

Juvenile sanderlings 2013

Monitoring sanderling breeding success along the East Atlantic flyway



Goal: The sanderling project ran by the International Wader Study Group aims to understand the causes of changes in the population size of Sanderlings along the East Atlantic flyway. These goals can only be met when many international researchers and ringing groups, and particularly volunteer bird watchers, join forces. We use observations of colour-ringed sanderlings at various locations in Africa and Europe to study the annual survival of adult and juvenile sanderlings. The number of annually born sanderlings that recruit into the winter population is another important component that determines whether the population grows or decreases.

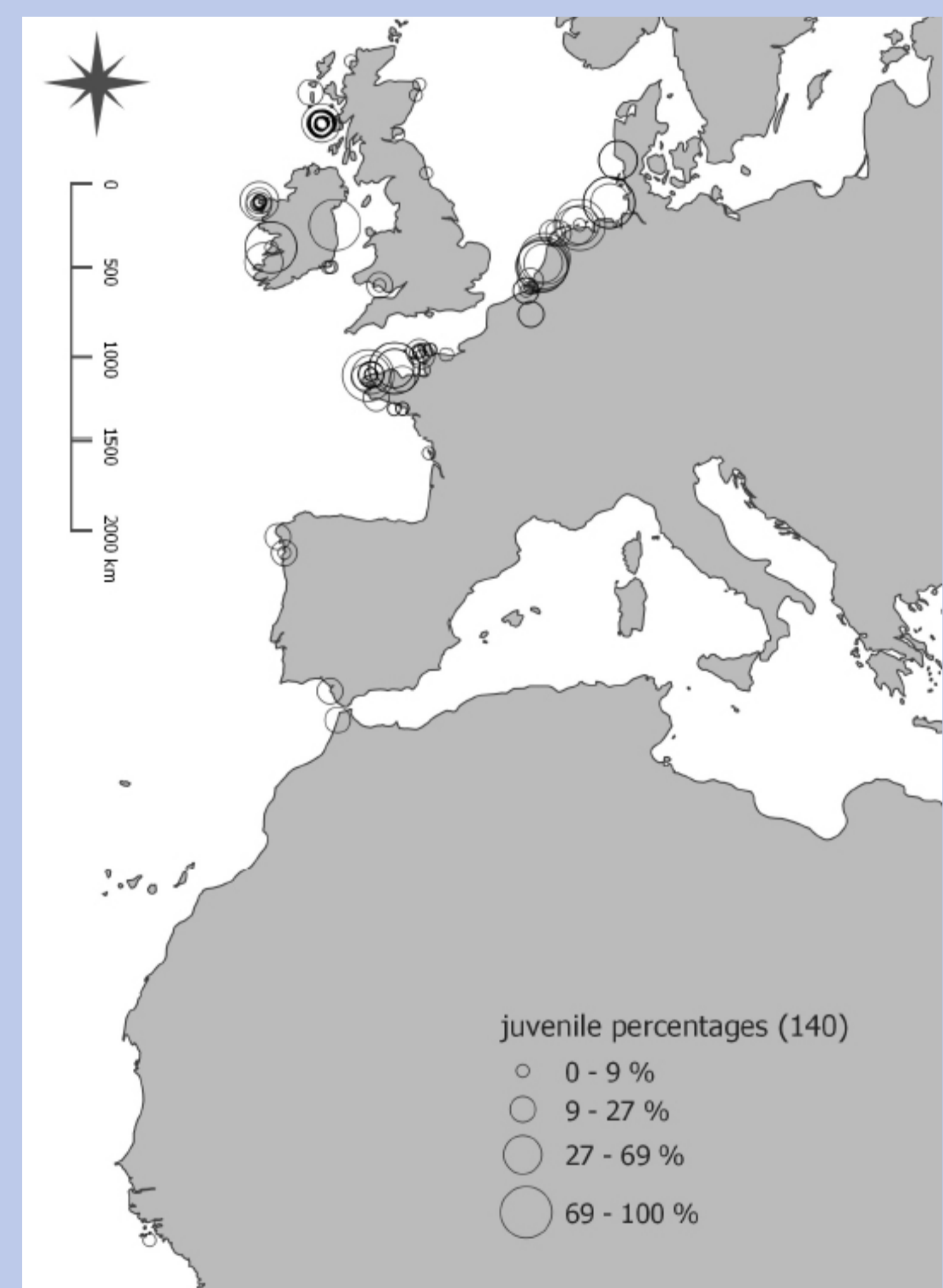
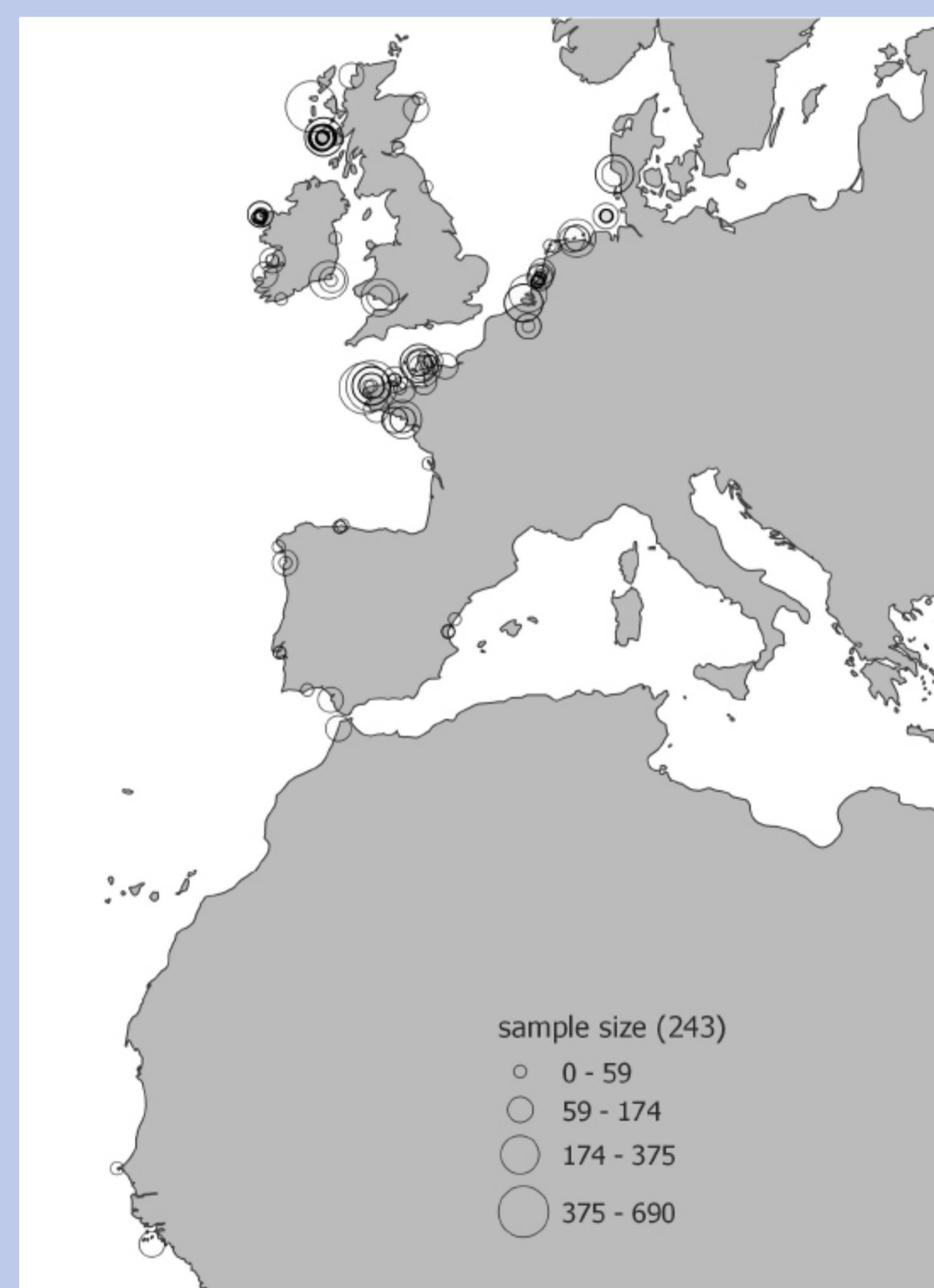
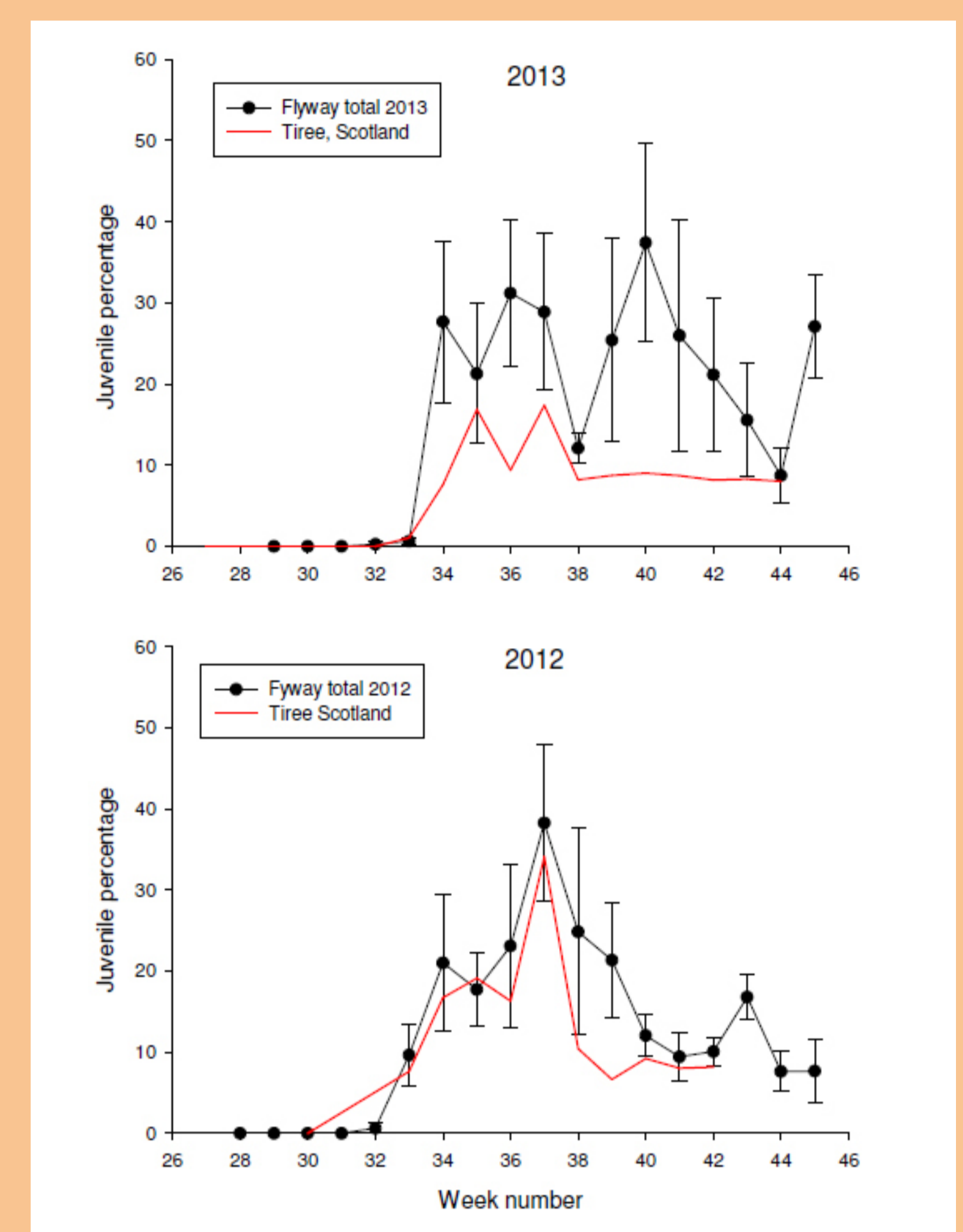
Determining the percentage of juvenile sanderlings in the winter population is not easy. Juvenile sanderlings migrate at a different time of the year than adults, which causes seasonal changes in the proportion of juveniles after the summer. Also, adult and juvenile sanderlings spread over a vast wintering range spanning between Scotland and South Africa, across which they might distribute themselves differently. On top of that, juvenile sanderlings start moulting into their first winter plumage, which makes sanderling more difficult to age in the main period of interest, the winter. Nevertheless, a trained team of volunteer observers has for a second year succeeded in ageing many sanderlings in 2013/2014. Here we present the results of this great international effort.

Results:

In total 16,789 sanderlings have been aged in 273 different flocks. For the first time flocks of sanderlings were aged in West Africa (Guinea-Bissau and Senegal). Several individuals in the overall dataset were probably aged multiple times because of repeated age scores at the same location with the progressing season. The latter was very useful to detect the main peak in migration of juvenile sanderlings, but needed to be taken into account when determining an unbiased juvenile percentage in winter. The first juvenile sanderlings were reported on 5 July in Scotland. Compared to 2012, the proportion of juvenile sanderlings in flocks was higher earlier in the season and did not level off to a lower value from October (week 40) onwards, but maintained high. There was much variation in juvenile percentages between areas, and as in 2012, seemed to be higher in Netherlands, Germany and Denmark compared with the other regions (see map).

On the island of Tiree (Inner Hebrides, Scotland) large groups of sanderlings were aged every week, as has consistently been done since 2009. The seasonal pattern of juvenile proportions on Tiree showed one peak in first half of September (weeks 35-37), while there seem to be two peaks in juvenile percentage for the flyway population. The peak at Tiree in the first half of September coincided with the peak in juvenile migration in 2012 (Figure 1). The juvenile proportion was higher along the flyway than at Tiree throughout the season. This difference was larger than in 2012. While the juvenile percentage in winter (from mid October onwards) at Tiree did not differ from that of 2012 (8%), the percentage of juveniles in the complete survey was much larger in 2013 (22% in 2013, 12% in 2012).

Figure 1: Seasonal changes in juvenile percentages in sanderlings flocks in locations in Europe and Africa (flyway total, black line) and on the island of Tiree, Scotland (red line). For the flyway total error bars are depicted. Only flocks of 20 or more individuals are included. Repeated samples at the same location are treated as independent measures, but only one age scan of the same location per week is included. All scans obtained after November are included in week number 45 (4-10 Nov).



Interpretation and conclusions:

The determined percentage of juveniles in 2013 (22%) is very high. Two locations that were not part of the survey in 2012 (after mid October) showed an exceptionally large juvenile percentage in winter 2013/2014. A flock of 117 birds in the Netherlands consisted for 57% of juveniles and a flock of 280 individuals in Denmark of 42%. Without those two locations, the flyway juvenile percentage is 14%, which is similar to the determined 12% juveniles in 2012. At a standardly monitored area in Scotland, there was no difference in juvenile percentage with 2012 (and earlier years; Lemke et al 2012). It seems reasonable to conclude that there is a large variation in juvenile percentage between locations and that we could not measure a different juvenile percentage between 2012 and 2013. Ageing sanderlings at the same locations at multiple times in July-November in different years would greatly improve our insights. We might then discover whether annual differences in juvenile percentage along the flyway are real or are caused by spatial variation in juvenile percentages.

Map: Distributions of survey sites and sample sizes (left) as well as juvenile proportions of flocks containing 20 or more individuals (right) between 5 July 2013 and 5 March 2014.

Acknowledgements:

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Literature cited:

Lemke, H. W., Bowler, J., & Reneerkens, J. (2012).

Establishing the right period to estimate juvenile proportions of wintering Sanderlings via telescope scans in western Scotland. *Wader Study Group Bulletin*, 119(2), 129-132.

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