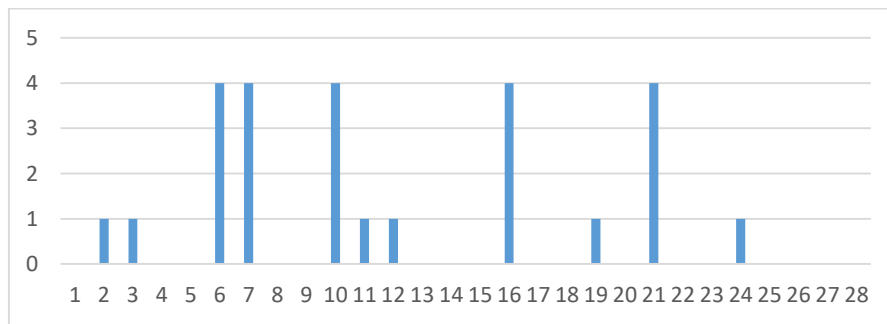


Corncrake PPD patterns from 2024 compared R. Arnold. 5/1/2024



The number of patterns that are similar to each 'Bird #'

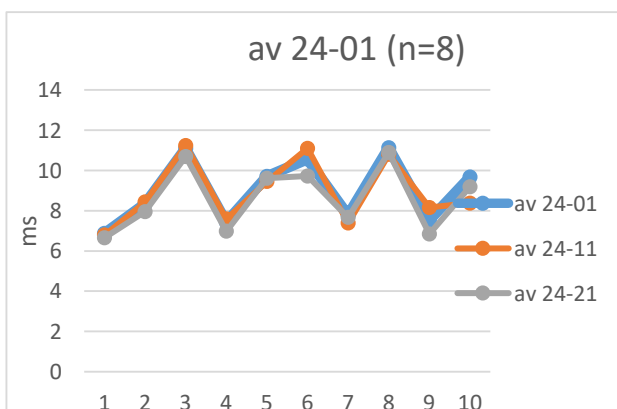
Ideally for tracking, PPD patterns would be unique to each bird, (17 out of 28 birds in 2024 have unique PPD patterns). The reality is far from ideal but by using sequential analysis over the season, taking timing and location of the patterns into account it is possible to track birds. It helps if the total number of individuals is not large and the geographical separation is quite large, as on the Isle of Skye.

The similarities of patterns may be caused by genetic relationship. The charts on the left hand side below show the overlap of patterns between what are probably different birds as deduced from the field work, but using only the ' $r > 0.97$ ' value. On the right hand side are the charts with the visually obvious non-matching (not near-identical) patterns deleted.

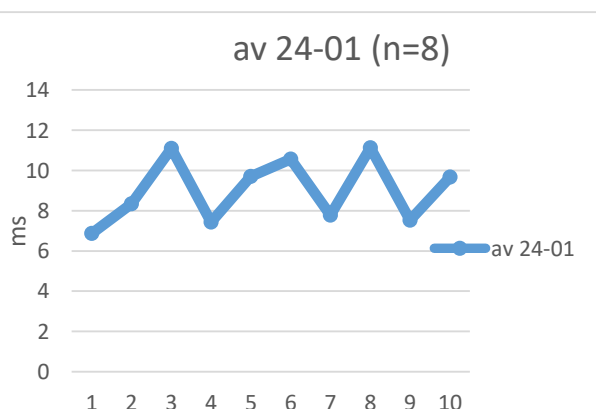
The remaining ambiguous cases are grouped together and have comments added about timing.

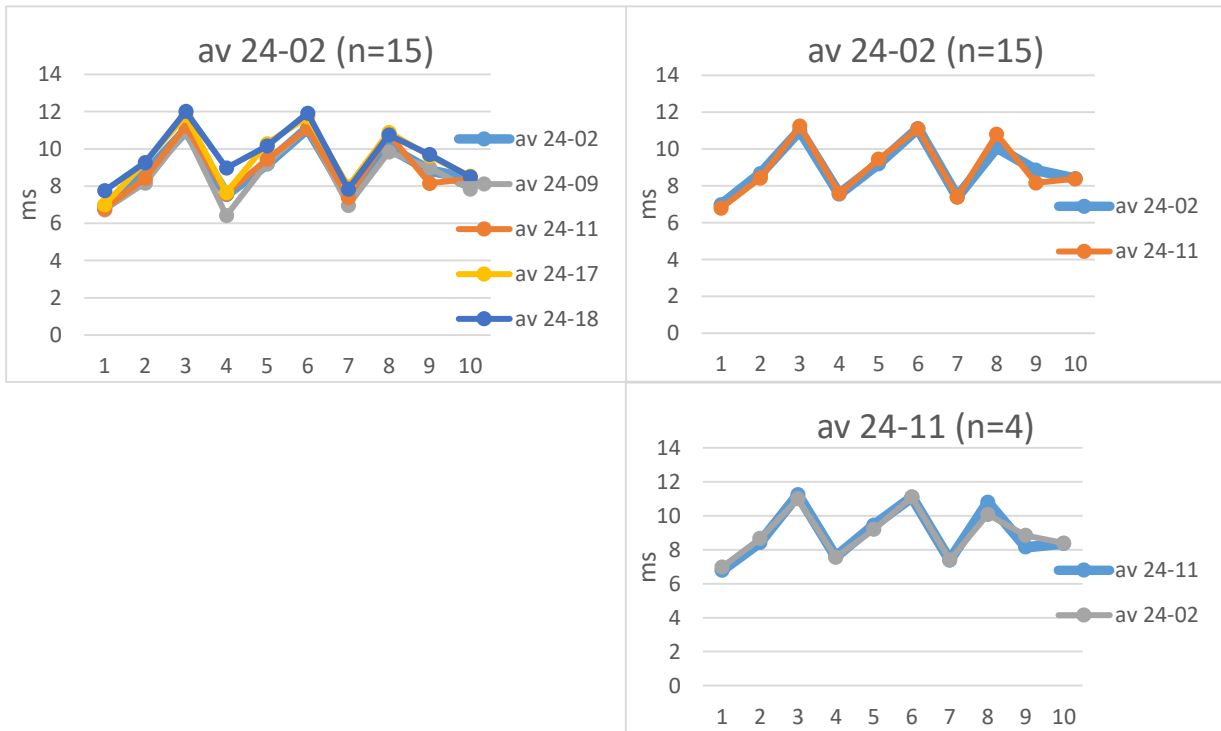
The intention is to show the extent of the problem of overlap of patterns, using 2024 as the example, and that the problem can be overcome to give reasonable certainty to tracking conjectures. (n is the number of 10 figure PPDs averaged)

All ' $r > 0.97$ ' matches

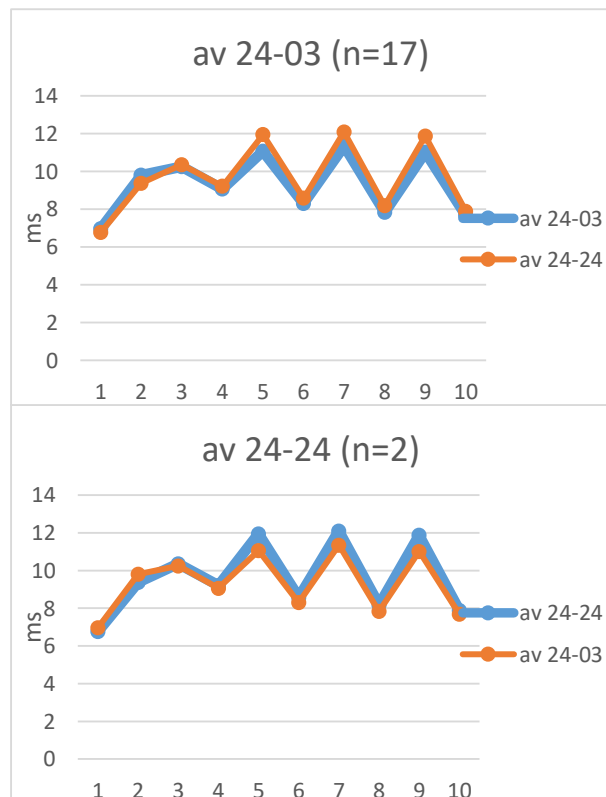


Only near identical matches

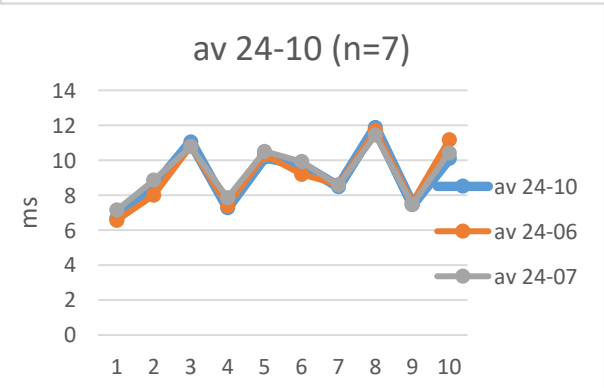
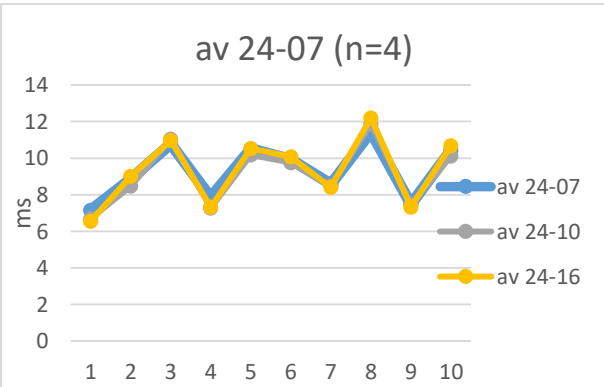
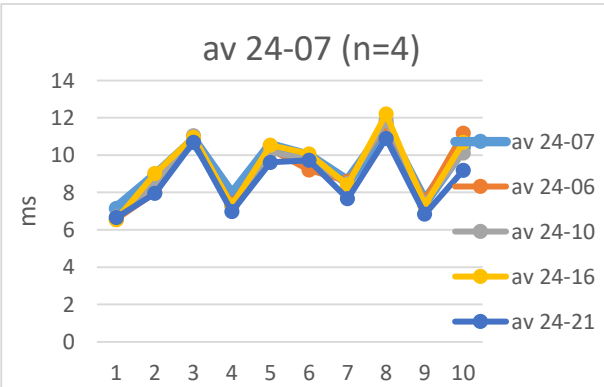
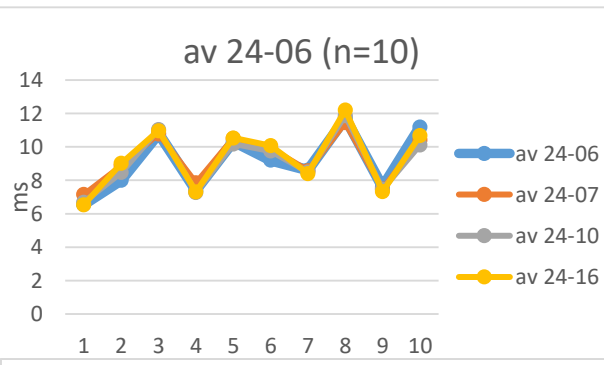
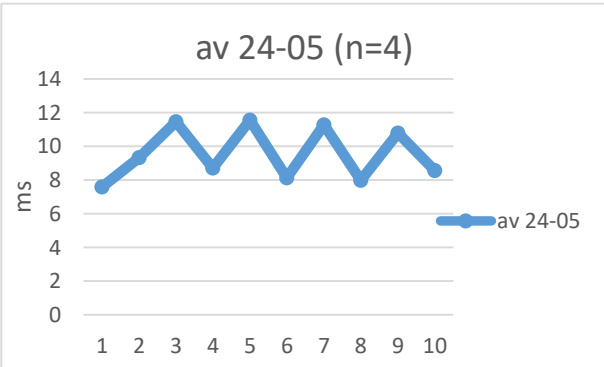
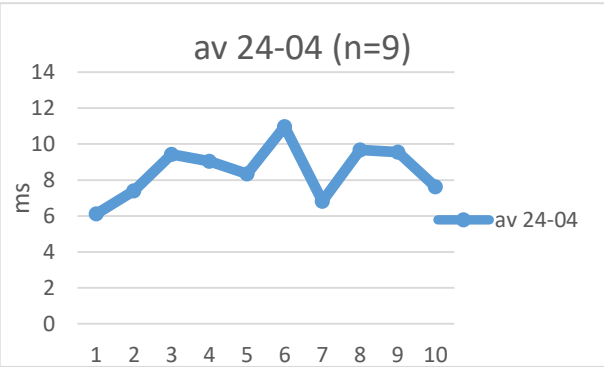


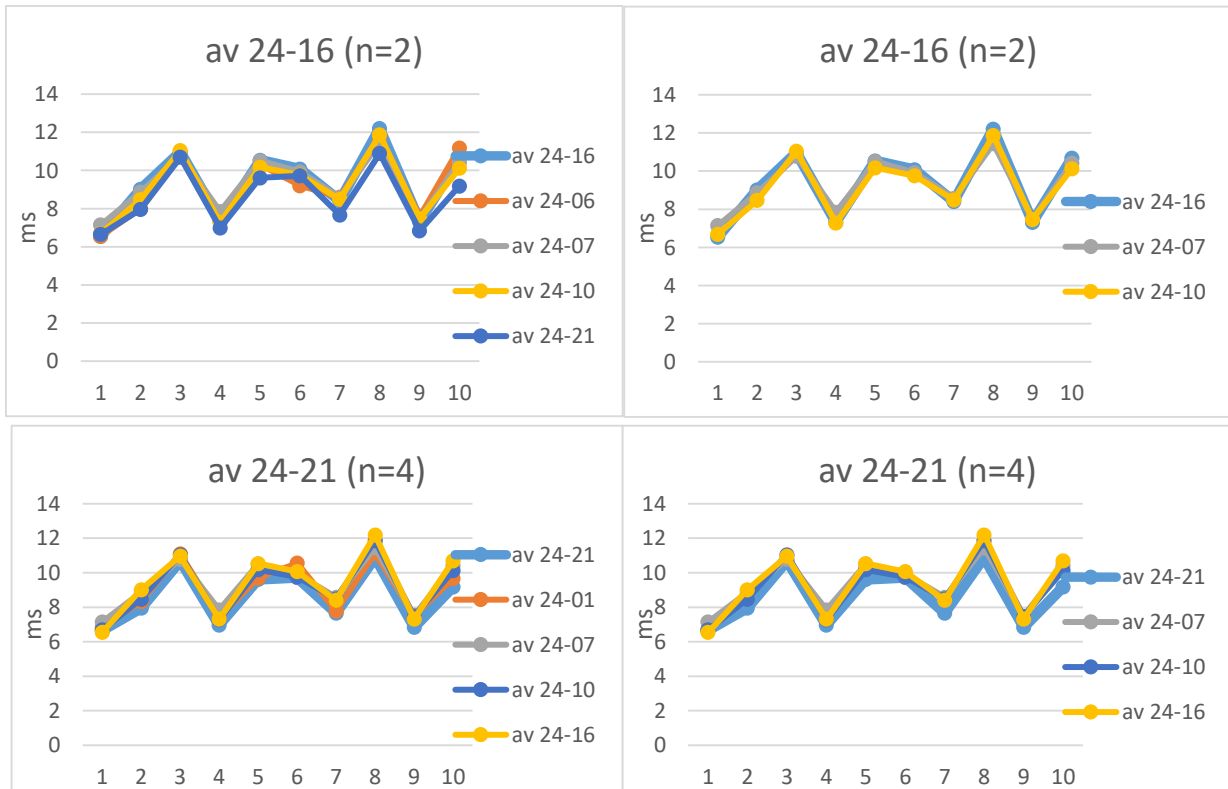


av 24-02 is Stein to Carnach, 23rd April to 12th June 2024
 av 24-11 is Trumpan to Lionacro, 17th May to 28th May 2024
 They overlap in time and so must be 2 different birds.

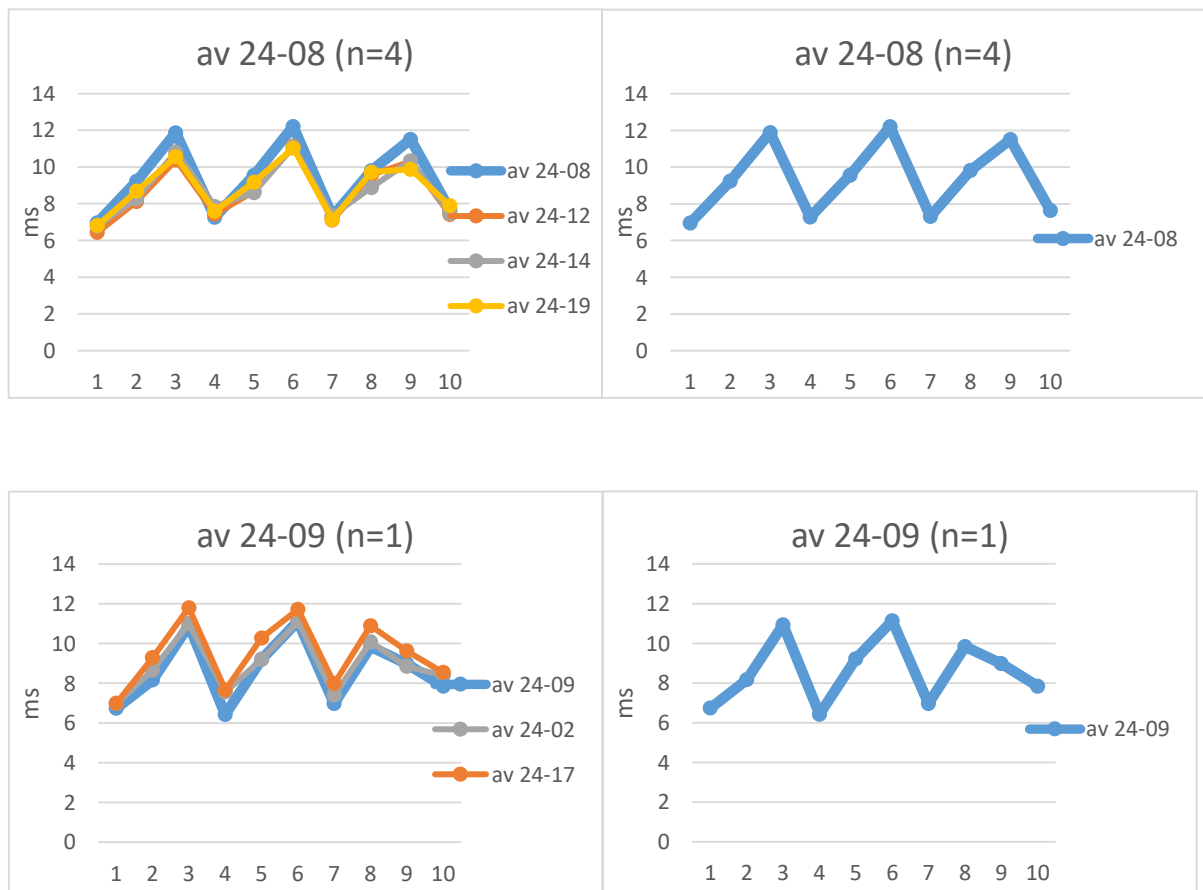


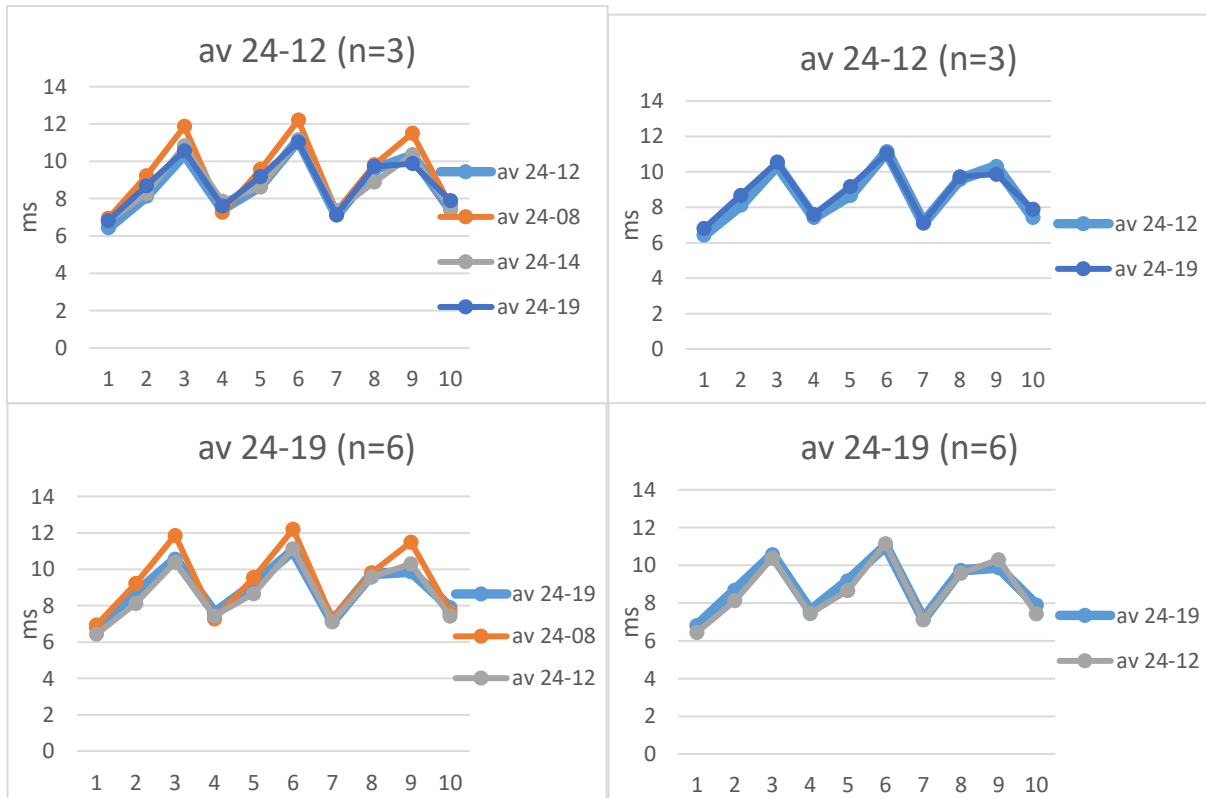
av 24-03 is Ardmore, 28th April to 27th July 2024
 av 24-24 is Monkstadt, 26th to 30th June 2024
 They overlap in time and so must be 2 different birds



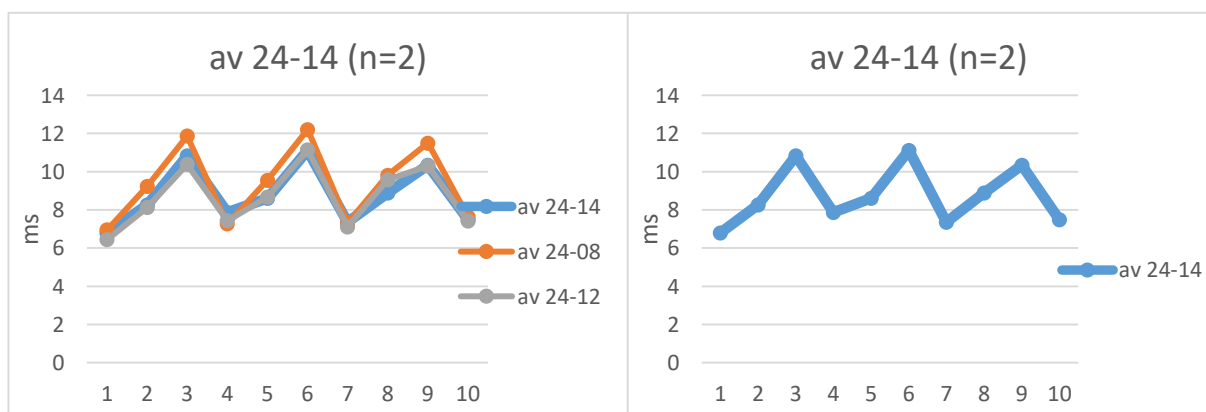
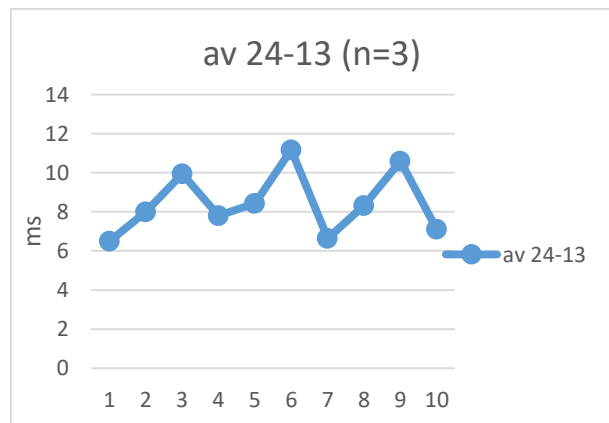


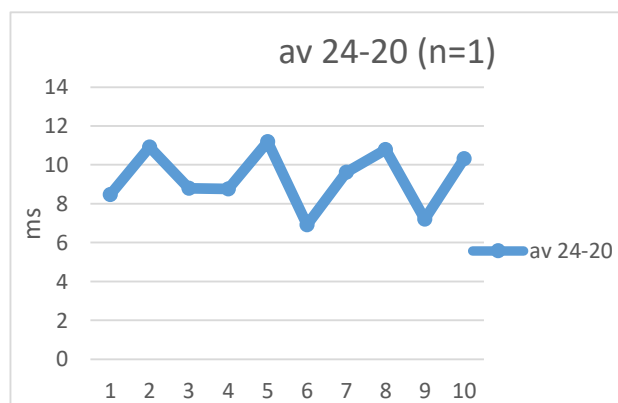
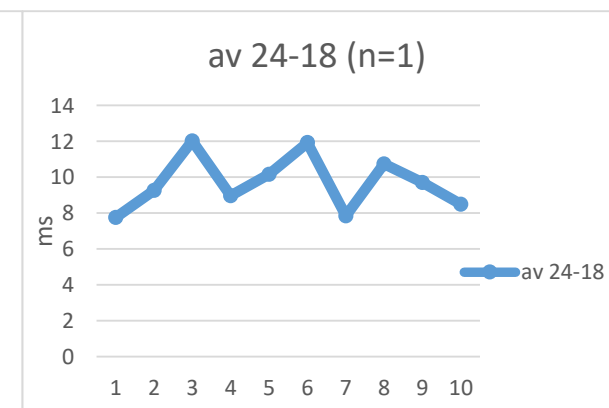
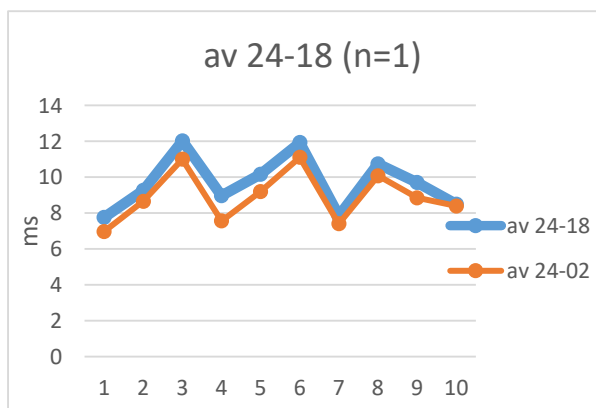
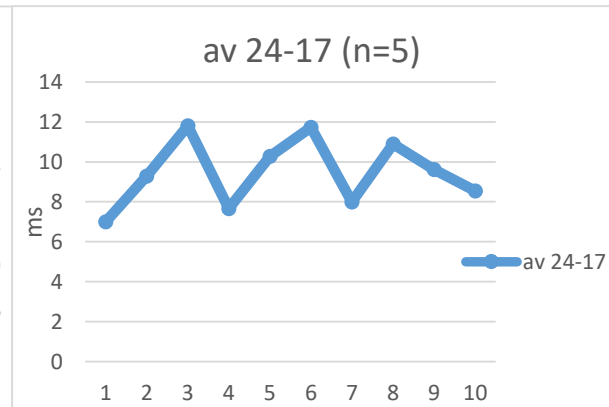
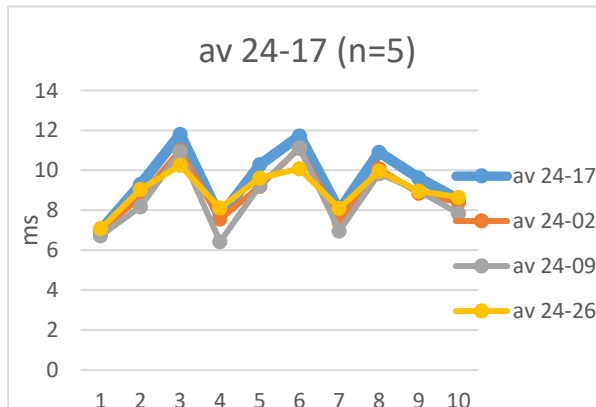
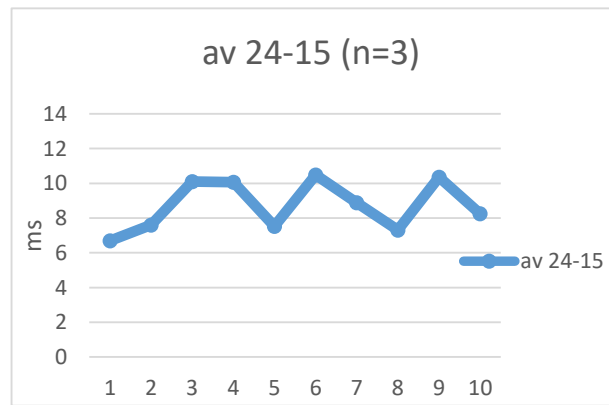
av 24-06 is Carnach To Waternish farm, 7th May to 31st July 2024
 av 24-07 is Stein to Waternish farm, 11th May to 7th July 2024
 av 24-10 is Totescore, 15th May to 11th July 2024
 av 24-16 is Shulista, 25th to 26th May 2024
 av 24-21 is Totescore, 10th June 2024
 They overlap in time and so must be 5 different birds

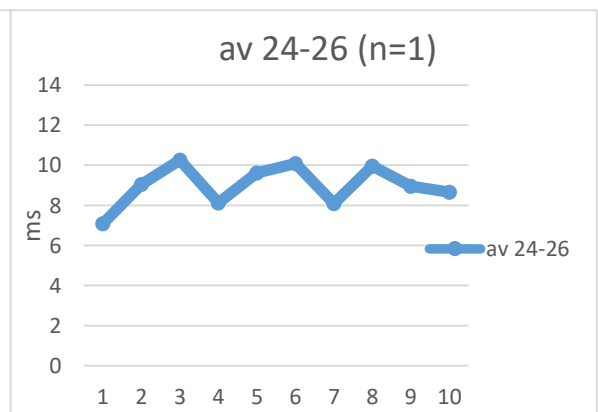
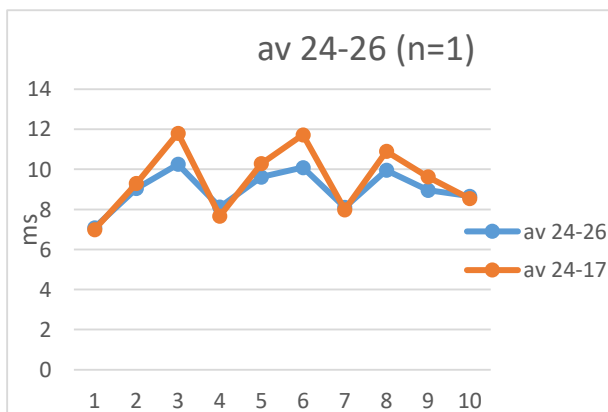
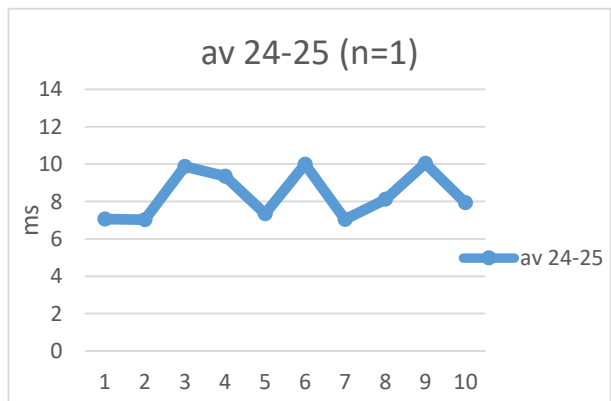
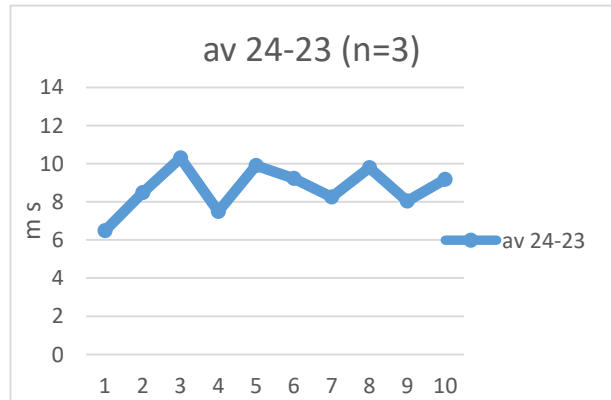
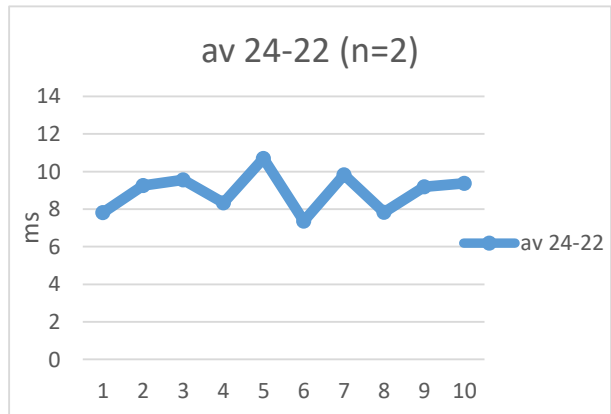


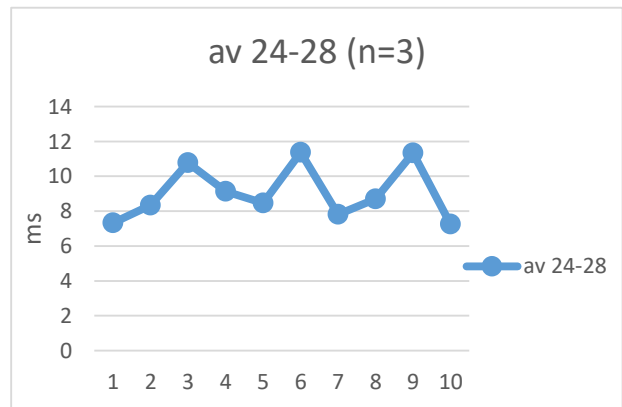
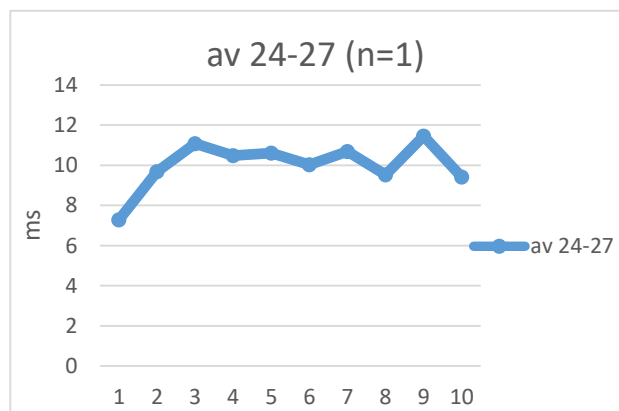


av 24-12 is Totescore, 15th May to 11th July 2024
 av 24-19 is Shulista, 25th to 26th May 2024
 They overlap in time and so must be 2 different birds









Summary

There are 4 patterns that emerge as being repeated in separate individuals. These could be birds with genetic relationships, and could be investigated over several years of PPD pattern records.

24-02 and 24-11

24-03 and 24-24

24-06, 24-07, 24-10, 24-16, and 24-21

24-12 and 24-19

17 of the PPD patterns shown above are 'definitely different' out of the 28 probable birds in 2024. The other 11 probable birds separate by overlapping timing and location but not PPD pattern. This could be some indication of the level of uncertainty of the tracking.

Another way to show the uncertainty in an extreme way is to plot all similar, but not necessarily identical, PPD patterns for each bird together without any attempt to separate them by time, location or near identical pattern.

PPD 'Pattern types' for each of the 28 birds from 2024

This is a representation of the problem of PPD pattern overlap, without any analysis other than the overall pattern. The 139 recordings collected in 2024 have been reduced by sequential matching to 38 'Record' numbers (Rec#). These 'Records' have been grouped together to make 28 birds (Bird #) in the 2024 call summary. The following analysis shows this can be reduced to 13 'Pattern types'.

Without proposing any movements, which would combine two or more Rec#s, there would be 38 birds (corresponding to the total Rec#s) with 13 main patterns, shown below. So the total number of males detected lies between the extremes of 13 and 38.

n = Total number of recordings for each type.

Legend labels refer to 'Bird #'s in the 2024 Summary which are the same as the 'av 24-#' numbers in the PPD pattern comparison above.

Pattern type numbers are arbitrary.

