Some aspects of the breeding biology of the swifts of County Mayo, Ireland

Chris & Lynda Huxley


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FINLAND
Gulf of Bothnia
Gulf of Finland
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LATVIA
LITHUANIA
RUSSIA
BELARUS
UNITED KINGDOM
North Atlantic Ocean
North Sea
Baltic Sea
DENMARK
IRELAND
NETHERLANDS
POLAND
GERMANY
Celtic Sea
English Channel
BELGIUM
LUX.
CZECH REP.
SLOVAKIA
LIECH.
AUSTRIA
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DONEGAL
ANTRIM
ULSTER
TYRONE
DOWN
FERMANAGH
ARMAGH
MONAGHAN
SLIGO
LEITRIM
MAYO
CAVAN
ROSCOMMON
CONNACHT
LOUTH
LONGFORD
WEST MEATH
MEATH
DUBLIN
GALWAY
OFFALY
KILDARE
LEINSTER
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LAOIS
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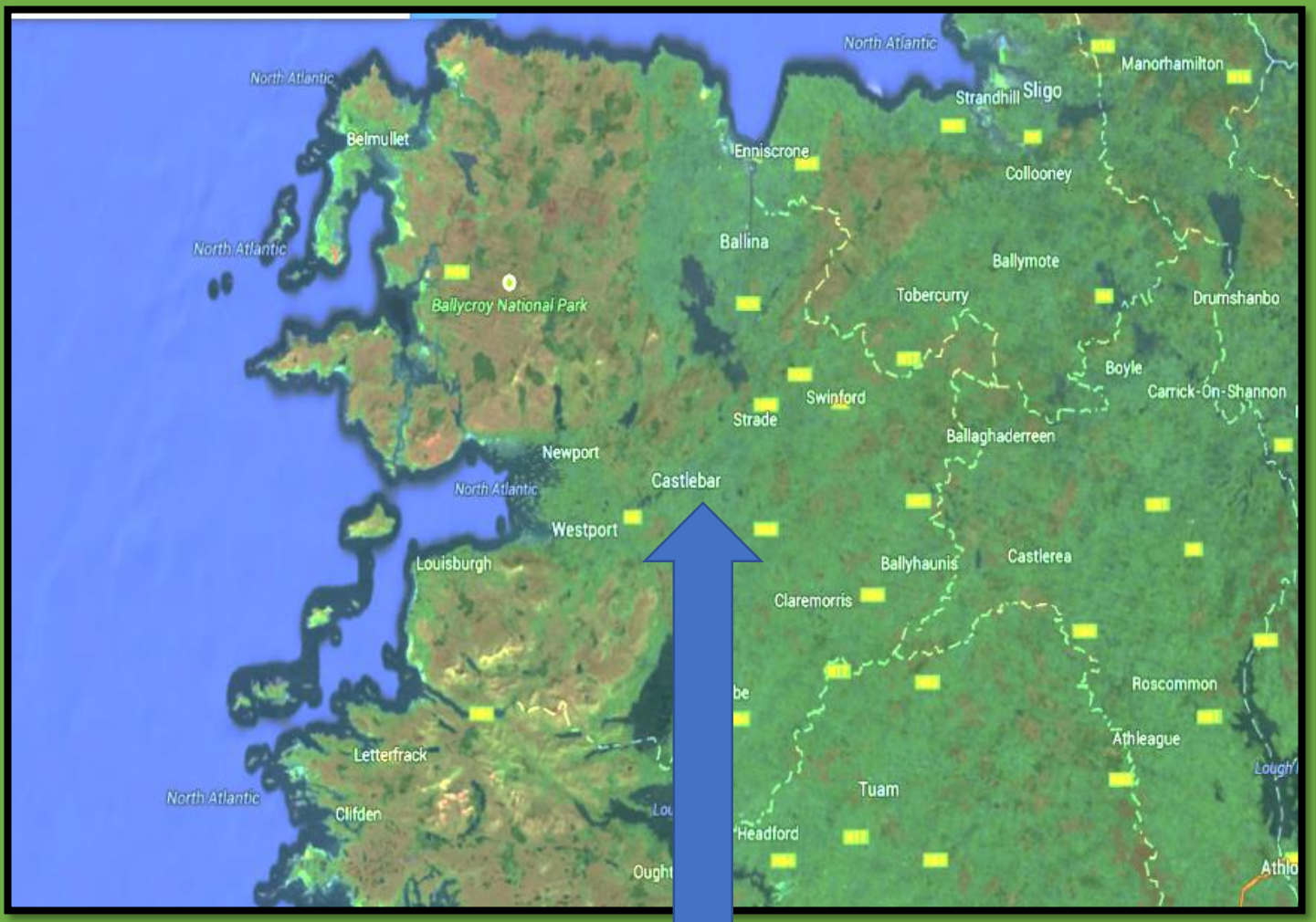
CARLOW
KILKENNY
LIMERICK
TIPPERARY
WEXFORD
MUNSTER
KERRY
WATERFORD
CORK
Irish Sea
Atlantic Ocean

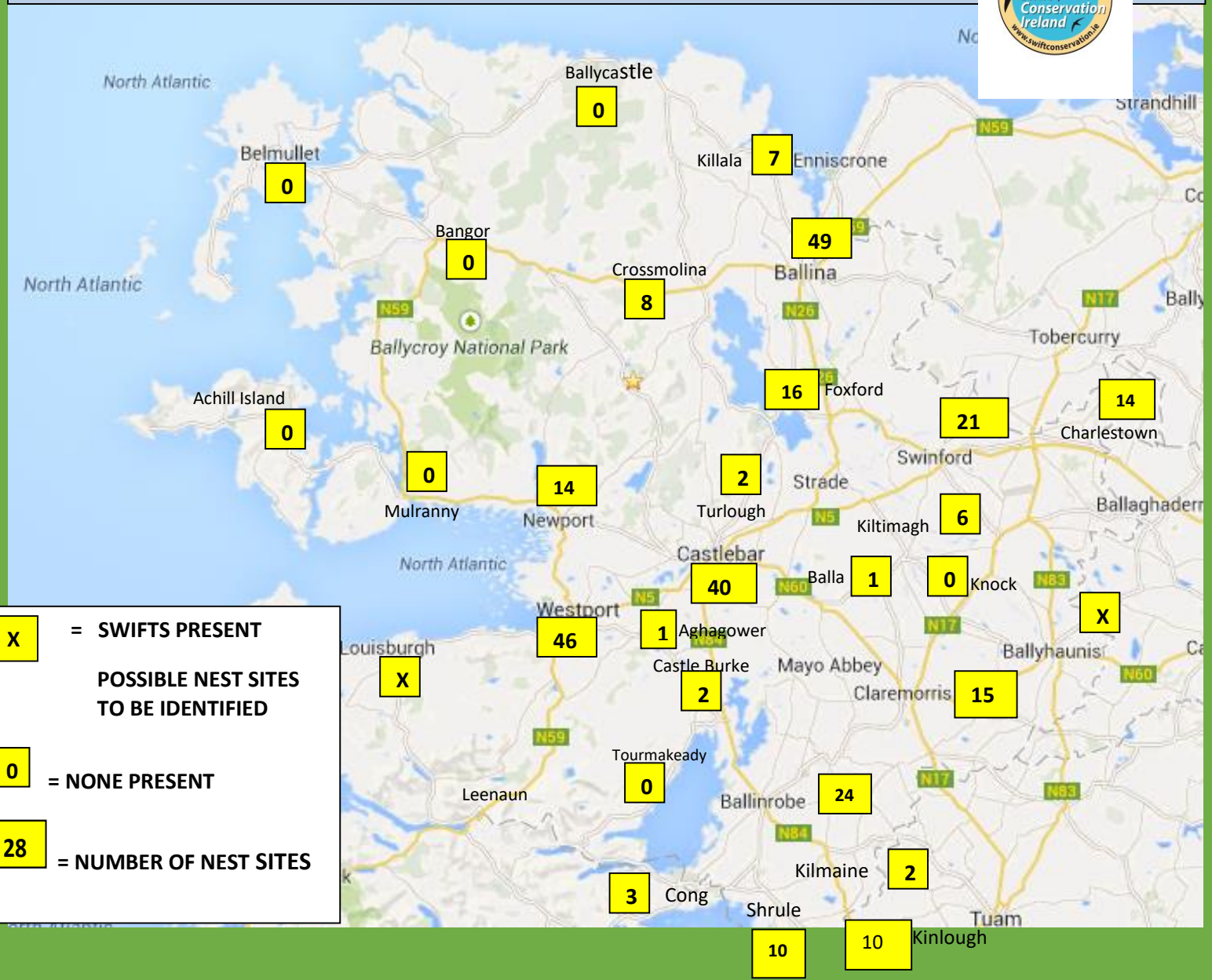


3rd largest Irish county covering 5,585 square kilometers (after Cork and Galway), and with a reputation for being one of the wetter western counties, a total of 1116 wetland sites have been identified in the county.

Project Objectives

- To investigate the breeding biology of swifts in County Mayo
- To assess the impact of weather on parental feeding patterns
- To determine the likelihood that inclement weather significantly affects the adults' ability to rear young
- To assess the possibility that low population numbers are a result of weather conditions and proximity to the Atlantic Ocean.

COMMON SWIFT – COUNTY MAYO - KNOWN STATUS – 2017



X	= SWIFTS PRESENT POSSIBLE NEST SITES TO BE IDENTIFIED
0	= NONE PRESENT
28	= NUMBER OF NEST SITES

Town	Nest Sites	Nest box Projects
Achill Island	0	0
Aghagower	1	0
Balla	1	1 (3)
Ballina	49	1 (6)
Ballinrobe	28	1 (6)
Ballycastle	0	0
Ballycroy	0	In 2018
Ballyhaunis	?	In 2018
Bangor	0	In 2018
Belmullet	0	In 2018
Castle Burke	2	0
Castlebar	37	4 (48) (12)
Charlestown	14	1 (6)
Claremorris	15	2 (9) (2)
Cong	3	1 (6)
Crossmolina	8	1 (6)
Foxford	16	1 (12)
Killala	7	1 (6)
Kilmaine	2	0
Kiltimagh	6	1 (6)
Kinlough Castle	10	0
Knock	0	0
Louisburgh	?	In 2018
Mulranny	0	0
Newport	14	1 (6)
Shrule	10	1 (6)
Swinford	21	1 (6)
Tourmakeady	0	0
Turlough	2	In 2018
Westport	46	4 (24) (9)
	291	23 (156) (23)
		Figures in () = occupied nest boxes

Population Information - 1

Information on swift numbers & distribution in Mayo until recently

General belief that swifts are less abundant in the west of Ireland because of the weather and proximity to the Atlantic

- **But**, as long ago as 1890, W.H.Good in his “Notes on the Birds of County Mayo” wrote about swifts :

  “ “Rare in the West of Ireland” **is wholly incorrect**”

- Comment in 1976 Atlas of Breeding Birds that ”impressions of an increase” was noticeable in1932 was repeated by R. F. Ruttledge in 1989 *“Birds in Counties Galway and Mayo - an Account of their Status and Distribution”*
- The various atlases since 1989 have probably reflected more **the distribution and abundance of <u>observers</u> rather than that of swifts**
- The latest Atlas (2013) reports a 46% decline in Ireland’s swifts.

Population Information - 2

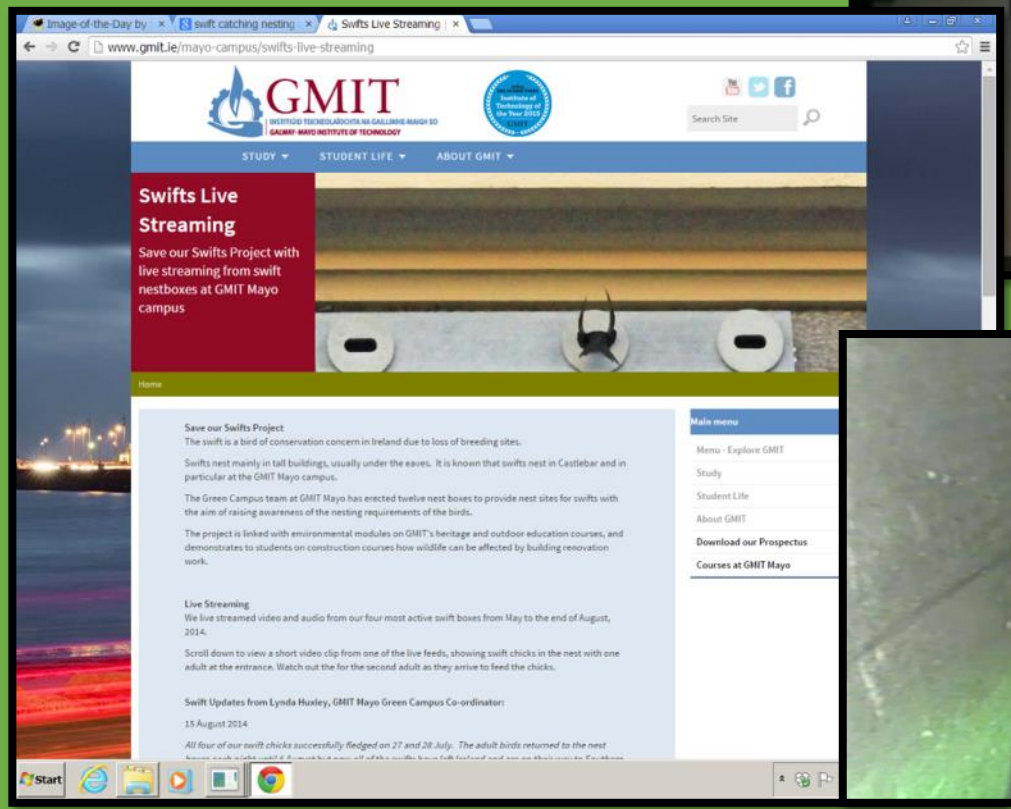
- **Lack's 1956** statement that ***"swifts rarely breed on the western coasts"*** because "the weather is usually wet or windy" and because ***"the prevailing winds carry no insects"*** was presumably an assumption and not supported by evidence
- We have concluded that Mayo has had a reasonable population of swifts for at least the last 130 years **and** that there has **never** been a careful, systematic attempt to quantify this, **until now**
  - **Our survey work has shown that, prior to the erection of any nest boxes, Mayo had around 290 occupied 'natural' nest sites**
  - **The establishment of nest boxes has, within the first six years, increased this figure by 8%**
  - **We conclude that weather and proximity to the Atlantic Ocean are not limiting factors for Mayo's swifts.**

“the north and west coasts of Ireland are two of the windiest areas in Europe”. *Met Eireann*

Methods

- 4 triple cavity Schwegler 17a boxes erected 2012 at Galway-Mayo Institute of Technology in Castlebar (GMIT)
- IR cameras in all 12 nest boxes
- Activity in some occupied boxes recorded 24 hours per day
- Several thousand hours of recording available
- Recordings viewed later and feeding activity recorded on data sheets
- Data transferred to Excel spreadsheet
- Weather data from Met Éireann added to spreadsheet
- Analysis of data (2,011 feeding events) using Excel.

GMIT (now third level college) building dates from 1860 was St Mary's District Psychiatric Hospital


www.gmit.ie/mayo-campus/swifts-live-streaming
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Swifts Live Streaming
Save our Swifts Project with live streaming from swift nestboxes at GMIT Mayo campus
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Save our Swifts Project
The swift is a bird of conservation concern in Ireland due to loss of breeding sites.
Swifts nest mainly in tall buildings, usually under the eaves. It is known that swifts nest in Castlebar and in particular at the GMIT Mayo campus.
The Green Campus team at GMIT Mayo has erected twelve nest boxes to provide nest sites for swifts with the aim of raising awareness of the nesting requirements of the birds.
The project is linked with environmental modules on GMIT's heritage and outdoor education courses, and demonstrates to students on construction courses how wildlife can be affected by building renovation work.
Live Streaming
We live streamed video and audio from our four most active swift boxes from May to the end of August, 2014.
Scroll down to view a short video clip from one of the live feeds, showing swift chicks in the nest with one adult at the entrance. Watch out the for the second adult as they arrive to feed the chicks.
Swift Updates from Lynda Huxley, GMIT Mayo Green Campus Co-ordinator:
15 August 2014
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MAYO
GREEN CAMPUS
GMIT
1

Some assumptions and weaknesses

- No information available on food supply and its relationship to weather and season
- Amount of food brought in each bolus is unknown
- Only three years of data analysed so far
- Weather data are daily records, more detailed (hourly?) data would be likely to show clearer effects
- It is assumed that chicks have received sufficient food to ensure adequate weight on fledging

Weather summary

	Rainfall (mm)	Mean min temp (degrees C)	Mean max temp (degrees C)	Mean temp (degrees C)	Mean windspeed (knots)
May	91	7	16	12	8.2
June	82	10	18	14	7.9
July	87	12	20	16	7.4
August	94	12	19	16	7.6

n.b. Windspeed of 7 – 10 knots is Beaufort Force 3 “Gentle Breeze”.

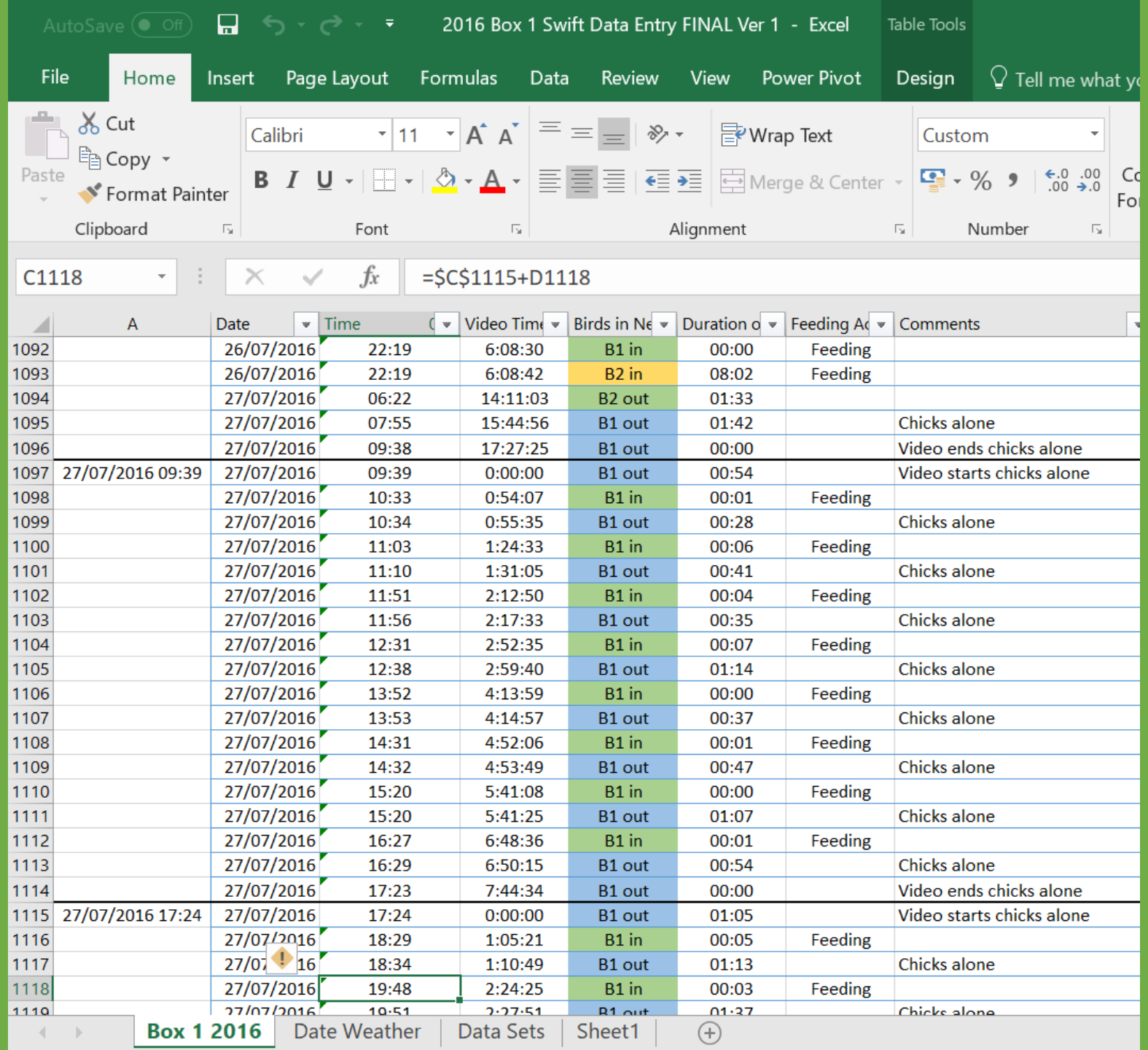
Sample data sheet

BOX NUMBER : 1 YEAR : 2016 ✓

- When starting a new video note the start date and time, end time and duration.
- Each time a new video starts/ends and how many birds are in the box e.g. "video ends with 2 chicks in the nest box and no adults"

DATE	TIME ELAPSED	NOTES	
27 July 2016		Video starts 09:39	
		Video duration 07:44:34	
		Video starts with chicks alone	
	00:54:07	Bl in feeding	
	00:55:35	Bl out - chicks alone	
	01:24:33	Bl in - feeding	
	01:31:05	Bl out - chicks alone	
	02:12:50	Bl in - feeding	
	02:17:33	Bl out - chicks alone	
	02:52:35	Bl in - feeding	
	02:59:40	Bl out - chicks alone	
	04:12:20	Panic from young bird at entrance	
	04:13:59	Bl in feeding (close view)	
	04:14:57	Bl out - chick alone	
	04:52:06	Bl in feeding	
	04:53:49	Bl out - chicks alone	
	05:41:08	Bl in - feeding	
	05:41:25	Bl out - chicks alone	
	06:48:36	Bl in - feeding	
	06:50:15	Bl out - chicks alone	
	07:44:34	Video ends with chicks alone	

Sample excel spreadsheet



	A	Date	Time	Video Time	Birds in Ne	Duration o	Feeding Ac	Comments
1092		26/07/2016	22:19	6:08:30	B1 in	00:00	Feeding	
1093		26/07/2016	22:19	6:08:42	B2 in	08:02	Feeding	
1094		27/07/2016	06:22	14:11:03	B2 out	01:33		
1095		27/07/2016	07:55	15:44:56	B1 out	01:42		Chicks alone
1096		27/07/2016	09:38	17:27:25	B1 out	00:00		Video ends chicks alone
1097	27/07/2016 09:39	27/07/2016	09:39	0:00:00	B1 out	00:54		Video starts chicks alone
1098		27/07/2016	10:33	0:54:07	B1 in	00:01	Feeding	
1099		27/07/2016	10:34	0:55:35	B1 out	00:28		Chicks alone
1100		27/07/2016	11:03	1:24:33	B1 in	00:06	Feeding	
1101		27/07/2016	11:10	1:31:05	B1 out	00:41		Chicks alone
1102		27/07/2016	11:51	2:12:50	B1 in	00:04	Feeding	
1103		27/07/2016	11:56	2:17:33	B1 out	00:35		Chicks alone
1104		27/07/2016	12:31	2:52:35	B1 in	00:07	Feeding	
1105		27/07/2016	12:38	2:59:40	B1 out	01:14		Chicks alone
1106		27/07/2016	13:52	4:13:59	B1 in	00:00	Feeding	
1107		27/07/2016	13:53	4:14:57	B1 out	00:37		Chicks alone
1108		27/07/2016	14:31	4:52:06	B1 in	00:01	Feeding	
1109		27/07/2016	14:32	4:53:49	B1 out	00:47		Chicks alone
1110		27/07/2016	15:20	5:41:08	B1 in	00:00	Feeding	
1111		27/07/2016	15:20	5:41:25	B1 out	01:07		Chicks alone
1112		27/07/2016	16:27	6:48:36	B1 in	00:01	Feeding	
1113		27/07/2016	16:29	6:50:15	B1 out	00:54		Chicks alone
1114		27/07/2016	17:23	7:44:34	B1 out	00:00		Video ends chicks alone
1115	27/07/2016 17:24	27/07/2016	17:24	0:00:00	B1 out	01:05		Video starts chicks alone
1116		27/07/2016	18:29	1:05:21	B1 in	00:05	Feeding	
1117		27/07/2016	18:34	1:10:49	B1 out	01:13		Chicks alone
1118		27/07/2016	19:48	2:24:25	B1 in	00:03	Feeding	
1119		27/07/2016	19:51	2:27:51	B1 out	01:37		Chicks alone

Results

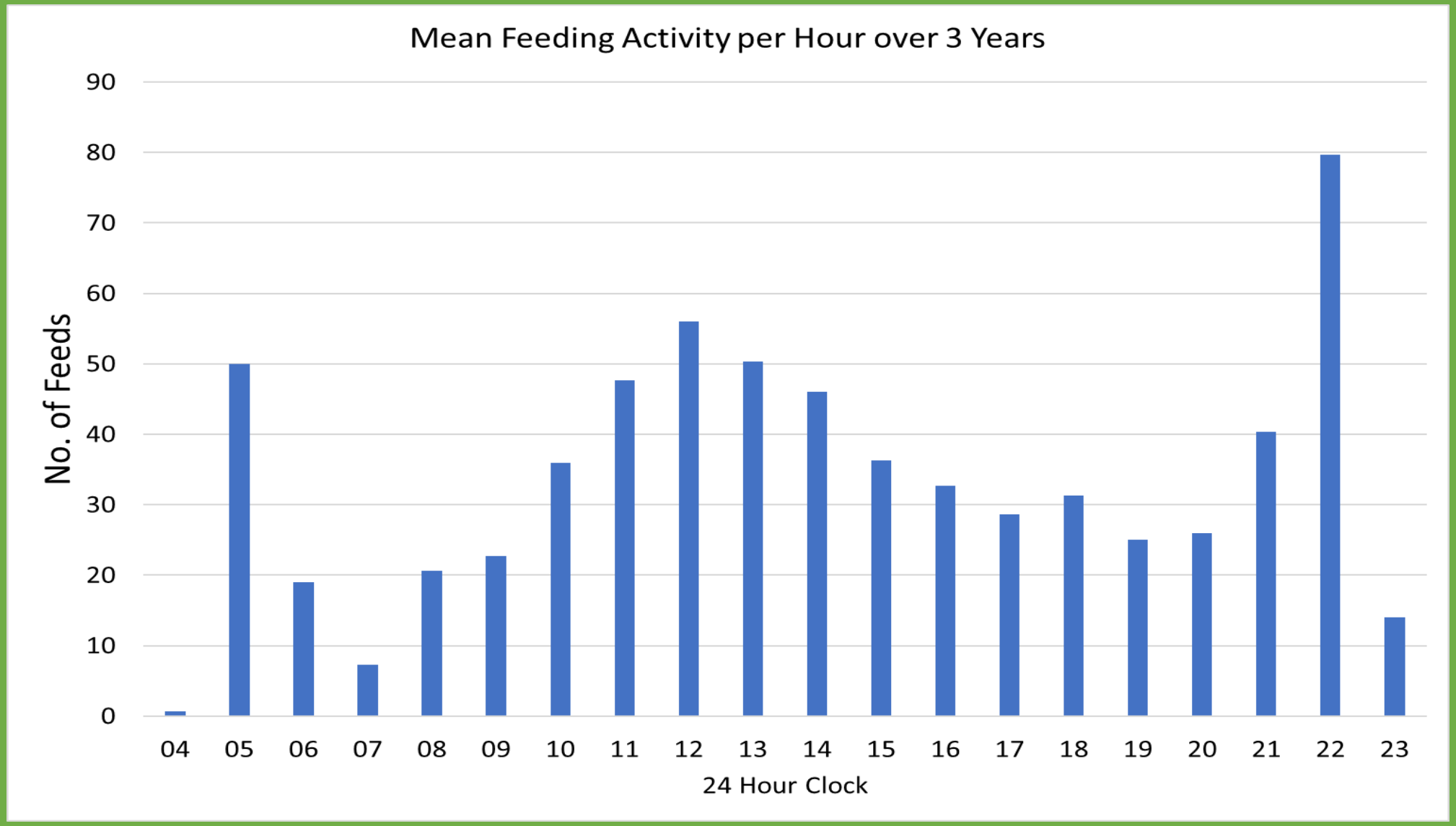
Fledging periods

Number of chicks with known fledging periods = 17

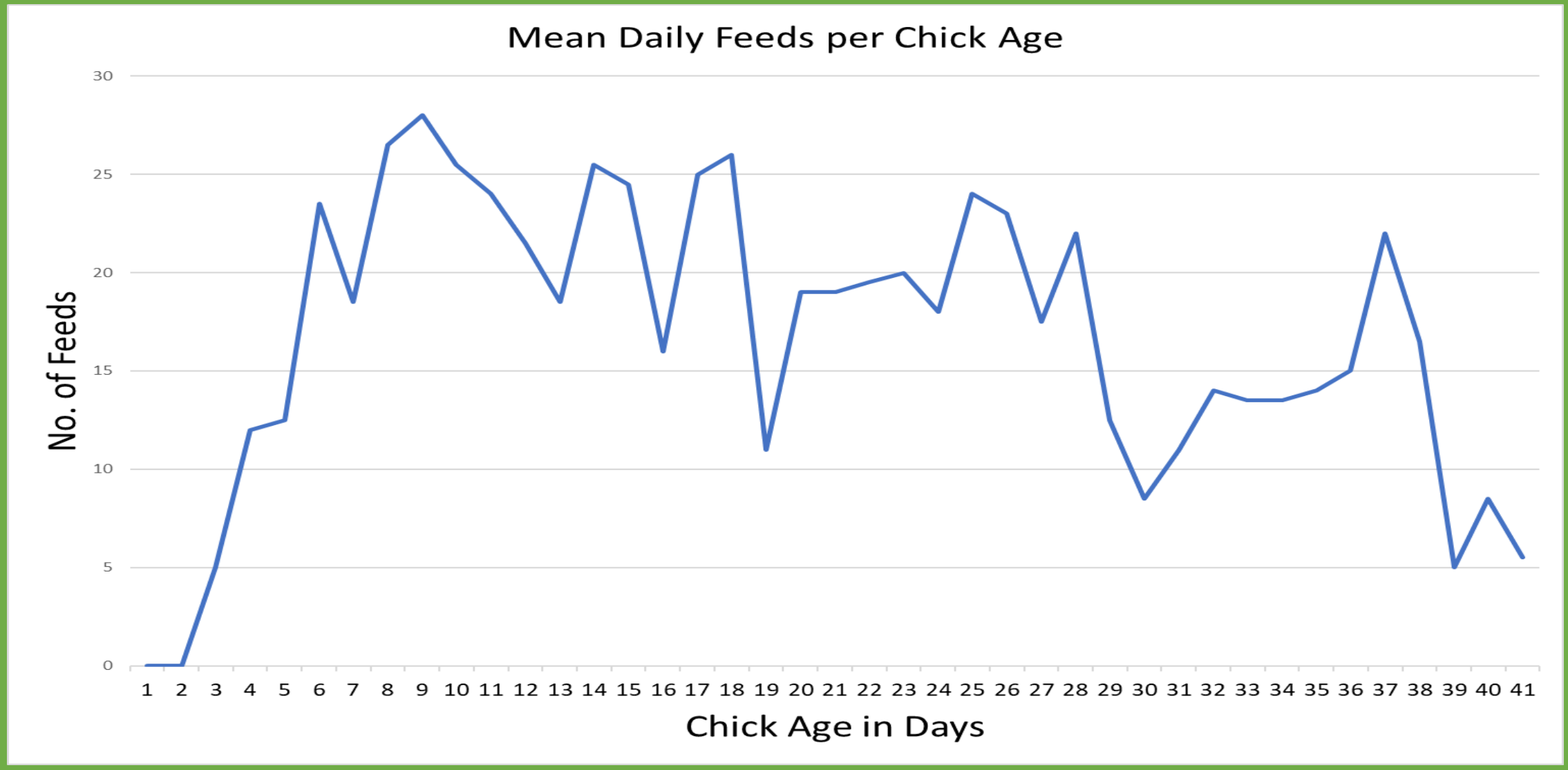
Range of fledging periods = 39 – 46 days

Mean fledging period = 41.6 days

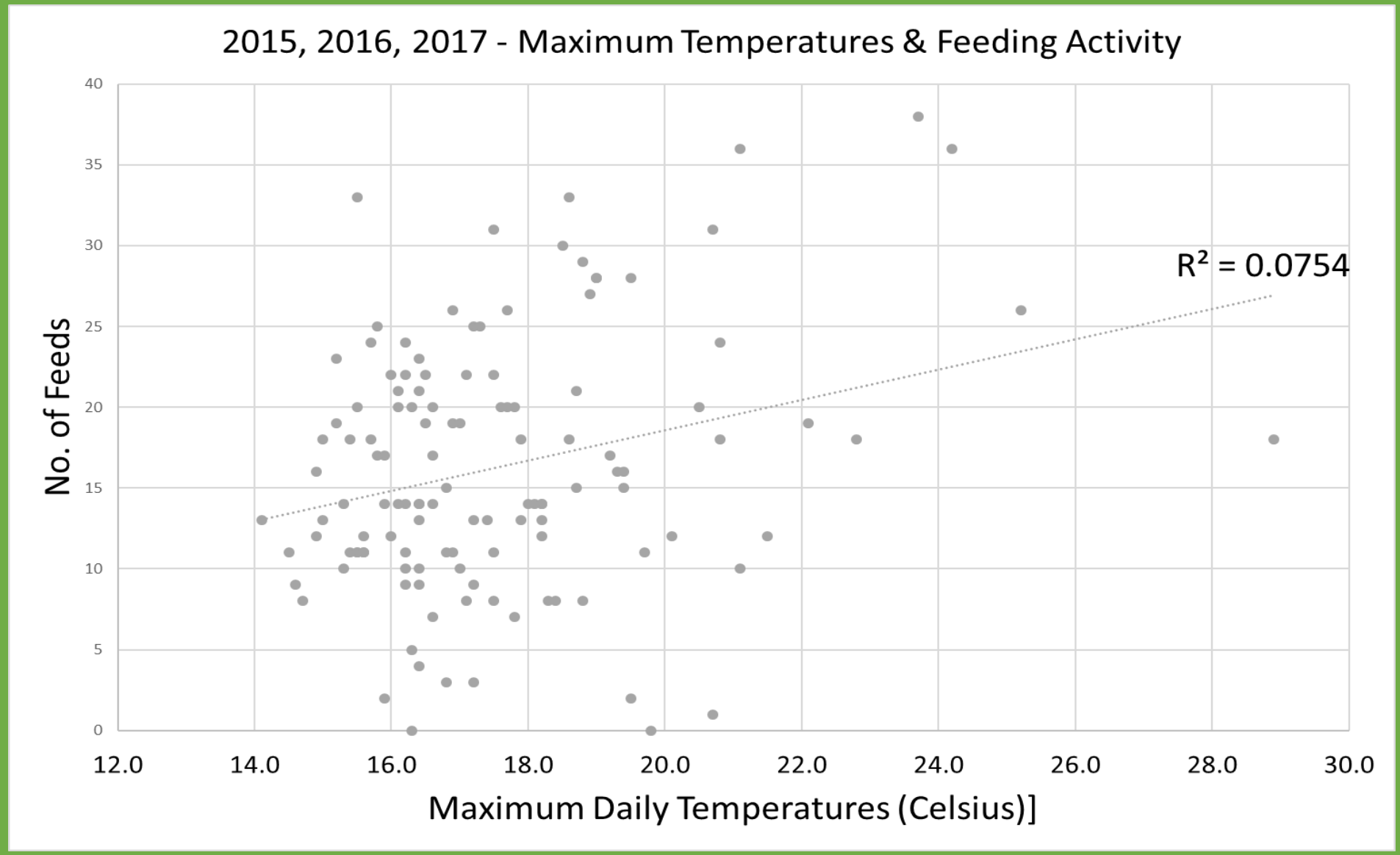
Daily pattern of feeding activity



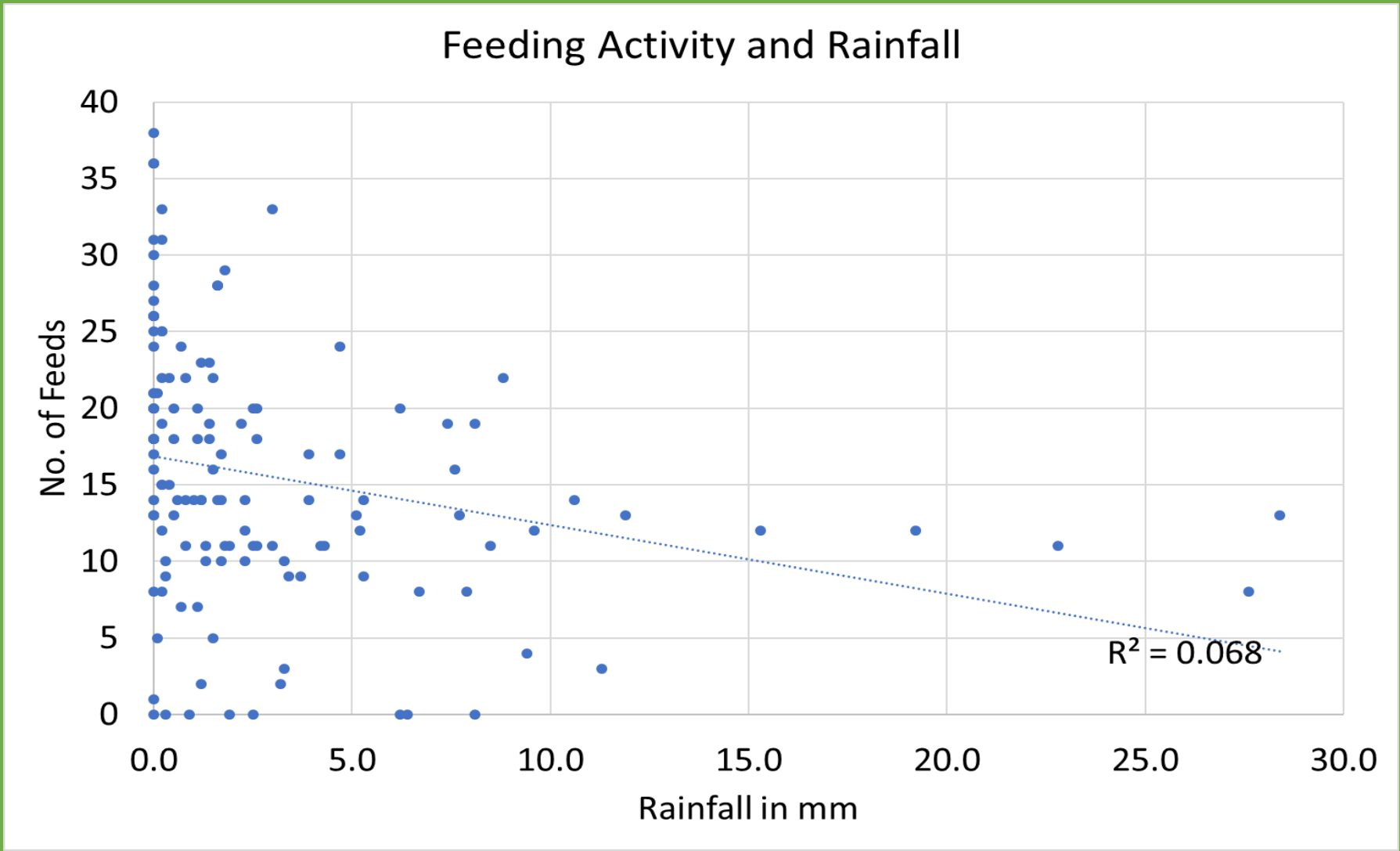
Feeding activity in relation to age of chicks



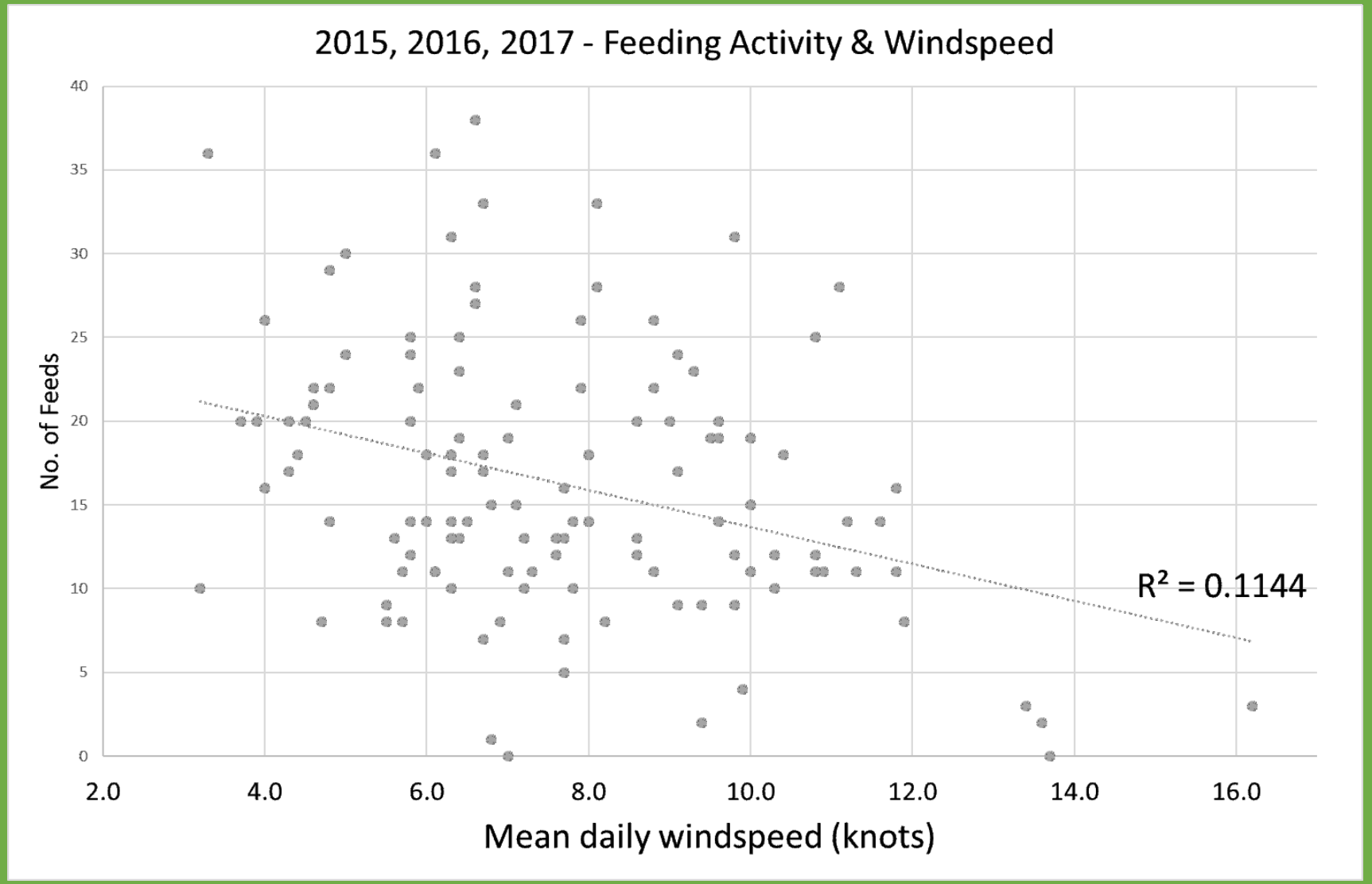
Feeding activity and temperature



Feeding activity and rainfall



Feeding activity and windspeed



Some tentative conclusions

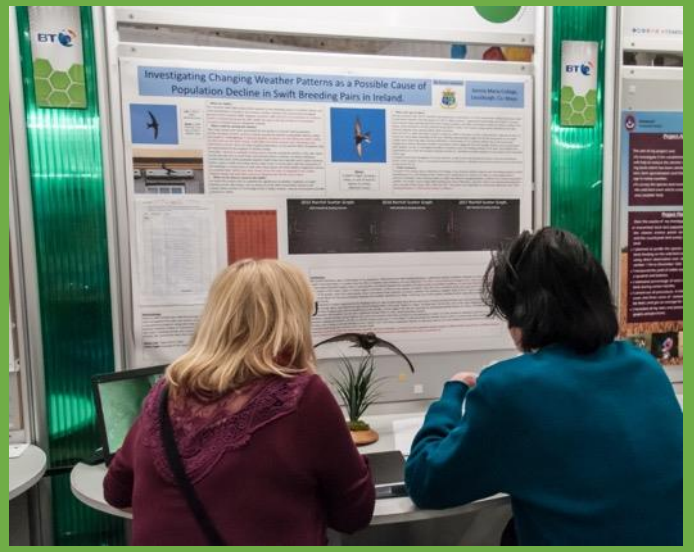
- While bad weather may temporarily prevent Mayo's swifts from optimal chick feeding frequency, the rapid changes in weather are such that the overall impact is not significant
- The presence of abundant food sources, especially in association with the extensive wetlands in Mayo, probably accounts for the local swifts' ability to fledge within six weeks of hatching
- We do not subscribe to the view that bad weather stimulates the adults to eject eggs from the nest, but think that these are accidental events caused by clumsiness
- The population decline in the West of Ireland has not been caused by poor breeding performance as a result of bad weather.

Acknowledgements

A number of individuals have contributed to this work in various ways, especially :

- Brian Cahalane for helping with initial setting up of nest boxes and camera info.
- Terence McConway has provided essential computer expertise
- Deaglan O'Riain has developed the use of Excel in Power Query for us
- Videos have been examined with the assistance from GMIT student's Angela Boyce and Gita Buse but also particularly by Seoirse Swanton and Mary Roberts

There are more questions than answers!



Minister Michael Ring with Seoirse Swanton of Sancta Maria College, Louisburgh, at the BT Young Scientist Competition in Dublin this week.

Swift Conservation Ireland
www.swiftconservation.ie