2024 Skye Corncrake call pattern summary

Robert Arnold, Shelagh Parlane

Adult just showing beside dense vegetation. Ardmore. © Shelagh Parlane

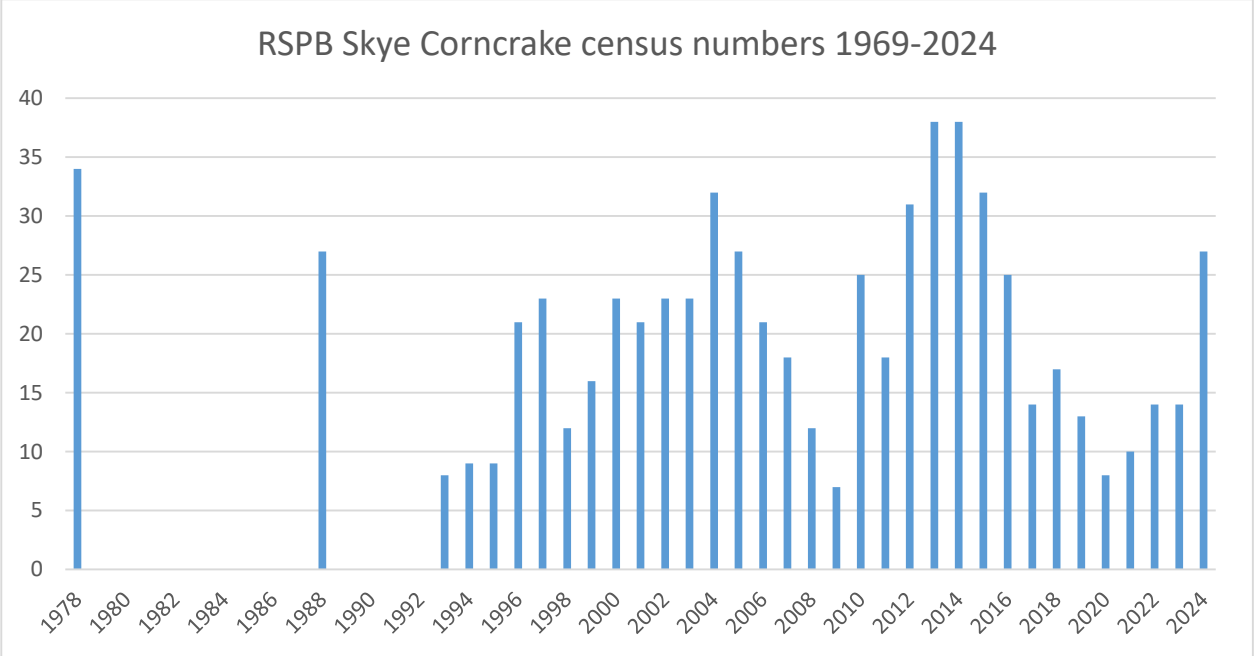
Juvenile. 12th July 2024. Waternish Farm trail camera. © Robert Montgomery

Overview of 2024

We have found 32 PPD patterns which are probably from 28 male birds, an increase from the 19 males in 2023 (including an extra late one from the Audiomoth recording analysis from Varkasaig). There was one female recorded.

The RSPB Skye Corncrake census, done by the specified standard method, recorded 14 for 2023 and 27 for 2024.

There have been 139 analysed recordings for 2024 from Skye made by 37different people (72 recordings were made by Shelagh Parlane, RSPB Skye Corncrake Officer) and also 11 recordings from Canna, made by Bob Swann and Alastair Young of the Canna Ringing Team, of 12 PPD patterns which represent 9 male birds (in a separate summary for Canna).



Notes

A range of certainty is useful when attempting to detect movements or match PPD patterns of Corncrakes between survey nights. I am using; Impossible. Unlikely. Possible. Probable. Definite.

In order to track Corncrakes with some certainty, recordings need to be qu4 or qu5 (my normal estimated measure of clarity of the recording and lack of ambiguity about the start of the pulses) and ideally there must be recordings for all the calling birds heard on all the survey nights. This is impossibly difficult to achieve so the result of any PPD analysis will be uncertain to some degree. However some conclusions or speculations are still possible with different degrees of certainty.

I have been using mostly 4 or 5 quality (qu4, qu4-5, qu5), and lower quality when useful, for this analysis (quality 5 is best, 1 is barely analysable. The necessary parameters are; 5 syllables averaged, a sharp rise at the start of pulses, signal to noise moderately good, first pulse clearly defined). I have used either the first or second syllables, like the summaries of 2022 and 2023.

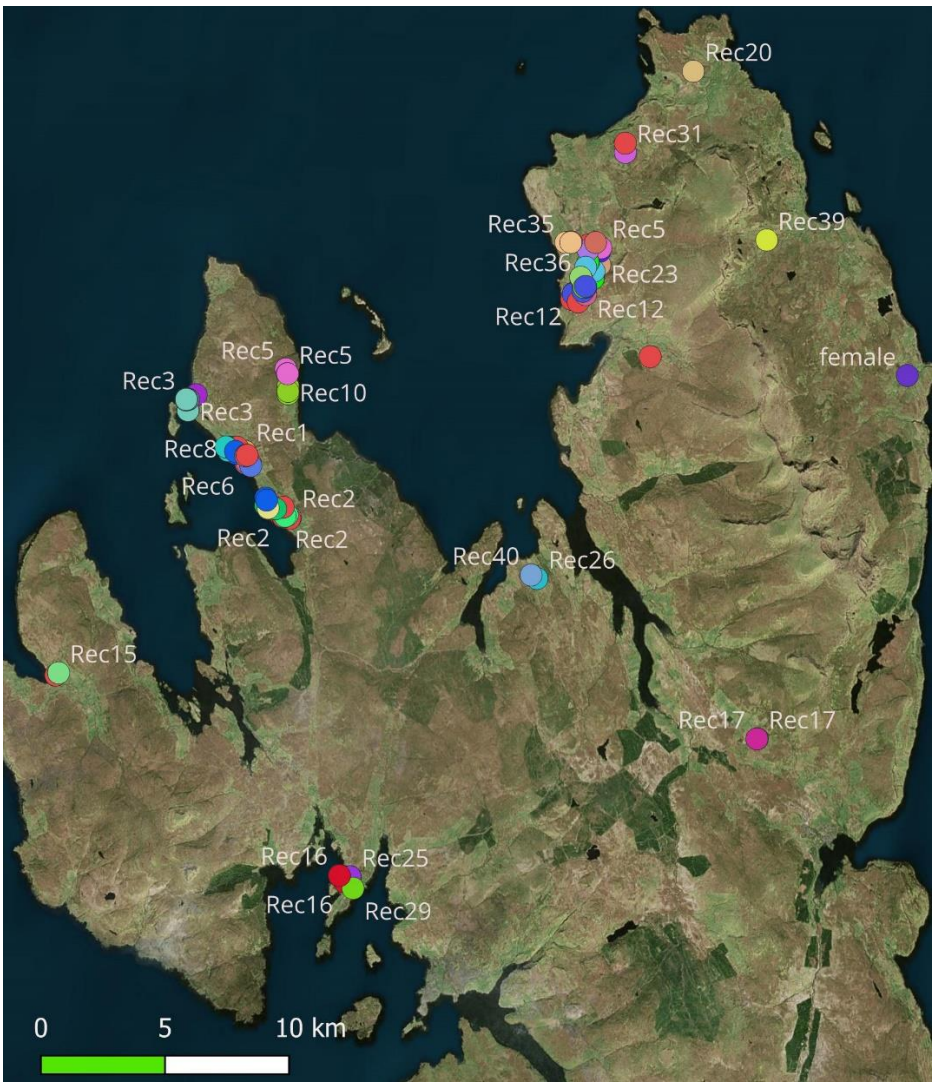
Similar PPD patterns which belong to different birds can confuse the analysis, especially when two individuals with similar patterns appear in nearby locations. The patterns might be, but are not necessarily, the same individual and there is no way to confirm or deny the conjecture. There is best confidence in the interpretation of PPD patterns in recordings when patterns are clearly definitely different.

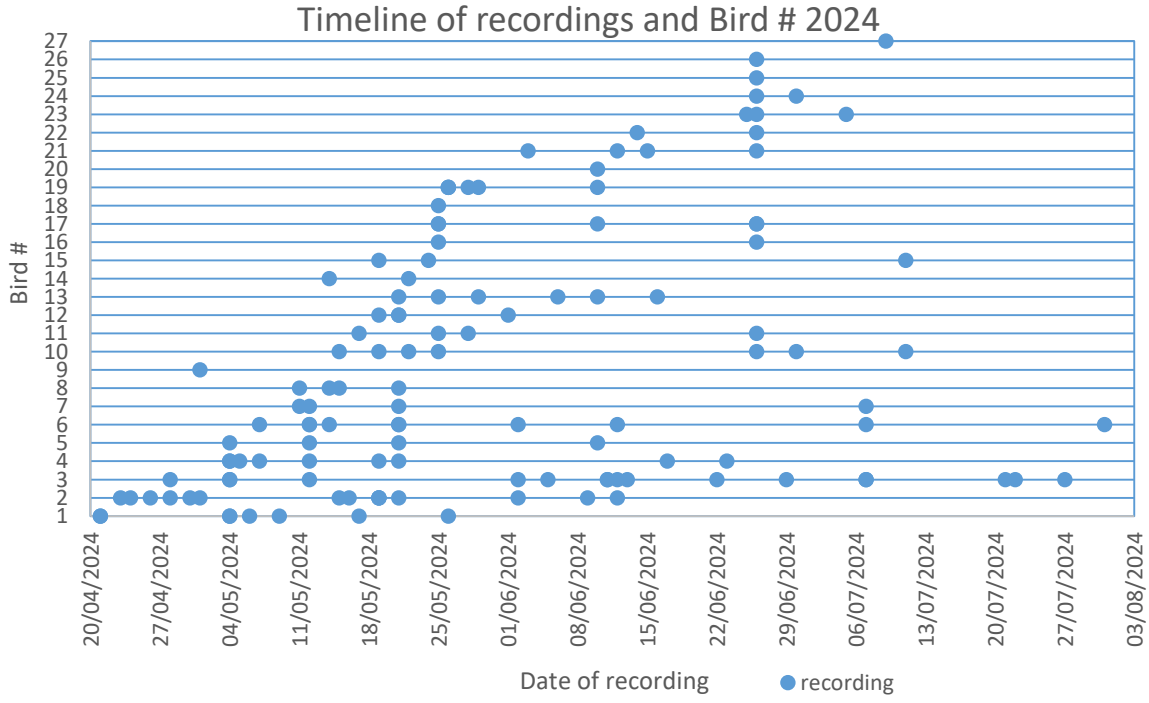
As well as difficulties discriminating birds when their PPD patterns are the same, poor recording quality (e.g. noise overlaying the calls or faint recording because of large distance) and inaccurate marking of the start of pulses in the analysis can merge patterns making discrimination difficult.

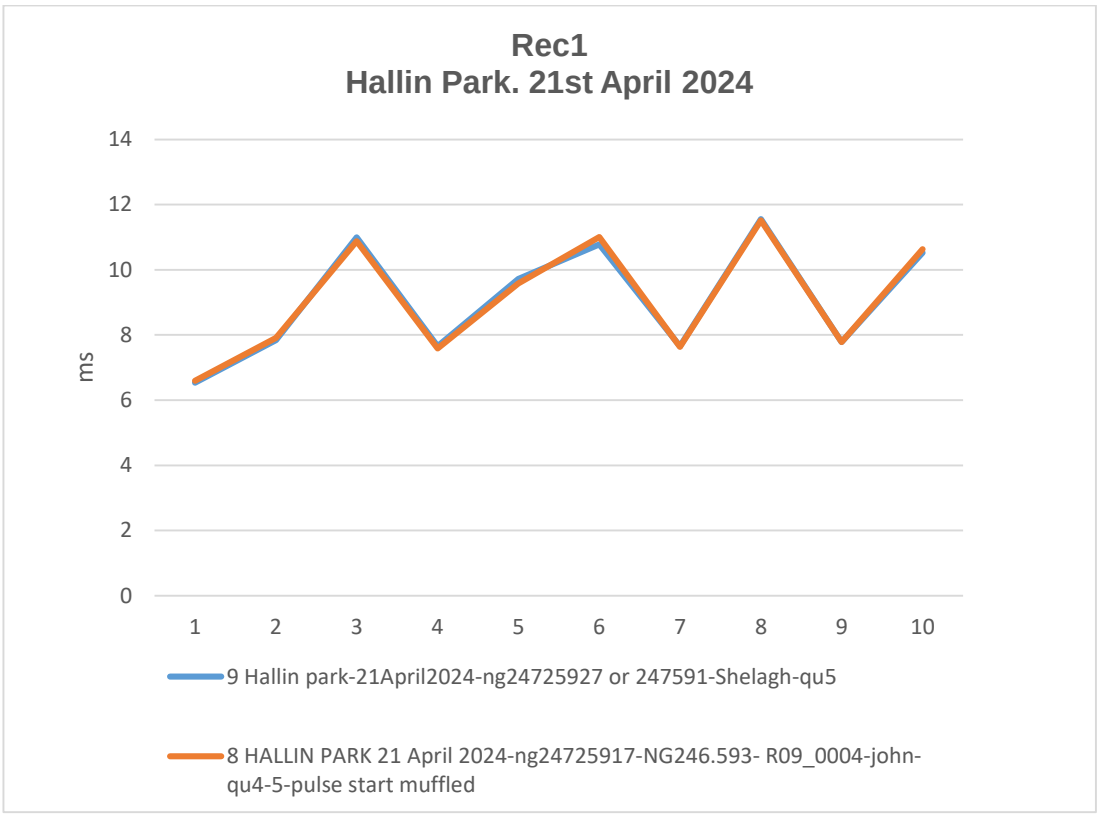
The record numbers have been allocated sequentially as the birds were first heard calling. In this summary, like the 2023 summary, records identified as possibly the same bird moving have been placed together so that the possible (but not certain) move and the similarity of the PPD patterns are displayed.

Map of Records on Skye for 2024

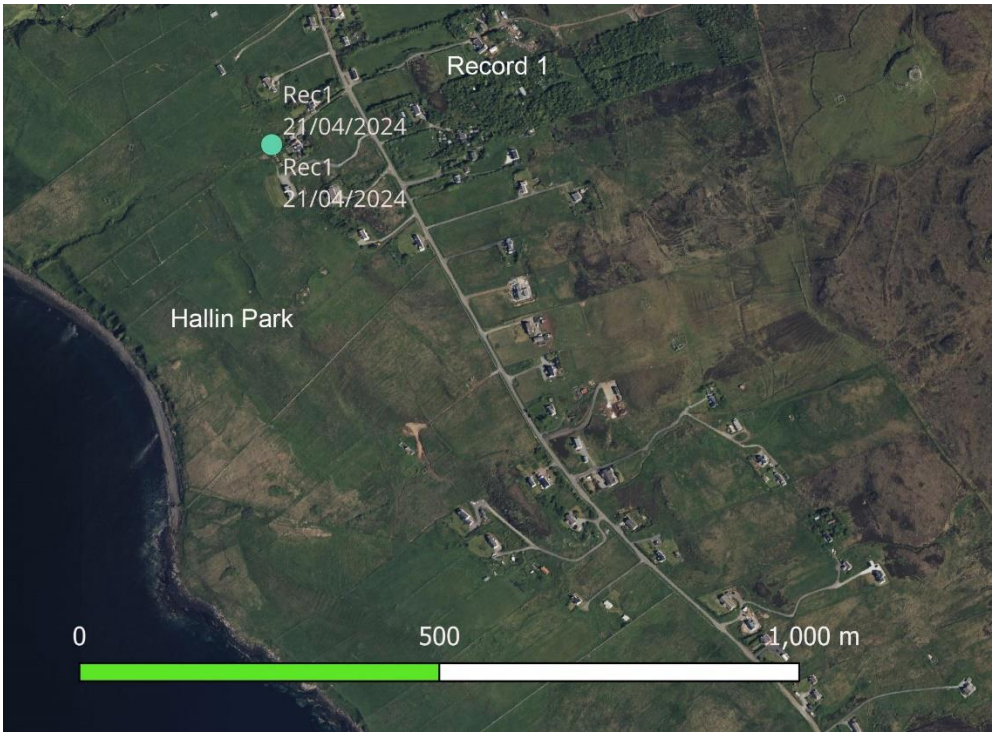
Analysed male Corncrake call recordings plotted with the 32 'Record numbers' representing probably 28 male birds and one calling female bird.

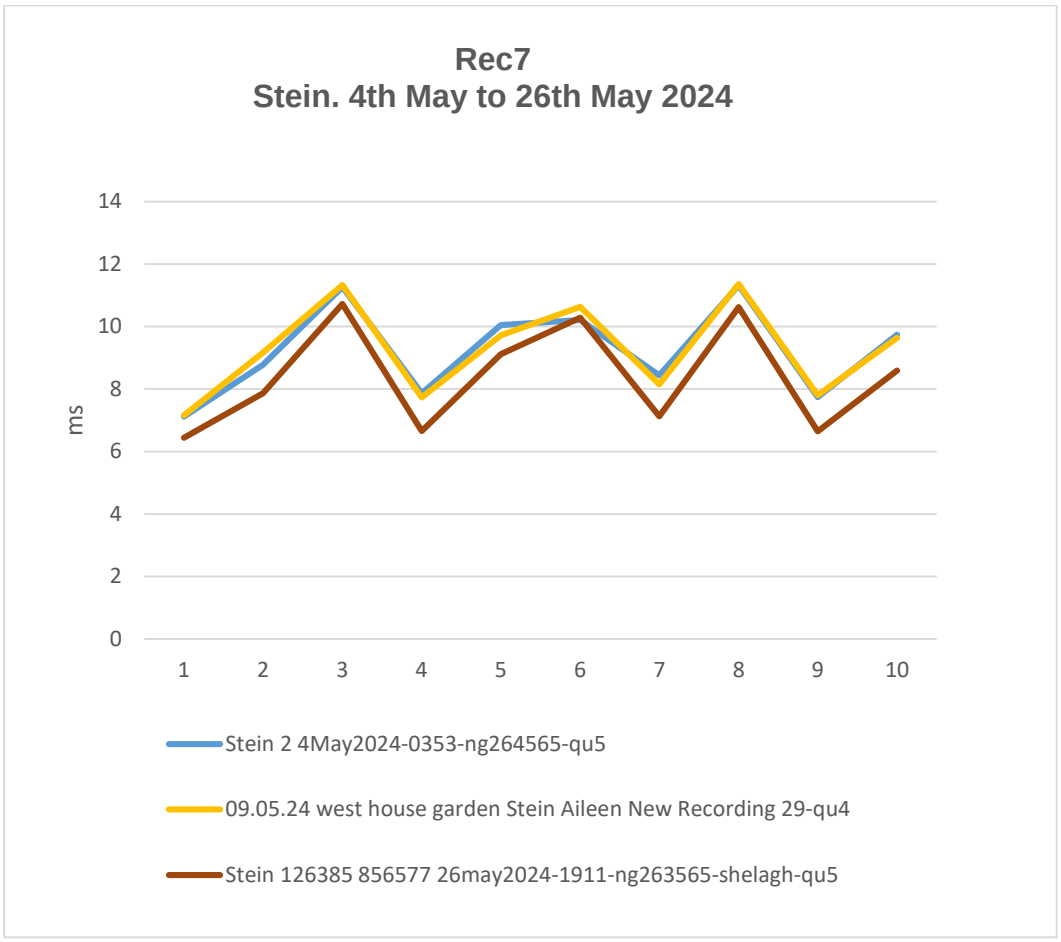






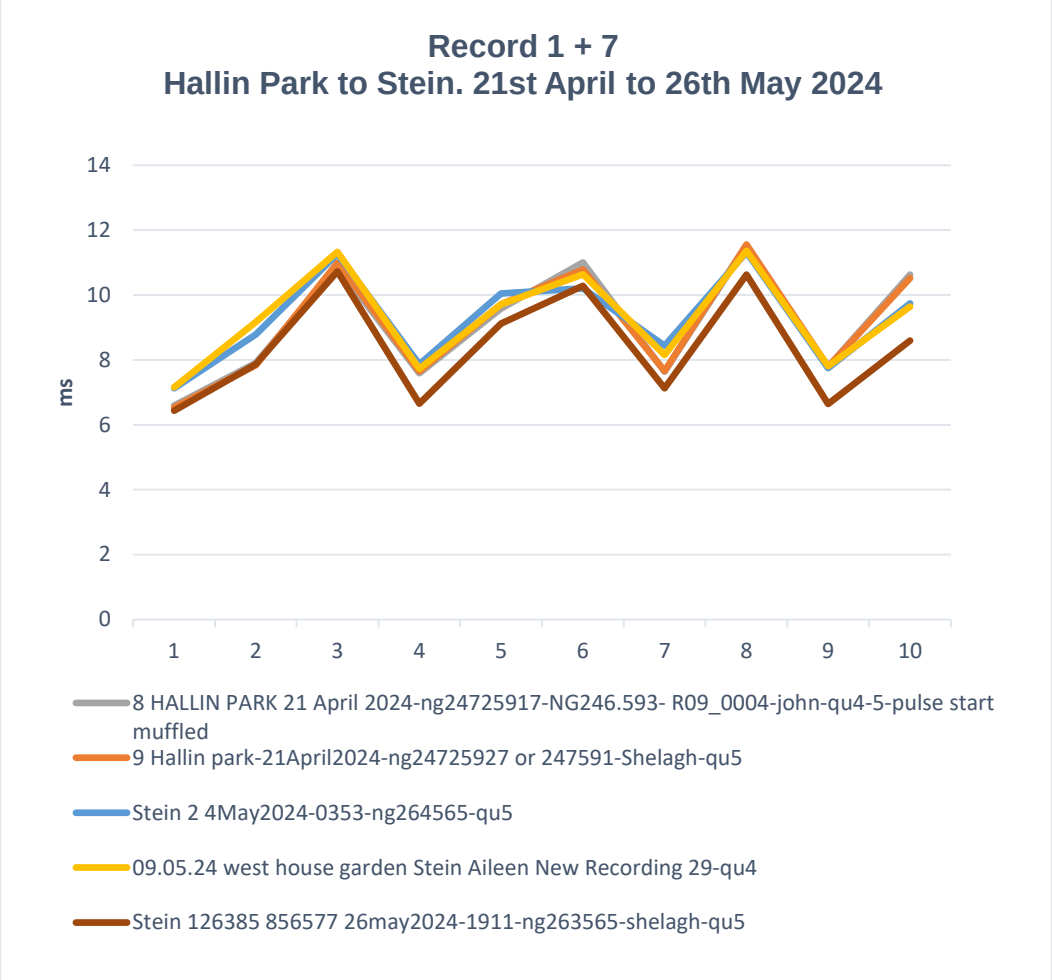
Recorded by; John, Shelagh



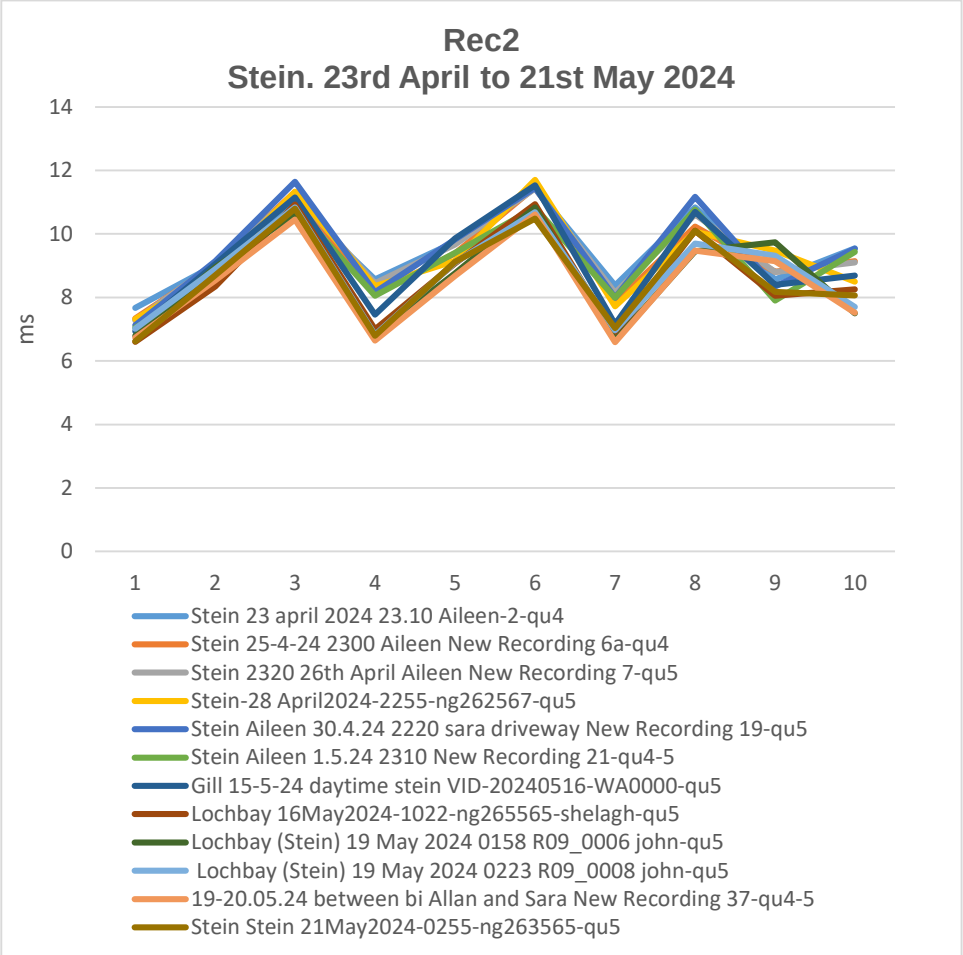


Recorded by; Aileen, Shelagh

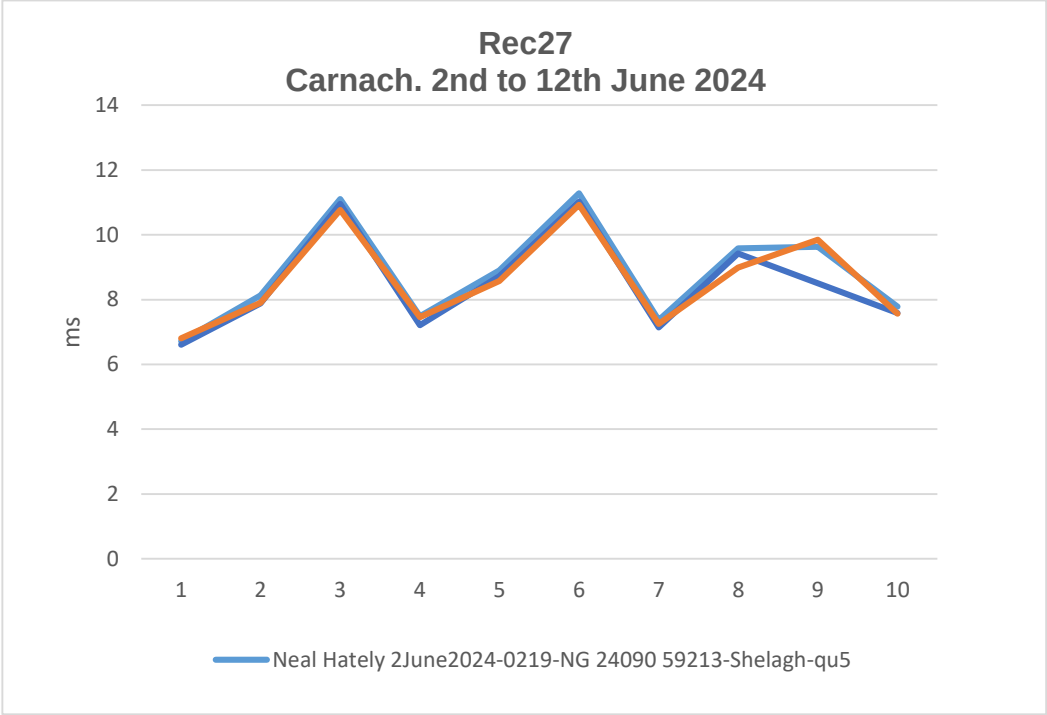
Bird 1 (probable).
Record 1 and Record 7. 2.7 km move (red arrow). Tracked for 35 days



Recorded by; Aileen, John, Shelagh

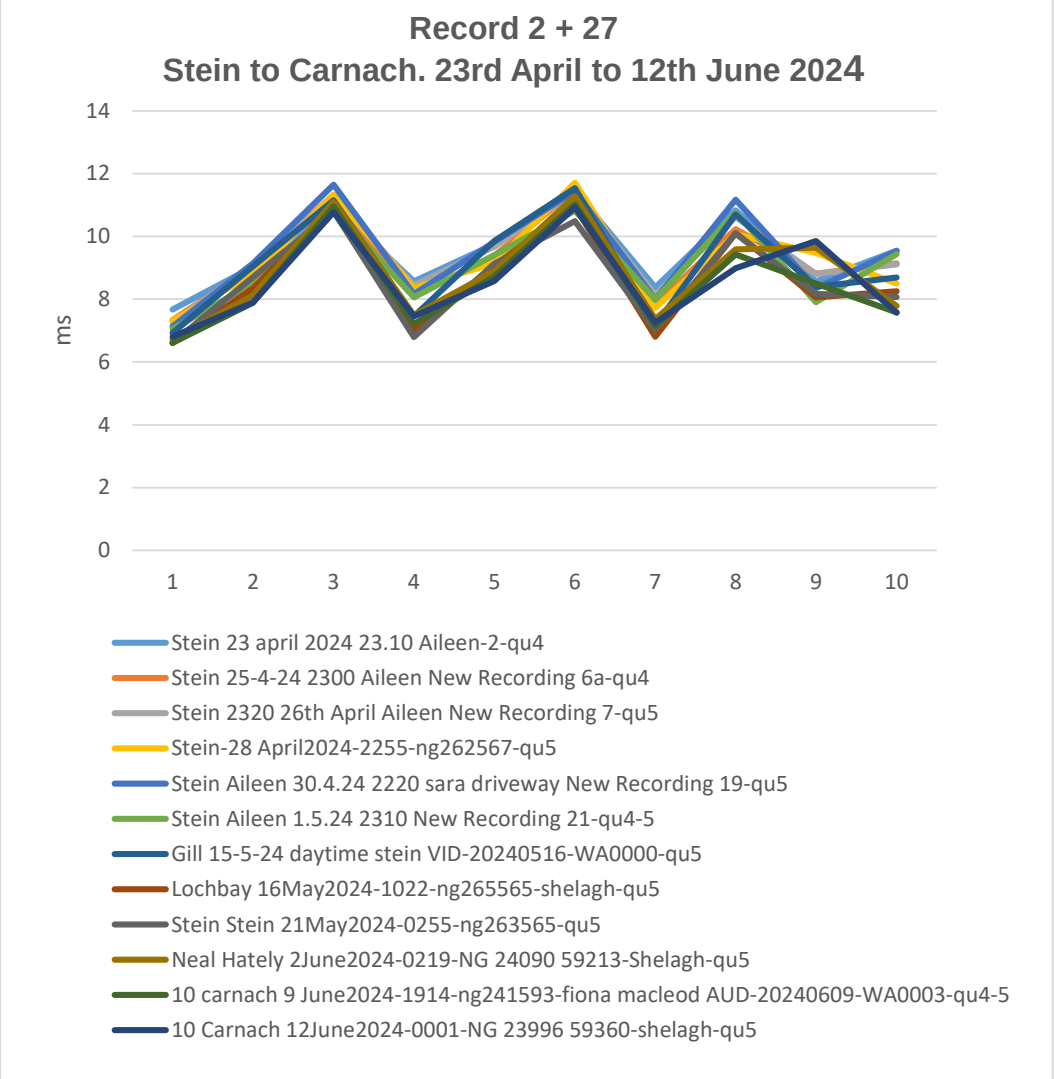


Recorded by; Aileen, Gill, Shelagh

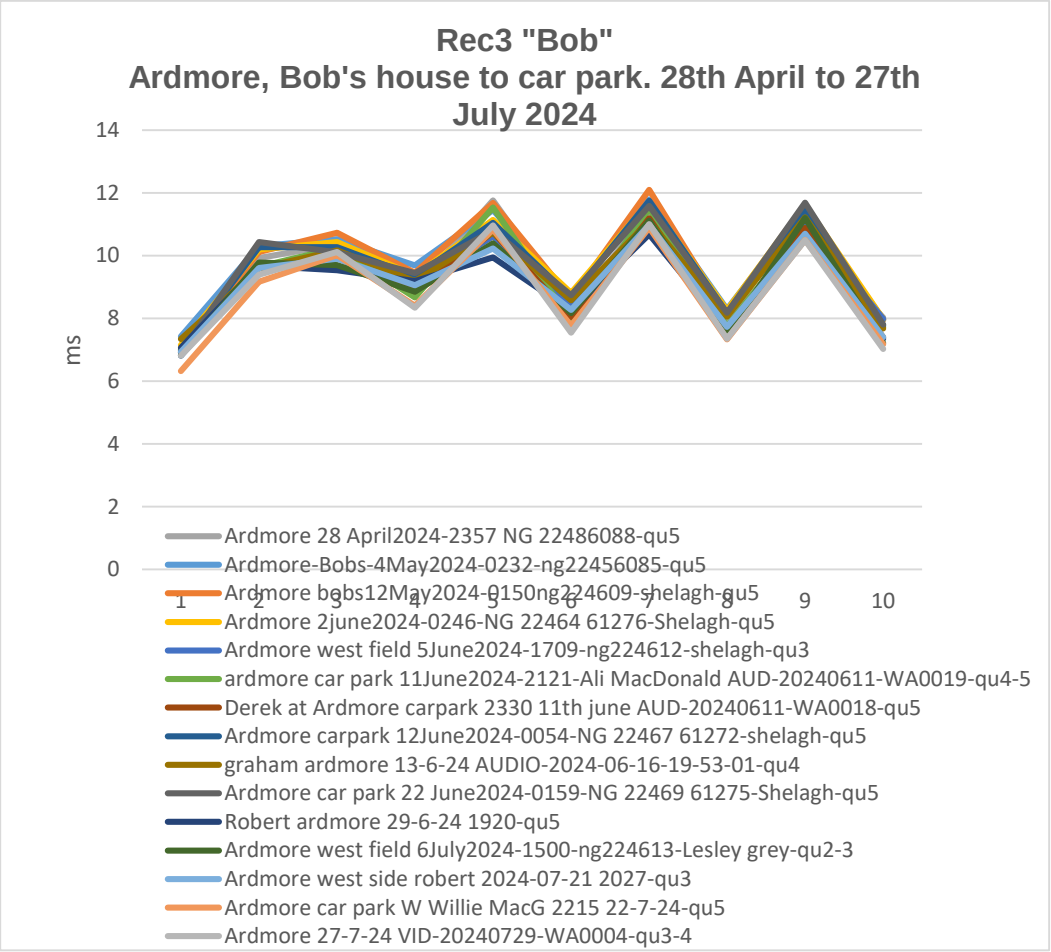


Recorded by; Fiona, Shelagh

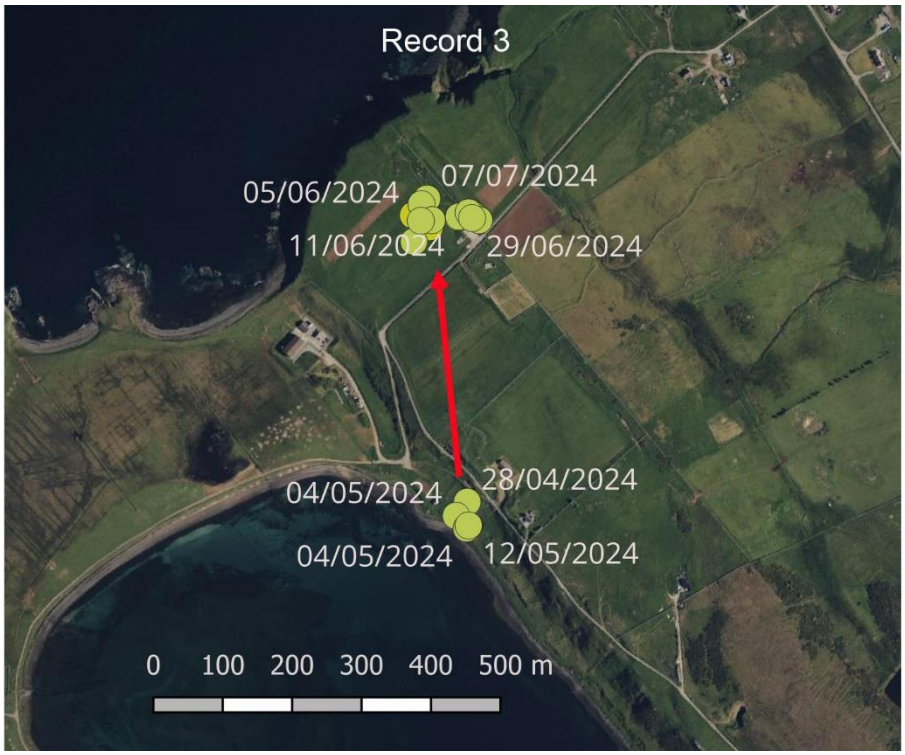
Bird 2 (probable).
Record 2 and Record 27. 3.5 km move (red arrow). Tracked for 47 days

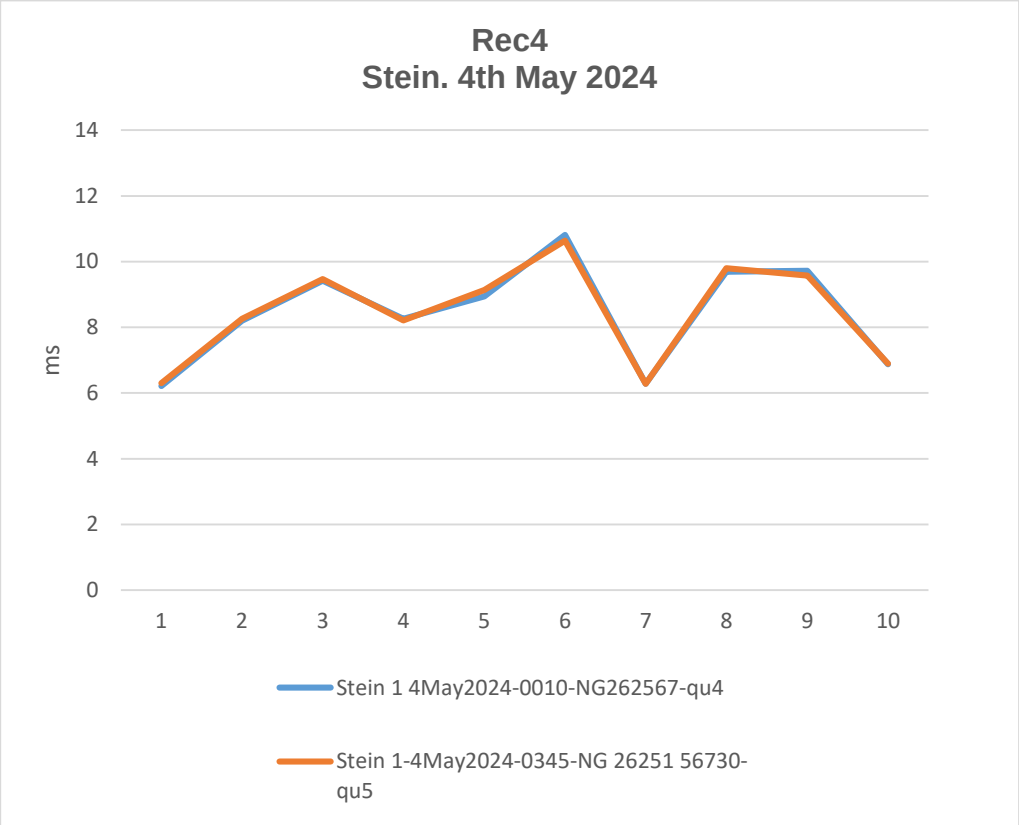


Bird 3, “Bob” (definite).
380 m move (red arrow). Tracked for 90 days

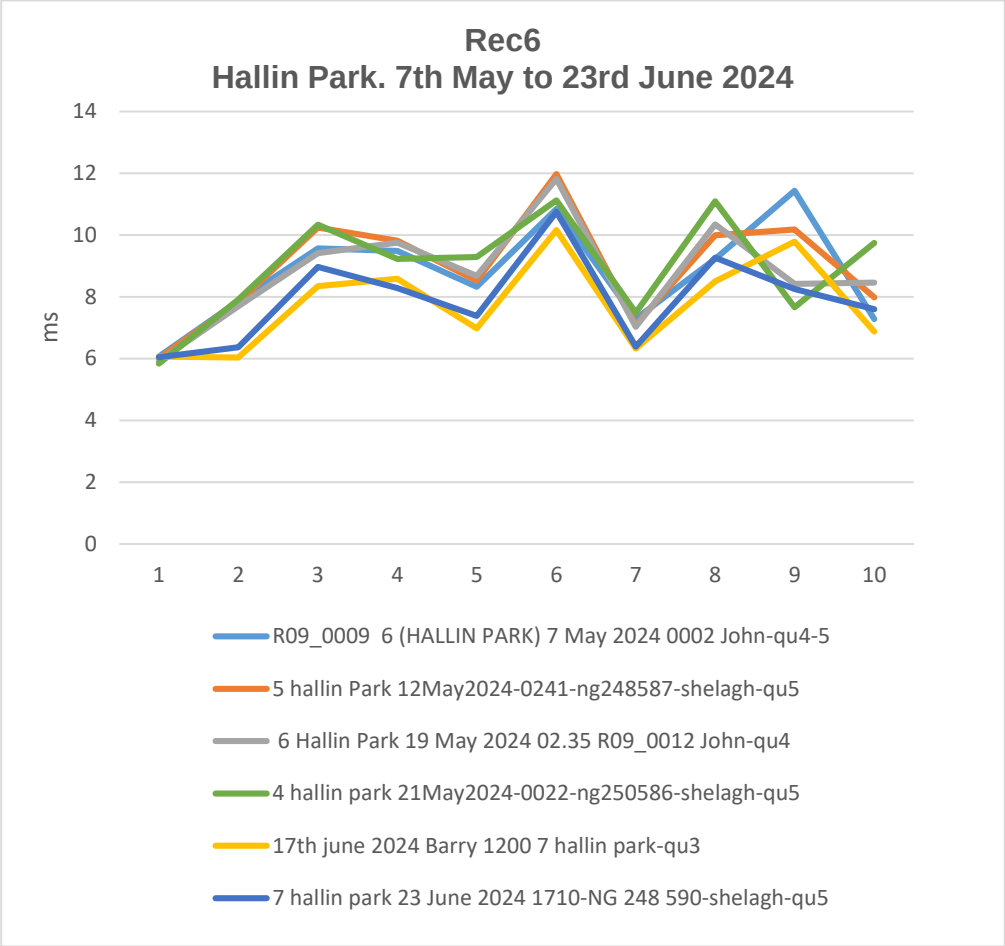


Recorded by; Ali, Derek, Graham, Lesley, Robert, Shelagh, Willie

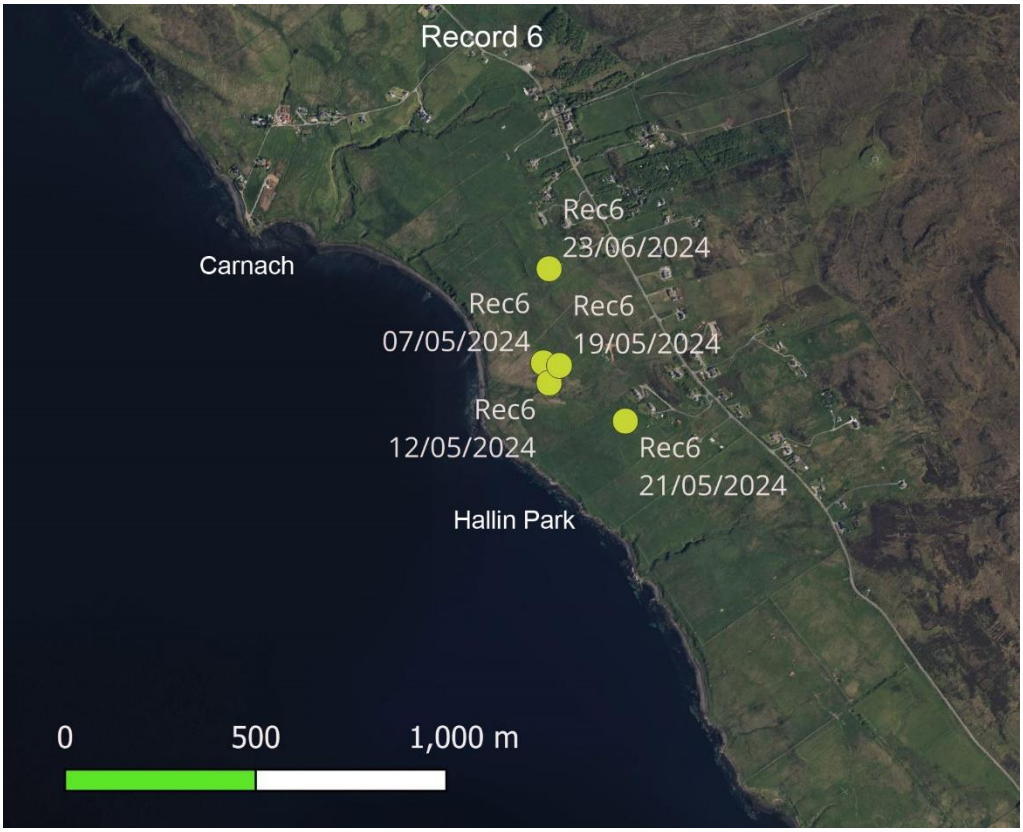




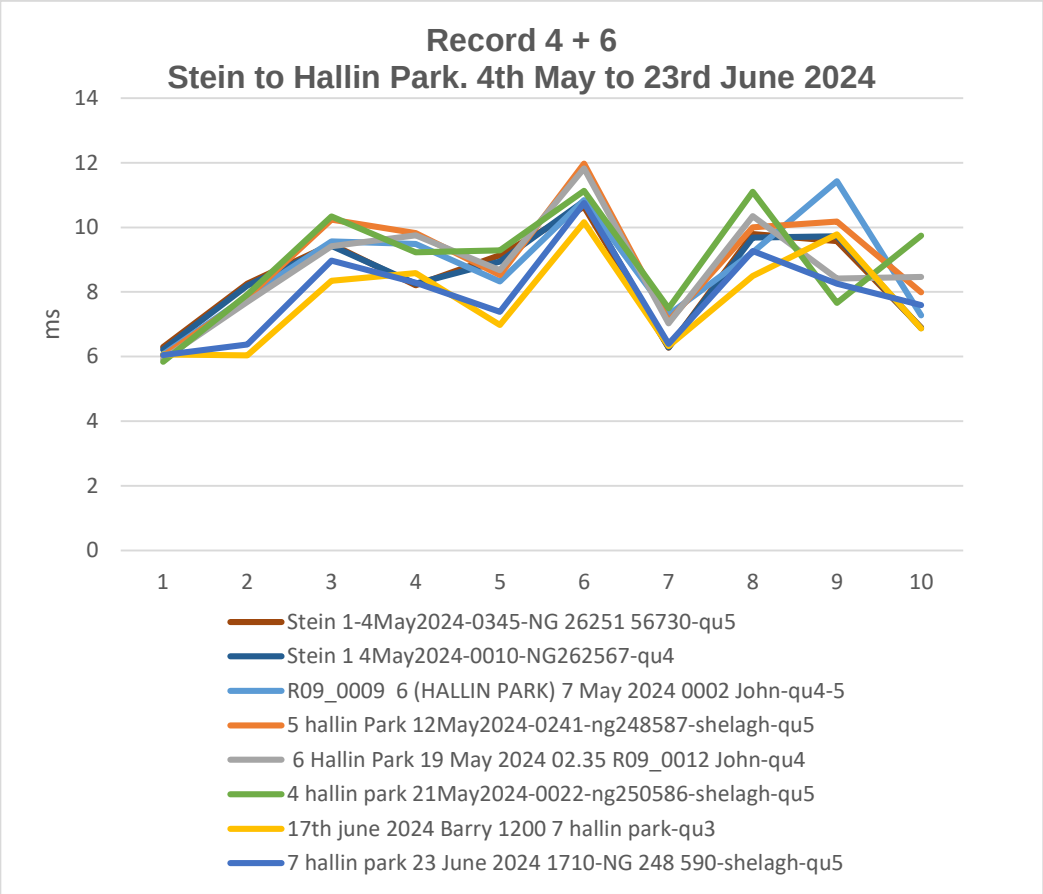
Recorded by; Shelagh



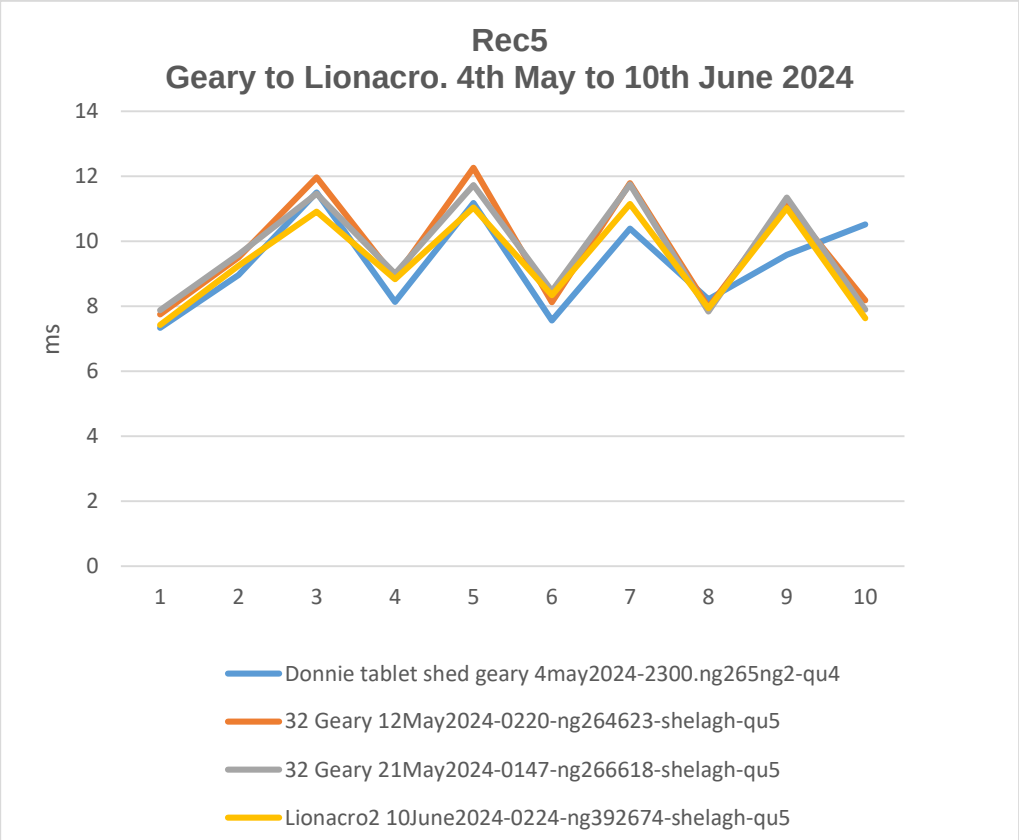
Recorded by; Barry, John, Shelagh



Bird 4 (probable).
Record 4 and Record 6. 2.3 km move (red arrow). Tracked for 50 days

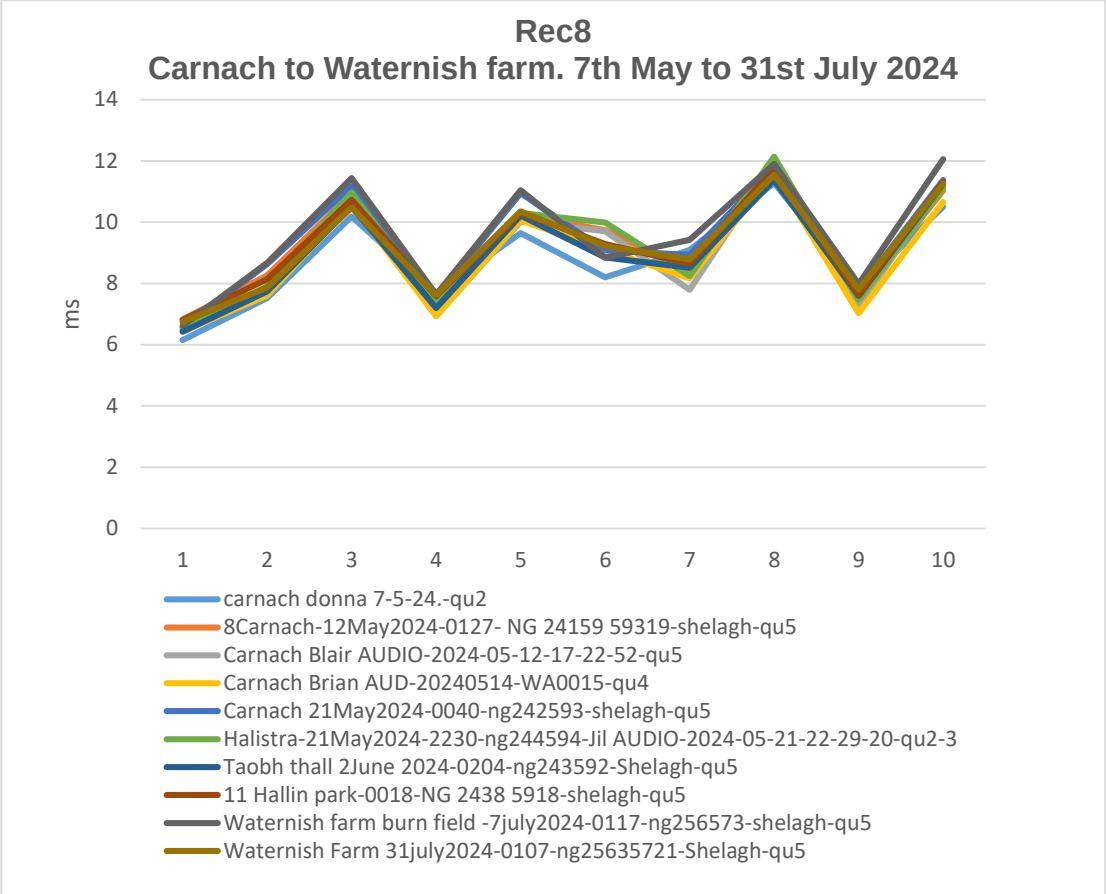


Bird 5 (definite).
13 km move (red arrow). Tracked for 37 days



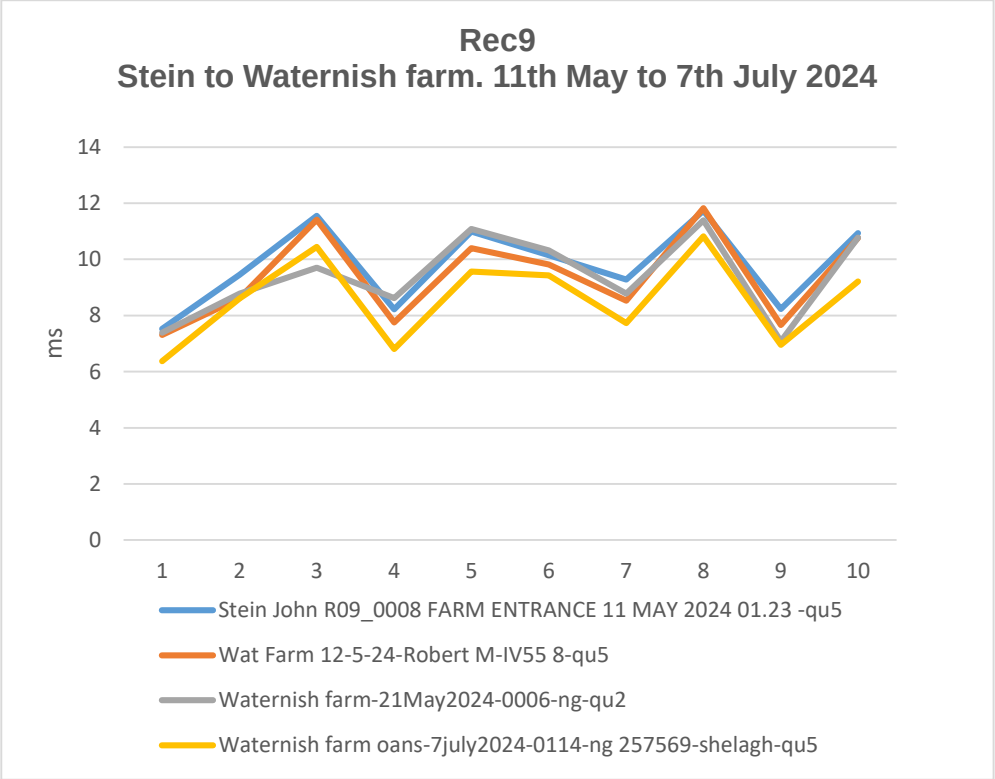
Recorded by; Donnie, Shelagh

Bird 6 (definite).
2.3 km move (red arrow). Tracked for 61 days

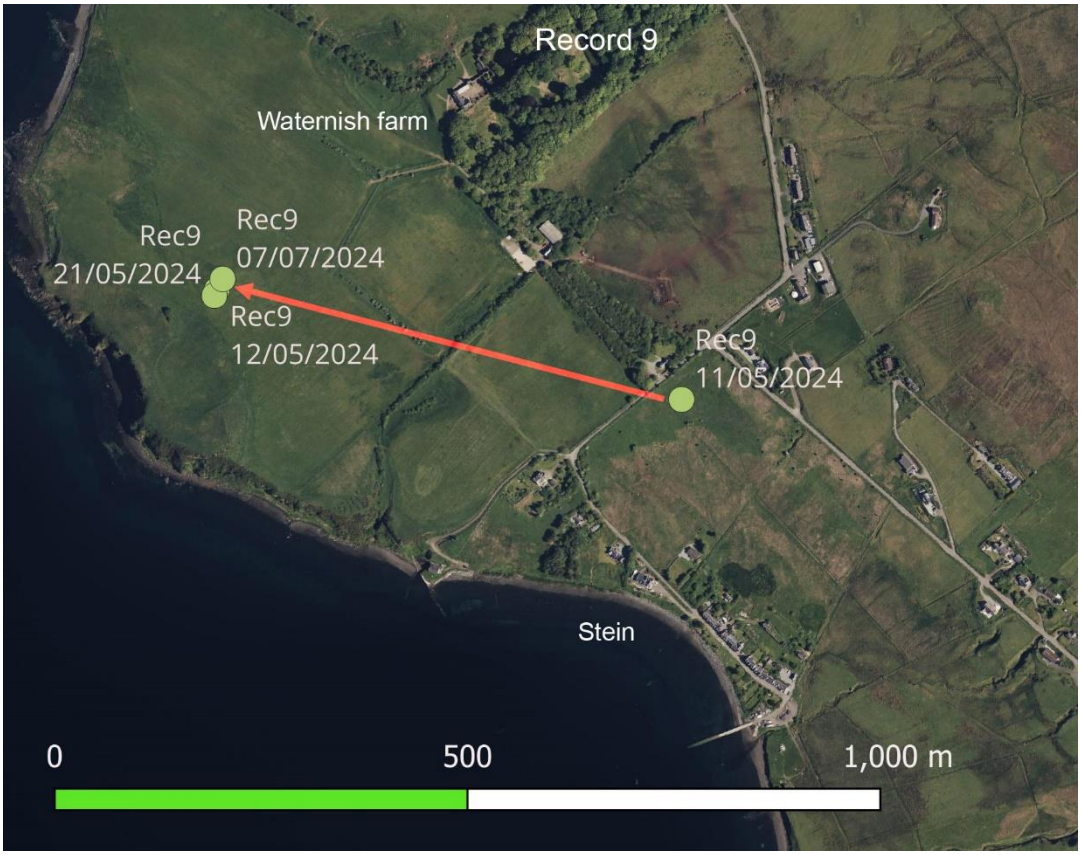


Recorded by; Blair, Brian, Donna, Jill, Shelagh

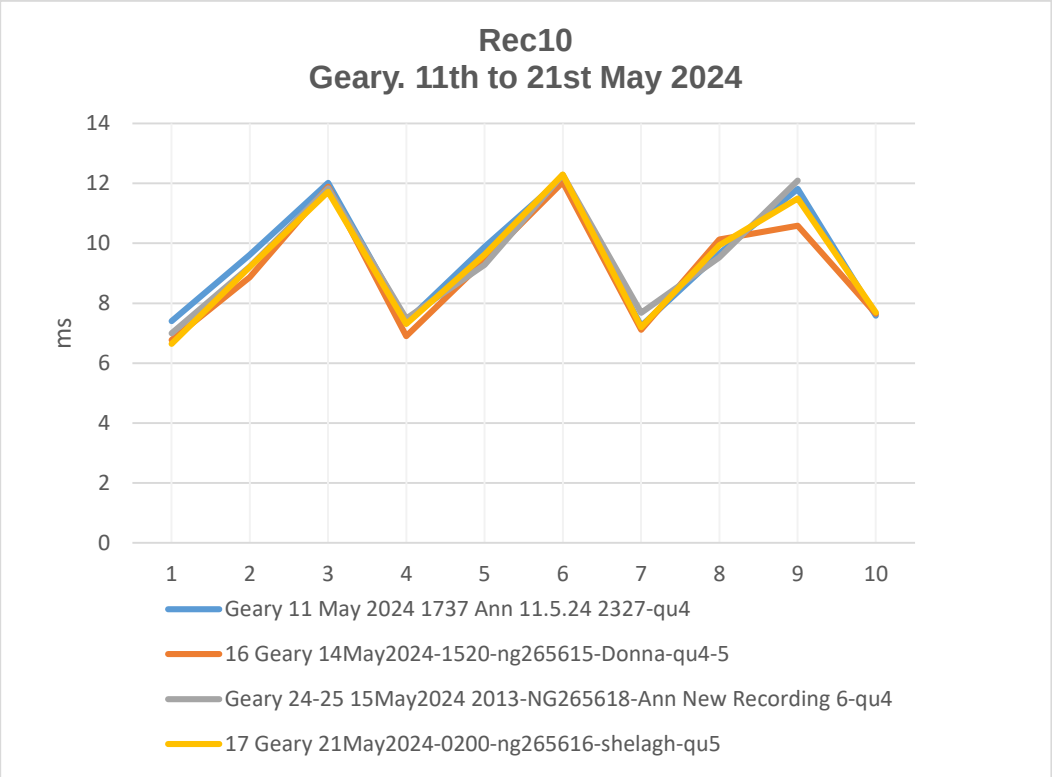
Bird 7 (definite).
0.6 km move (red arrow). Tracked for 57 days



Recorded by; John, Shelagh, Robert M

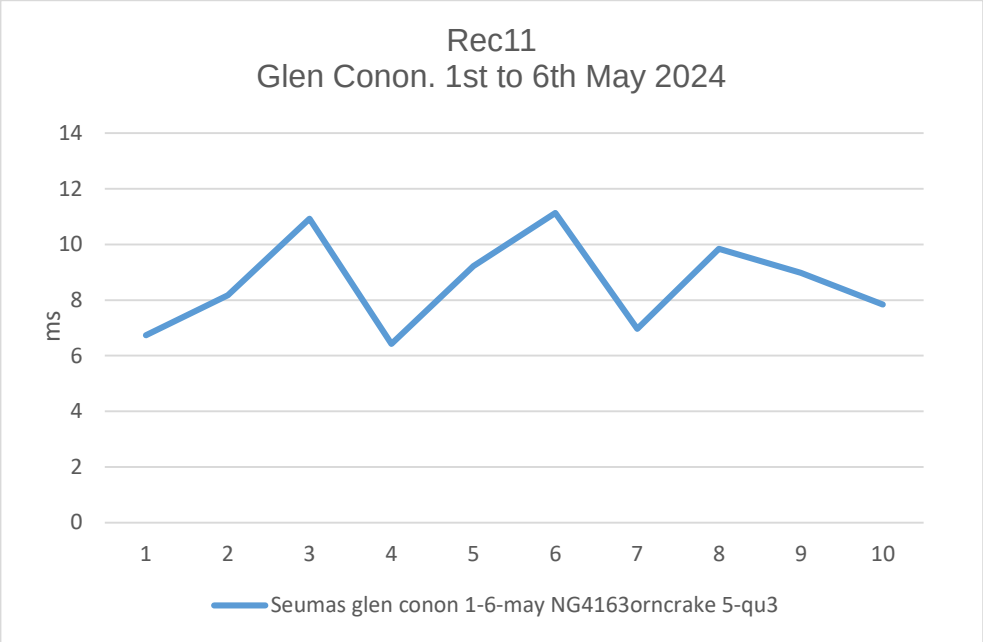


Bird 8 (definite).
250 m move and back 250 m. Tracked for 10 days



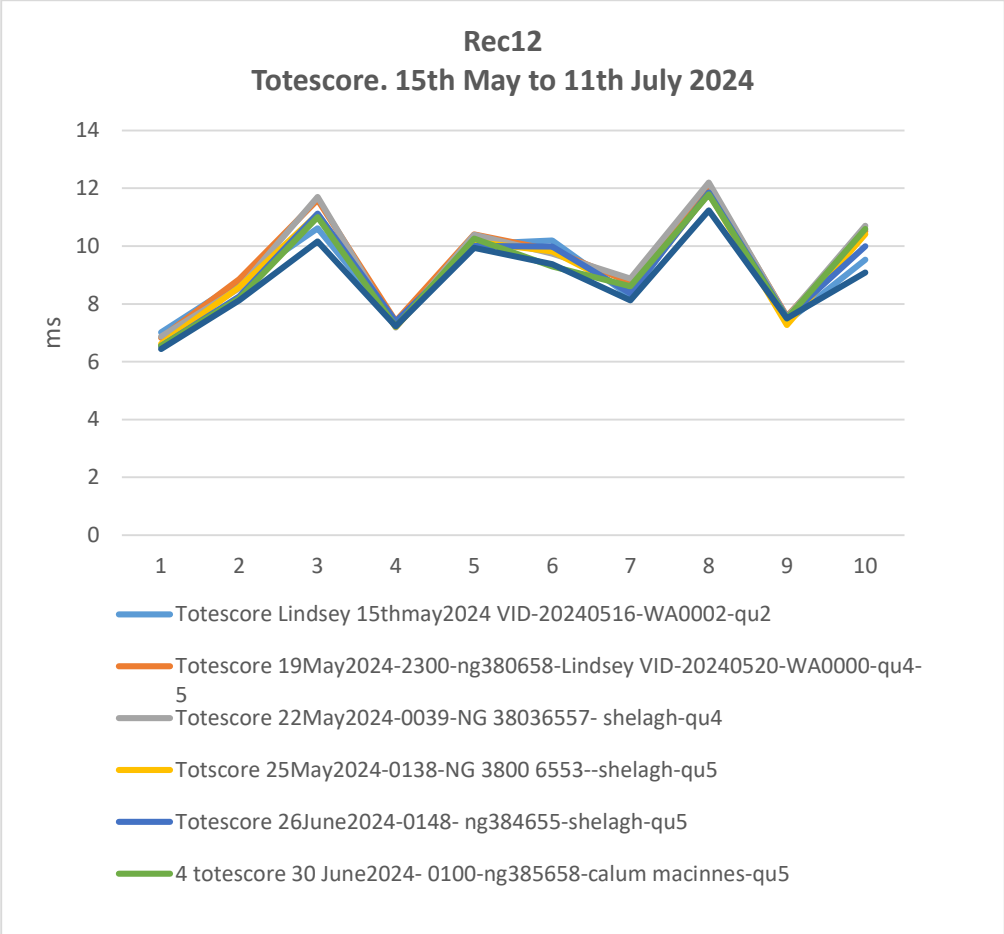
Recorded by; Ann, Donna, Shelagh

Bird 9 (definite)
0 km move. Tracked for 1day

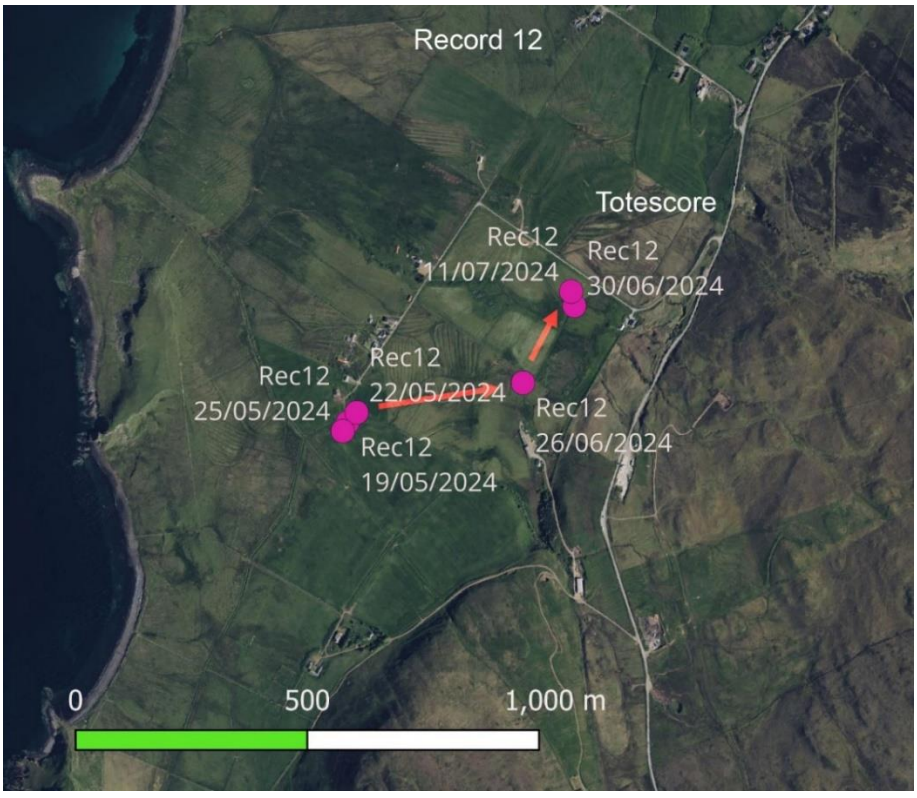


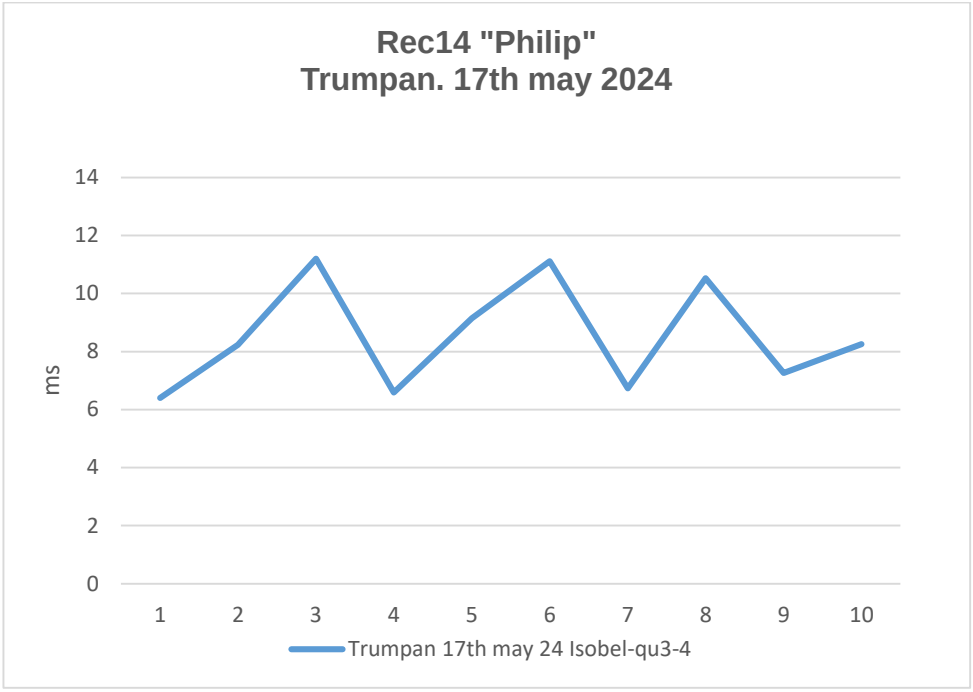
Recorded by; Seamas

Bird 10 (definite).
500 m move. Tracked for 57 days

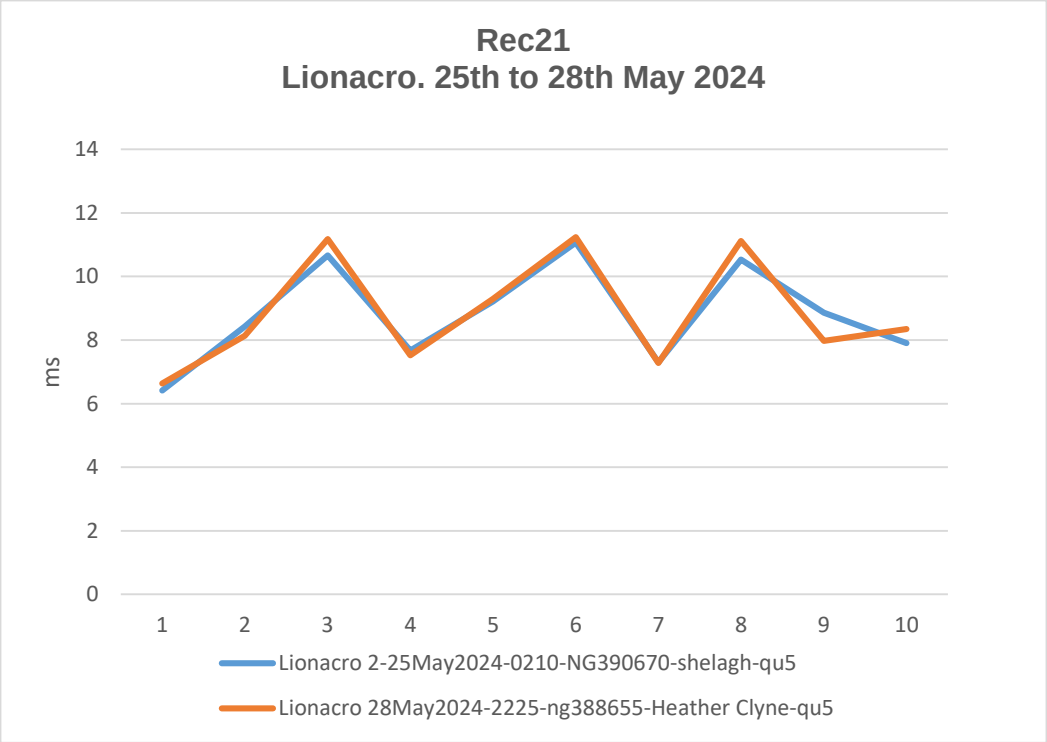


Recorded by; Calum, Lindsey, Shelagh



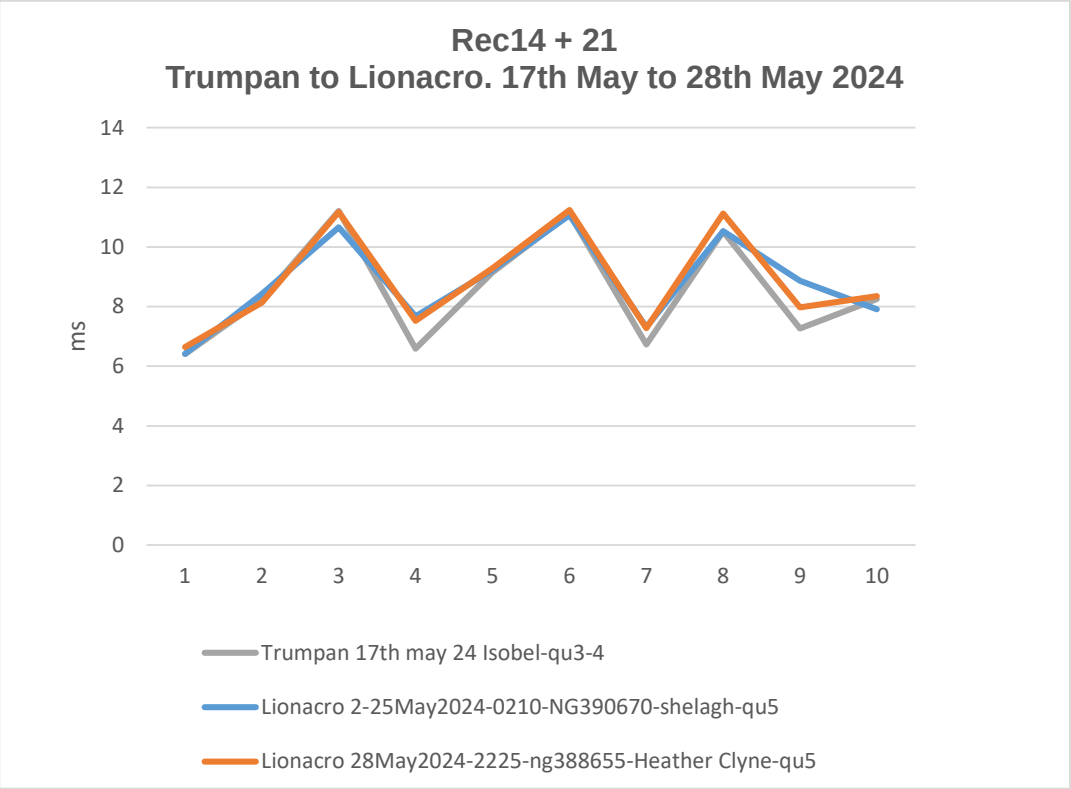


Recorded by; Isobel

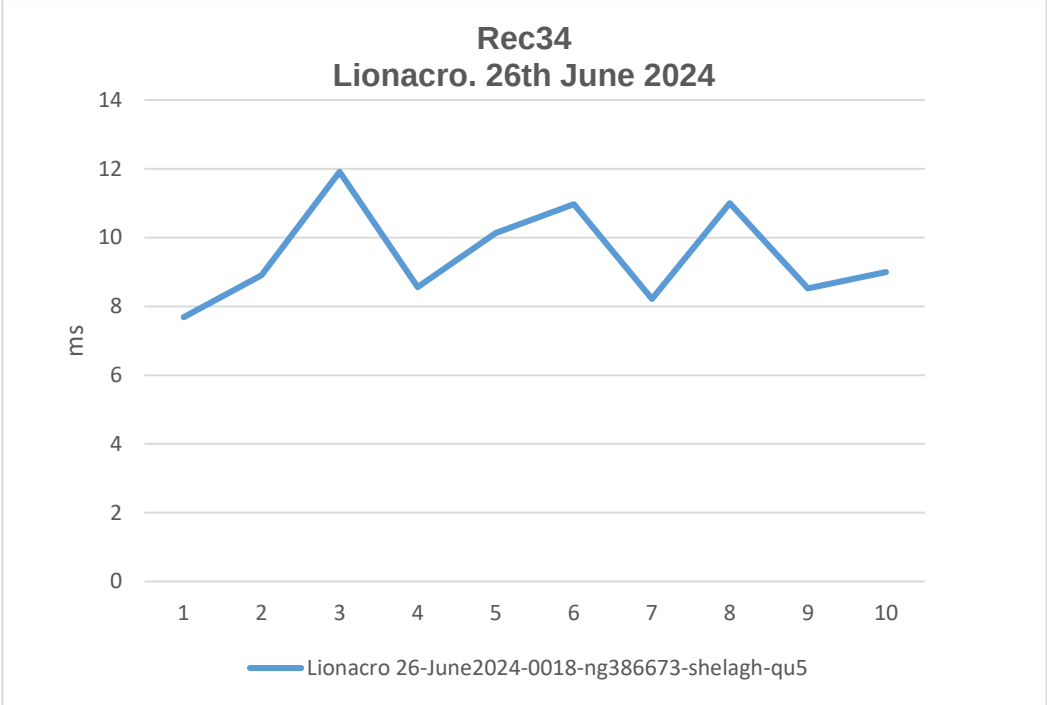


Recorded by; Heather, Shelagh

Bird 11 (probable).
17 km move. Tracked for 11 days

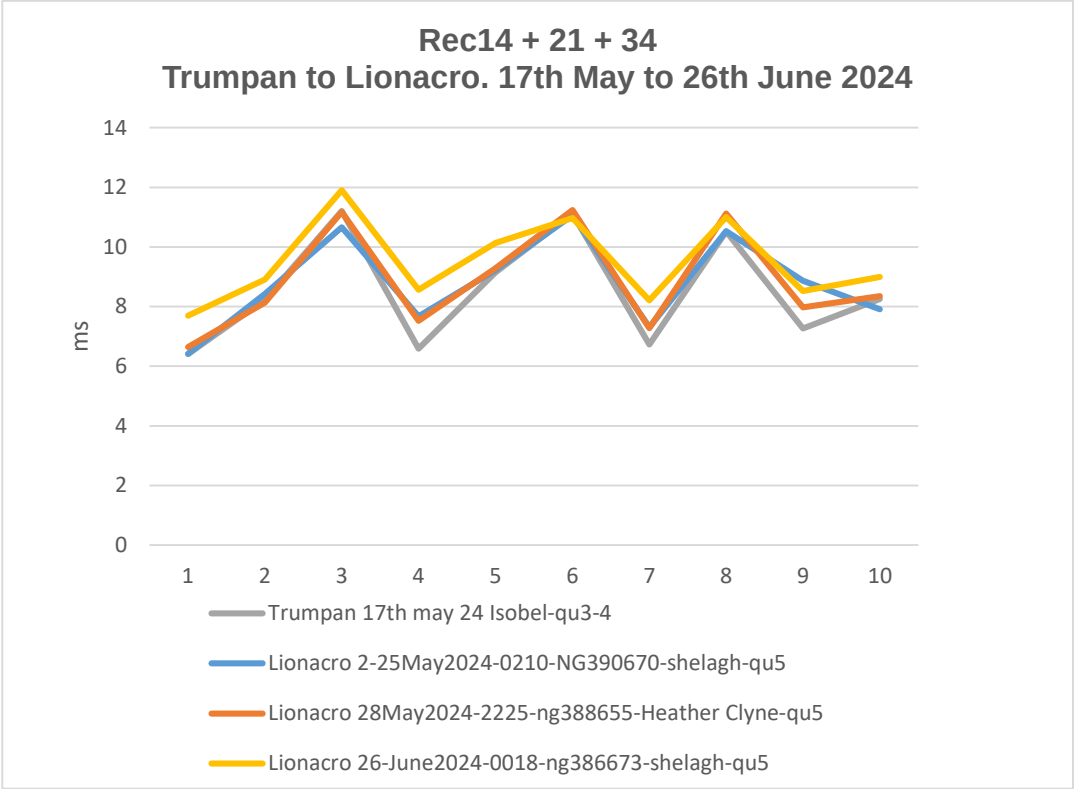


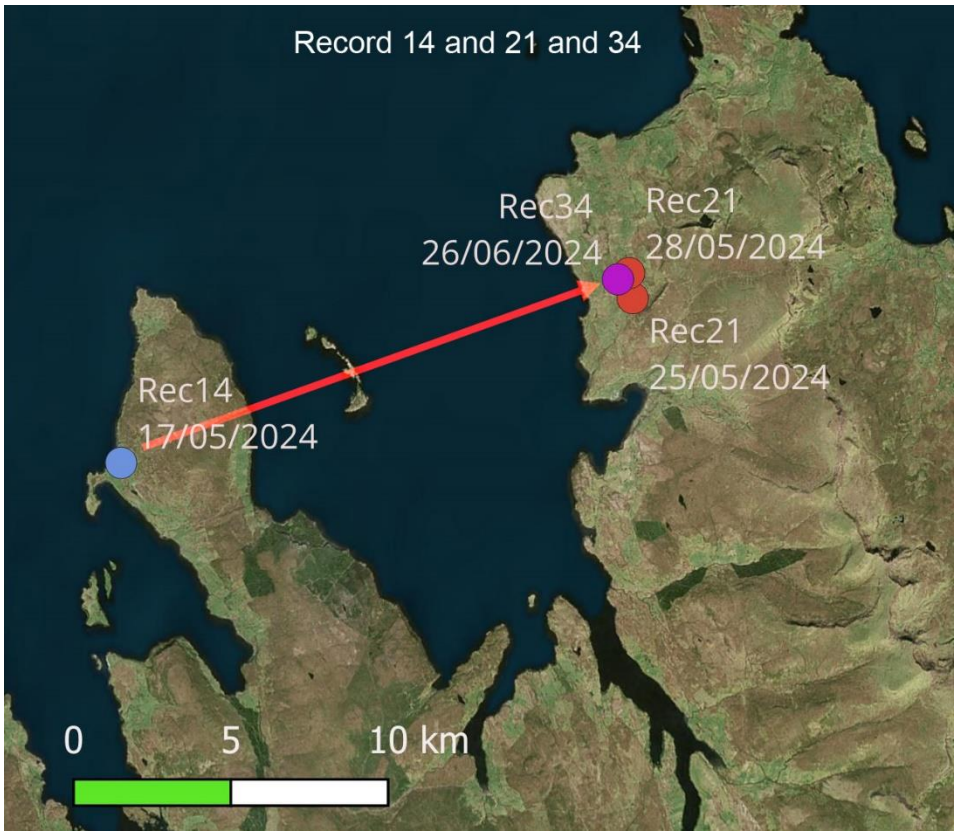
Bird 11 (adding Rec 34).

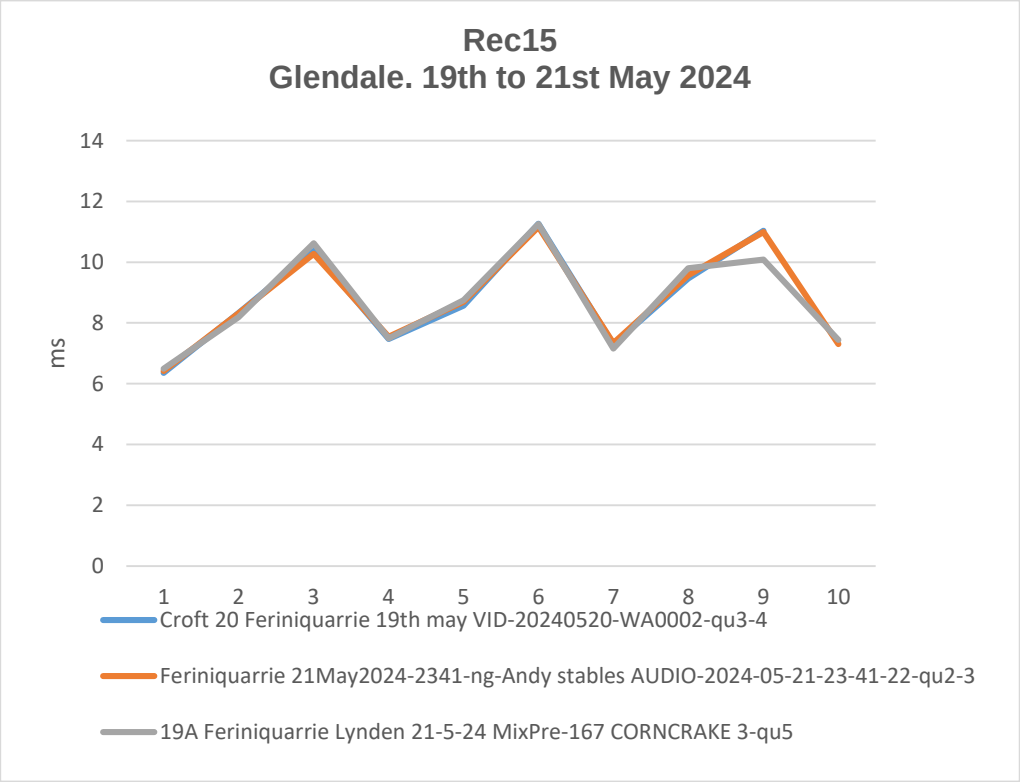


Recorded by; Shelagh

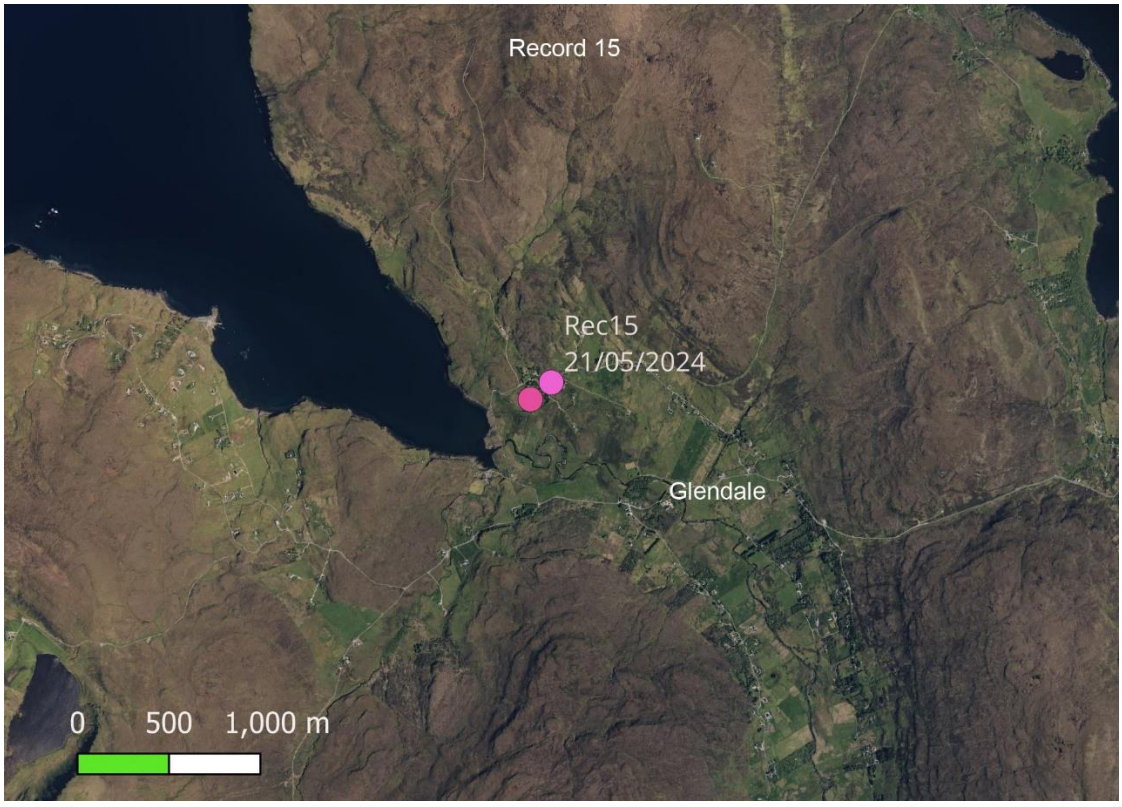
Bird 11 (probable).
17 km move. Tracked for 40 days

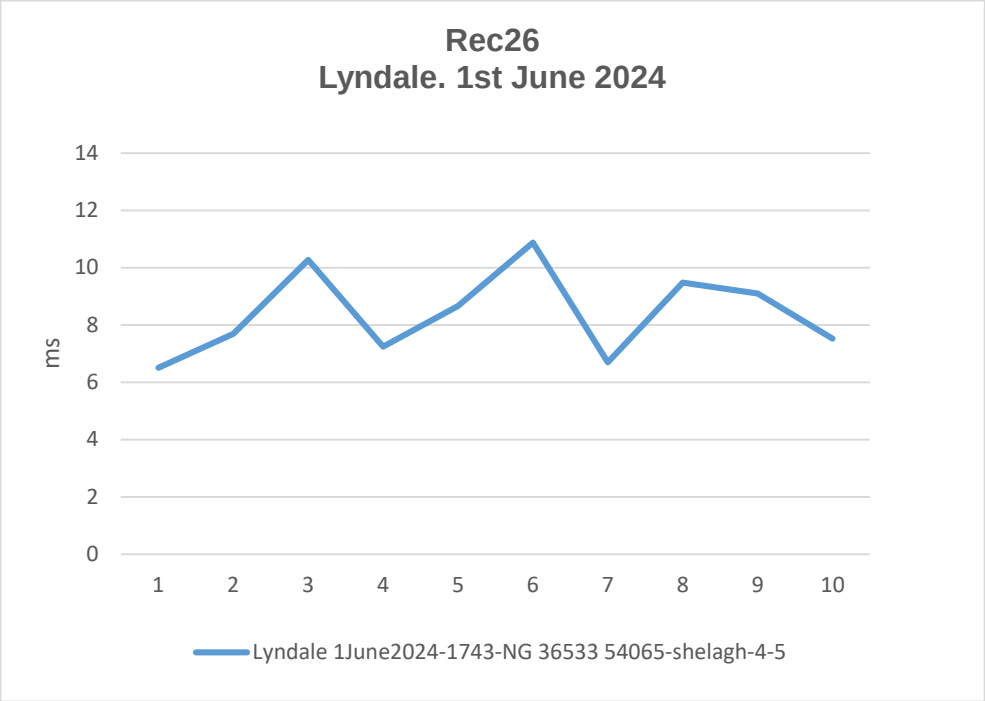






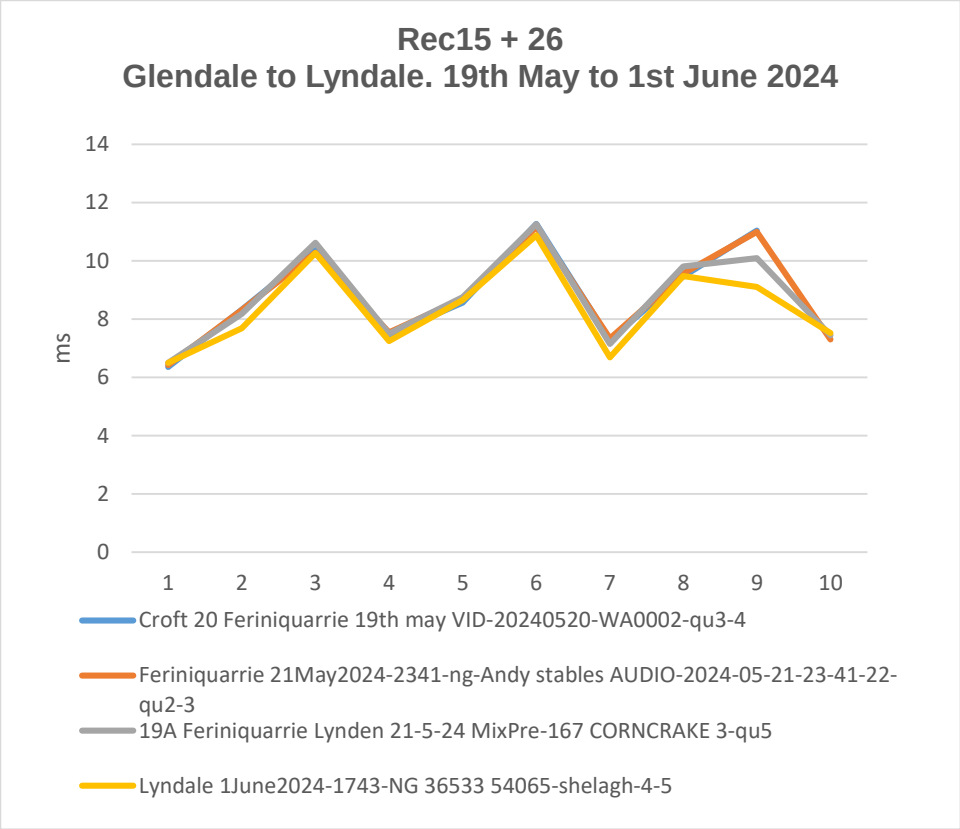
Recorded by; Andy, Lynden

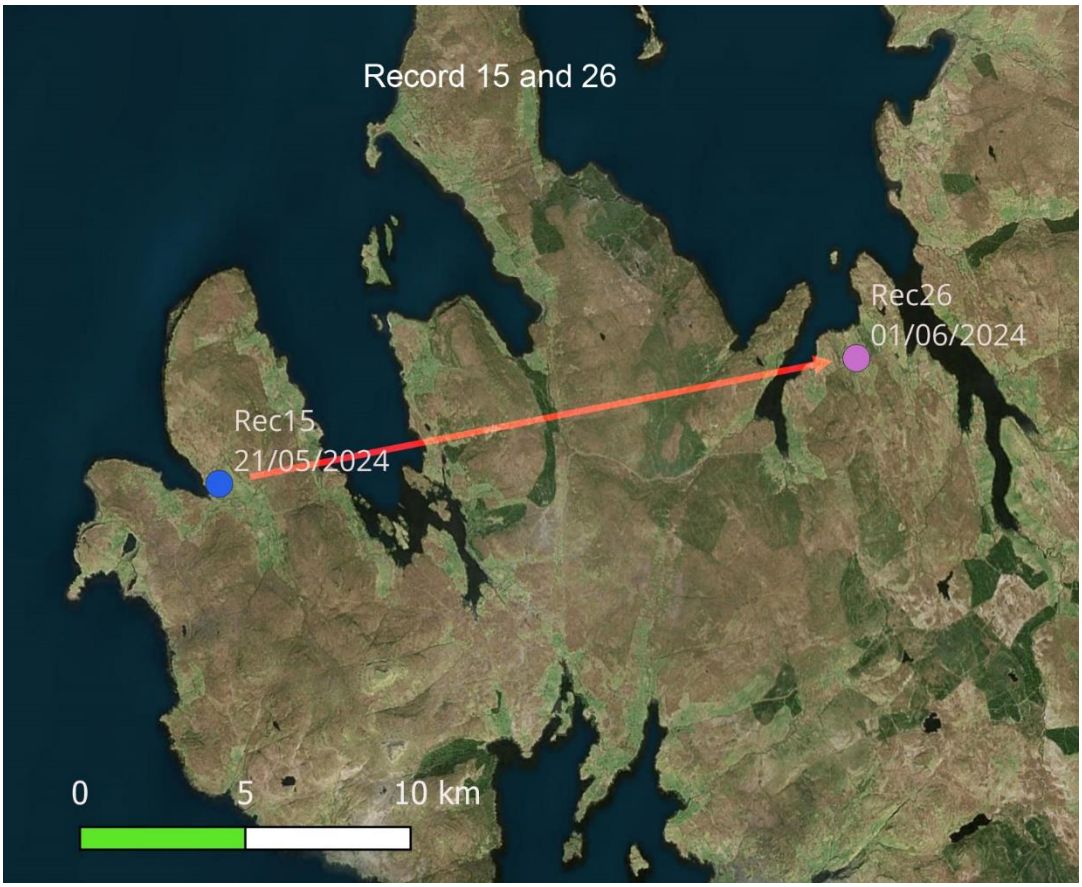




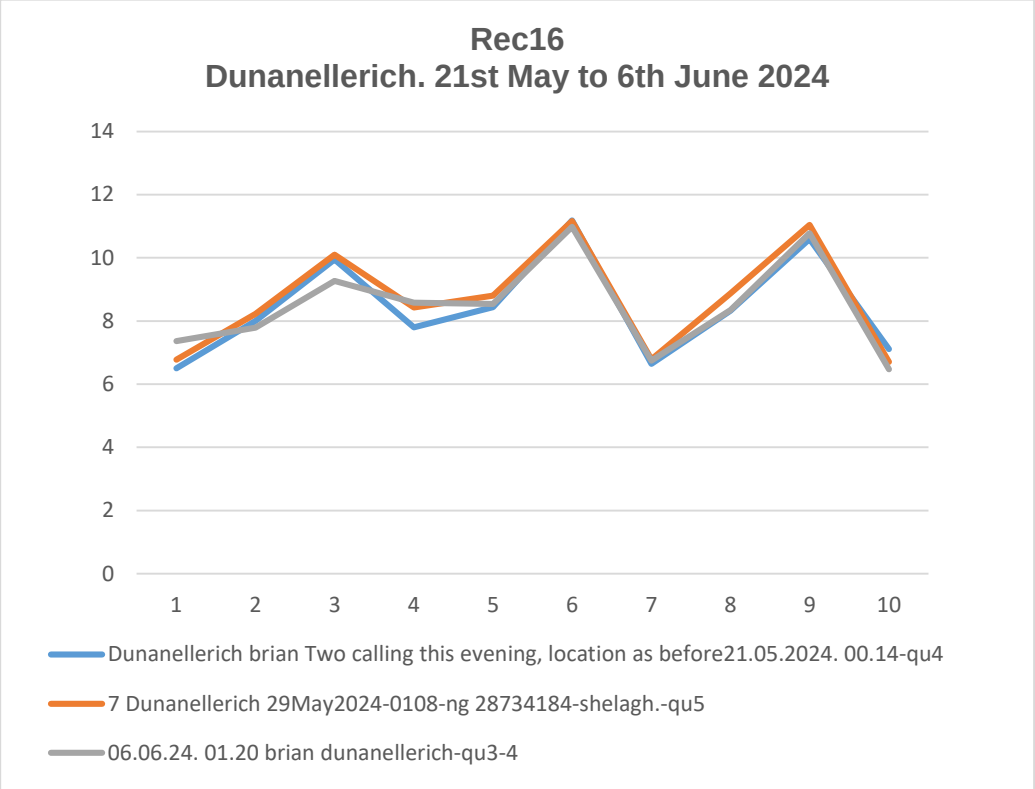
Recorded by; Shelagh

Bird 12 (probable).
19.1 km move. Tracked for 13 days



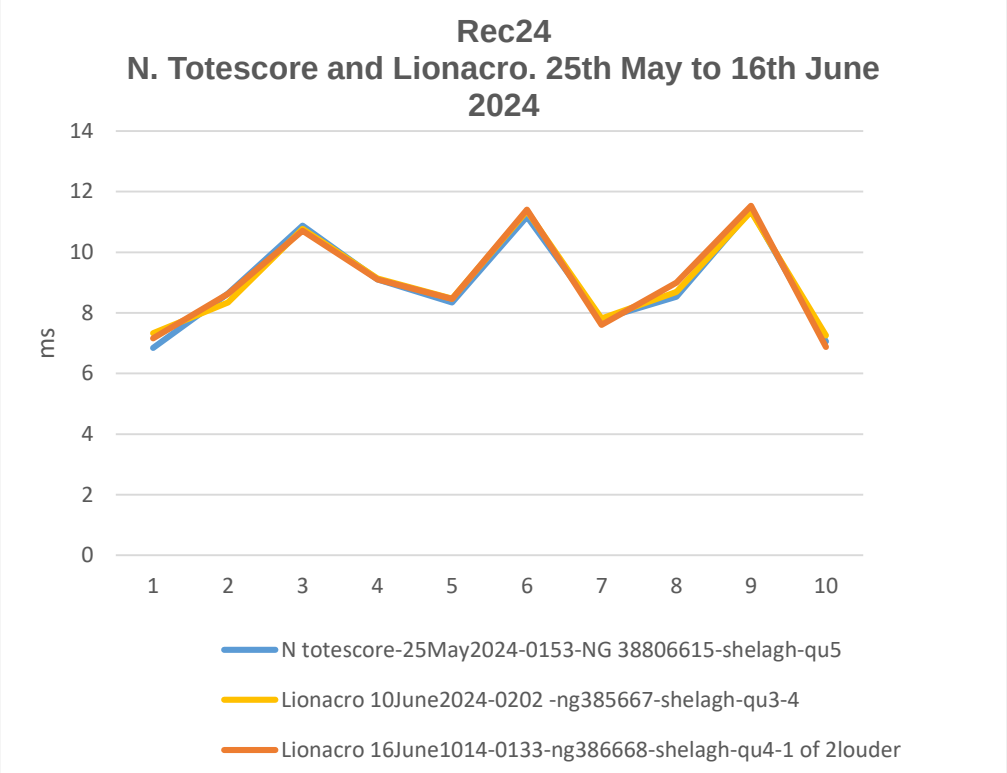


Bird 13 (definite).
0.5 km move. Tracked for 14 days



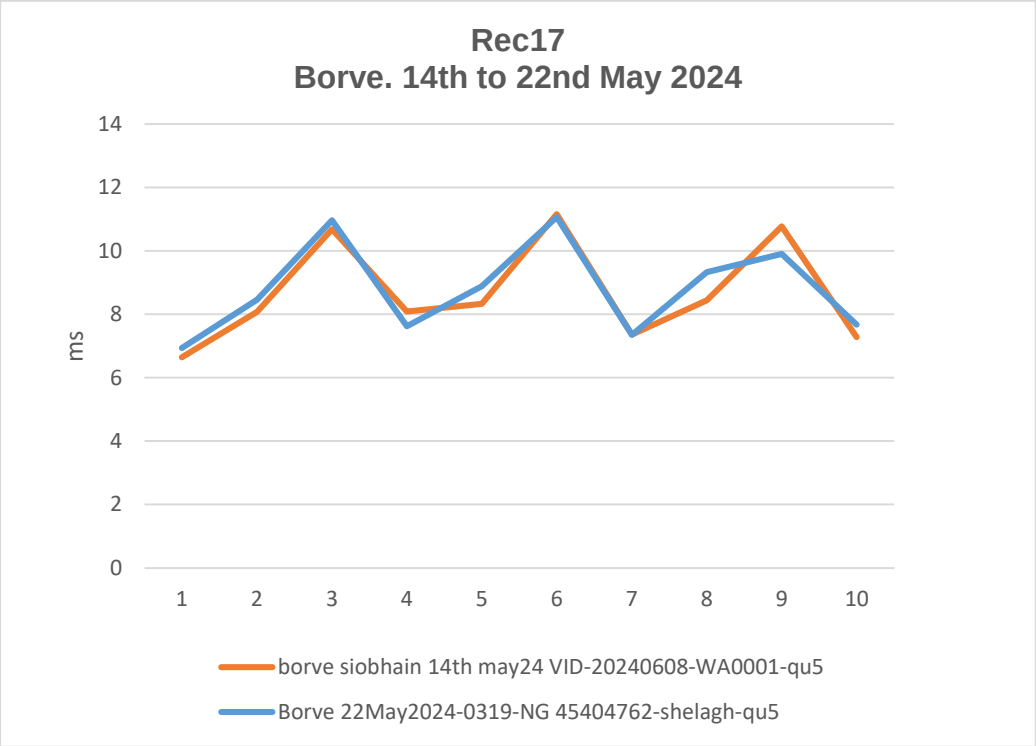
Recorded by; Brian, Shelagh

Bird 28 (definite).
0.6 km move. Tracked for 22 days

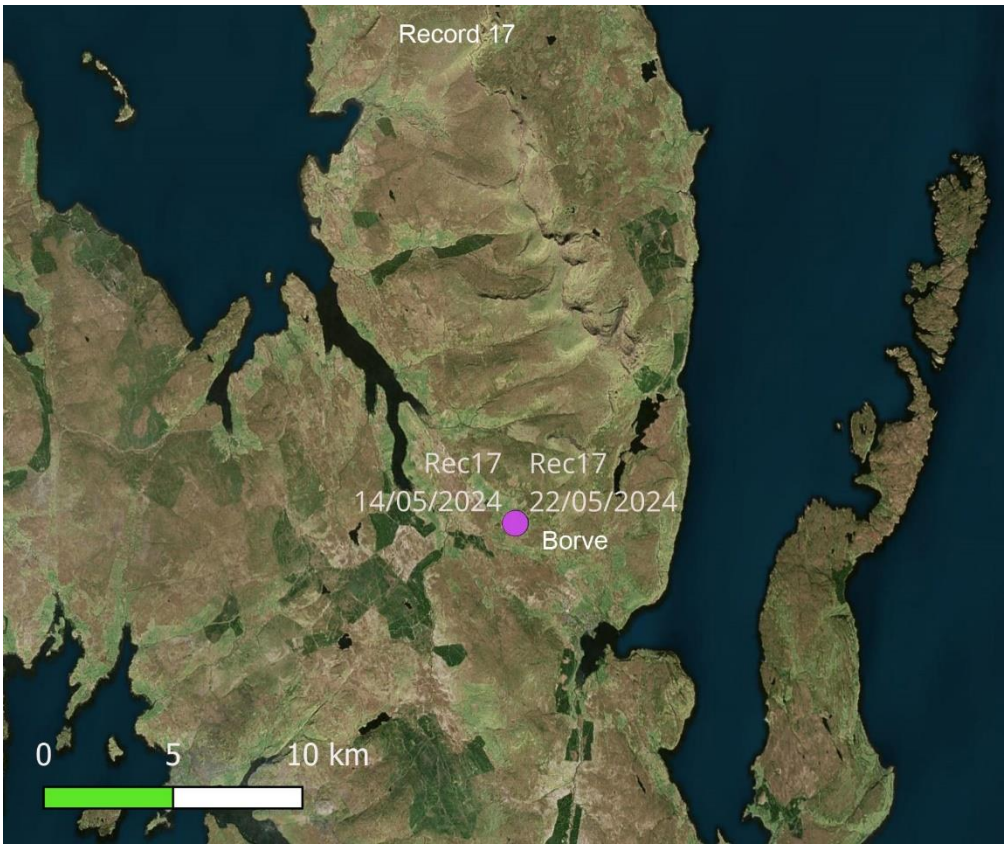


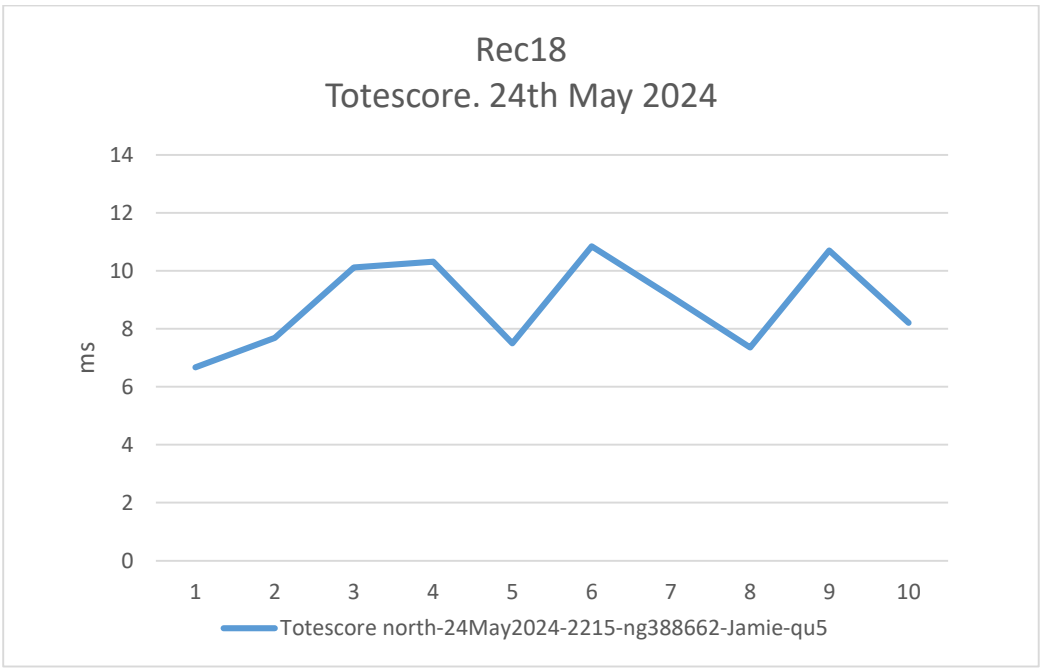
Recorded by; Shelagh

Bird 14 (definite).
0 km move. Tracked for 8 days

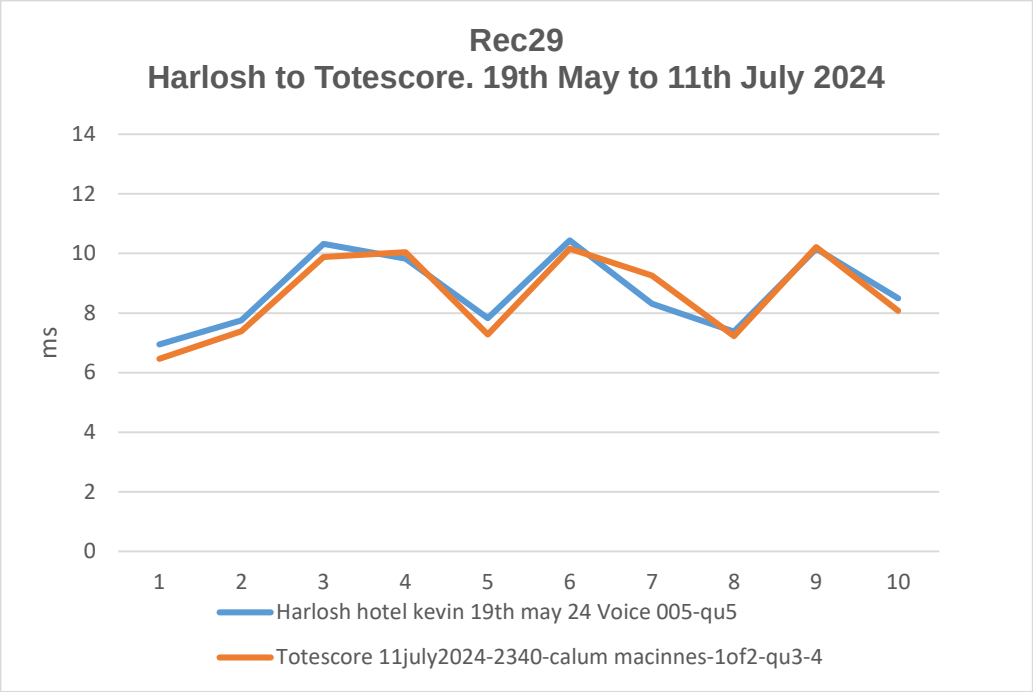


Recorded by; Shelagh, Siobhain



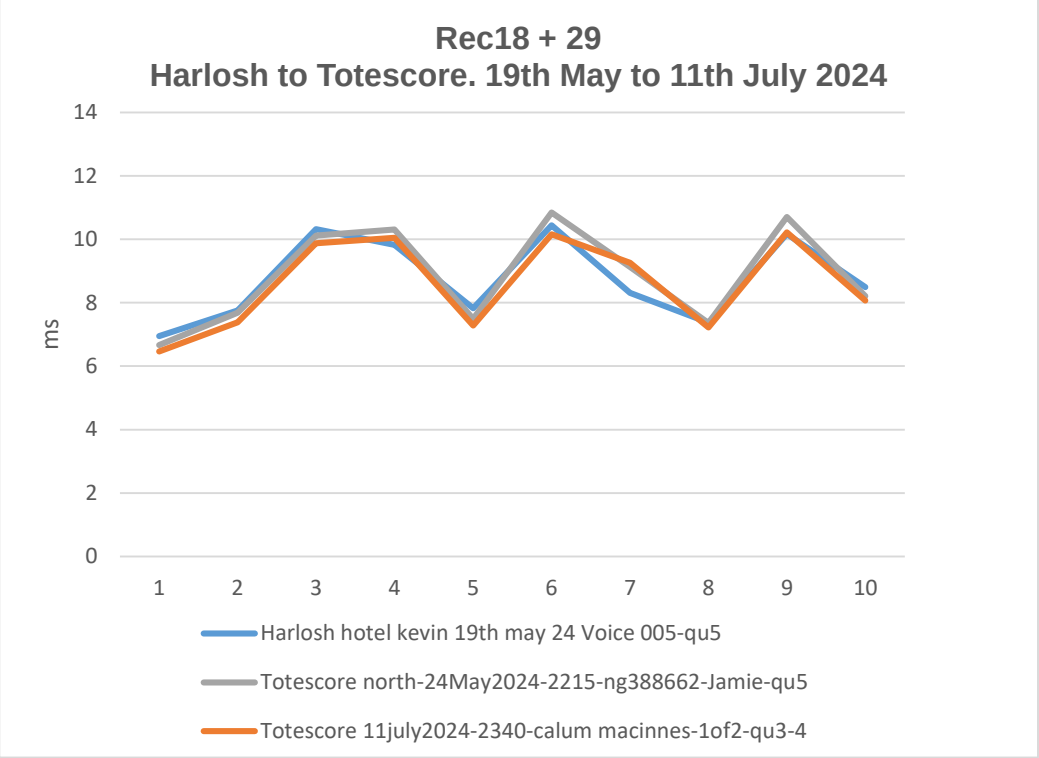


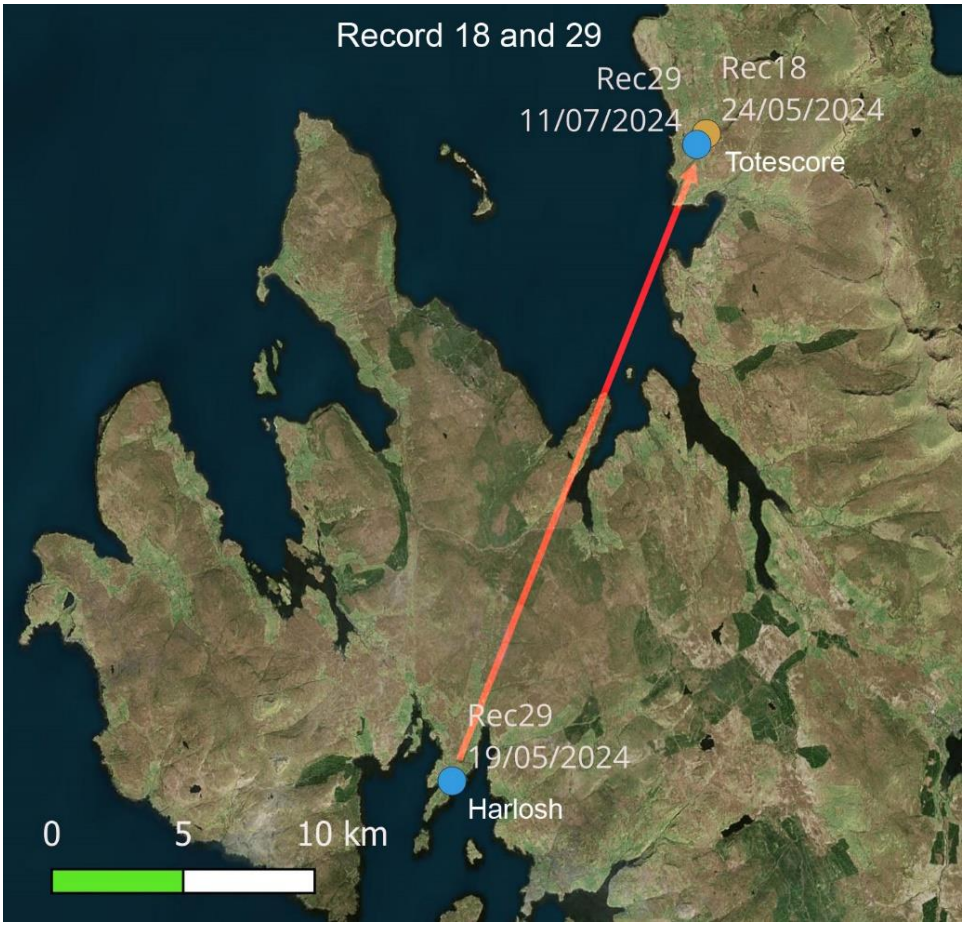
Recorded by; Jamie



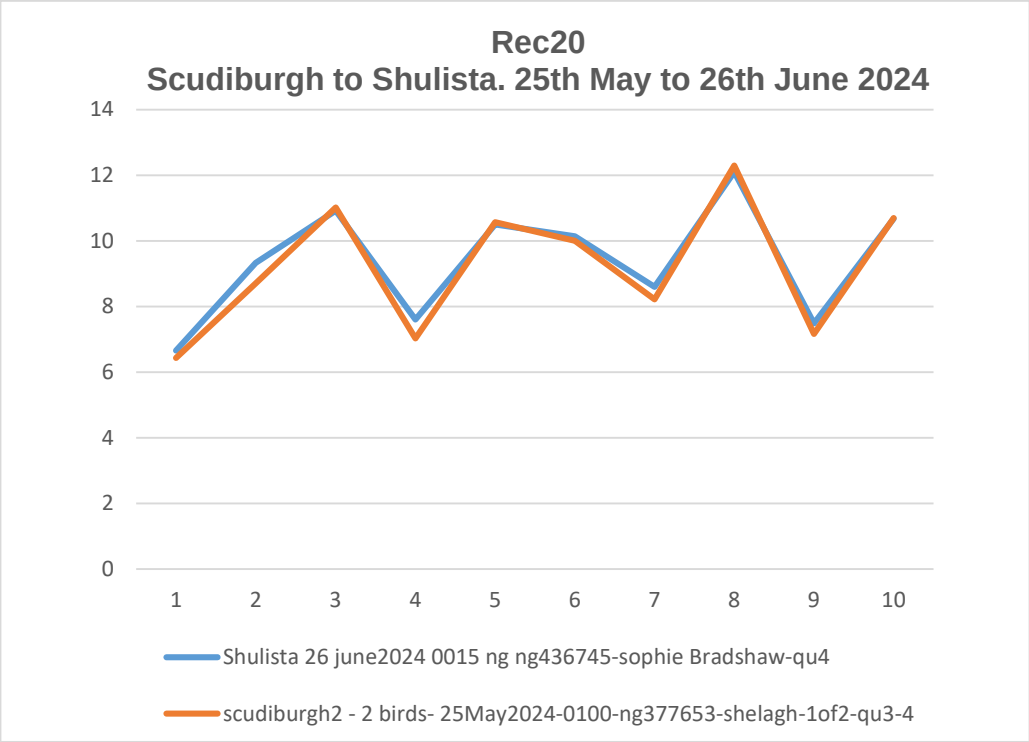
Recorded by; Kevin, Calum

Bird 15 (definite).
26 km move. Tracked for 53 days



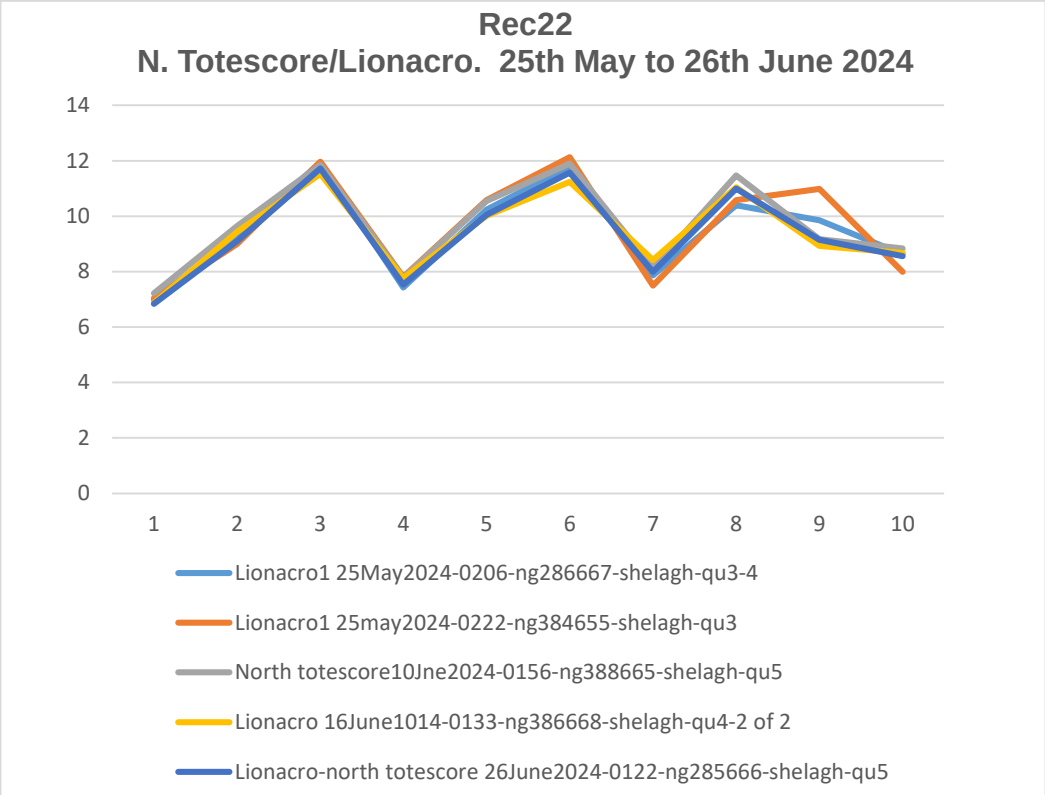


Bird 16 (probable).
10 km move. Tracked for 32 days



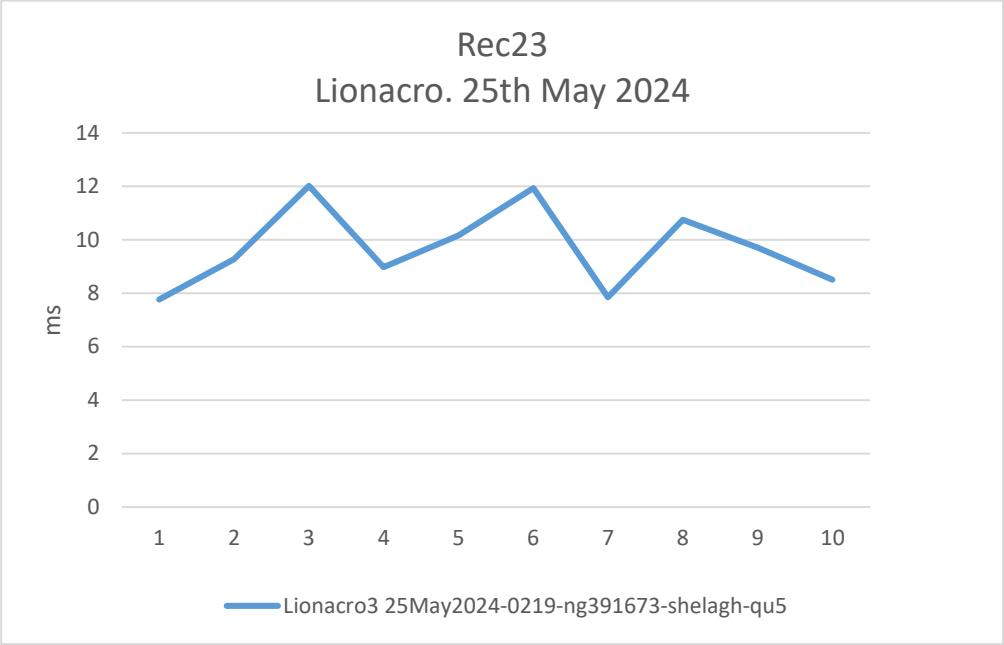
Recorded by; Shelagh, Sophie

Bird 17 (definite).
0.6 km move. Tracked for 32 days



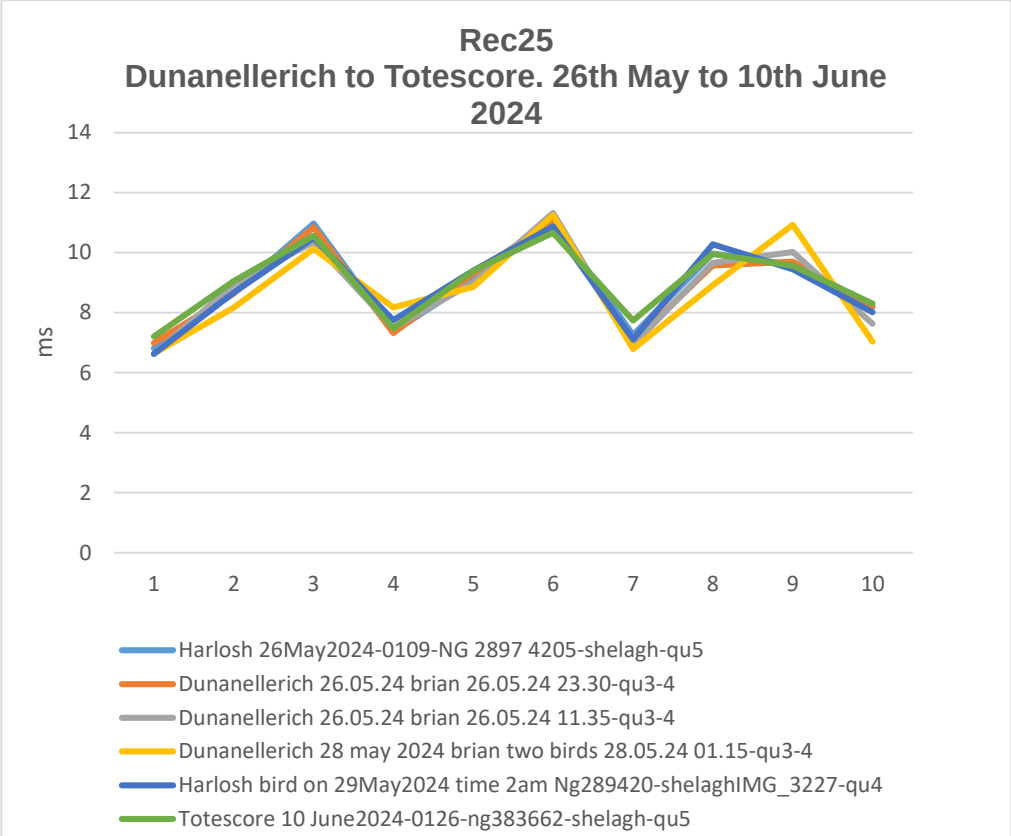
Recorded by; Shelagh

Bird 18 (definite).
0 km move. Tracked for 1 day



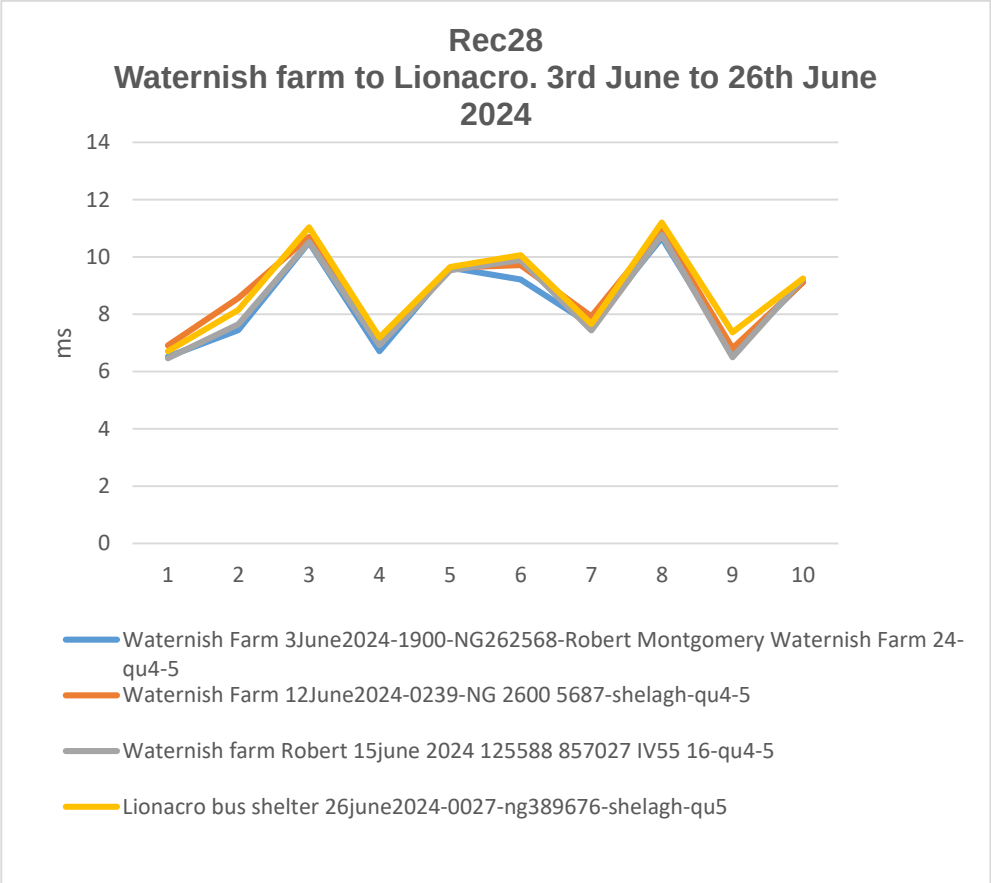
Recorded by; Shelagh

Bird 19 (definite).
25 km move. Tracked for 15 days



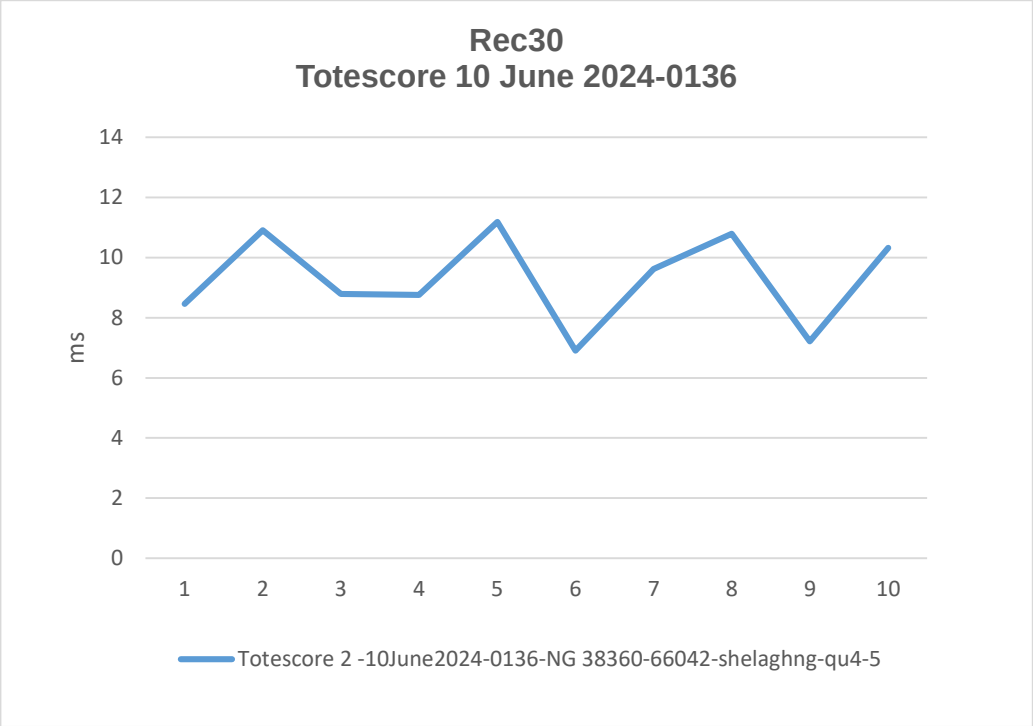
Recorded by; Brian, Shelagh

Bird 20 (definite).
16.6 km move (red arrow). Tracked for 46 days



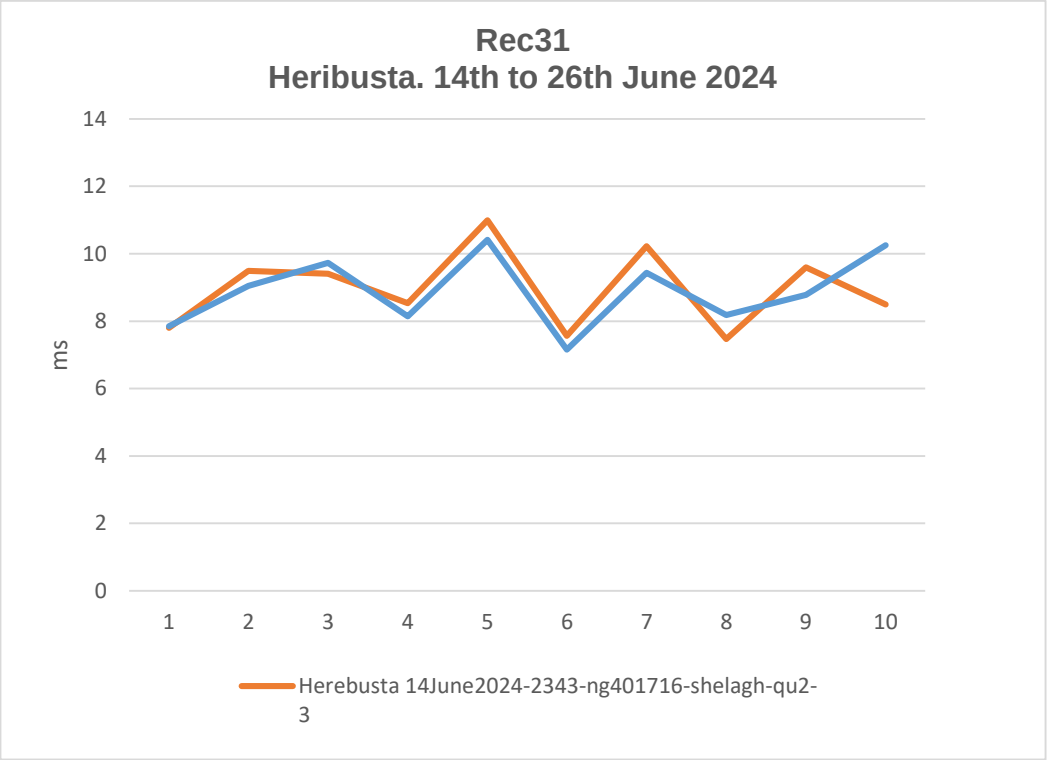
Recorded by; Shelagh, Robert M

Bird 21 (definite).
0 km move. Tracked for 1 day

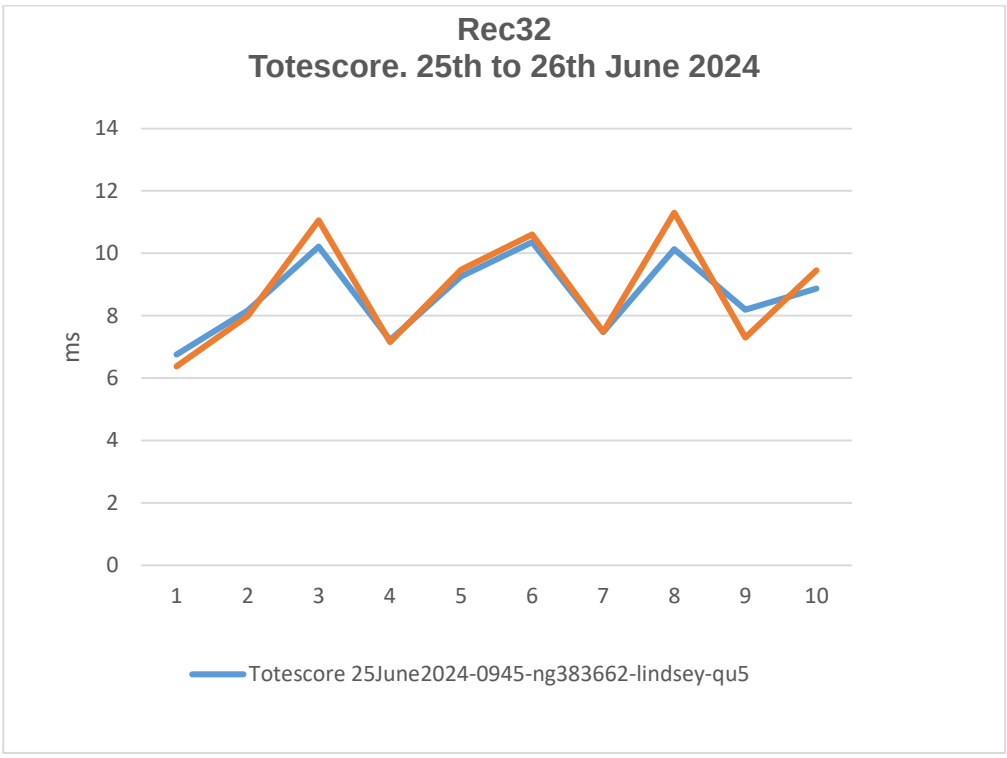


Recorded by; Shelagh

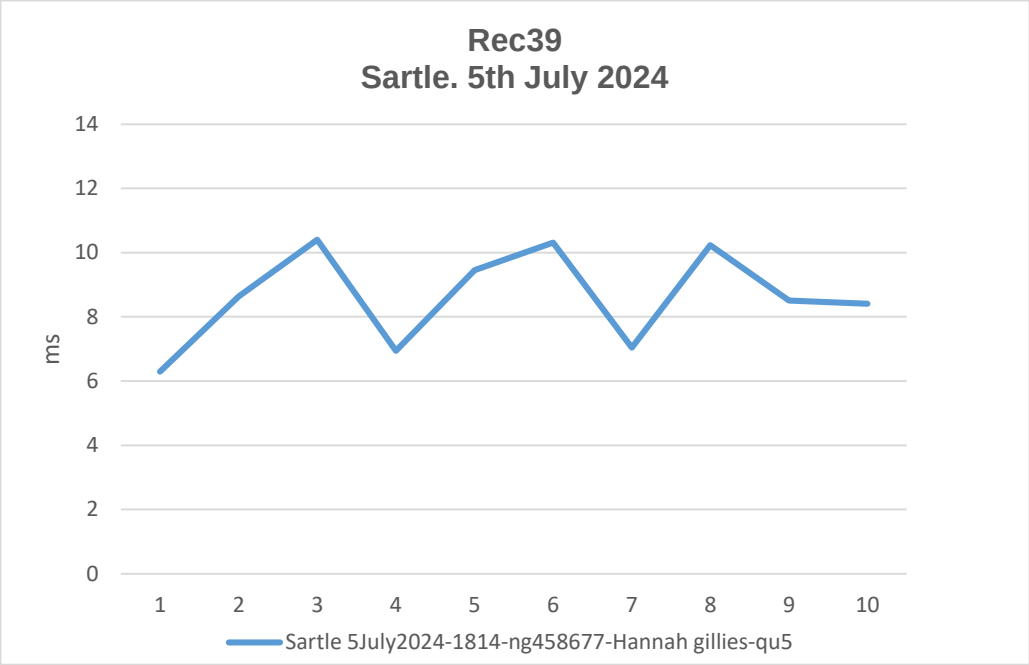
Bird 22 (definite).
0.4 km move. Tracked for 12 days



Recorded by; Shelagh

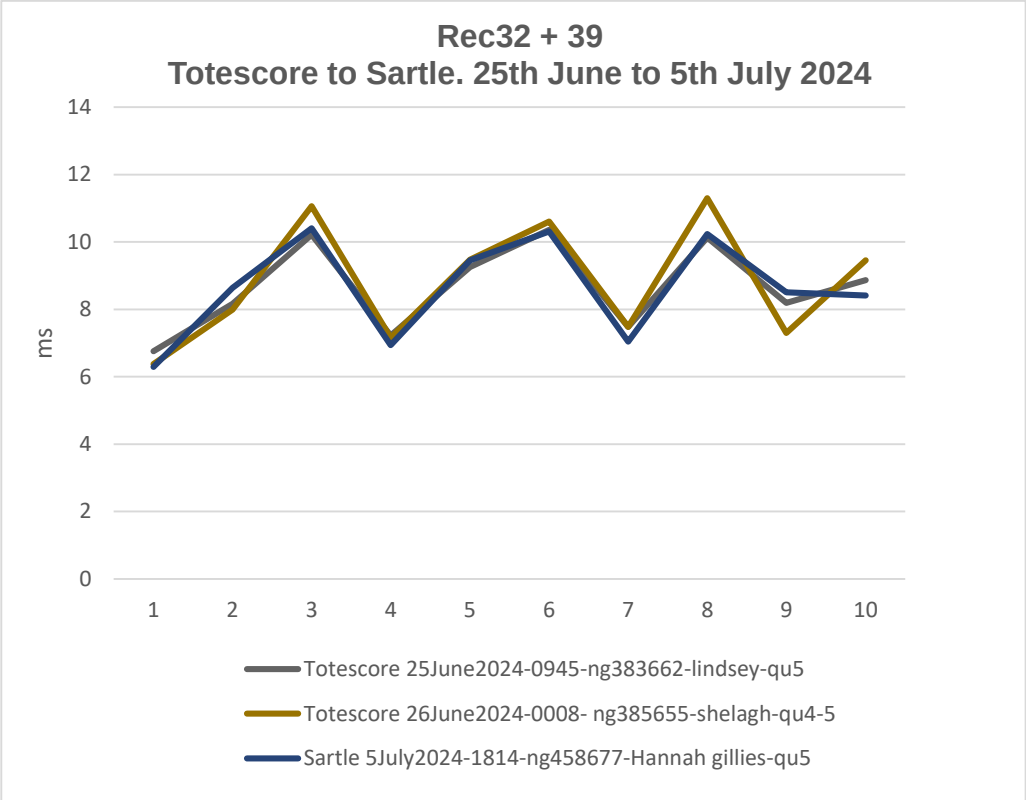


Recorded by; Lindsey, Shelagh



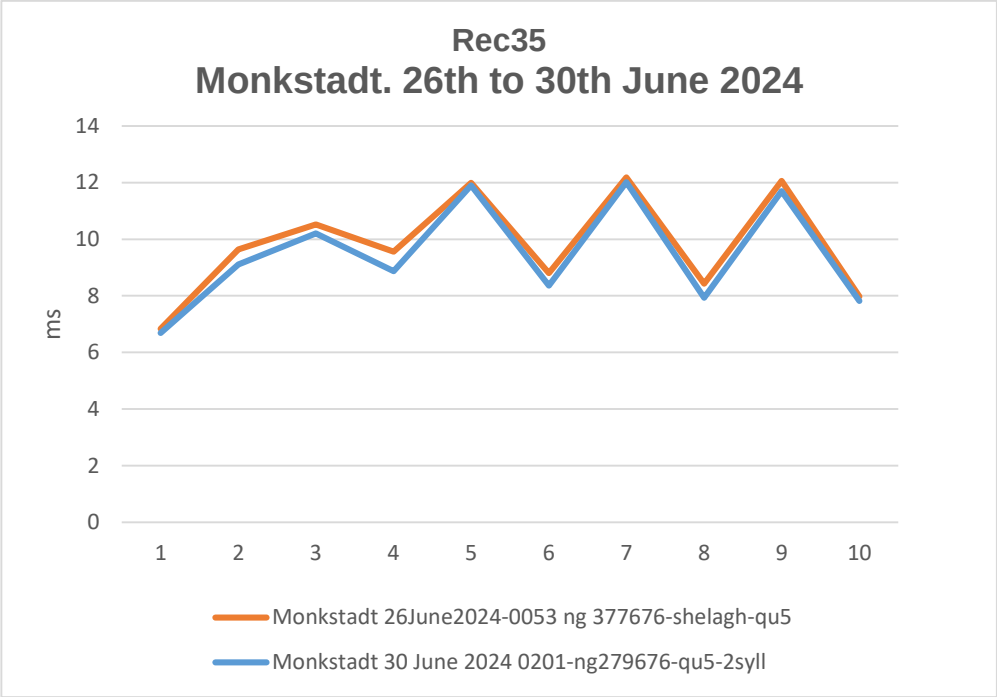
Recorded by; Hannah

Bird 23 (probable).
7.5 km move. Tracked for 10 days



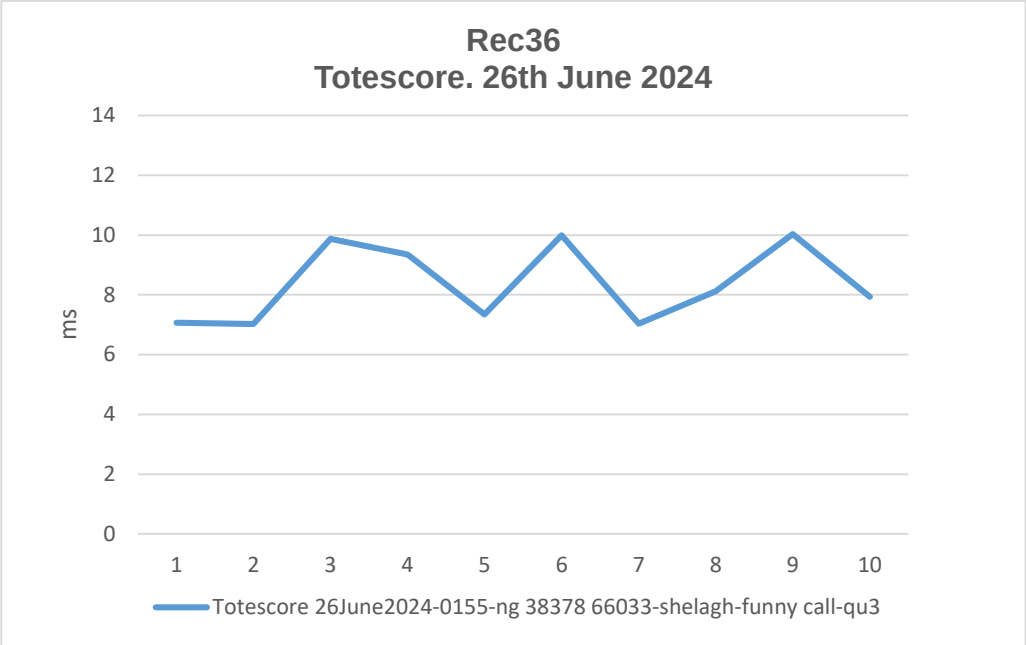
Recorded by; Lindsey, Shelagh

Bird 24 (definite).
0 km move. Tracked for 4 days



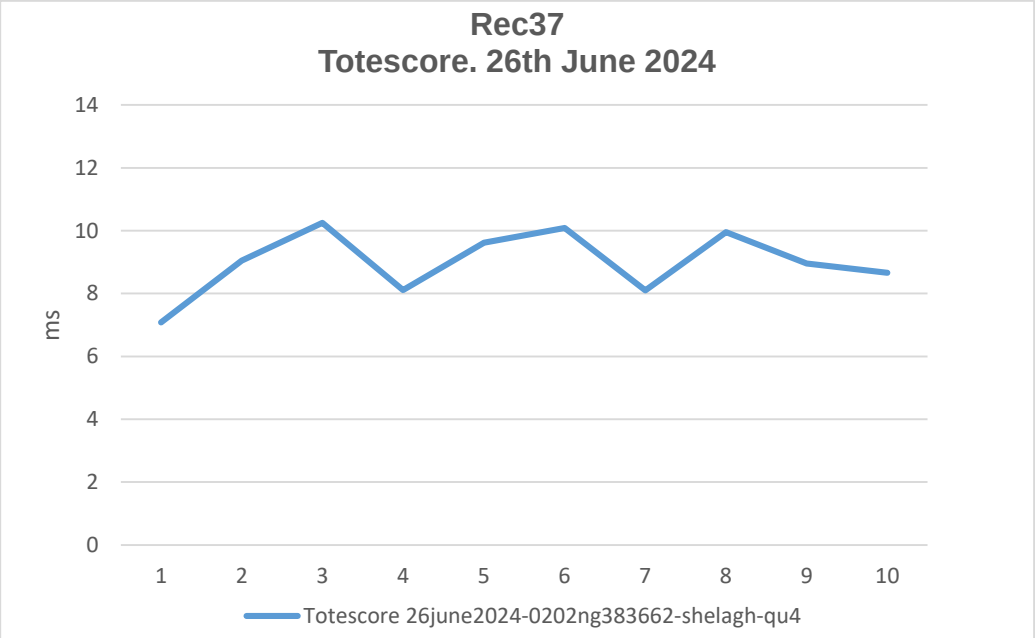
Recorded by; Shelagh

Bird 25 (probable).
0 km move. Tracked for 1 day



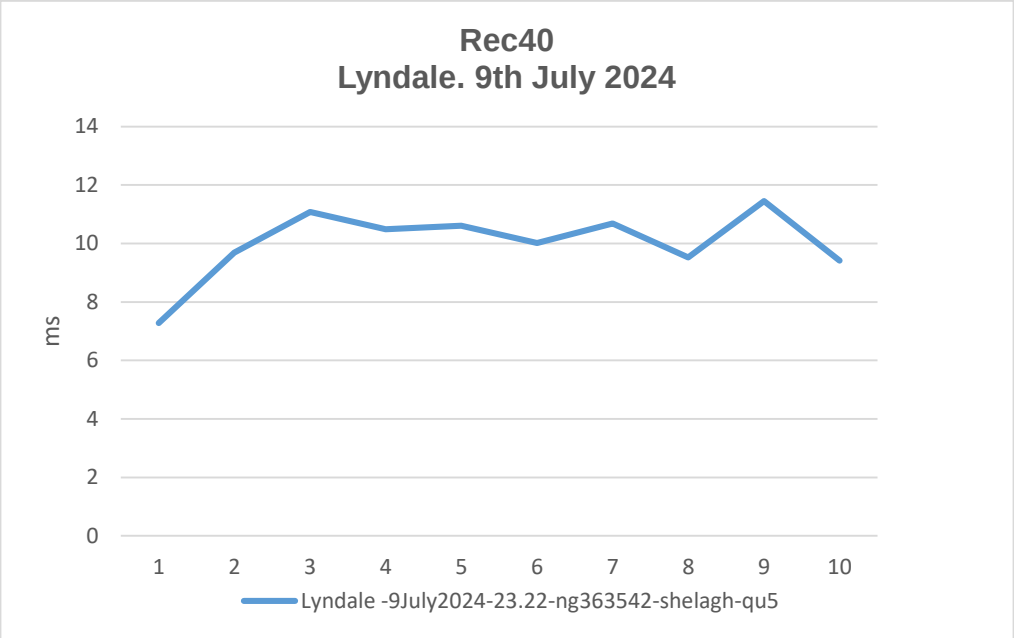
Recorded by; Shelagh

Bird 26 (probable).
0 km move. Tracked for 1 day



Recorded by; Shelagh

Bird 27 (definite).
0 km move. Tracked for 1 day

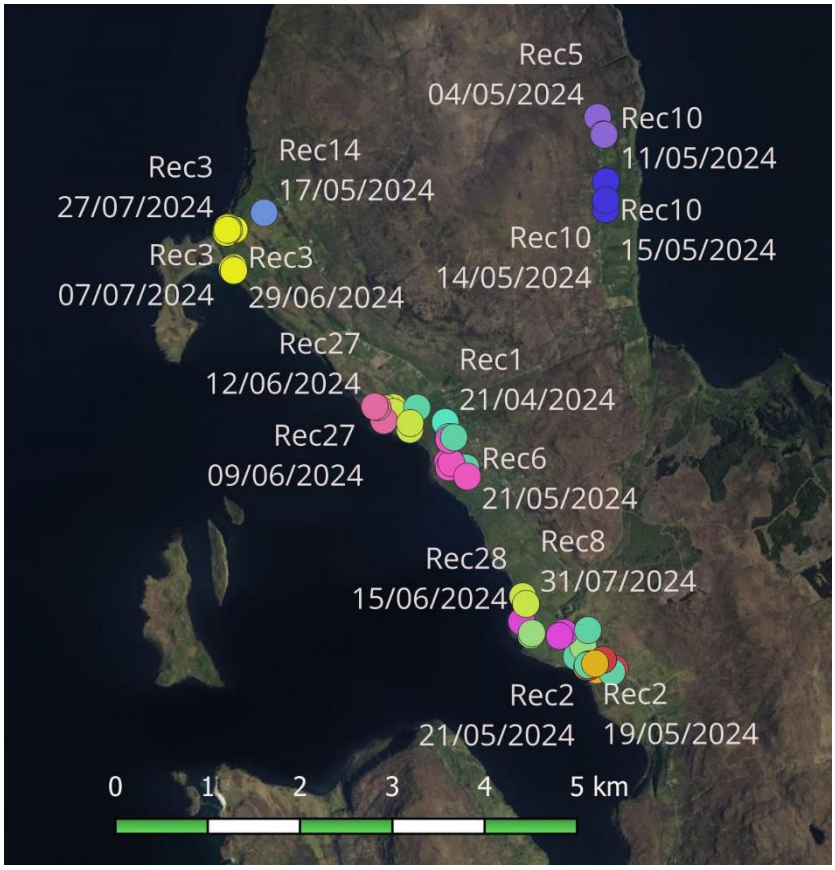


Recorded by; Shelagh

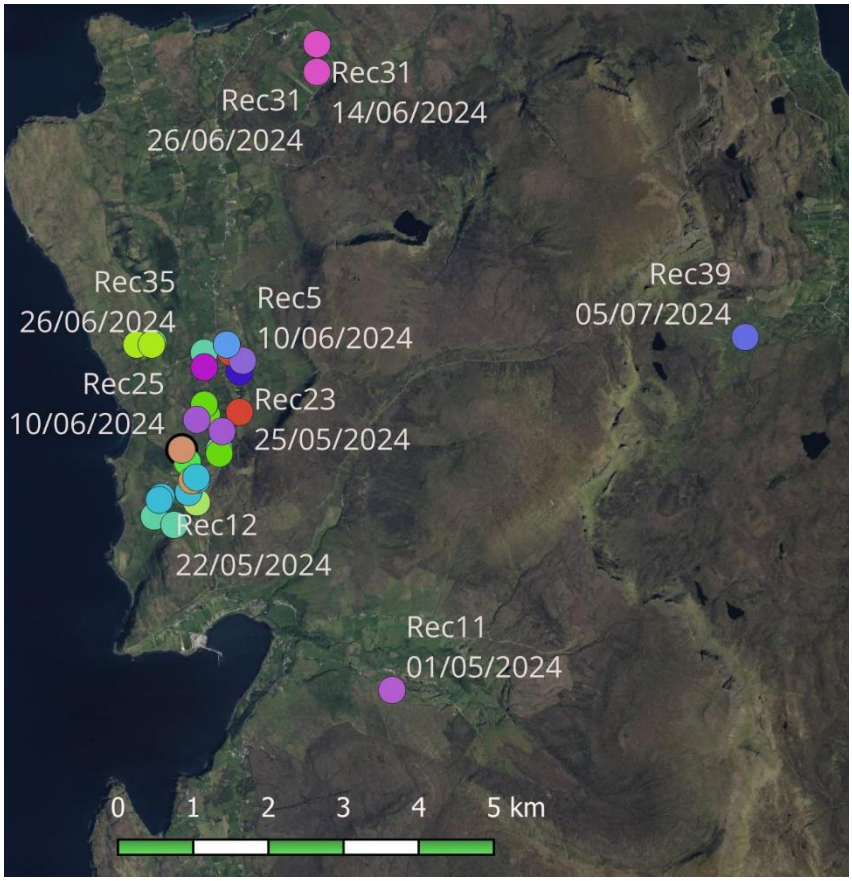
Table of 2024 tracking information

Bird	distance km	days tracked	Area
1	**2.7**	**35**	**Waternish**
2	**3.5**	**47**	**Waternish**
3	**0.38**	**90**	**Waternish**
4	**2.3**	**50**	**Waternish**
5	**13**	**37**	**Waternish + Trotternish**
6	**2.3**	**61**	**Waternish**
7	**0.6**	**57**	**Waternish**
8	**0.25**	**10**	**Waternish**
9	**0**	**1**	**Trotternish**
10	**0.5**	**57**	**Trotternish**
11	**17**	**40**	**Waternish + Trotternish**
12	**19.1**	**13**	**Glendale + Lyndale**
13	**0.5**	**14**	**Harlosh**
14	**0**	**8**	**Borve**
15	**26**	**53**	**Harlosh + Trotternish**
16	**10**	**32**	**Trotternish**
17	**0.6**	**32**	**Trotternish**
18	**0**	**1**	**Trotternish**
19	**25**	**15**	**Harlosh + Trotternish**
20	**16.6**	**46**	**Waternish + Trotternish**
21	**0**	**1**	**Trotternish**
22	**0.4**	**12**	**Trotternish**
23	**7.5**	**10**	**Trotternish**
24	**0**	**4**	**Trotternish**
25	**0**	**1**	**Trotternish**
26	**0**	**1**	**Trotternish**
27	**0**	**1**	**Lyndale**
28	**0.6**	**22**	**Trotternish**
Average	**6.8**	**34**	excluding single day records
Range	**0 - 26**	**1 - 90**	

Maps of main Corncrake areas in 2024



9 birds on Waternish



16 birds on Trotternish

3 birds at Harlosh

PPD analysis of 2023 to 2024 Corncrake calls fom Skye and Canna. Possible returning birds

The PPD measurements have been averaged for each recognisable ‘bird’ as analysed for Skye 2023 and Skye 2024 recordings. This produces a matrix of correlations in Excel between all the pairs. There are 27 ‘birds’ identified by PPD analysis for Skye 2024 and 18 from Skye 2023. There were 9 probable ‘birds’ for Canna in 2024 and 8 from 2023. They have all been compared to each other in a matrix of Pearson correlation coefficients ‘r’.

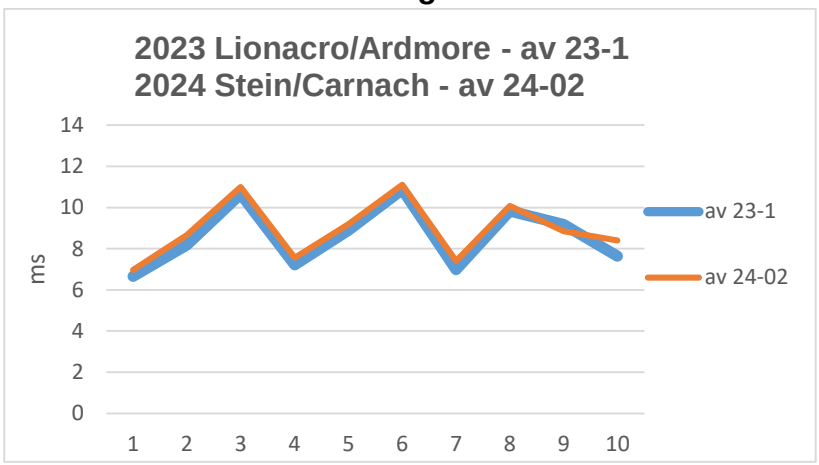
The pairs that match using the correlation coefficient ($r>0.95$) have been plotted together and any very similar, nearly identical patterns that could be significant are printed below.

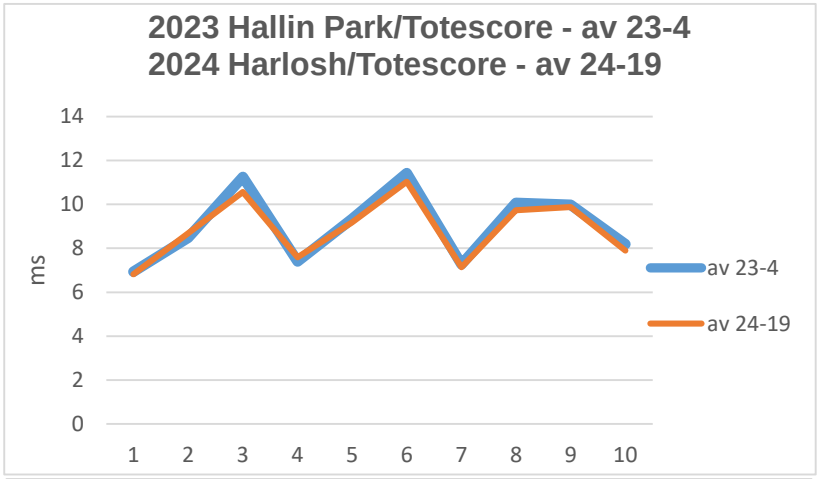
They indicate 7 possible returning birds to Skye in 2024 from Skye 2023. There were 18 or 19 birds estimated from PPD analysis in 2023 so a possible return rate to Skye of about 39%. It is more certain to say that of the 18 or 19 birds in 2023 11 or 12 (61%) definitely did not return because the PPD patterns are definitely not matching well with any in 2024. In addition there could have been two birds from Canna 2023 which returned to Skye in 2024 and also two appeared to return from Skye 2023 to Canna in 2024.

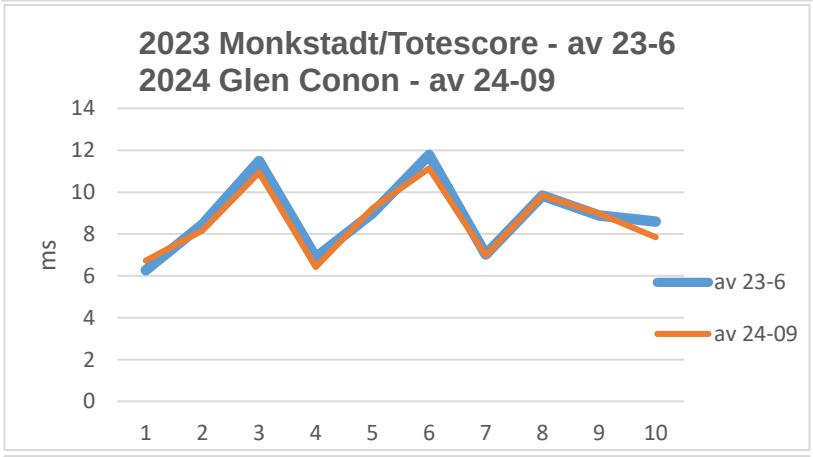
All corncrakes can see the same suitable locations when they arrive back from Africa. They appear not to be particularly site faithful.

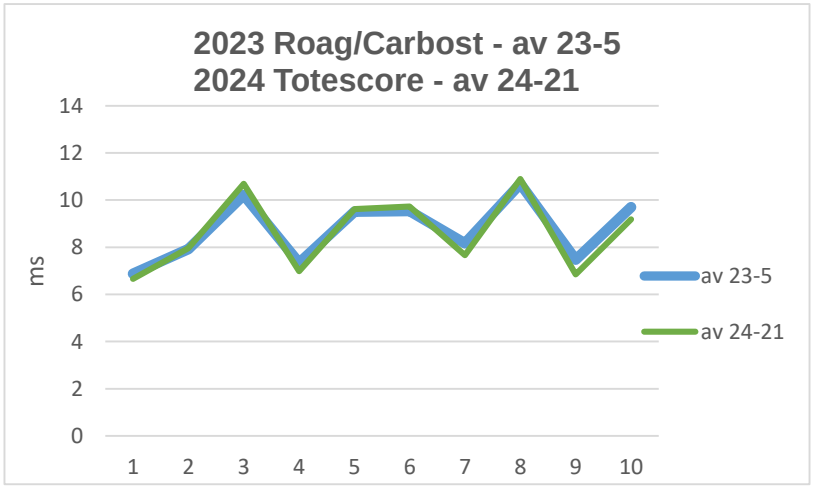
First year birds do not call and so are not detected by this acoustic survey. Returning birds can be either 2nd year birds who have not been calling males before or 3rd year or older having been callers in their 2nd or later years. It is also possible that they can match the PPD pattern of their parent or sibling, if as I believe, the PPD pattern is a mechanically determined characteristic fixed by each bird’s anatomy and so possibly genetically inherited. This adds some more uncertainty and also interest to the analysis. (See below some evidence for this from Skye 2023 and 2024)

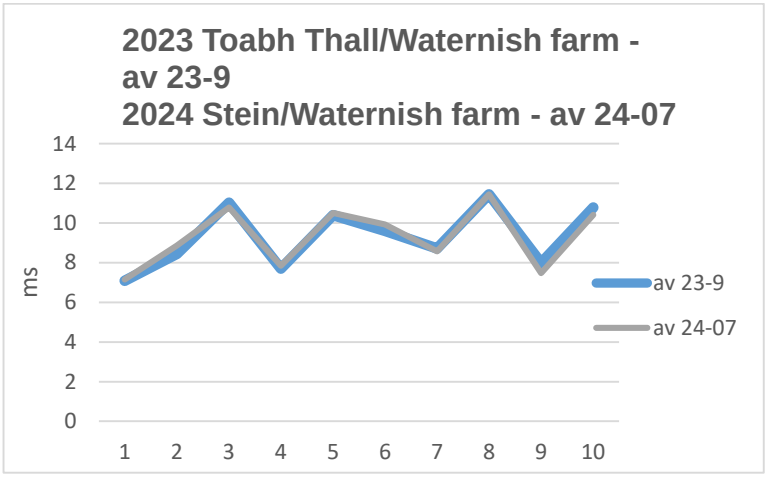
The 7 birds from Skye 2023 matching birds in Skye 2024 which are possible returning birds

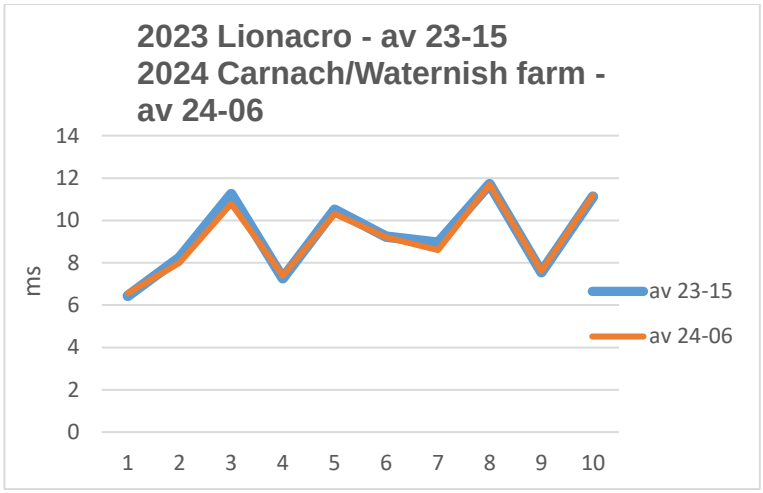


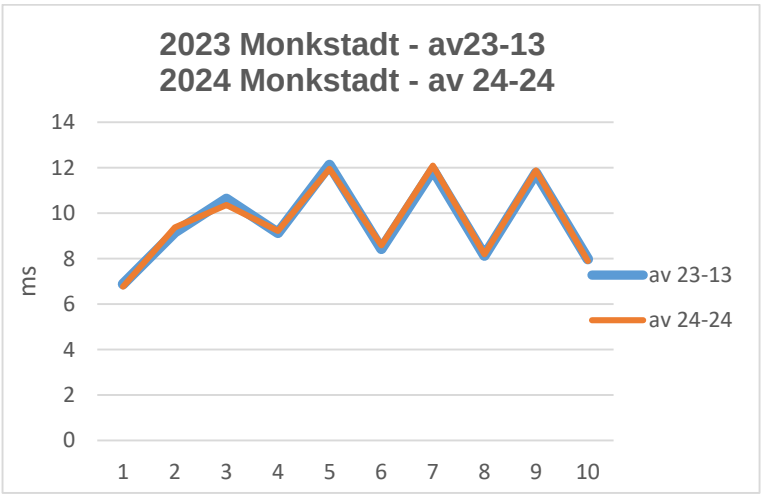












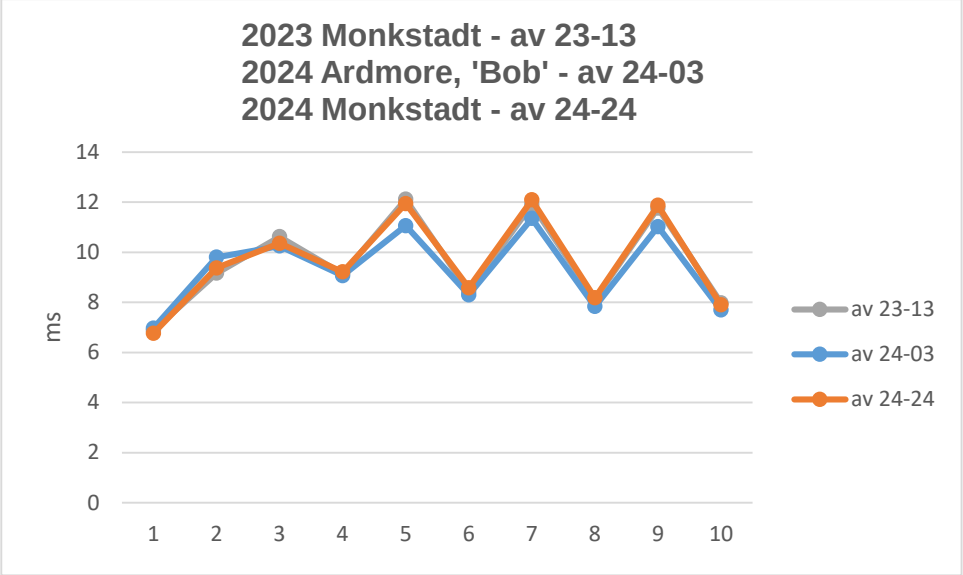
Note about Monkstadt 2023 to 2024 and 'Bird 3' on Waternish 2024

This pattern is very recognisable, and it is notable that the returning bird chose the same location at Monkstadt on Trotternish.

This very unusual pattern is also seen for 'bird 3' on Waternish in 2024, (Rec3 "Bob" Ardmore, below).

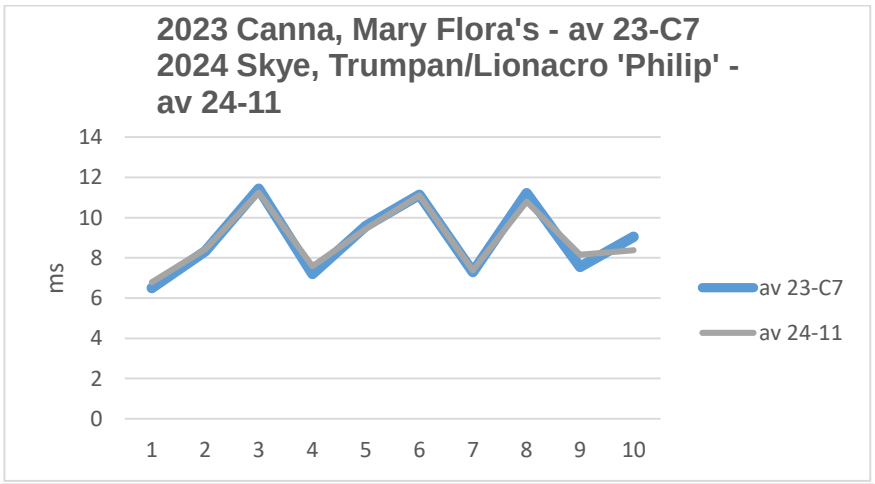
This raises the intriguing possibility that the PPD pattern, which I believe is an anatomically determined characteristic, can indicate a genetic relationship between a parent and offspring or between siblings. In this case a bird recorded at Monkstadt on

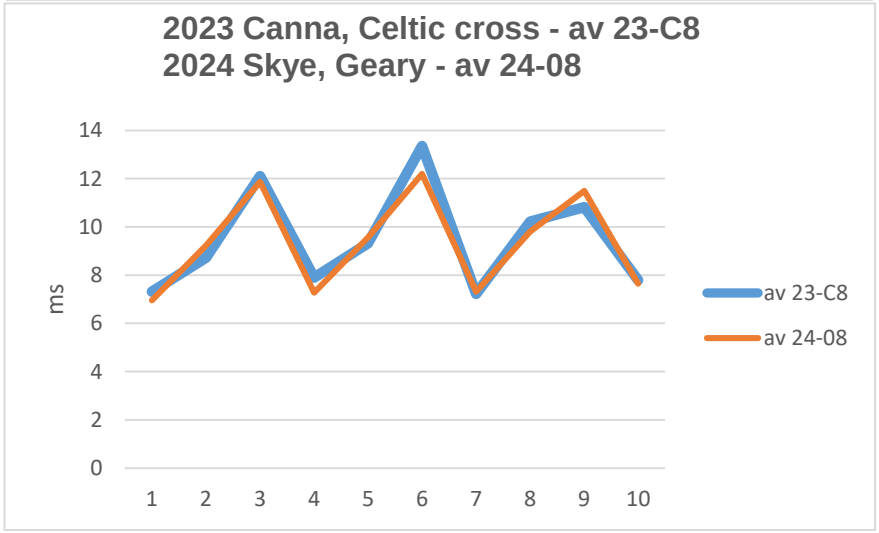
Trotternish appears to have returned there the following year and possibly one of his offspring or a sibling started calling at Ardmore on Waternish at the same time.



Note about possible movements between Canna and Skye in 2023 and Canna and Skye in 2024

These two birds that were on Canna in 2023, probably appeared on Skye in 2024.





These two birds that were on Skye in 2023, probably appeared on Canna in 2024.