

Phenology 2019

Chichester Natural History Society

Dr Christian Hance

Background Info

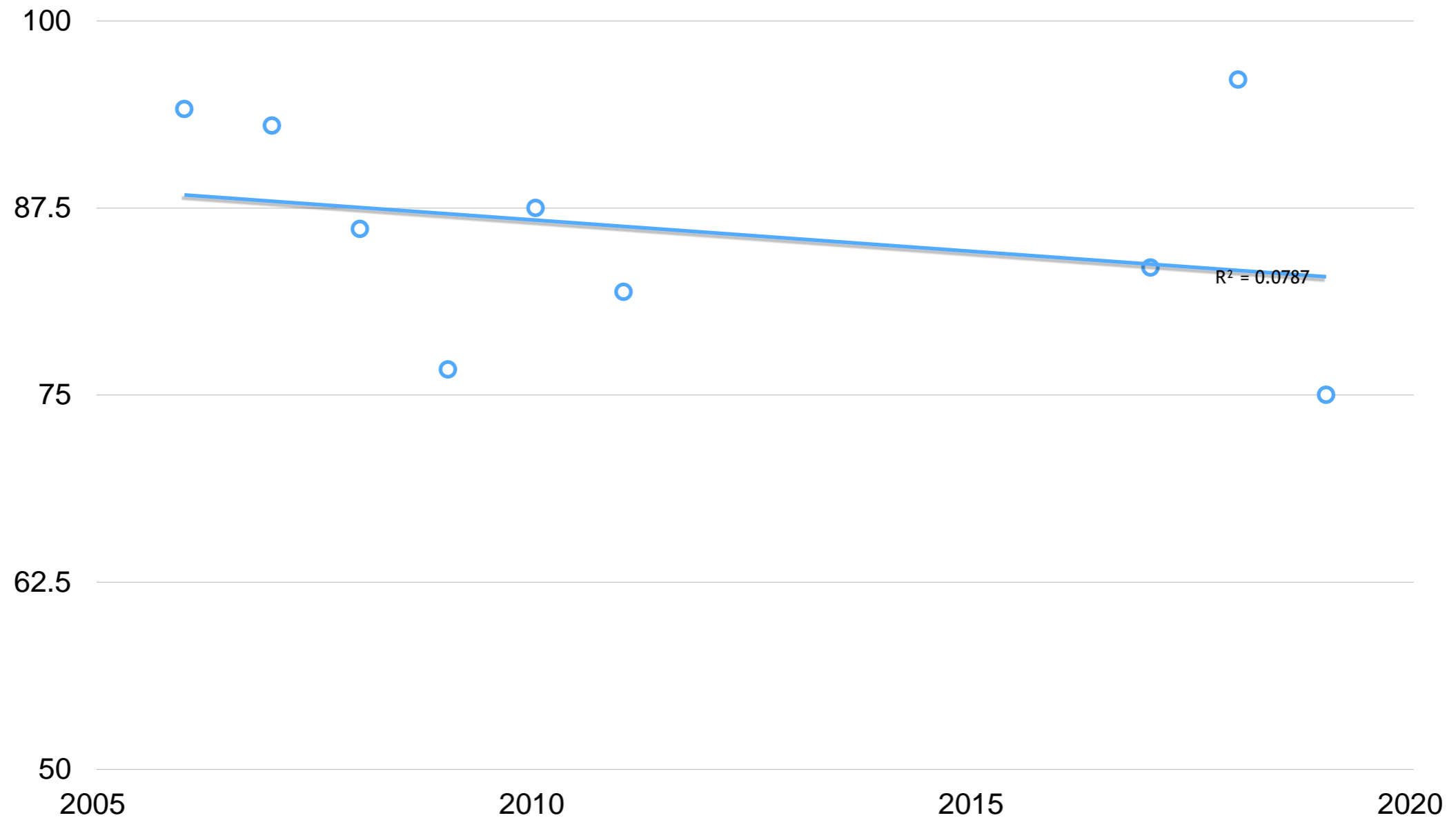
- ▶ 20 members submitted forms.
- ▶ The species most commonly recorded were Brimstone & Orange tip butterflies, Honey Bees and Hawthorn in Flower.
- ▶ Swallows and Large Red Damselflies were the least recorded.
- ▶ Given the method of collecting the data, it is not possible to assign statistical certainty to the results.
- ▶ However, each year's results and the trends do make for interesting interpretation.
- ▶ Numerous studies have shown that temperature is the main determining factor in phenology.

- Eight of our indicator species appeared earlier in 2019 than in 2018
 - Chiff Chaff
 - Brimstone Butterfly
 - Orange Tip Butterfly
 - Honey Bee
 - Frog Spawn
 - Hawthorn in Flower
 - Swift
 - Horse Chestnut in Flower

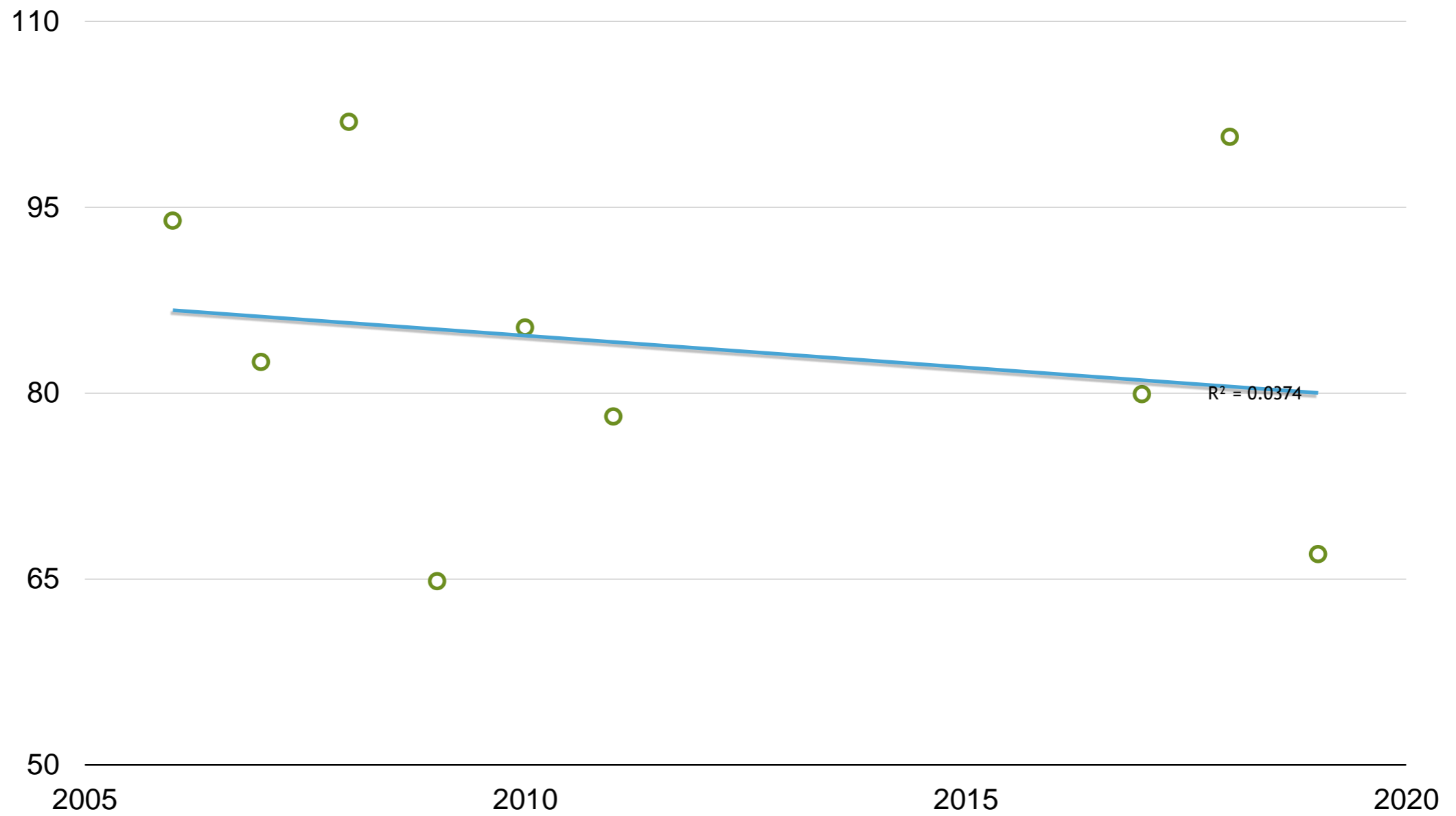
How to read the graphs

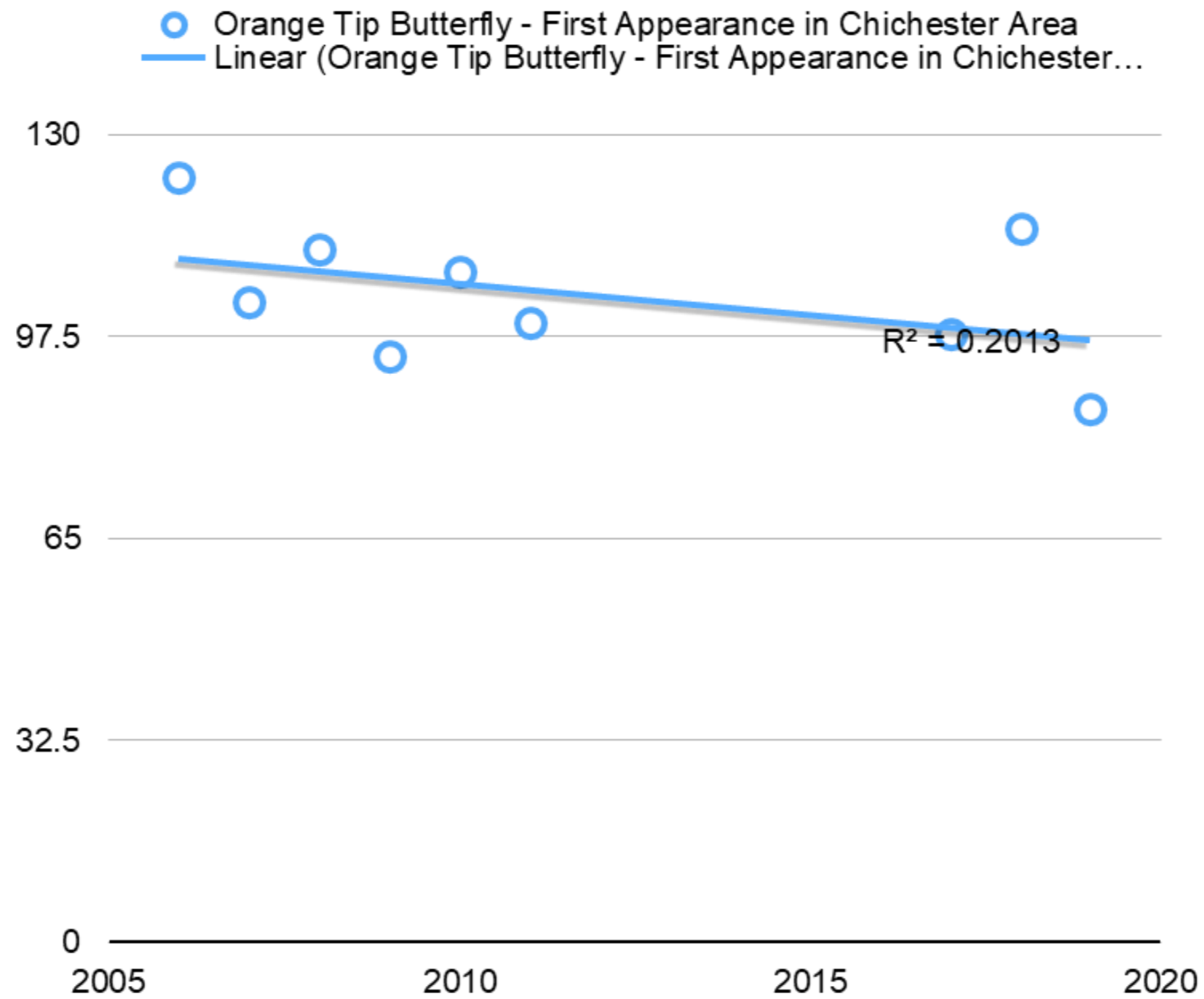
- ★ There is one graph per indicator species showing the mean day on which it was first recorded for each year
- ★ E.g.
 - ★ Day 60 is March 1st
 - ★ Day 91 is April 1st
 - ★ Day 121 is May 1st
- ★ A downwards sloping trend line shows the species is appearing earlier.
- ★ An upwards sloping trend line shows the species is appearing later.

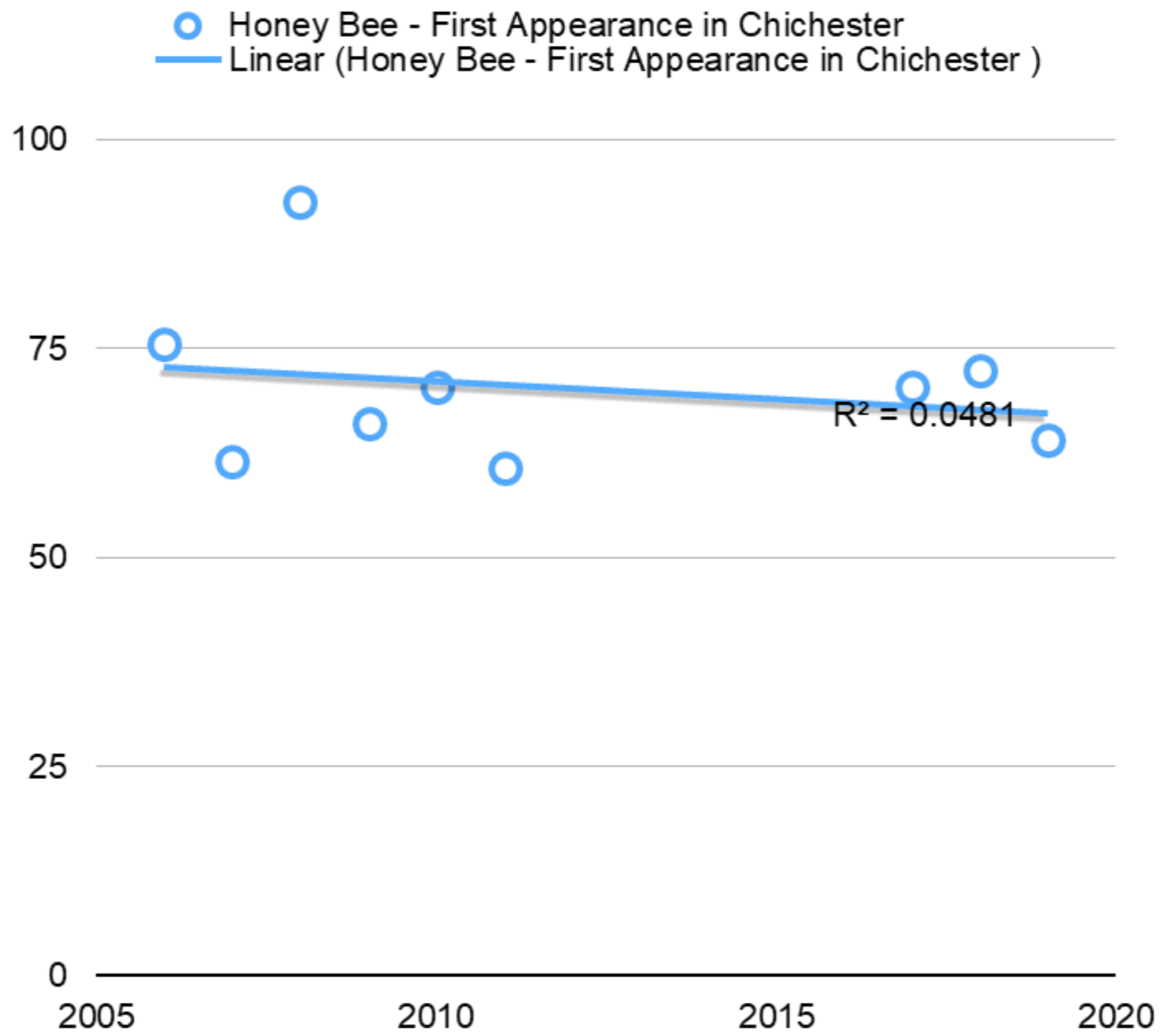
Chiff Chaff – Average First Day of Recording

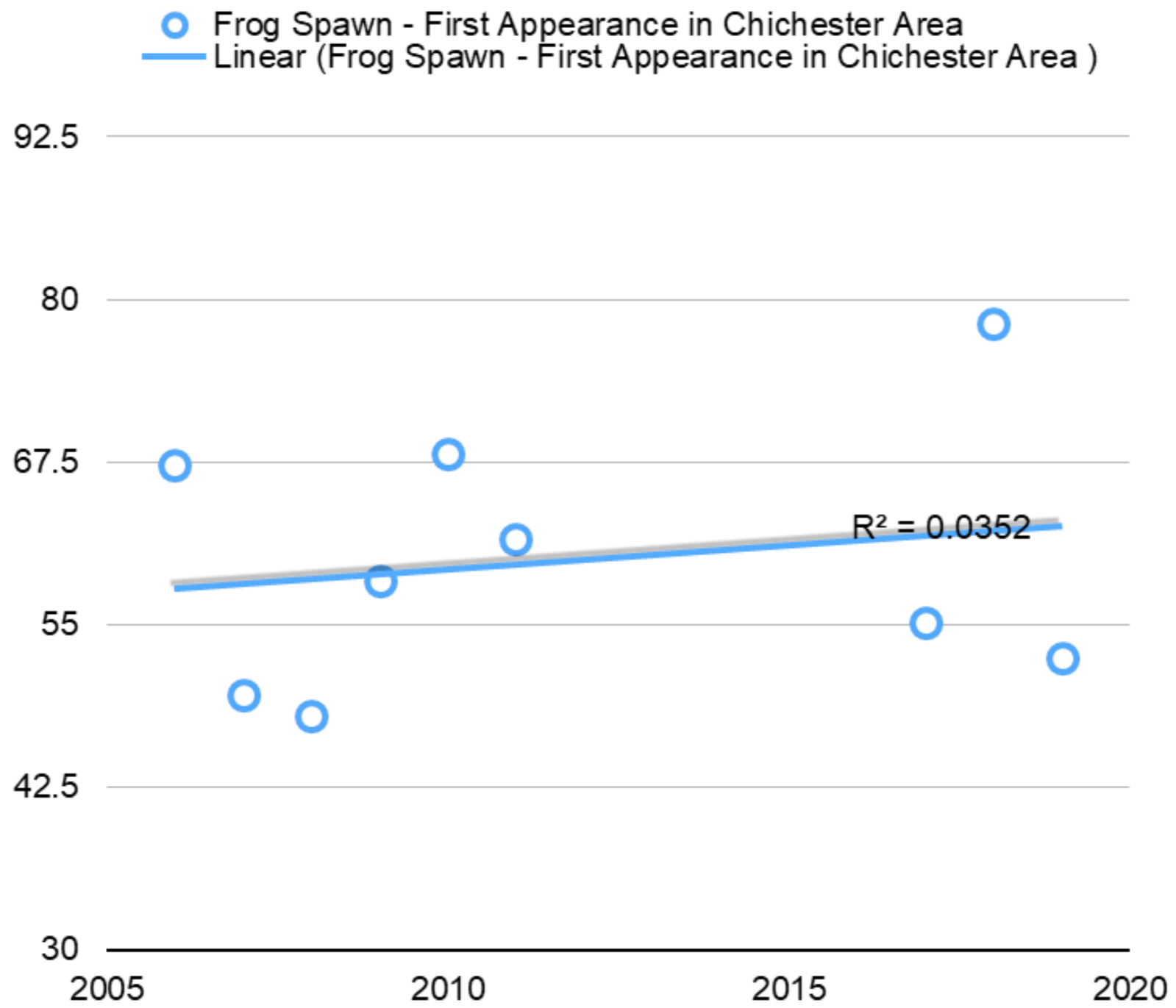


Brimstone - Average First Day of Recording

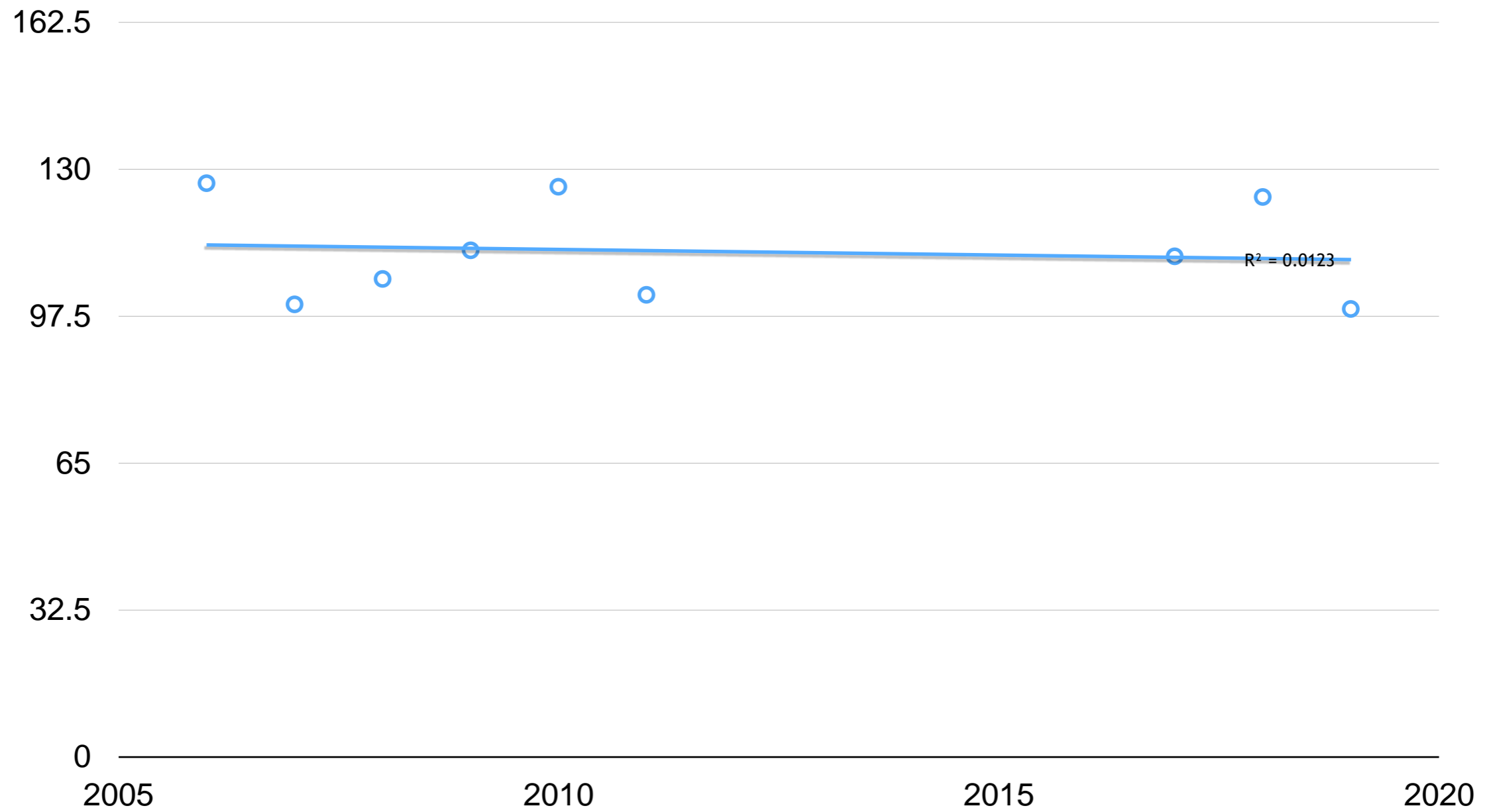


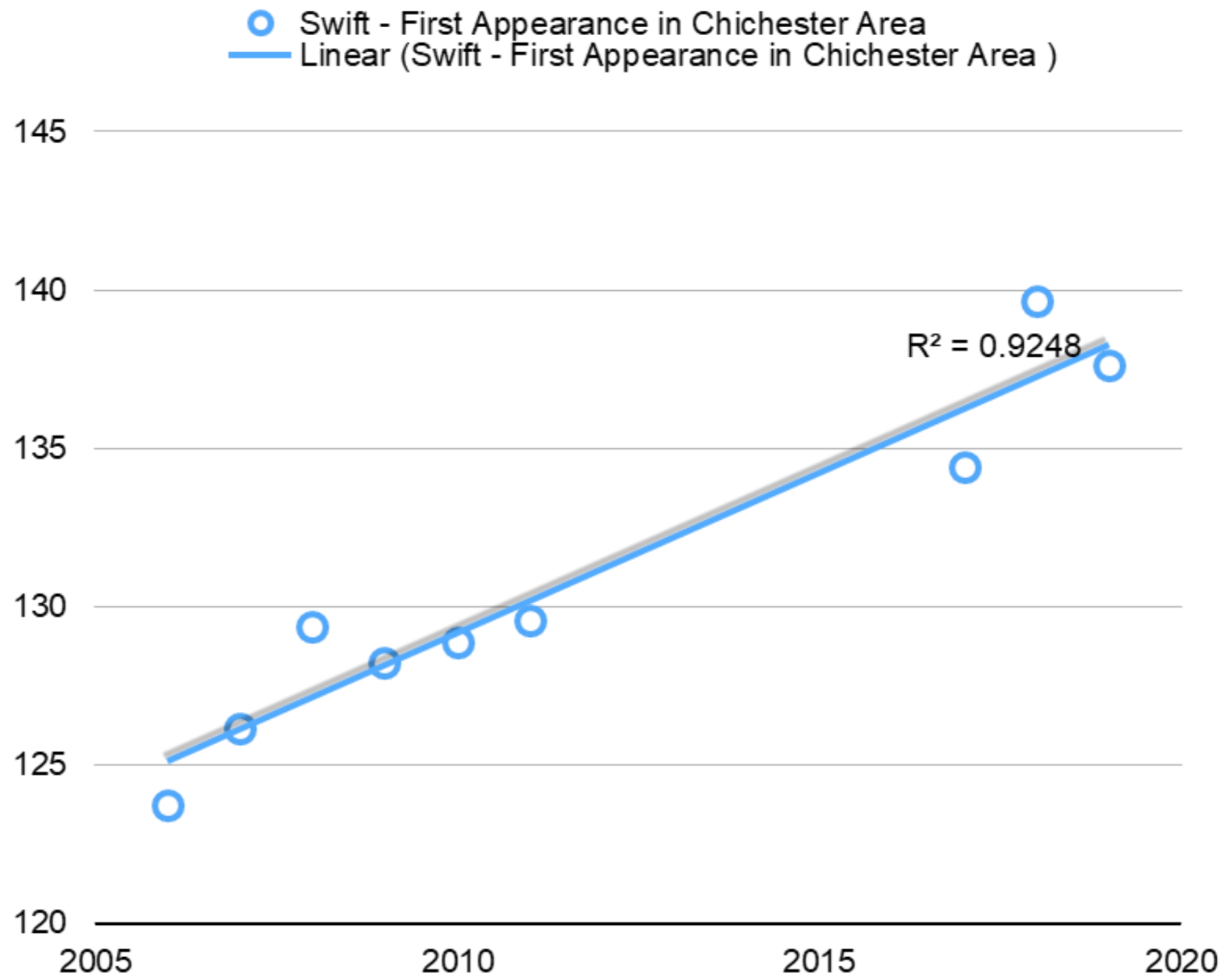


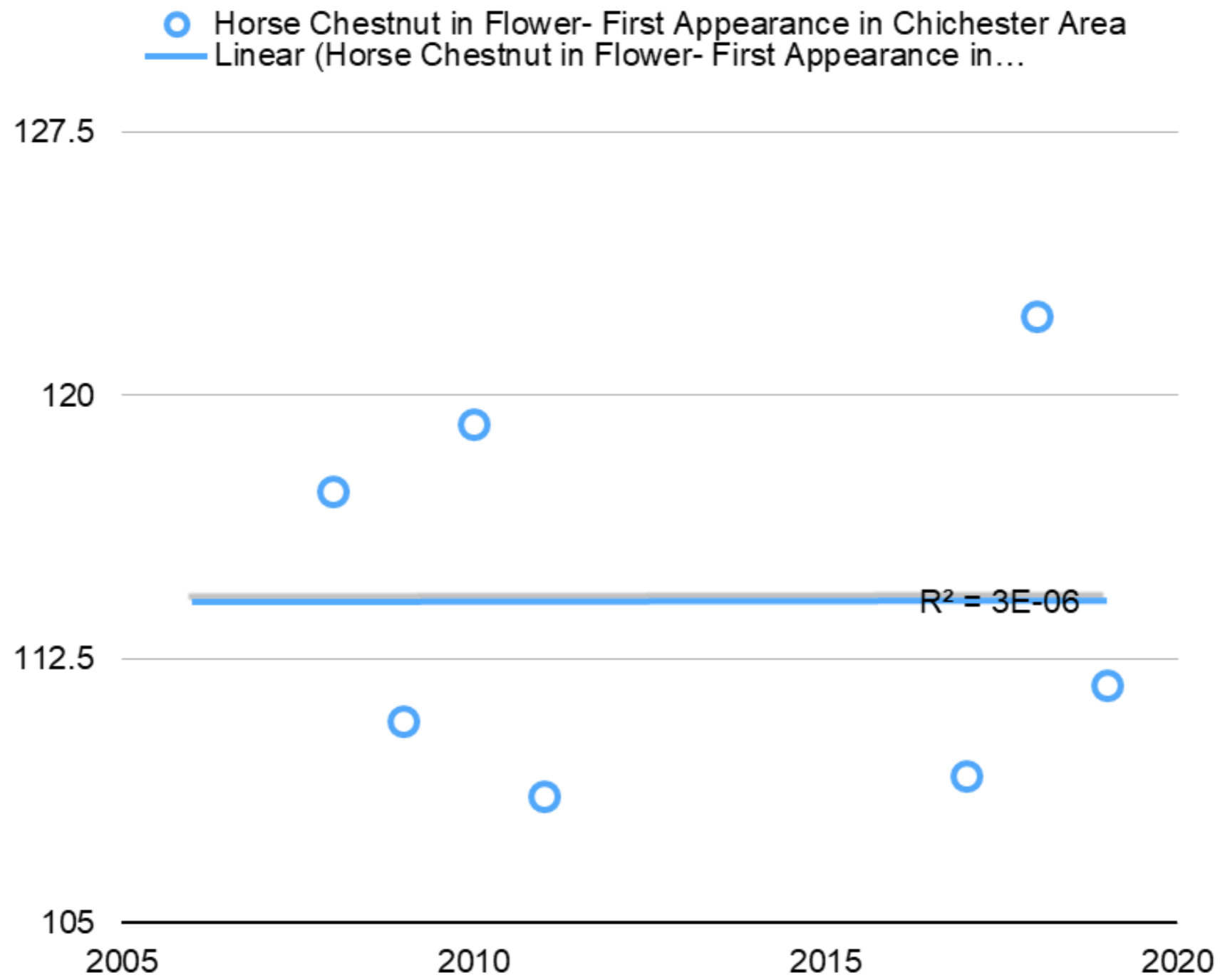




Hawthorn in flower - Average first day of recording

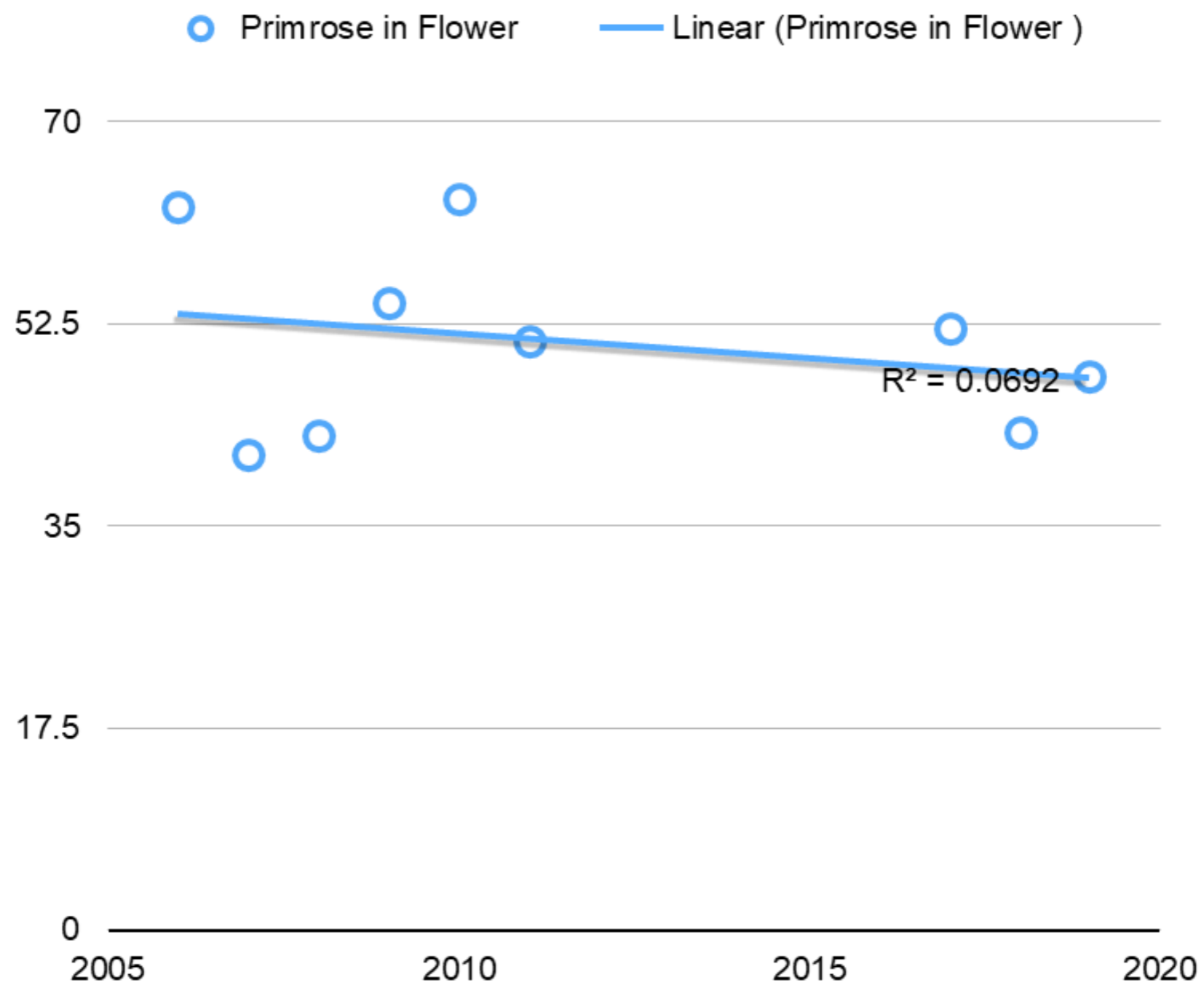




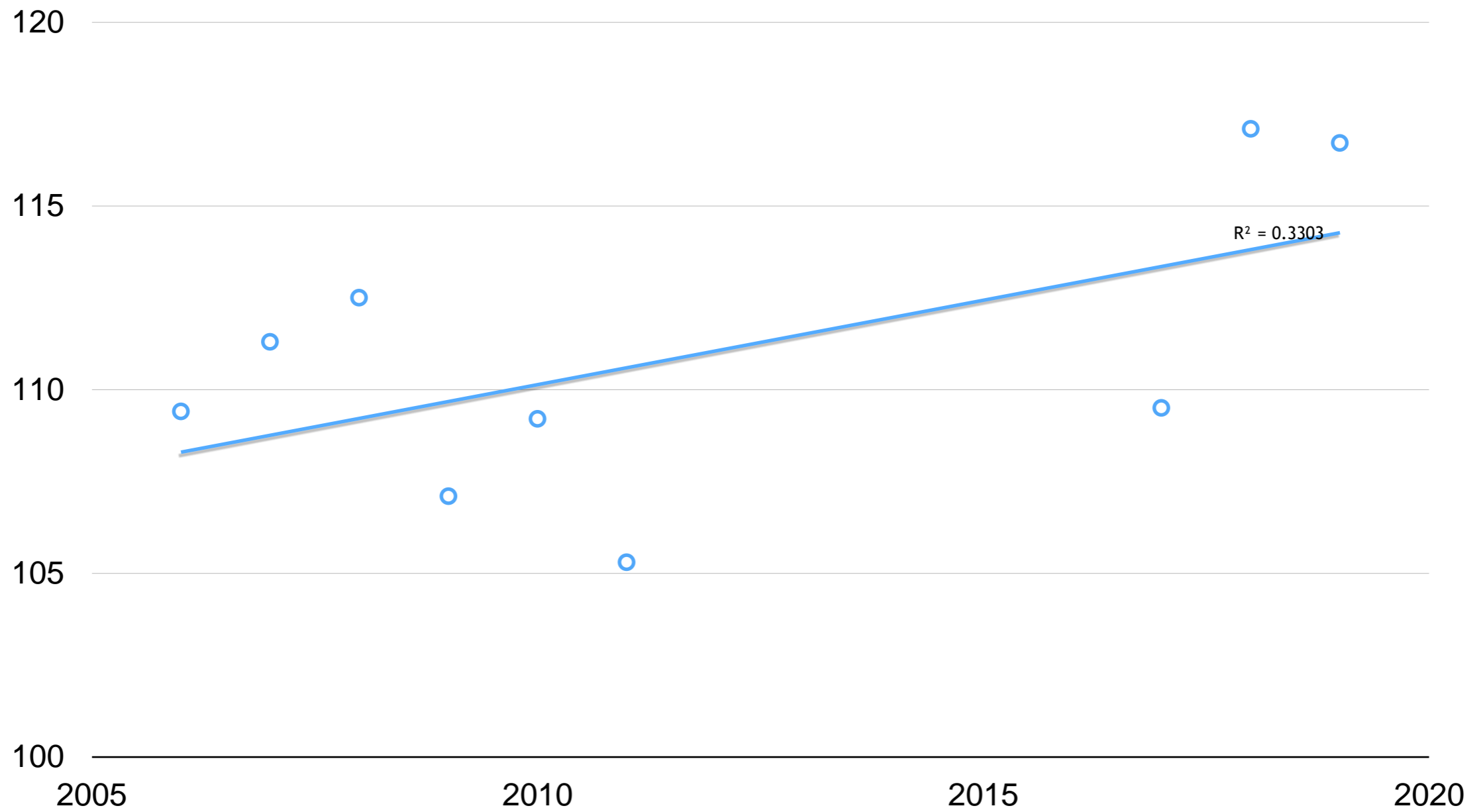


The following species appeared later in 2019 than 2018

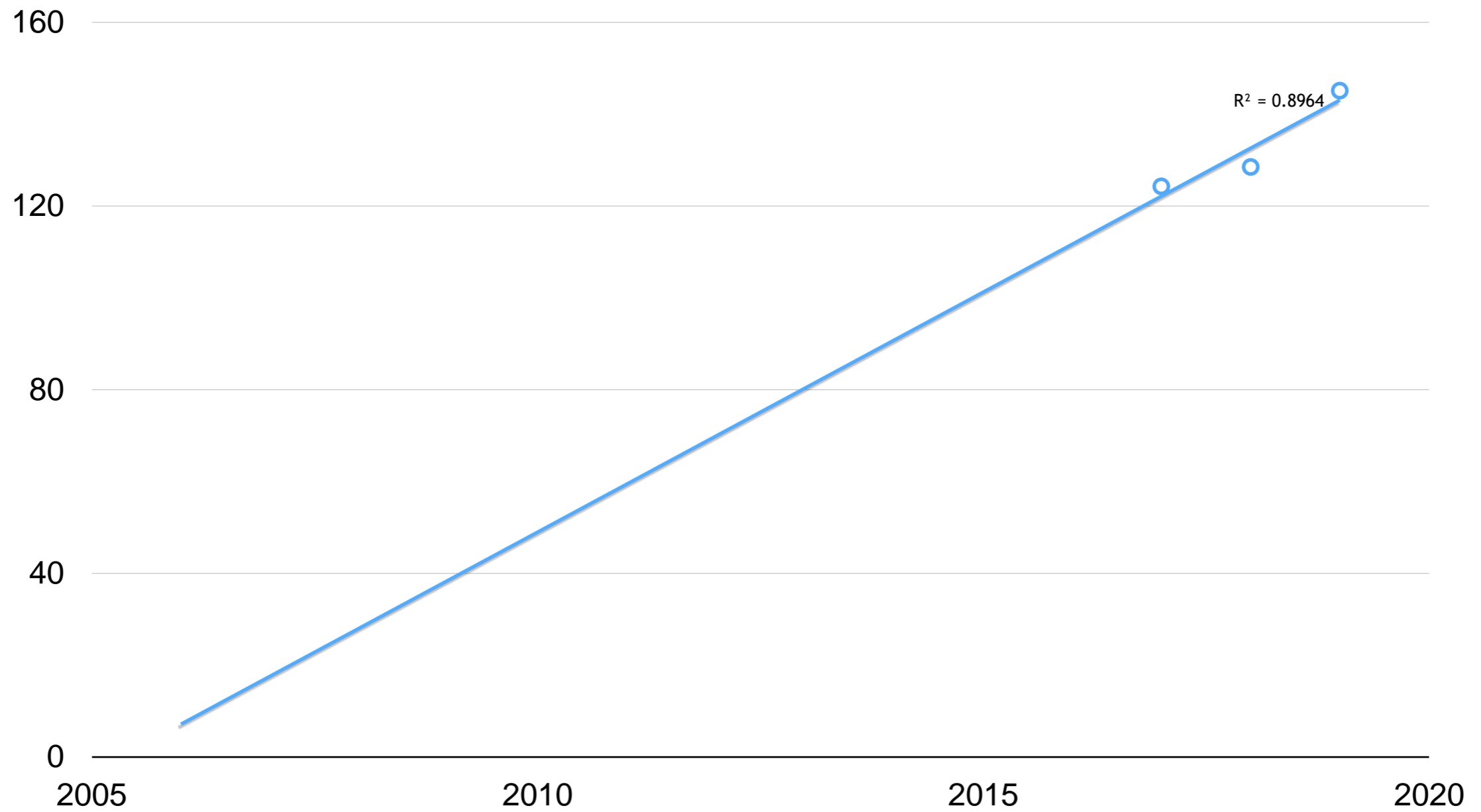
- ▶ Primrose in flower
- ▶ Swallow
- ▶ Large red Damselfly
- ▶ Cuckoo

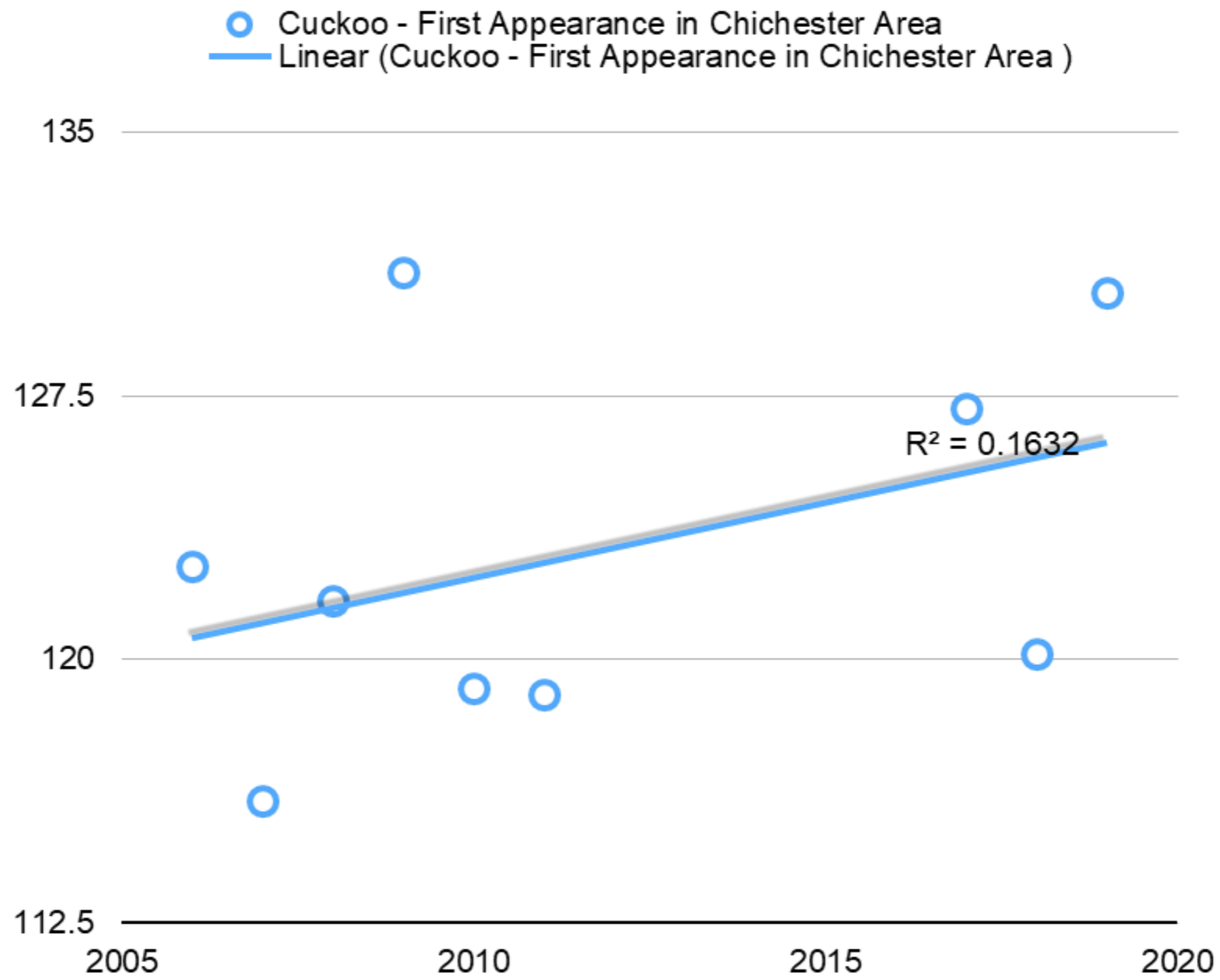


Swallow - Average first day of recording



Large Red Damselfly - Average first day of appearance





Summary of 2019 results

- When comparing to last year, there was no equivalent to 2018's "beast from the east". In addition, during 2018 we also had a long dry summer.
- Met office temperature records show that spring 2019 was one of the warmest on record, 2.7 degrees warmer than the 1961-1990 average (see following slide).

Mean Temperature data for Southern England compared to period 1961-1990

(Source Met Office, Regional Data averages compared to 1961-1990)

www.metoffice.gov.uk/climate/uk/summaries

- ▶ 2006 - Feb = (0.0); Mar < (-0.5); Apr > (1.0) Avg = 0.2
- ▶ 2007 - Feb > (2.5) ; Mar > (1.7) ; Apr > (3.7) Avg = 2.6
- ▶ 2008 - Feb > (1.8) ; Mar > (0.7) ; Apr > (0.4) Avg = 1.0
- ▶ 2009 - Feb > (0.5) ; Mar > (1.4) ; Apr > (2.2) Avg = 1.4
- ▶ 2010 - Feb < (-0.5); Mar > (0.5) ; Apr > (1.2) Avg = 0.4
- ▶ 2011 - Feb > (2.6) ; Mar > (1.2) ; Apr > (4.3) Avg = 2.7
- ▶ 2017 - Feb > (2.5) ; Mar > (3.2) ; Apr > (1.4) Avg = 2.4
- ▶ 2018 - Feb < (-0.8) ; Mar < (-0.5) ; Apr > (2.3) Avg = 0.3
- ▶ 2019 - Feb > (2.9) ; Mar > (3.9) ; Apr >(1.4) Avg = 2.7

Looking at the long term trend, plotted using the data from all of our records, 5 species are recorded steadily appearing earlier over the recorded period

- Chiff Chaff
- Brimstone Butterfly
- Orange Tip Butterfly
 - From 13 years ago the Orange Tip Butterfly is appearing, on average, 37 days earlier !!
- Primrose in Flower
- Honey Bee

At the same time, over the duration of this study, some species are recorded appearing later, possibly due to declining numbers

- ▶ Frog spawn
- ▶ Swift
- ▶ Swallow
- ▶ Large Red Damselfly (very few data points)
- ▶ Cuckoo

What next ?

- ▶ The more years that recordings can be made, the greater the value of the results.
- ▶ Many thanks to everyone who submitted a form this year.
- ▶ Since species are analysed separately, a form with just one recording on is valuable.
- ▶ Please help the Society in 2020 by keeping a record