



## The population dynamics of wintering Purple Sandpipers in Britain

### RON SUMMERS

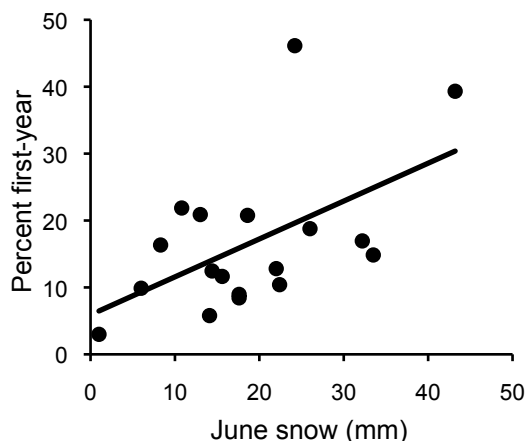
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The breeding range of the Purple Sandpiper *Calidris maritima* spans alpine and Arctic habitats between eastern Canada and islands off central Siberia. Given their low breeding densities and widely dispersed distribution, little is known about the dynamics of the different geographical populations from studies on the breeding areas. However, it is possible to obtain information during winter when the birds are clumped along rocky sea-shores. The main wader monitoring scheme in Britain caters primarily for estuarine waders, and does not encompass the main habitat for Purple Sandpipers.

Therefore, we have to rely on the three non-estuarine surveys to examine changes in status (Austin *et al.* 2008). Unfortunately, these surveys have varied in coverage and given some confusing results. A comparison between the first and last non-estuarine surveys showed major declines in Purple Sandpiper numbers along the east and south coasts of Britain, and varying changes along the north and west coasts (Austin *et al.* 2008). These regional variations are linked to differing origins of the wintering birds. The Norwegian population on the east coast has declined substantially, whilst the decline of the Canadian population in northern Scotland has not been as great. Localised counts confirm the declines on the east coast and indicated that they occurred during the late 1980s-early 1990s (*e.g.* Lothian, Dott 1997; Yorkshire, Summers 2009). There is little additional demographic information about the Norwegian population other than annual survival (79% in the 1980s) (Summers *et al.* 2001). There is better information about the Canadian birds from detailed studies in the Moray Firth, Scotland. Here, the annual survival was 72-77% at different sites during the 1980s-2000s, and showed no significant trend. By contrast, recruitment (based on the percentage of first-year birds) varied annually. A combination of recruitment and survival provided a population model

that followed the decline, indicating that poor recruitment was largely responsible for the decline (Summers *et al.* 2012).



**Figure 1** The relationship between the percentage of first-year Purple Sandpipers in the Moray Firth, Scotland, and June

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snow at Nanisivik on Baffin Island, in Arctic Canada. The correlation coefficient was 0.54 ( $P < 0.05$ ).

The possibility that first-year birds short-stop on migration seems unlikely because the Canadian birds migrate in a single flight across the Atlantic from Baffin Island to Britain and Ireland (Summers *et al.* in press). In addition, there is a correlation between the percentage of first-year birds and summer snow fall in Baffin Island, suggesting that breeding success is linked to some weather pattern, though the mechanism is unclear given that it is a positive relationship (Fig. 1). Nevertheless, this suggests that breeding success in Canada is affecting the size of the wintering population in northern Britain.

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