**Wetlands support higher breeding wader densities than farmed habitats within a nature-rich farming system**

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Supplementary Tables S1 and S2

**Table S1.** Timing of spring migration and/or arrival on breeding grounds to the north of the Orkney for waders in our study, to determine whether counts of breeding waders on Sanday, Orkney from 7 – 28 May could be inflated by passage birds

Species Location W/P/B site Dates/notes Reference Interpretation

Oyster- N Scotland Passage Peak passage; Outer Hebrides 8 Apr; Shetland late March - early Apr Pennington *et al.* 2004 No overlap;

catcher N Norway Breeding Mean arrival mid-Mar Barrett 2017 northerly birds

N Norway Breeding 1970-2000; earliest arrival 3 Mar; median arrival 16 Mar; main arrival 20-25 Mar Barrett 2002 already moved

Iceland Breeding 1951-2000 mean first arrival 21 Mar Boyd and Petersen 2006 through well in

Iceland Breeding Mean first spring arrival date early Apr Gunnarsson & Tómasson 2011 advance

Curlew N Scotland Wintering Satellite-tracked bird left wintering site no later than 21 Apr Dennis *et al.* 2011 No overlap; birds

Norway Passage Satellite-tracked bird migrating over Norway 21 Apr Dennis *et al.* 2011 already nesting on

Finland Breeding Satellite-tracked bird settled on breeding site sometime between 4 - 8 May Dennis *et al.* 2011 northerly breeding

Finland Breeding Birds arrived mid- to late Apr onwards; usually first eggs laid first two weeks May Valkama *et al.* 1999 sites

Sweden Breeding Birds nesting by early May with early clutches laid prior to 10 May Berg 1992

Redshank N Scotland Passage Peak passage; Outer Hebrides 11 Apr; Shetland Apr–early May Pennington *et al.* 2004 Little overlap; most

Iceland Breeding 1951-2000 mean first arrival 12 Apr Boyd and Petersen 2006 birds passed

Iceland Breeding Mean first spring arrival date mid-Apr Gunnarsson & Tómasson 2011 through and on

N Norway Breeding 1970-2000; earliest arrival 28 Mar; median arrival 26 Apr; main arrival 1-10 May Barrett 2002 breeding sites

Snipe N Scotland Passage Peak passage; Outer Hebrides 18 Apr; Shetland mid-Mar - early May Pennington *et al.* 2004 Very little overlap:

Iceland Breeding 1951-2000: mean first arrival 10 Apr Boyd and Petersen 2006 most birds passed

Iceland Breeding Mean first spring arrival date early to mid-Apr Gunnarsson & Tómasson 2011 through and on

N Norway Breeding 1970-2000; earliest arrival 7 Apr; median arrival 25 Apr; main arrival 1-6 May Barrett 2002 breeding sites

Dunlin N Scotland Passage Peak passage; Outer Hebrides 26 Apr; Shetland mid-May Pennington *et al.* 2004 Some overlap: birds

Iceland Breeding 1951-2000: mean first arrival 30 Apr Boyd and Petersen 2006 still passing through

although our

population

estimate very low

Ringed N Scotland Passage Peak passage; Outer Hebrides 1 May; Shetland 2nd week May Pennington *et al.* 2004 Overlap: birds still

Plover Iceland Breeding 1951-2000: mean first arrival 28 Apr Boyd and Petersen 2006 passing through

although our

population

estimate low

**Table S2.** Estimating breeding wader population size on Sanday, Orkney, from a single whole-island survey of 1126 fields

Species Total Observer- Number and percentage () Population

individuals interpreted of fields in which estimate

counted pairs species detected (pairs)

Oystercatcher 1378 807 480 (42.6) 689a

Lapwing 696 404 226 (20.1) 348a

Curlew 242 171 152 (13.5) 172b

Snipe 117 98 65 (5.8) 98c

Redshank 137 97 78 (6.9) 97c

Dunlin 7 6 6 (0.5) 6c

Ringed Plover 33 24 20 (1.8) 24c

Method for converting individuals to pairs; rationale.

aIndividuals/ 2: abundant species with high rate of field occupancy and potential for overestimation of pairs e.g. if individuals from same pair encountered in neighbouring fields and wrongly assigned to different pairs; bGrant *et al.* (2000) conversion of individuals to pairs (pairs = individuals x 0.71 + 0.10); cObserver interpretation of field data; less abundant and/or cryptic species with lower likelihood of overestimation - registrations converted to pairs per field and summed across island.

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