Dobinson,H.M. & Richards,A.J. 1964. The effects of the severe winter of 1962/63 on birds in Britain. Brit. Birds 57: 373-434.
Evans,P.R. 1981. Why catch waders in cold weather? WSG Bull. 31: 23-24.
Evans,P.R. 1982. Europe's mini ice-age. WSG Bull. 34:4.
Evans,P.R. & Davidson,N.C. 1982. Analysis of waterfowl carcasses affected by severe weather. Unpubl. Report to the Nature Conservancy Council.
O'Connor,R. & Cawthorne,A. 1982. How Britain's birds survived the winter. New Scientist 93: 786-788.
Pilcher,R.E.M. 1964 Effects of the cold weather of 1962-63 on birds of the north coast of the Wash. Wildfowl Trust Ann. Report 15: 23-26.
Pilcher,R.E.M., Beer,J.V. & Cook,W.A. 1974. Ten years of intensive late-winter surveys for waterfowl corpses on the north-west shore of the Wash, England. Wildfowl 25: 149-154.

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# LEG 'CRAMP' AND ENDOPARASITES

## by David S. Melville

The causes of leg 'cramp' in waders are not fully understood (WSG Bull. 24:24, 27:19-21, 28:15-16). Stanyard (WSG Bull. 27:19-21) reported that the three casualties out of 110 Curlews Numenius arquata caught were in a less advanced state of moult than the other birds and noted that 'this might indicate poorer condition'. However, Purchase and Minton (WSG Bull. 34:24-26) found that female Bar-tailed Godwits Limosa lapponica with much subcutaneous fat (i.e. in 'good' condition) seemed more likely to suffer from 'cramp' than males or juveniles.

During the winter of 1980/81, a total of 256 Redshanks Tringa totanus were caught at night in mist nets in central Thailand. Of these, nine suffered from 'cramp', despite being placed in tall keeping boxes (WSG Bull. 20:21-24) after capture, and were killed. A further four apparently healthy birds were also collected (two caught by the author and two from local bird nets. Of the latter, one was found freshly dead, and the other alive but with a dislocated leg). All specimens were prepared as museum skins. Brief examination of the carcasses revealed that five of the nine 'cramp' victims had some endoparasites (nematodes, cestodes, trematodes), and in several cases the burdens were heavy. None of the four healthy birds showed signs of endoparasite infestation. (All parasites are awaiting identification.) It is therefore possible that waders with endoparasite burdens and so possibly in poor condition, may be more liable to 'cramp' than waders in better condition. To further examine the possibilty of a link between endoparasite burden and leg 'cramp', it would be useful if those people with access to 'cramp' victims examine them for endoparasites as well as determining general body condition.

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# INLAND WADER COUNTS - SECOND PROGRESS REPORT

## by OAG Münster

The Inland Wader Count project has now been in existence for three years in some parts of Europe. On the one hand, this period is much too short to yield really valuable conclusions based on the data received so far, so it is not yet possible to give any final results. On the other hand, it is nevertheless admirable that, for such a long time, so many people have spared neither pains nor costs to count waders on wet, muddy and sometimes badly smelling sites week after week. We would like to thank all contributors to the project for their help given so far.

The main aim of the project in the next years must be to maintain the level of work which has been reached - i.e. it is very important to continue counting waders at those sites which are already involved in the programme. Only in this way can certain questions, like changes of numbers of inland resting waders be answered. The success of the project depends, as before, on the work of the volunteers and we hope that they will continue supporting the Inland Wader Counts in the next years.

The map (Fig.1) shows the distribution of counting sites. Sites, where counts were not regular, but a reasonable number of counting data are available or promised, are also included.

Presenting results of the project would be somewhat difficult at this moment, since computer storing of the data has not yet been finished and compiling the material by hand would be tiresome. For these reasons we tried simply to see what we could do with the data for one species which is widespread and numerous at nearly all sites - the Common Sandpiper Actitis hypoleucos. The following results are, of course, very preliminary, since most data came from one year only and, at the time of evaluation, not all data from all sites were available.

We briefly referred to resting numbers of Common Sandpipers in WSG Bulletin 29: 8-9. As mentioned there, this species does not show any tendency to build up large concentrations of birds at certain sites. Figure 2 shows that during the spring and autumn migration periods, resting numbers (totals of birds counted on the fixed counting dates - single missing numbers being interpolated) did not depend on the sizes of the resting sites (given as the estimated sizes, in hectares, of available mudflats and shallow water regions. Therefore, resting numbers of Common Sandpipers on the different sites are probably regulated by other factors than the extent of possible feeding grounds.

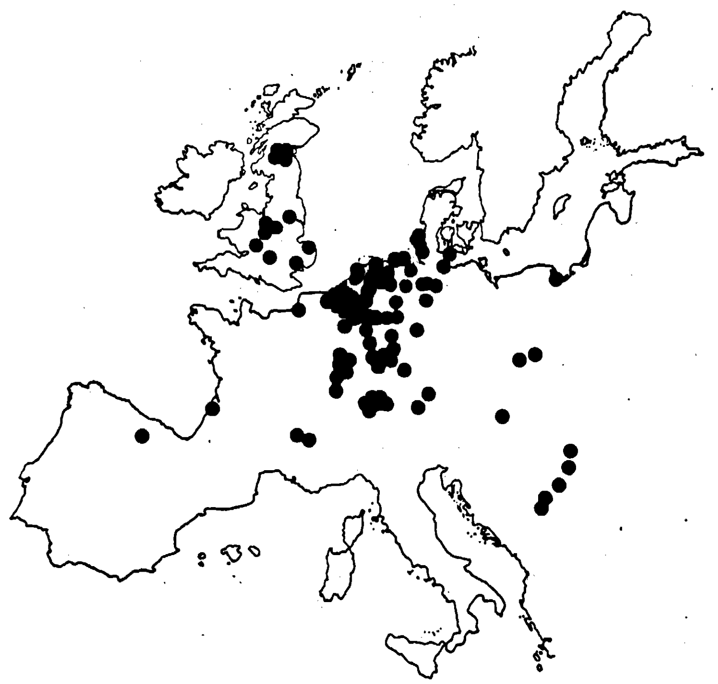

Fig.1. Counting sites of the Inland Wader Counts, as at June 1982

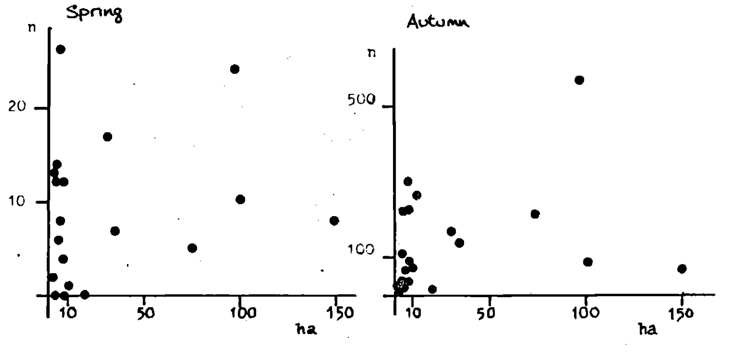


Fig.2. Resting totals of Common Sandpipers (ordinate) and sizes of available mudflats and shallow water regions (abscissa) for several sites during the spring and autumn migration periods in 1981.

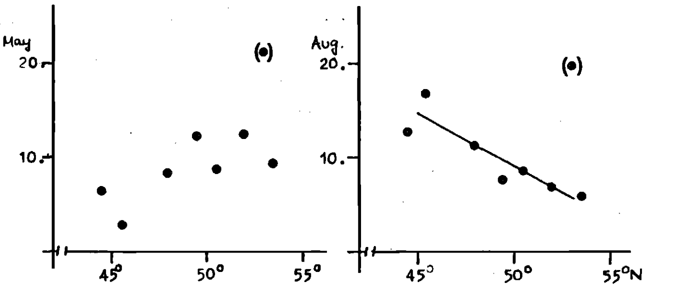


Fig.4. Mean dates of migration (ordinate) of Common Sandpipers and latitude (abscissa) - spring (May) migration period (r=0.729), autumn (August) migration period (r=0.894; y=62.87-1.075x).

A problem in evaluating resting totals is the question of whether or not they are representative for the site considered: in other words, can the totals for each site be regarded as constant from year to year, or are the changes so great that hardly any year to year similarity exists. Smaller annual fluctuations must be expected in any case because of different counting dates from year to year, real differences in the numbers of birds migrating etc. In Table 1 resting totals for 16 sites where regular counting took place during all migration periods in 1980 and 1981 are compared. For the spring migration periods the totals for the sites differed greatly: very little could be predicted for 1981 from the totals for 1980 and vice versa. The generally marked decrease in resting numbers was not observed on all sites. Resting totals during the autumn migration period gave a much more homogeneous picture. On sites where few Common Sandpipers occurred in 1980, few were seen in 1981. For the autumn migration, differences between different sites within a year were, on average, significantly higher than the mean differences from year to year within a given site (F-value for an analysis of variances 11.830; p 0.001). For the spring migration period this did not hold true (F=2.170; n.s.). The working hypothesis which could be deduced from this, and which requires testing in the next years, is whether or not numbers in the autumn migration period are characteristic for the site under consideration in contrast to those in the spring migration period. If this assumption can be confirmed, studies on trends of resting numbers and resting habitat selections would better be made by using data from autumn than from spring migration.

Figure 3 shows migration patterns of Common Sandpipers for some sites and regions in 1981. Figure 3 (9) (gravelpit sites near Besch-Nennig) shows data from a breeding site with a noteworthy early arrival of the birds in March - much earlier than mentioned for European breeding sites in Glutz von Blotzheim, Bauer & Bezzel (1977). In 1980, Common Sandpipers occurred at about the same time on that site.

In other sites spring migration began much later, in April or May. Resting numbers during the spring migration were lower, with one exception, than those during the autumn period. To test if there is a relationship between migration patterns and geographical positions of the sites (regions) the mean dates of migration for the distributions in Figure 3 (except Figure 3(9)) were calculated and plotted against the latitudes of the sites and regions. For both spring and autumn migration periods, an obvious progression of migration may be seen (Fig.4). The only exception is site (2) (Figure 3), which is, because of peculiar factors, not directly comparable to the other regions mentioned and has not been included in the calculations. The correlation coefficient for the off migration differs significantly from zero (t-test; t=4.461; $p<0.01$); that for home migration does not (t=2.381; n.s.). The equation for the regression line for the autumn migration period indicates that in summer the mean date of migration is earlier from the north to the south by about one day per degree of latitude. This figure does not, of course, say anything about the speed of migration or related things.

Table 1. Resting totals of Common Sandpipers in 1980 and 1981

| Site: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Spring migration period | | | | | | | | | | |
| 1980: | 10 | 15 | 1 | 37 | 50 | 27 | 3 | 17 | 7 | 9 | 6 | 8 | 19 | 0 | 4 | 9 | |
| 1981: | 10 | 6 | 4 | 7 | 24 | 5 | 0 | 20 | 1 | 8 | 7 | 26 | 8 | 0 | 0 | 12 | |
| | | | | | | | Autumn migration period | | | | | | | | | | |
| 1980: | 229 | 139 | 56 | 116 | 560 | 385 | 206 | 116 | 121 | 27 | 18 | 304 | 314 | 5 | 33 | 108 | 2737 |
| 1981: | 94 | 118 | 80 | 141 | 567 | 215 | 302 | 156 | 68 | 44 | 13 | 261 | 67 | 2 | 41 | 115 | 2334 |

Sites: 1: Überschlickungsgebiet Riepe; 2: Klärteiche Nordhorn; 3: Braunschweiger Rieselfelder; 4: Alfsee; 5: Klärteich Salzgitter-Heerte; 6: Rieselfelder Münster; 7: Klärteiche Lünen-Schwansbell; 8: Kläranlage Escher Bürge; 9: Klärteiche Gross-Gerau; 10: Roxheimer Altrhein; 11: Bodensee bei Radolfzell; 12: Wagbachniederung; 13: Rheindelta am Bodensee; 14: Neeracherriet; 15: Ägelsee; 16: Parc Ornithologique Marquenterre

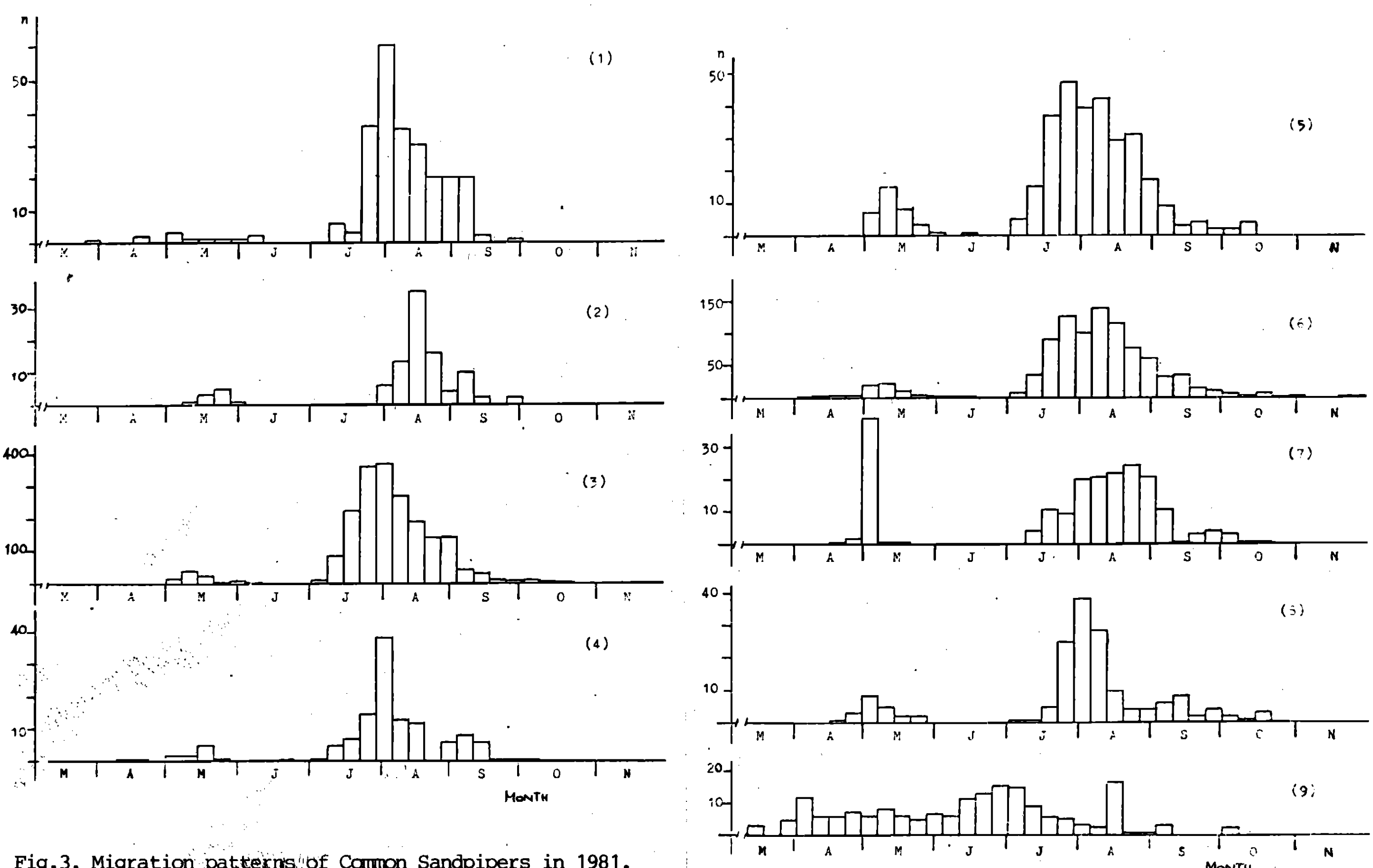


Fig.3. Migration patterns of Common Sandpipers in 1981.
(1) Mudflats near Lübeck (Observer: J.Meyer)
(2) Überschlickungsgebiet Riepe near Emden (K.Rettig)
(3) Northrhine-Westfalia and Lower Saxony (M.Schreiber, J.-H.Mühlstegen, G.Niehaus, G.Pannach, H.Oosterwyk, J.Streichert, OAG Münster, K.-H.Kühnapfel, L.Tomanek, H.Schwarthoff)
(4) Parc Ornithologique Marquenterre, Somme estuary (F.Sueur)
(5) Easter France: Sewage farms of Attigny, gravel pits near Donchery-les Ayvelles (A.Sauvage)
(6) Austria, Switzerland and Southern Germany (A.Malten, K.Handke, W.Matthes, S.u.U.Mahler, K.Trellinger, S.Schuster, V.Blum, H.Leuzinger, W.Müller)
(7) South-eastern France: gravel-pits near the rivers Rhone and Isere (Y.Thonneriaux, G.Flacher)
(8) Parc Ornithologique du Teich, near Bordeaux (A.Fleury)
(9) Gravel-pits near Besch-Nennig near River Mosel (S.Belting)

We hope that by this short note we have been able to give an impression of the scope (and the frontiers) of the Inland Wader Counts.

## Reference

Glutz von Blotzheim,U.N., Bauer,K.M. & Bezzel,E. 1977. Hanbuch der Vögel Mitteleuropas. Band 7. Akademische Verlagsgeseltschaft, Wiesbaden.

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