

# Brown hairstreak (*Thecla betulae*) distribution in a warming world

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Harveet Singh Purewal 🦋

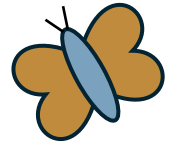
Biology Undergraduate,  
Oxford University



# TVERC Micro-Internship

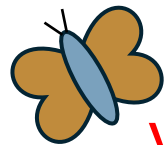
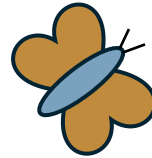


# The Brown hairstreak is in decline

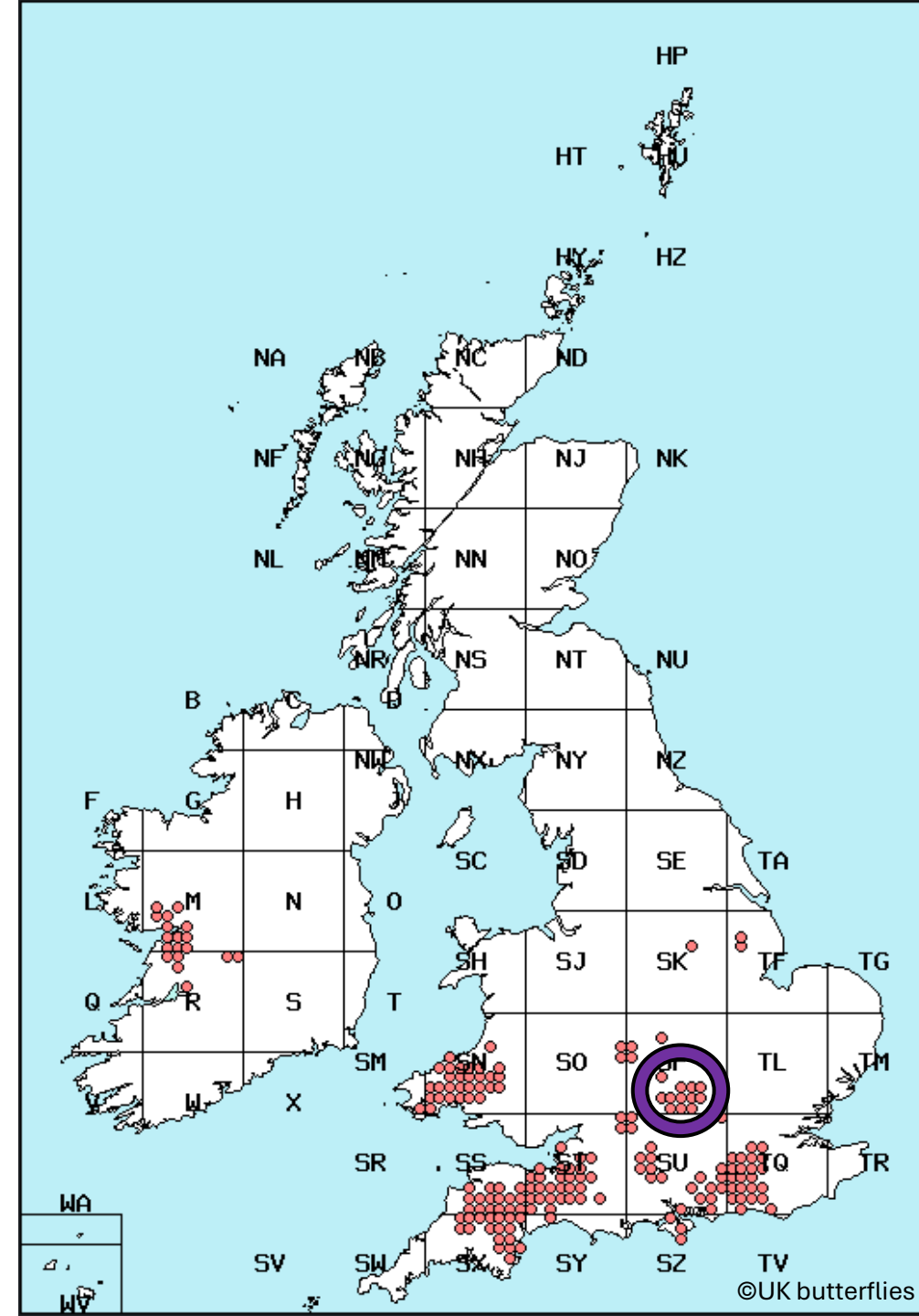


**-60%** range decrease

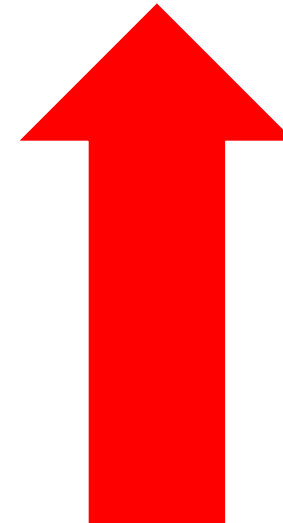
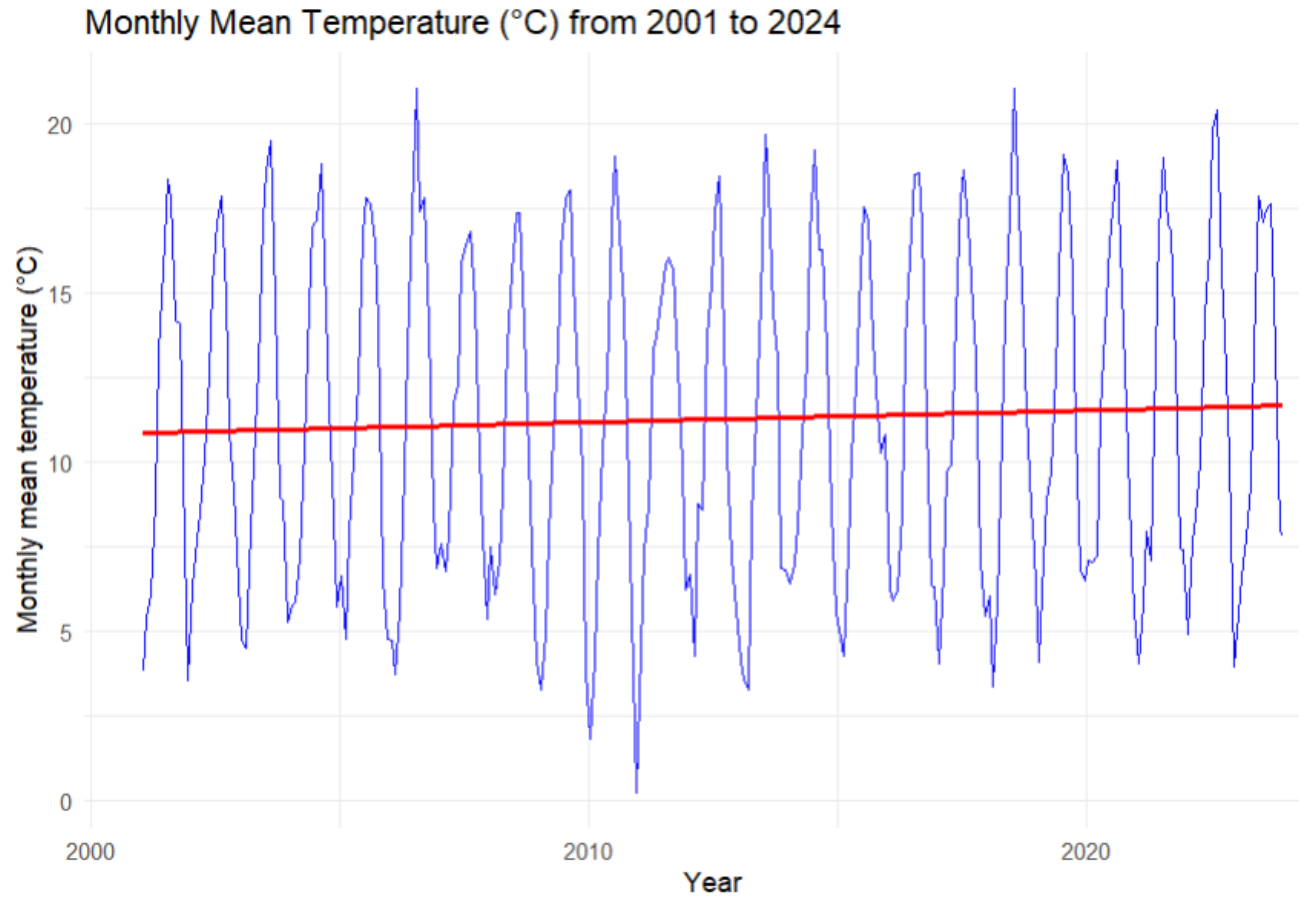
**-49%** occurrence decrease  
since 1976



**vulnerable** conservation status

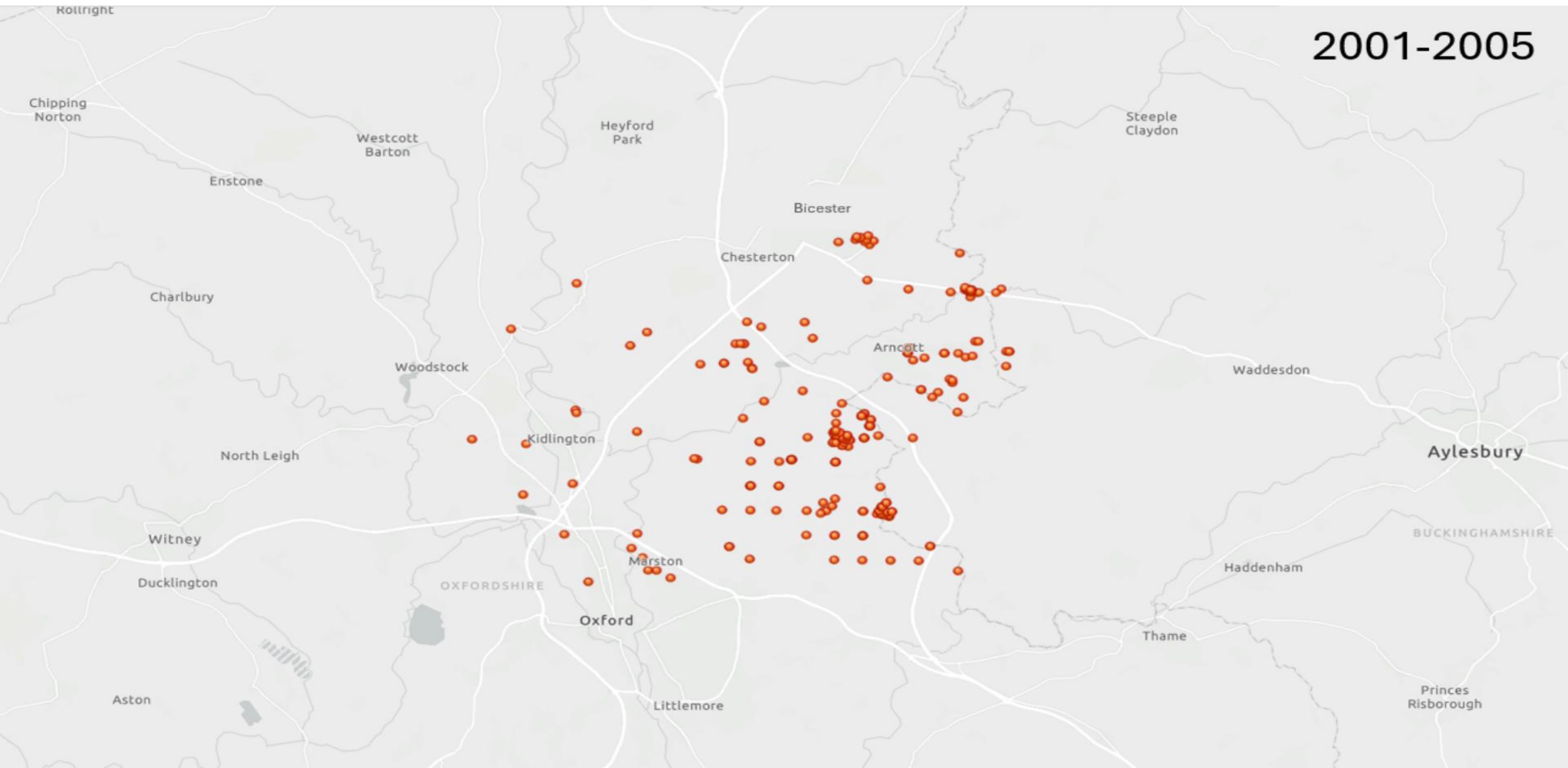


# Climate has gotten warmer on average

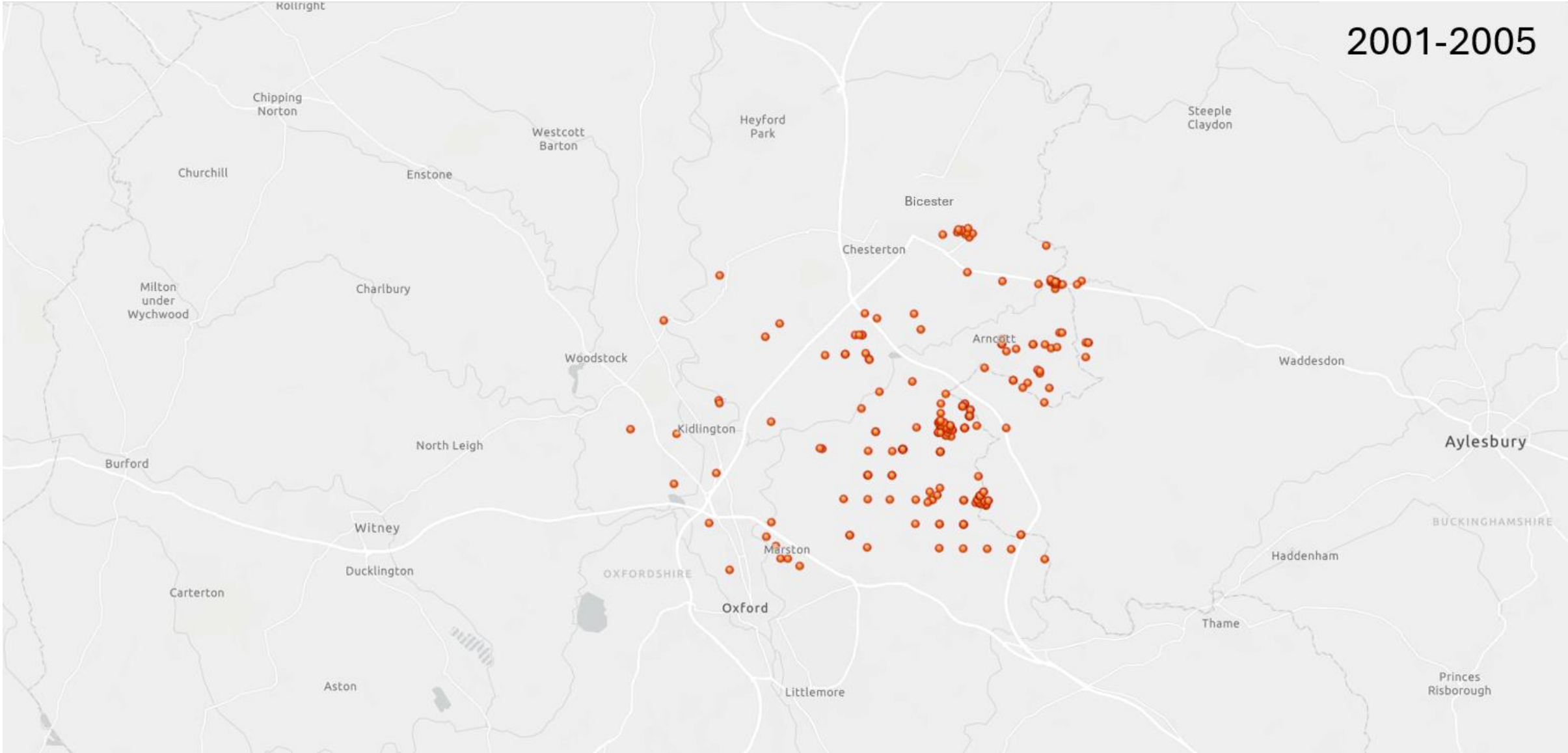


Increase of  
**0.81°C**  
between  
2001 and 2024

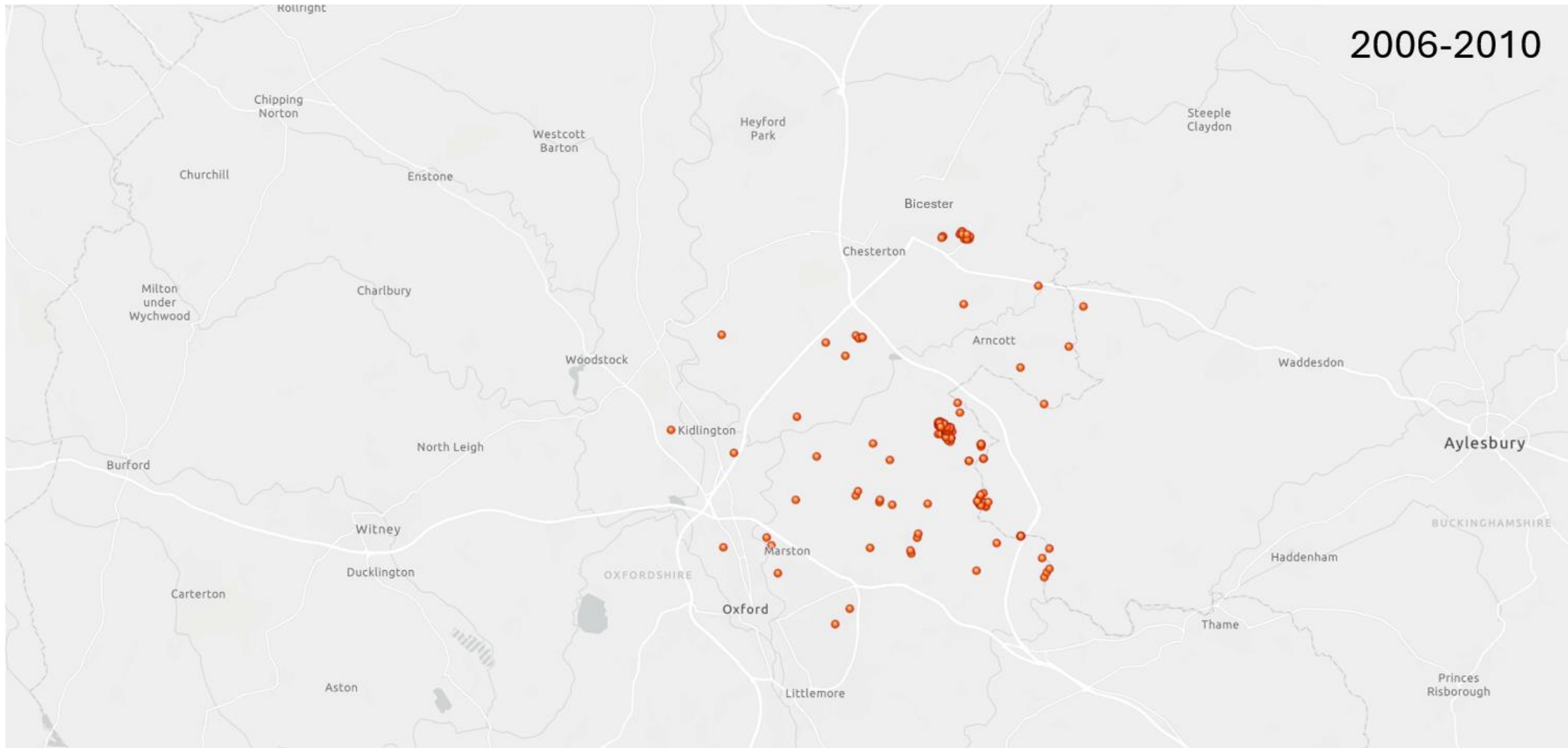
# The distribution of the Brown hairstreak has generally increased



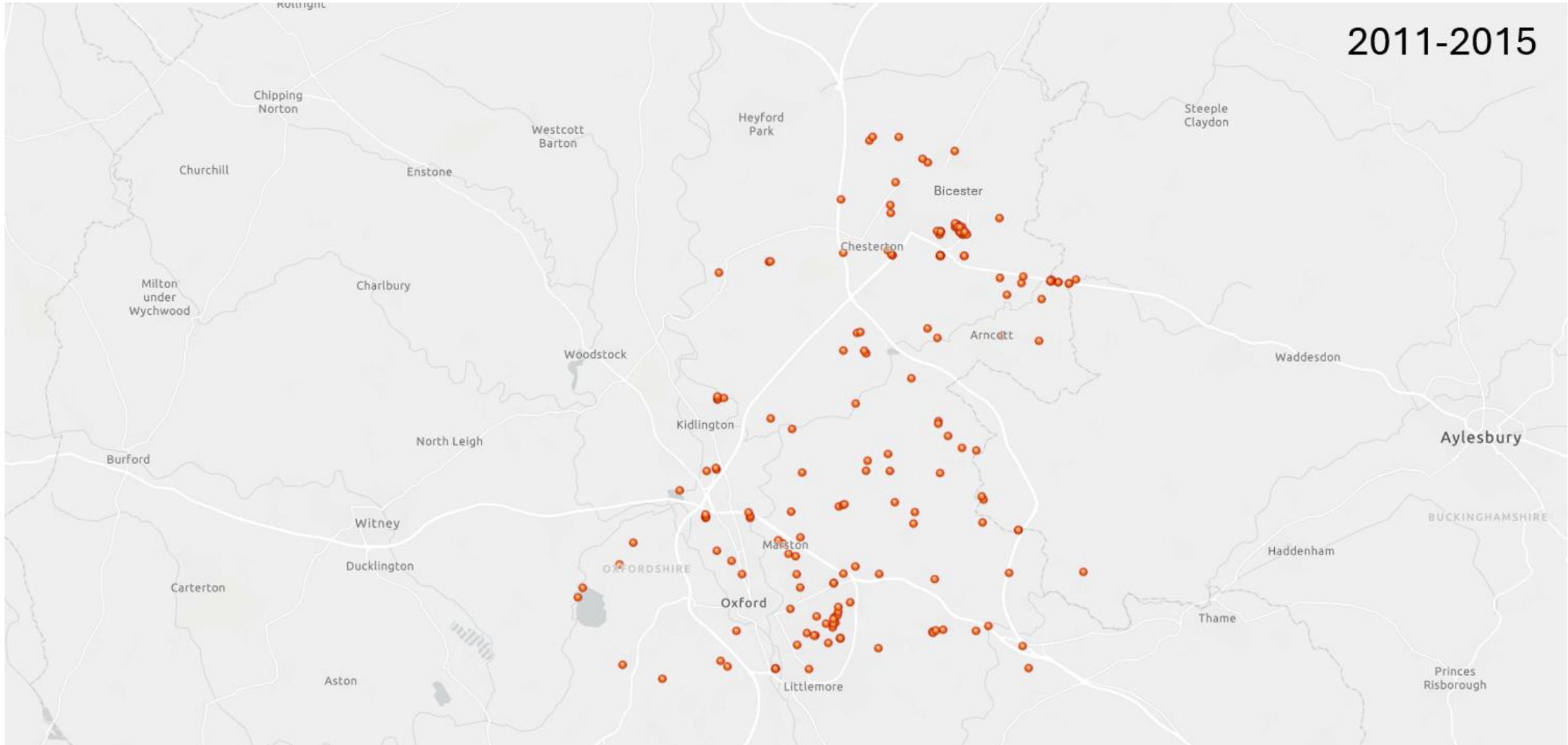
2001-2005



2006-2010

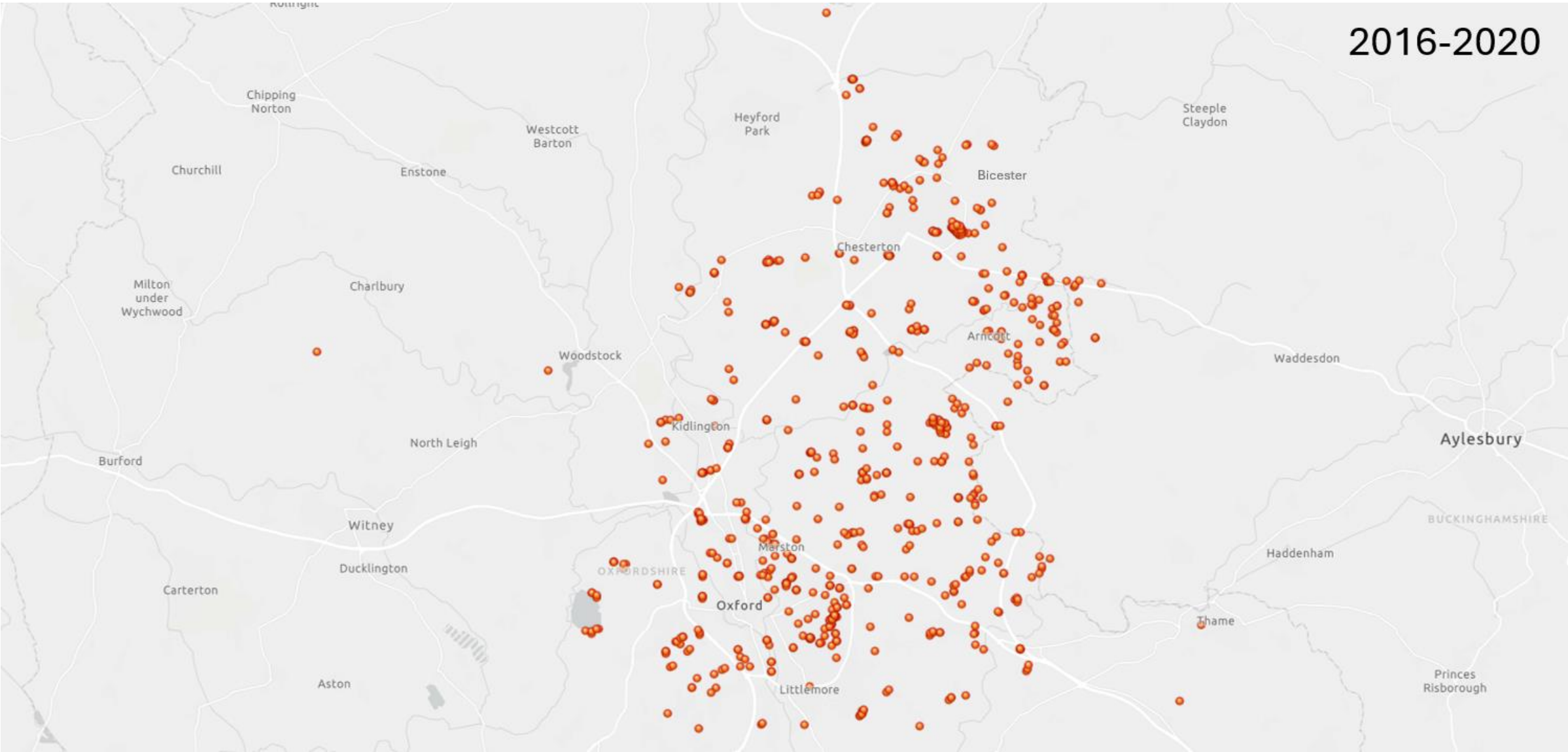


2011-2015

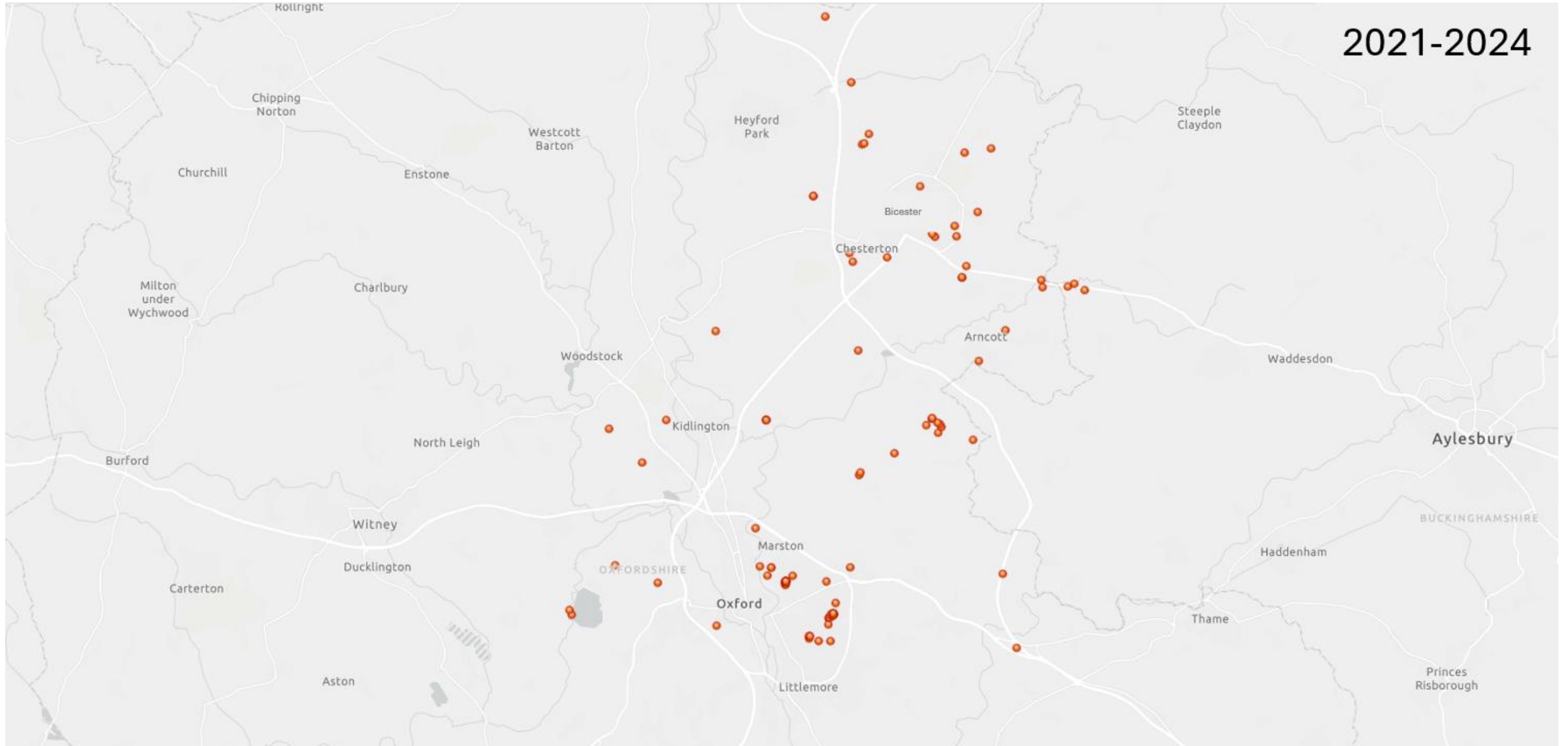




2016-2020



2021-2024



# Temperature and Brown hairstreak behavioural ecology

- 🦋 Brown hairstreak prefers warmer temperatures (above 20°C)
- 🦋 Over time climate change has led to warmer summer temperatures in the UK
- 🦋 Higher probability of finding them in warmer areas
- 🦋 Females are specifically attracted to warmer ovipositing sites
- 🦋 Higher temps = further dispersal

**BUT there are also other factors/reasons!!**

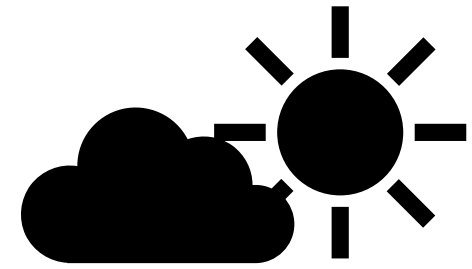
sampling





precipitation

# Brown hairstreak conservation



# Conservation in a warming world



-  Climate models predict hotter summers and milder, wetter winters
-  How will this affect female post-mating dispersal and egg/larval development?
-  New favourable egg laying sites, whilst other sites become unfavourable due to the species' thermal tolerance
-  We need to continue surveying and recording to monitor the distribution of the Brown hairstreak and identify important egg laying sites for the future

Thank  
you!!

