

Juvenile Sanderlings 2015/16

Monitoring Sanderling breeding success along the East Atlantic flyway



Photo: Ageing Sanderlings in the field always requires careful effort by the observer. However, juveniles are more straightforward to pinpoint early in the season like this individual in the front of four adults.

Background: This report presents unique data gathered by dedicated volunteers that have, for the fourth year in a row now, measured age ratios of migrating and wintering Sanderlings *Calidris alba* at different sites and at different times throughout the European wintering range of the species.

These age ratios currently are the only reliable estimate of the annual reproductive success at the population level which, over the years, will help to create a clearer picture of how migration and recruitment of juvenile Sanderlings varies along the East Atlantic Flyway and to which extent annual reproductive success contributes to the growth of the Sanderling population.

Results: Between early July 2015 and late February 2016 a total of 184 counts were performed by at least 25 observers from 9 countries at 35 sites (see left map panel). At several sites, counts were performed several times during the season, allowing us to detect regional variation in temporal changes of the age ratio.

Juvenile Sanderlings started to move into Europe from late August onwards. Within the flyway their proportion strongly increased until mid October up to ~25 % after which the juvenile proportions decreased again (Fig. 1). As we found in previous years, there was substantial site-to-site variation exemplified by the data from three locations where multiple counts have been performed:

1) At Tiree (Outer Hebrides, west Scotland) the peak juvenile proportions (~18 %) clearly fell behind the flyway average and decreased already in early October

to remain quite stable (~8 %) from then onwards.

2) At Fanø (west coast of Denmark), however, the relative abundance of juveniles was highest compared to all other sites reaching up to roughly 70% during the migration peak and dropped during mid October to still remarkably high and stable juvenile proportions throughout the winter (~30 %).

3) Also at the Banc d'Arguin, Gironde, (southern west coast of France) the age ratio deviated considerably from the flyway average. Here, the peak of ~26 % was reached relatively late by early October, and had dropped again by mid October. The age ratio after mid October is a very useful value, because it is presumed to no longer be affected by the different times of migration of adults and juveniles, but requires the most experienced observers since juveniles and adults are more difficult to distinguish at this time of the year, and weather condi-

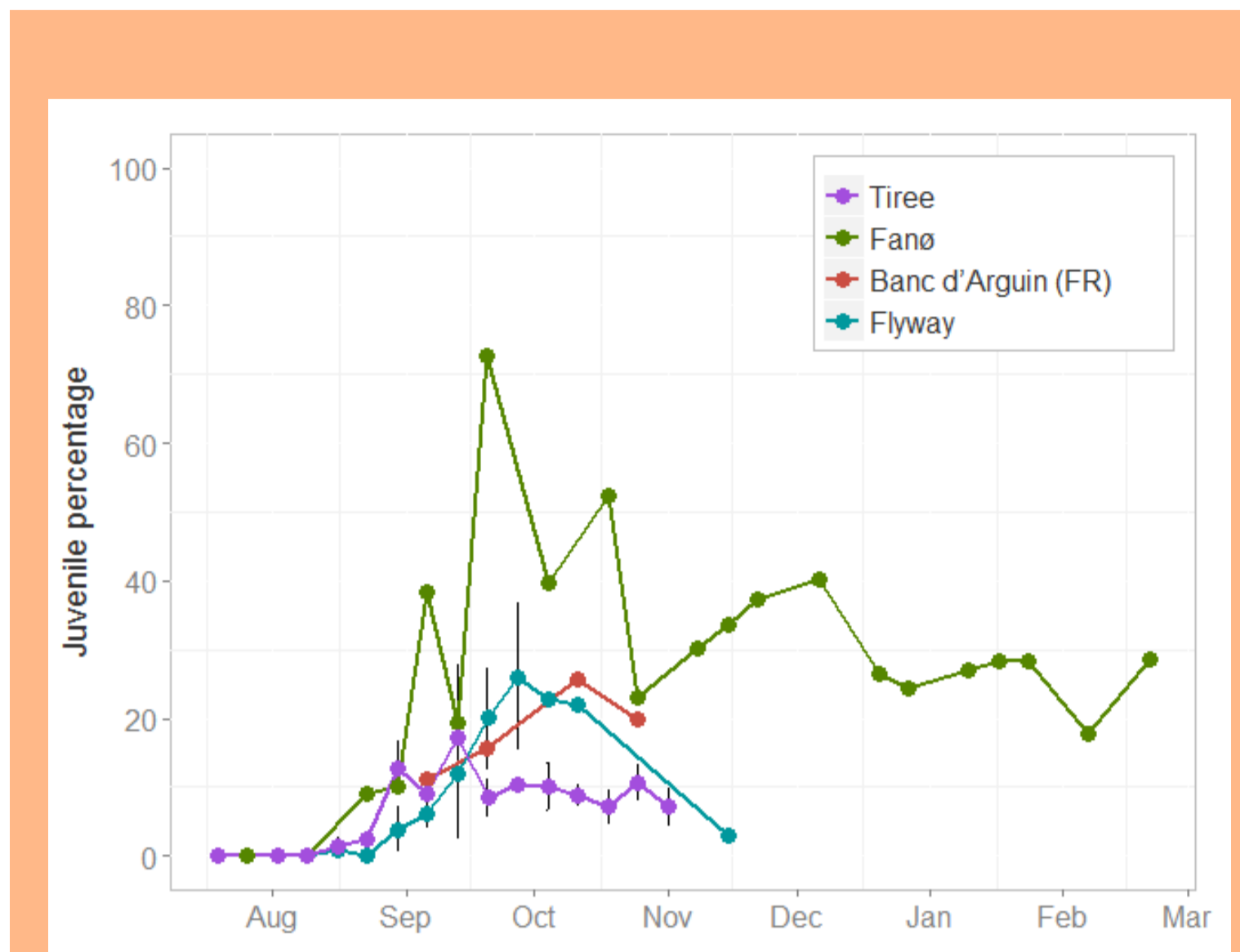


Figure 1: Phenology and variation (standard error per week) of juvenile percentage at three different sites and at the level of the entire flyway ("Flyway") which excludes the three intensively studied sites. Sample sizes below 20 individuals were excluded from the analysis. In case of multiple counts per location within weeks, the maximum total count was used.

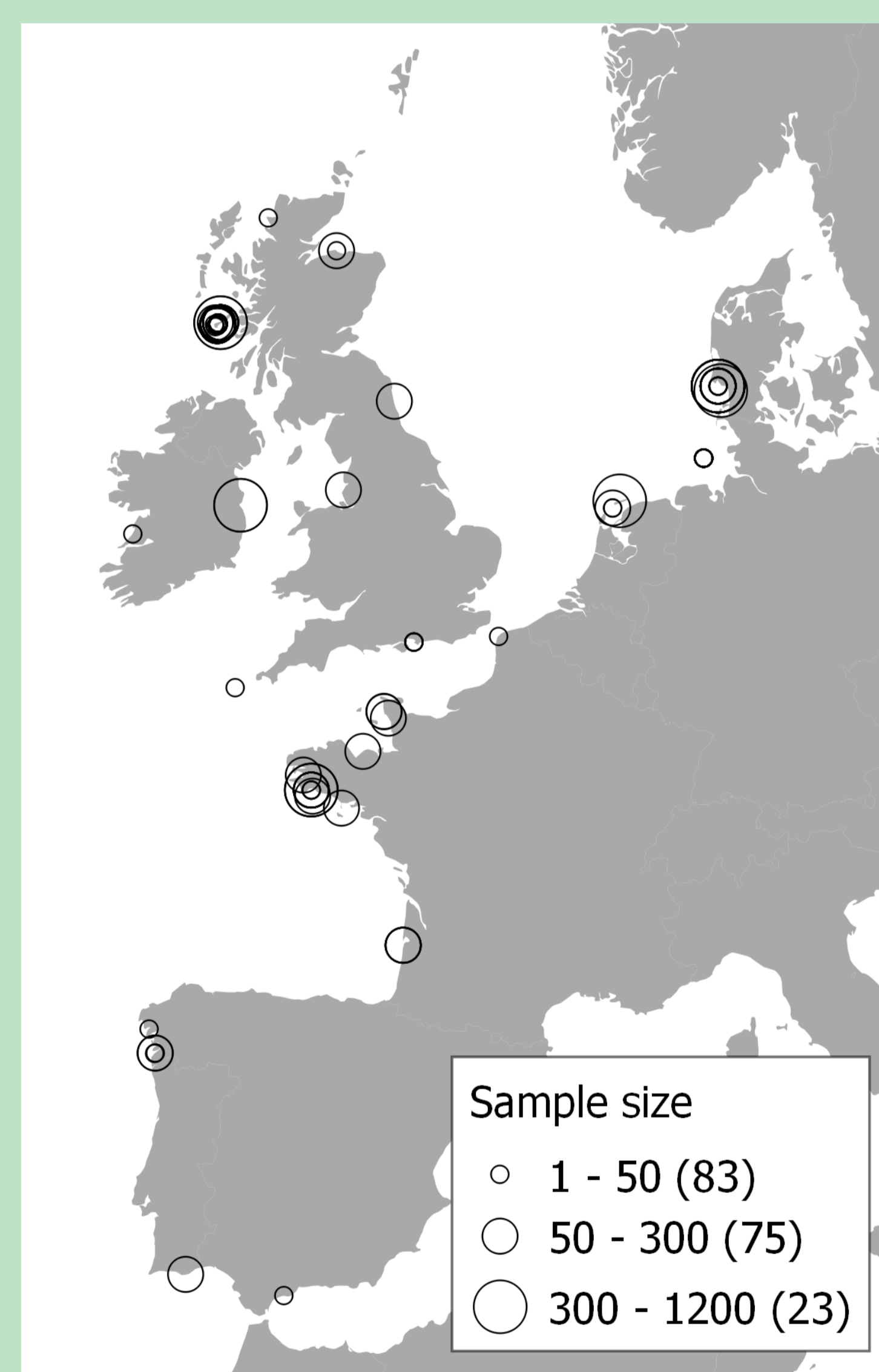
tions also may make reliable estimates difficult. Unfortunately, our estimate for the period after mid October 2015/16 is based on a relatively small number of sites. The juvenile proportion based on counts using only the maximum flock size per site after mid October was 22% (1048 Individuals), which is high compared to previous years. However, the data are largely influenced by the very high juvenile proportion recorded on Fanø (561 individuals of which 34 % juveniles; see right map panel). When excluding the value from Fanø, the flyway wintering proportion of juveniles drops to 9 %, which is lower than previous years' estimates (12 %, 14 %, 13 % in 2012-2014, respectively).

Discussion: In the first years of this monitoring project, we have seen that migration normally terminates by mid-October resulting in stable and lower estimates of the proportion of juveniles within flocks from then onwards. This pattern was more or less constant within and between sites. The season of 2015/2016 however showed that the juvenile proportions may remain high until mid October.

For example, at the Banc d'Arguin, at the Gironde in France, the peak of juvenile percentage was reached only at the end of October. On the other hand, the data from Tiree resembles very much the "classic" pattern (also at the flyway scale) from the previous years with a peak during late September. There, the percentage of juveniles within flocks stabilised from early October onwards. This slight shift of the overall migration peak towards later in autumn could possibly be caused by a delay in southward migration of (at least) the juveniles, maybe caused by adverse weather conditions, which forced a large part of the juveniles to stay at more northerly sites until conditions improved.

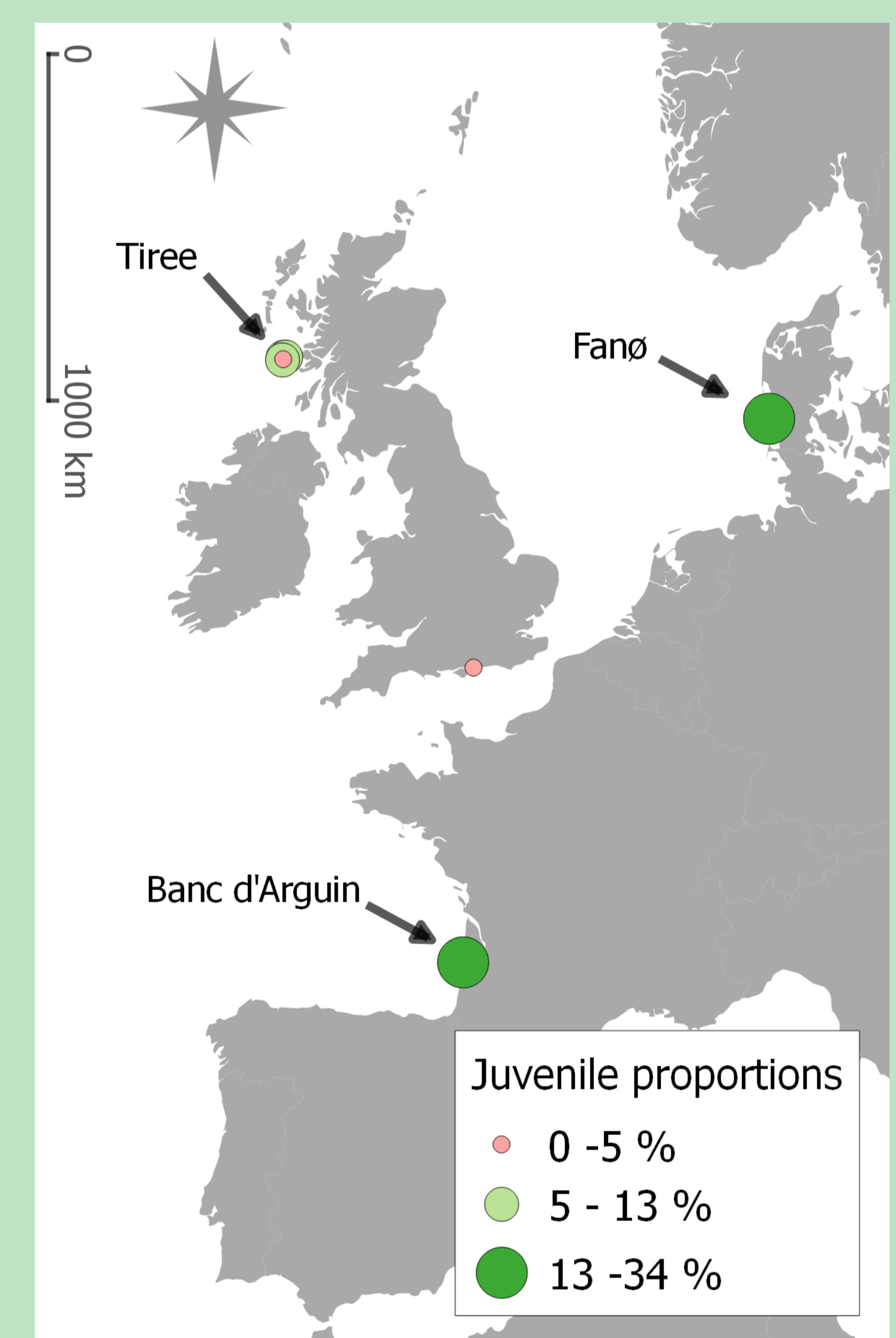
Whatever the causes are, it is obvious that there are quite extreme differences between sites in respect to the timing and strength of migration of juvenile Sanderlings. This, once again, stresses how important such broad scale surveys are to grasp at least some of the variation inherent to this dynamic system. This season's juvenile percentage of the wintering population of 9 % (excluding of Fanø) falls within the range of the previous years' results and for now suggests little between year variation in Sanderling productivity.

The measured percentages seem low for the population to be stable or even growing as we have seen in



the last decades. Whether this is compensated by a high survival, occasional years with much larger numbers of juveniles and/or sites which contain more juvenile Sanderlings (such as at Fanø) than we currently measure remains to be discovered.

This can only be done with the help of the many field observers such as you, and we hope you want to



Maps: Distribution of sites and sizes of scanned (part of) flocks (left panel) as well as juvenile proportions of flocks larger than 20 individuals scanned after 15 October 2015 (right panel). In case of multiple counts per site the maximum scanned flock size was used to calculate the juvenile proportion (see also text).

participate once again and find out how the Sanderlings are doing in 2016/17.

Many thanks...

...go to all the volunteers that have enthusiastically participated in this international collaborative survey. We look forward to continue this survey in 2016/17 with your help and largely appreciate your effort in the field to age Sanderlings.

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