

A NEW WSG DATA FORM AND PROSPECTS FOR ANALYSIS

by M.W. Pienkowski

In 1971-72 the Wader Study Group, at the request of its members and out of a concern that much useful data collected by ringers was in danger of being lost, introduced its data form and started central collection of such data. The response has been remarkably good and many groups routinely send in their data. However, analysing this is another matter and it has become increasingly apparent that computer-aided analysis is required for many aspects.

Several ringing groups, for example Grampian R.G., Tay R.G. and Celtic Wader Research Group, already routinely use computers, and of course the BTO's recent acquisition of a computer is now common knowledge. Their advantages in dealing rapidly with large volumes of data are now well known. By using a computer for simple routine statistical calculations, the University of East Anglia Expedition to Morocco 1971 was able to produce its final scientific report within six months of its return. Some data gathered over the years by ringers are now so voluminous that they will never be analysed except by computer. The Wash Wader Ringing Group (WWRG), being the pioneer of mass wader ringing, probably has the worse problem but is dealing with it. Jeremy Greenwood at Dundee University has for some time been working on their Sanderling material as a first study using a computer on this material. William Dick, the chairman of WWRG's Scientific Policy and Publications Committee recently analysed the problem of data backlog, concluding that computer-aided analysis is vital, and the group recently agreed that if computer analysis became available, they would recode the necessary data on suitable forms.

WSG officers have received frequent requests to produce computer-compatible coding forms. The idea of these is that a punch operator can put the data straight on to punched cards reading directly from the information recorded in the field (thus reducing both work for ringers and the likelihood of transcription errors). As a first step, Jeremy Greenwood developed a standard storage and exchange format for ringing data (WSG Bull 22: 17-19). Since then experiments and trials with a new computer-compatible field recording sheet have been proceeding on the Severn by Peter Ferns (University College, Cardiff) and on the Tees and the Forth by myself (Durham University and Nature Conservancy Council).

I have now drawn together the experiences of all these trials to produce a new WSG data form. In doing this, I am grateful for the comments of G.F.Appleton, S.R.Baillie, N.C.Davidson, W.J.A.Dick, P.J.Dugan, P.R.Evans, P.N.Ferns, L.R.Goodyer, G.H.Green, J.J.D.Greenwood, P.L.Ireland, C.M.Reynolds, W.Thrower and several other persons at the WSG meeting at the January R & M Conference. My form does not meet all their suggestions, as some were contradictory; I hope it is the best workable compromise.

Computer-coding forms tend to look rather formidable to those not familiar with them. This is only because the position for each entry is precisely defined and there is a box for each character rather than for, say, a large box for each whole measurement. All this is done so that the punch-operators - who are not bird ringers - can quickly transfer the information to punch cards to be read by the computer. For the same reason, the form of the entries is clearly defined. Do not be put off by the detailed instructions: most of these just describe what is already usually done and much of the rest is common sense. When information is not recorded, the appropriate sections of the form are simply left blank. Filling in the form will soon become almost automatic to the ringer or his scribe.

Will this be yet another case of forms completed by ringers going into storage never to be seen again? No! As many members will know, the group's officers have for some time been investigating, in conjunction with the BTO and various Universities, ways of obtaining funding for the analysis of the data collected by the group. Those members at the January meeting will recall that Derek Langslow of the Nature Conservancy Council (NCC) Chief Scientists Team announced that NCC was hoping to be able to commission an investigation of usage of various estuaries by waders in winter and the movements between them. Funding for the start of this study has now been obtained and by the time this Bulletin is read a study will be underway, based at Durham University. The programme for this year allows for a person to assist with the transferring of wader ringing data to computer file, making the data available both for this and other future studies. There will be more about this study in future bulletins (at the time of writing, negotiations are only just reaching completion) but for WSG to make the most use of this computing facility, ringers should start coding their data now - both in the field and also past records not yet on any forms. Supplies of the new forms are available from Graham Appleton or myself, and should be returned to: Wader Study Group, M.W.Pienkowski, Department of Zoology, University of Durham, South Road, Durham DH1 3LE, England.

The new form

This form has been designed to be used easily both by ringers and punch operators. If the punch operators have difficulty with it then the ringers' data cannot be analysed. Thus ringers (and their scribes) must bear several points in mind:-

1. Punch operators work automatically: they punch what they see and cannot interpret ambiguities or correct mistakes. They cannot work out the correct meaning from the context and they should not be expected to do so. The ringer can make the meaning clear because he or she knows what the data are about!
2. Therefore write legibly! It is no good saying that this will slow you down. There is no point in collecting the data if it cannot be analysed; and the backlog of unanalysed data held by ringing groups simply demonstrates that we need some automated help!
3. Never put more than one letter or number in a space. Do not try to squeeze in decimal points. They are already indicated on the form where required, and the program reading the data already 'knows' where they should be.
4. Do not put dashes, ditto marks, notes or the like in blank boxes: they are not required and will cause errors.

5. It may be easiest to use a pencil which gives a dark mark rather than a pen to fill in the forms, so that errors can be corrected (later if necessary) using an eraser rather than crossings out, which makes punching difficult. Take a pencil sharpener!
6. The form will eventually be printed with a non-black ink (probably green) which is easier on the eyes, both for recorder and punch operator. Many groups take photocopies of their data forms. To make life as easy as possible for the punch operators and data checkers, please send the original, not the photocopy, to WSG.

HOW TO USE THE FORM (Copies of these instructions will be supplied with blank forms issued)

A. General points

1. Use separate forms for each species.
2. Do not put catches from more than one calendar year on the same form.
3. Forms may be submitted without all the lines used.
4. Do not enter data in the bottom line of each sheet (beginning '999'). (This will be used to indicate to the computer that this is the end of this sheet.)

B. Top block section of the form

The top section of the form is designed so as to minimize the amount of coding that has to be done by the ringer by allowing material common to all birds to be coded once only. It is also arranged so that material which may require consultation of other documents, such as maps, can be coded later. The items in this section are:

1. Species. Name at top of page and code in box at SP with three digit number according to revised Euring code:

Shelduck	173	Sanderling	497	Whimbrel	538
Oystercatcher	450	Little Stint	501	Curlew	541
Avocet	456	Curlew Sandpiper	509	Spotted Redshank	545
Stone-Curlew	459	Purple Sandpiper	510	Redshank	546
Little Ringed Plover	469	Dunlin	512	Greenshank	548
Ringed Plover	470	Ruff	517	Green Sandpiper	553
Dotterel	482	Jack Snipe	518	Wood Sandpiper	554
Golden Plover	485	Snipe	519	Common Sandpiper	556
Grey Plover	486	Woodcock	529	Turnstone	561
Lapwing	493	Black-tailed Godwit	532		
Knot	496	Bar-tailed Godwit	534		

For other species, give Euring number if known; otherwise leave blank, and it will be added later.

2. RC leave blank.
3. YR last two digits of year: 80 means 1980.
4. Page sequential number of sheet for this species in the current calendar year used by this ringer or group.
5. Sites. Catches at up to 4 different sites may be recorded on the same sheet. The name of each site should be entered at the top, sequentially filling spaces 1, 2, 3, 4, as necessary. Each site should be coded according to its co-ordinates. This requires 9 digits, the first (Q) codes quadrant as follows:

1 = N. hemisphere 0° to 89°59'E	2 = N. hemisphere 90° to 180°E
3 = S. hemisphere 0° to 89°59'E	4 = S. hemisphere 90° to 180°E
5 = S. hemisphere 0° to 89°59'W	6 = S. hemisphere 90° to 180°W
7 = N. hemisphere 0° to 89°59'W	8 = N. hemisphere 90° to 180°W

Thus in Europe, localities east of Greenwich are coded 1 and west of Greenwich 7. Under COORDINATES, the next four digits code degrees and minutes north or south and the final four digits are degrees and minutes east or west (subtracting 90° if beyond 90° east or west).

6. No. of birds. Enter here the total number of birds on this sheet (i.e. between 1 and 25).
7. Times of capture, start and end of sheet, and interval.
The 3 times at the top of the page are not coded directly but aid the later calculation of time after capture that processing takes place. (Where several small catches are included on one sheet, this information should be entered separately for each bird: see Main Section, item 6. below). This information is particularly important for weight studies. At INTERVAL enter the time interval between the start and the finish of this sheet to the nearest 0.1 hour.
8. Scribe Name of person recording the data (not coded).
9. Ringer or group. A name of up to 28 characters (letters, numbers, spaces, common punctuation marks) may be coded here.
10. Measurers. Names or initials of those taking each measurement may be written in the box above each relevant column. (not coded)

C. Main section: a line for each bird (no of each digits indicated for each entry in parenthesis)

In this section, do not enter decimal points: they are already indicated where required.

The first two lines give (i) an example to aid the ringer, and (ii) the numbers of the columns to aid the punch operator.

1. Site (1) A single digit 1 to 4 referring to one of the sites listed above. For following lines ditto may be indicated by leaving the space blank.
2. Capture method (1) 1 = cannon-net; 2 = mist-net; 3 = dazzling; 4 = cage-trap; 5 = clap-net; 6 = at nest; 7 = other. For following lines ditto may be indicated by leaving the space blank.
3. Date (2) day of month. For following lines ditto may be indicated by leaving spaces blank.
4. Month (2) January = 01.... December = 12. For following lines ditto may be indicated by leaving the spaces blank.
5. Time at capture (2) Nearest hour, using 24 hr clock. For following lines ditto may be indicated by leaving the spaces blank.
6. Time after capture (2) Whole hours should be coded in the first space and tenths of an hour in the second space. When a sheet is used for several small catches, enter the time after capture for each bird. Dealing with large catches may be expedited by entering the time after capture for the first bird only and also entering on the top section of the form the interval between start and finish of sheet (see Top block section, item 7).

- | | |
|-------------------------|--------------------------|
| 05 As, Norway | 28 Warsaw, Poland |
| 06 Oslo, Norway | 29 Gdansk, Poland |
| 07 Stockholm, Sweden | 30 Matsulu, Estonian SSR |
| 08 Goteborg, Sweden | 31 Tartu, Estonian SSR |
| 09 Helsinki, Finland | 32 Riga, Latvian SSR |
| 10 Copenhagen, Denmark | 33 Moscow, USSR |
| 11 Viborg, Denmark | 34 Praha, Czechoslovakia |
| 12 Kalø, Denmark | 35 Budapest, Hungary |
| 13 Arnhem, Holland | 36 Sofia, Bulgaria |
| 14 Leiden, Holland | 37 Bucarest, Rumania |
| 15 Helgoland, Germany | 38 Zagreb, Yugoslavia |
| 16 Radolfzell, Germany | 39 Bologna, Italy |
| 17 Rossiten, Germany | 40 Valetta, Malta |
| 18 Hiddensee, Germany | 41 Cyprus |
| 19 Sempach, Switzerland | 42 Tunis, Tunisia |
| 20 Bruxelles, Belgium | 43 Jos, Nigeria |
| 21 Jersey | 44 Nairobi, Kenya |
| 22 Paris, France | 45 Livingstone, Zambia |
| 23 Aranzadi, Spain | 46 Pretoria, S.Africa |

8. Ring "number" (8) including letters if used, with trailing blanks if number has less than 8 characters. (Note, therefore, that most British rings will involve one blank after the number.) Do not leave spaces between any characters (unless these are worn from the ring). Once the ring number of a bird has been given in full, following numbers (in sequence) can be abbreviated, if desired, by omitting the first 4 digits (leaving these 4 spaces blank) and entering only the remaining part of the ring number. (It must be the first 4 digits which are omitted) BUT remember to write the number in full again for the first bird after a retrap or control.
9. Status (1) Blank = new bird, previously unringed
C = control or retrap, no ring added or replaced
R = control or retrap, ring replaced by second metal ring listed (see below)
A = control or retrap, second metal ring listed (see below) added
2 = bird already carries 2 metal rings, as listed (see below)
10. 2nd scheme (2)) In case the bird carries two rings or second used to replace first. If not
2nd ring (8)) needed, leave blank.
11. Age. (1) Euring code, omitting use of J. (Codes greater than 9 should not be necessary.)
12. Sex (1) if known, otherwise leave blank: M = male; F = female.
13. Plumage (1) Blank = no record 4 = $\frac{1}{2}$ of summer plumage
1 = full winter plumage 5 = $\frac{3}{4}$ of summer plumage
2 = trace of summer plumage 6 = trace of winter plumage
3 = $\frac{1}{4}$ of summer plumage 7 = full summer plumage
14. Race (1) This allows up to 9 races to be coded for any species. If not required leave blank. At present the only codes likely to be required by ringers are for Dunlin: Blank = not recorded or indistinguishable; 1 = C.a.alpina; 2 = schinzii; 3 = arctica; 4 = schinzii/arctica (where identity not certain, but the bird is one of these two).

Measurements The following sections all refer to measurements and have been designed to allow easy coding for the wide range of sizes found in waders. In those measurements where it may be required a decimal point is already indicated on the form: do not write in any other decimal points (most species will not require places after the decimal point), Leave leading blanks where necessary and leave the decimal space blank if not measured.

15. Wing length. (3) maximum length method
16. Bill length. (4) bill tip to feathers
17. Head + bill length. (3) which may eventually prove more useful than bill length.
18. Bill height. (3) a useful character for some species, notably Oystercatcher.
19. Tarsus length. (4)
20. Breast width. (2) Measure to nearest mm as described by Davidson (WSG Bull 27: 14-15)
21. Weight (5)
22. Fat store. (1) Blank No record.
1 None or trace; furcular (interclavicular) region concave. None in abdomen.
2 Fat present but furcular region concave and clavicles visible. Trace in abdomen.
3 Furcular region filling but still concave. Some covering of clavicles. Some between intestinal folds and/or in small patches.
4 Hollow filled; clavicles covered; some overflowing furculum but still concave. Pad of fat covering abdomen but not mounded.
5 Hollow filled; furcular fat nearly level with pectoralis muscle, overflowing up interclavicle and subcutaneous fat in patches over pectoral muscles. Mounded pad over abdomen.
6 Convex pad overflowing the length of the furculum and subcutaneous fat covering entire ventral area. Abdomen pad well mounded.
23. Primary moult code (1)
24. Primary moult details (10)
This coding system has been designed to minimize the coding required of the ringer while allowing easy coding of moult details when available.
If moult not scored, leave code and detail spaces blank.
If all feathers are old, code 0 in code space, leaving details spaces blank.
If all feathers are new, code N in code space, leaving details spaces blank.
If in active moult, code 1 in code space and detail individual feathers (inner to outer, ignoring vestigial eleventh) in the ten spaces, using scores 0 to 5 (or N).
If in arrested moult, code A in code space and detail individual feathers as above.
25. Colour rings. (6) Space for coding of colour rings is provided mainly for the convenience of local detailed studies. The suggested scheme allocates the first 3 spaces to left leg and final 3 to right leg. Colours should be listed from the top, leaving blanks if less than 3 rings per leg. M = metal, N = black, W = white, R = red, O = orange, Y = yellow, G = green, L = lime (light green), B = blue.
26. Other (3) Not allocated at present - leave blank.
27. Remarks This space is not coded and any required remarks may be noted.