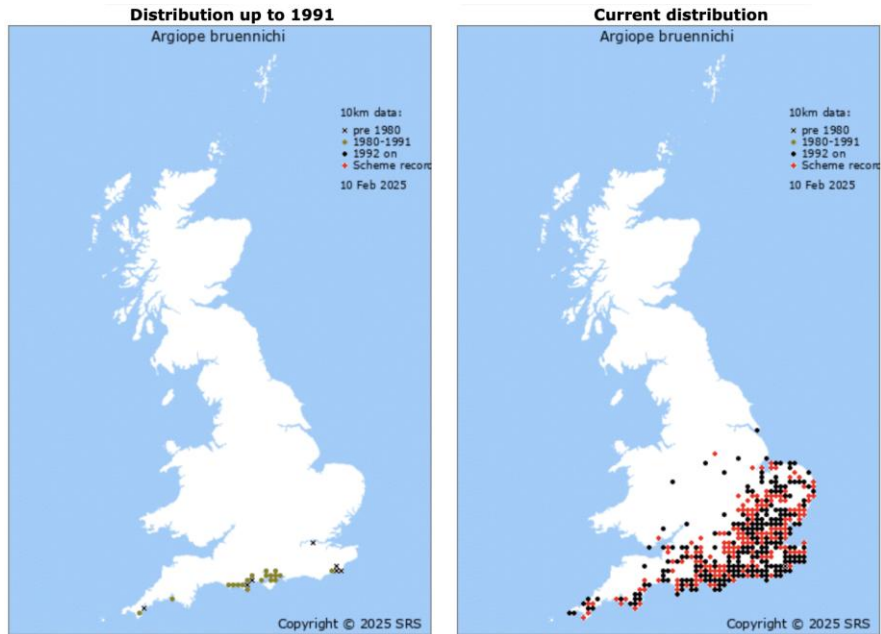
invertebrates



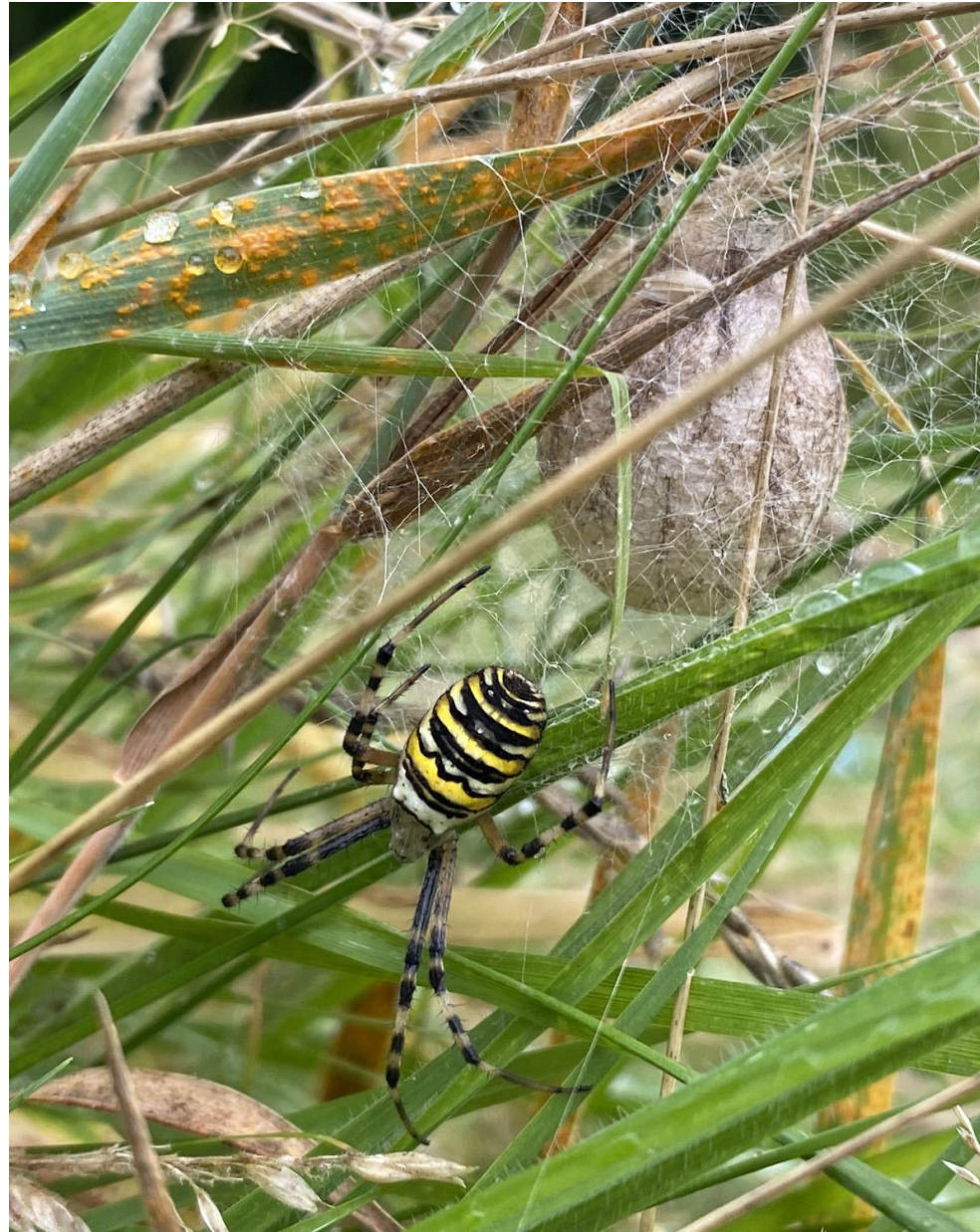
BATH CITY FARM

| The Wasp Spider has migrated from the south coast to north Somerset

Wasp Spider

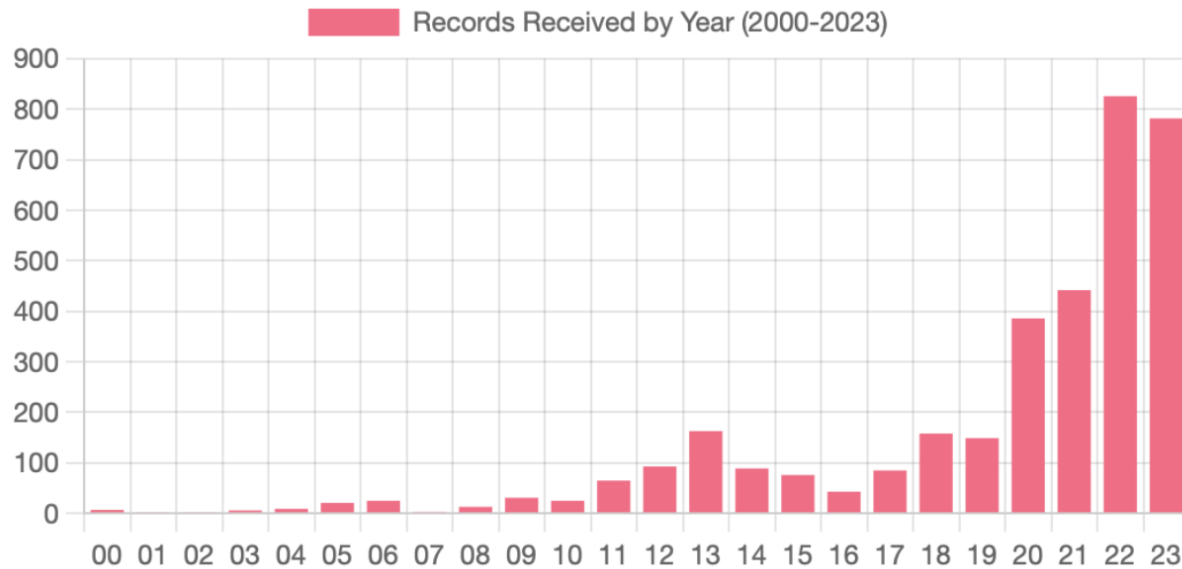


Data from UK Spider and Harvestman Recording Scheme website [here](#)



Jersey Tiger





Jersey Tiger records in Hampshire (2000-2023)
(data from Hantsmoths website [here](#))

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Increase in extra-limital records of
moths and mobile marine species



Shining Marbled
31 July 2021
2nd Hampshire record

Black V Moth
13 July 2024
1st Hampshire record



Samphire Straw
30 July 2024
1st Hampshire record



Walrus and Smalltooth Sand Tiger Shark in the New Forest

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Thor: Walrus sighting at Calshot beach extremely rare, expert says

🕒 13 December 2022



LUKE MCKELL

At home in Hampshire, Thor the walrus rested at Calshot beach for several hours

A walrus found resting on a beach on the south coast of England was an "extremely rare" sight for the UK, a wildlife expert has said.

Nicknamed Thor, the hefty mammal was spotted on Calshot beach in Hampshire on Sunday, before swimming off.

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Hampshire shark: Appeal for head to be returned

🕒 20 March



SASHA WHELLER

Scientists want access to the head and teeth of the shark, which washed up on a Hampshire beach, for research

By Caitlin Powell
BBC News

A plea has been made to return the head of a rare shark so it can be analysed.

On Saturday, local residents walking on Lepe beach in Hampshire

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Portuguese man o' war: Sightings more likely amid warmer seas

🕒 6 October 2023



Climate



CHRIS WHITAKER

A Portuguese man o' war was found washed up on Porth Dafarch beach, Anglesey



Portuguese Man o War on 17 Jan 2020



Gilthead Bream off Tanners Lane on 03 Sept 2023
(view original YouTube video [here](#))

“Climate change is likely to result in a further northward shift by 2050....this will facilitate reproducing populations in the English Channel, assuming that suitable nursery areas are available.”

Lewis, J. (2020) Welcome arrivals? The ecology and distribution of range-shifting gilthead seabream *Sparus aurata* in UK inshore waters. University of Exeter PhD thesis, Access [here](#).

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Changes to migration patterns in birds

Increased evidence for 'short-stopping' in winter visitors, with scarcer species such as Bewick's Swan, European White-fronted Geese, and Smew now very rarely seen in the New Forest, and ongoing declines in commoner species such as Dunlin, Red-breasted Merganser, and Goldeneye.



European White-fronted Geese

Great Grey Shrike is now potentially extinct as a wintering bird in the New Forest (and now very rare nationally), possibly linked to population decline and/or short-stopping.





Chiffchaff at Pennington Marshes on 06 Feb 2020

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Climate change and freshwater fish



Brown (Sea) Trout on 19 Dec 2015

Fish

Britain's favourite fish at risk of wipeout within decades, predicts report

Brown trout unlikely to survive in most rivers at height of summer by 2080, says Environment Agency

Daniel Boffey *Chief reporter*

Fri 31 Jan 2025 14:58 GMT

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Climate change and tree diseases



**Sooty Bark Disease and
Coral Spot on Sycamore
on 16 Oct 2023**



Neovectria canker on Holly

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Climate change and phenology

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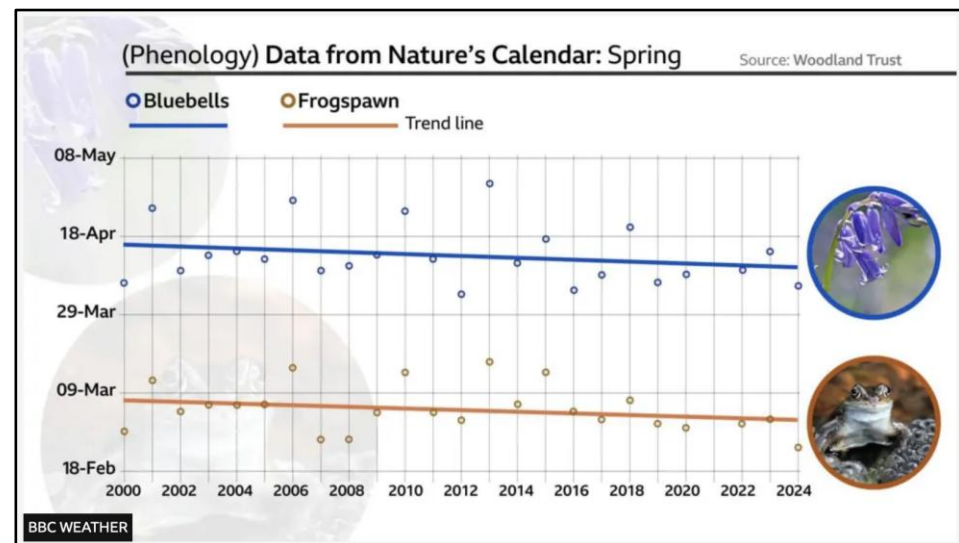
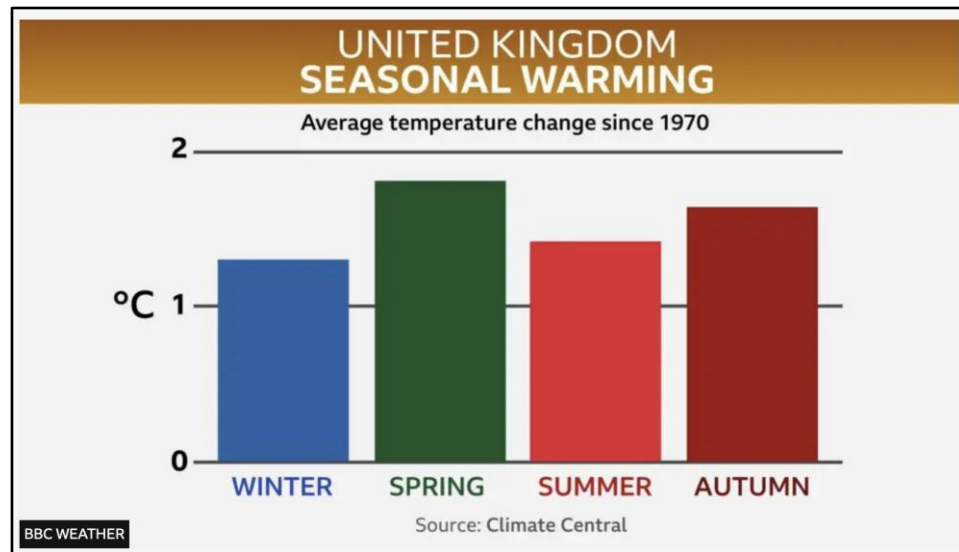
Spring is "fastest-warming" season in the UK



BBC WEATHER WATCHERS / STEVIE T

Simon King
Lead Weather Presenter

3 March 2025, 06:49 GMT



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Climate change and non-native
(invasive) species

Box-tree Moth on
07 Sept 2023



“Climate change is also likely to increase the ability of new invasive species to establish and allow other non-native species which are already present in Britain, but not yet having a negative impact, to become invasive.”

GB Non-Native Species Secretariat website. Access [here](#).

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Effects of climate change on disease
vectors and vector-borne diseases

Deer Tick (*Ixodes ricinus*)



“Ticks are also a public health concern, with Lyme disease already endemic in the UK. Milder winters and springs will lengthen the periods ticks are active and biting (though it is also the case that warmer summers could limit their activity).”

UK Health Security Agency, 09 Nov 2021

“Many infectious diseases are highly climate sensitive, and with warmer temperatures we can expect an increased risk of new and emerging infectious diseases in the UK including those transmitted through mosquito and tick bites”

Health Effects of Climate Change (HECC) in the UK: State of the evidence 2023. UK Health Security Agency. Access [here](#).



