EURING Exchange Code 2000+

EURING Exchange Code 2000 v115 - 20 August 2012

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Contents

This publication can be downloaded as a pdf-file from the Data & Codes pages of the EURING website: www.euring.org
Changes to the manual since it was first published (v112) and the two former EURING code manuals, '*EURING Code Manual*' (1966) and '*Code Manual New EURING*' (1979), can also be downloaded from this website.

EURING - The European Union for Bird Ringing (2010). *The EURING Exchange Code 2000 Plus*. Thetford, U.K. ISBN 978–1–906204–76–1
or, for reference to the on-line tables:
EURING - The European Union for Bird Ringing (2010). *The EURING Exchange Code 2000 Plus*. On-line Code Tables. Thetford, U.K. URL http://www.euring.org/data_and_codes/euring_code_list/index.html

Please, also send EURING an electronic copy of your publication.

Published by EURING, The European Union for Bird Ringing.
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Foreword

EURING, the European Union for Bird Ringing, was founded in 1963 for the purpose of promoting and facilitating co-operation between the European ringing schemes. One of its first and most difficult tasks was to agree a code whereby ringing recoveries could be committed to punch cards, and by the end of 1966 the '*EURING Code Manual*' was issued. This was a very forward-looking operation, carried out at a time when few ringing centres had access to computing machinery and when the power and availability of computers we have now could not have been envisaged. Ringing schemes owe a great debt of gratitude to the team which worked for this first EURING code.

In 1977, during a meeting of EURING in Sopot, Poland, the decision was taken to compile a new code, more suited to new computer requirements and facilities. The initiative for this new code was taken by Dr. Carl Edelstam. A working party consisting of Dr. P. Busse, B. Jacquat, C.J. Mead and B.J. Speek was entrusted with the task of finalizing the new version of the code. In 1979 the '*Code Manual New EURING*' was ready for use and was presented by Robert Spencer, the General Secretary of EURING. The 1979 code - produced with the benefits of both hindsight and improved technology has proved remarkably robust - over 30 years later it is still in use by some schemes.

A further revision of the code was suggested by Pertti Saurola at the EURING Board meeting in 1997. A committee (of Jacquie Clark, Pertti Saurola and Rinse Wassenaar) was set up to work on the new code. In 1998 Gerrit Speek became involved in the project and produced a first draft of the new code '*EURING exchange-code 2000*'. The code was circulated to the committee between December 1998 and February 1999, and was sent to all ringing centres in April 1999 before being presented and adopted formally during the EURING General Meeting in September 1999 on Helgoland. During that meeting a committee consisting of Jacquie Clark (Britain & Ireland Ringing Centre), Zenon Rohde (Poland Ringing Centre), Gerrit Speek (Dutch Ringing Centre) and Rinse Wassenaar (EURING databank) was entrusted with the task of finalising the new version of the code.

By this time technological developments allowed much more space for storage and easier handling of data. Although the new code relied heavily on the former 1979 code, keeping as many codes unchanged, there were two major developments. First was the separation of the different encounters of birds into different records. In 1979 code, each record held details of both the ringing and recovery event for one individual. In 2000 code, these two events each had a separate record. One benefit of this was that birds with many subsequent reports did not have the initial ringing details repeated for each subsequent encounter record. This also set the precedent for regarding the bird encounter as the basic unit of ringing information and paved the way for storage of any ringing data, rather than just records of birds which had a recapture history. The second development was that, for the first time, space was reserved for biometric information - although at that stage no biometric variables were defined.

At the 2009 EURING General Meeting in Anversa, it was agreed to enhance the EURING2000 code and a draft was presented and discussed. The meeting agreed to allow the Data Management Committee to take final decisions on the code. This enhanced code, again, represents considerable advances on the earlier code whilst, at the same time, maintaining as much continuity as possible with its parent code. The first development was to move to a separated format in place of the former fixed-field-width format. This separated format is now more familiar to many users and much easier to handle than fixed-width formats. The second major change was that it was agreed that the EURING Data Bank would, in future, store ringing data for all bird encounters - not just for birds with a recapture history. This will make all ringing data available, eventually, to analysts. This now makes good the potential created in the 2000 code.

The most important features of the enhanced E2000 code are these:

1. The code defines a single format for encounter records which includes all the present information, together with biometric data and information needed for recovery processing.
2. The transfer format is in delimited files; all existing fields retain their present coding.
3. The delimiting character is the 'pipe' (ASCII character 124).
4. Biometric variables included are in the list below.
5. Biometric variables follow immediately after the current variables in EURING2000 code.

6 Fields for recovery processing are listed below.
7 The recovery processing fields follow immediately after the biometric data fields.
8 Fields which can be populated only when the recovery is processed at the centre of ringing, must be unpopulated when the record is sent from the scheme of finding (e.g. species as determined by scheme).
9 The EDB will accept data for encounters of all birds, not just those which are recovered.

Thanks are due to the many people who have assisted in the development of this code and its predecessors.

On behalf of the committee:

Chris du Feu (EURING Data Bank Manager), Wolfgang Fiedler (EURING Chairman).

Summary of fields

There are five different types of fields in this coding scheme. These are:

Alphabetic	Upper case letters drawn from the 26-letter Roman alphabet, punctuation marks may be included.
Alphanumeric	Combinations of upper case letters, digits 0 to 9 and arithmetic signs.
Integer	Whole numbers, one or more digits. Note that some fields require leading zeroes.
Numeric	Any numbers, with decimal points allowed.
Text	Any combination of letters, numbers and punctuation marks.

Where the number of characters in a field is fixed, the field length is given. In other cases the field may have as many, or as few, characters as required.

Note that the fields up-to-and-including Derived data - elapsed time must have a code, even if that code stands for 'not recorded' or 'unknown'. Fields from Wing length onwards will be represented as a null character where they are not recorded.

Total head length	Numeric	maximum precision 0.1 mm	**29**
Tarsus	Numeric	maximum precision 0.1 mm	**29**
Tarsus method	Alphabetic	1 letter	**29**
Tail length	Numeric	maximum precision 0.1 mm	**29**
Tail difference	Numeric	maximum precision 0.1 mm	**29**
Fat score	Integer	1 digit	**30**
Fat score method	Alphabetic	1 letter	**31**
Pectoral muscle	Integer	1 digit	**32**
Brood patch	Alphanumeric	1 character	**32**
Primary score	Integer	maximum 2 digits	**32**
Primary moult	Alphanumeric	10 characters	**33**
Old greater coverts	Integer	1 digit	**33**
Alula	Integer	1 digit	**33**
Carpal covert	Integer	1 digit	**33**
Sexing method	Alphabetic	1 letter	**34**
Place name	Text	no restrictions on length or content	**34**
Remarks	Text	no restrictions on length or content	**34**
Reference	Text	no restrictions on length or content	**34**

The Pipe Character

The 'pipe' character is used to separate fields EURING 2000+ code. This character has ASCII code 124 and is usually located on the lowest row of the keyboard, on the left side adjacent to the shift key. Its use can be seen in this 2000+ code record which may be used for data transfer **between schemes**:

ESA|A0|Z.....6408|1|4|ZZ|12430|12430|N|0|Z|U|U|U|0|0|U|--|--|-|11082006|0|----|ES14|+420500-0044500|0||0|99|0|4|00280|241|00097|63.5||U|10|U|U|||||||||3|E||0|||||||||Fuentes de Nava||2007/231

When submitting data **to the EDB**, the last three fields may be included if that is more convenient to schemes (see appendix 3.10). However, they will not be loaded into the EDB. Thus the record above be stored in the EDB as:

ESA|A0|Z.....6408|1|4|ZZ|12430|12430|N|0|Z|U|U|U|0|0|U|--|--|-|11082006|0|----|ES14|+420500-0044500|0||0|99|0|4|00280|241|00097|63.5||U|10|U|U|||||||||3|E||0|||||||||

The Null Character and Zero

Throughout this manual, the null character referred to is the character with ASCII code 0. It is different from the number 0 which may also be referred to as zero.

In a 2000+ coded record, the null character does not appear, whereas the zero character does appear as 0. In the sample record above, the data accuracy is zero (the field after the date field of 16042011) whereas the last few fields for biometric data hold the null character, i.e. they are empty. When entering data into spreadsheets, no action is required to enter the null character - a cell into which no data has been entered will, by default, hold the null character.

Ringing Scheme

alphabetic, three characters

The full list of codes can be downloaded or accessed interactively at:
www.euring.org/data_and_codes/euring_code_list/index.htm

This list also includes the scheme status - EURING/non-EURING and Current/Extinct.

Ringing schemes are here defined as centres issuing rings with alphanumeric ring numbers which, without the specific address, could be confused with rings of other centres. This means that a ring number is only internationally unique as a combination of the fields **Ringing Scheme** and **Ring number**.

The initial two letters are the country letters from the **Place Code**: see that section for further explanation. The final letter indicates the scheme.

To avoid using code letters on some extinct, very small or private schemes as well as zoos and avicultural societies, such rings are coded with the first two letters of the main scheme from their country of origin with the third letter X.

e.g. Mortensen (Denmark)	DKX
e.g. Crampton (England)	GBX

Details about these extinct and private schemes can be obtained from the national schemes of the relevant country.

Primary Identification Method

alphanumeric, two characters

This field is to denote the primary method used to identify a bird. **Where a metal ring is present, this will always be the primary identification method, regardless of what other marks are placed on the bird.** With the development of new technology it is likely that, in the future, some birds may be marked by other methods (e.g. transponders) and will not have metal rings attached. This field anticipates that future need. At present, it is anticipated that the primary identification marker will be a metal ring.

When a bird is only marked with a method other than the metal ring (primary identification method not A0), and on a next catch a metal ring is added, the primary identification method must be changed to A0 and also on previous records of this bird.

The code in this field will be the same on any capture of a bird. It will not change if a secondary marker is added to a bird. It is essential that a bird is identified by the same method and number throughout its life.

Reringed birds. At present, if a bird is re-ringed, the number of the first ring is retained as the bird's identifier. This allows any record for an individual to be easily linked together. In the same way if, in the future, the primary identifier is changed, that bird will continue to be identified by the first identifier it had.

A0	Metal ring.
B0	Coloured or numbered leg ring(s).
C0	Coloured or numbered neck ring(s).
D0	Wing tags.
E0	Radio tracking device.
F0	Satellite tracking device.
G0	Transponder.
H0	Nasal mark(s).
K0	GPS loggers
L0	Geolocator loggers (recording daylight).
R0	Flight feather(s) stamped with a number.
T0	Body or wing painting or bleaching.

Identification Number

alphanumeric, ten characters

Ring number, consisting of up to ten characters, to be coded directly. Where the ring number consist of fewer than ten numbers/letters, the number is padded with dots. **These dots are always inserted to the left of the rightmost row of numbers.** The table below gives examples.

Identification number		**Number**	**Formatted**
All numbers	Right adjusted.	12345 01234567	.....12345 ..01234567
Letters / numbers	Letters left adjusted. Numbers right adjusted.	A1234 AB6789	A.....1234 AB....6789
Numbers / letters / numbers	Letters and preceding numbers left adjusted. Other numbers right adjusted.	1A2345 23E456 1AB4567	1A....2345 23E....456 1AB...4567
Numbers / letters	Right adjusted.	12345X 56789AB	....12345X ...56789AB
Letters / numbers / letters / numbers	Always insert the dots left of the rightmost row of numbers.	B1A2345 F234Z567	B1A...2345 F234Z..567

The figure 0 (zero) must be entered where, and only where, it appears on a ring number. Thus 123456 must be given as ....123456 and 0123456 as ...0123456

When part of the ring number is unknown (worn ring, incomplete number reported etc.) the missing parts of the ring number are to be entered as '-'. Thus if the 5 has worn from a ring AB12345 (or the number is covered by an overlap) it should be coded as AB...1234-

Every recovery of any individual bird should **always** have the original ring number placed on that bird as the number coded here. This applies through all subsequent replacements of the ring, whether by the scheme originally ringing the bird or by any other scheme.

If a metal ring is added on first capture the identification number will always be that metal ring number.

If a bird is not metal-ringed on first capture but is identified in another way (primary identification method not A0), a unique number relating to that bird must be entered in this field. That unique number will represent a not-present-metal-ring-number. It must be a unique number because this identification number is unique for database reasons. That unique number must be allocated by the national scheme. It is recommended to start that unique number with the characters "NMR" (meaning "not a metal ring") and then followed by seven numbers. For example: NMR0000001. It is recommended that the Scheme and ringer agree this unique number that will be used to identify the bird throughout its life.

Verification of the Metal Ring

integer, one digit

0 Ring **not** verified by scheme.
1 Ring verified by scheme.
9 Unknown if ring verified by scheme

On the ringing encounter, always code this field as: 0 - Ring not verified by the scheme.

Ring verification may be by the ring being sent or a photograph, photocopy, rubbing or carbon copy being available. Records should also be marked as verified if the ring has been seen by the ringing scheme but subsequently returned to the finder.

Metal Ring Information

integer, one digit

0 Metal ring is **not present**.
1 Metal ring **added** (where no metal ring was present), position (on tarsus or above) unknown or unrecorded.
2 Metal ring **added** (where no metal ring was present), definitely on tarsus.
3 Metal ring **added** (where no metal ring was present), definitely above tarsus.
4 Metal ring is **already present**.
5 Metal ring **changed**.
6 Metal ring **removed** and bird released alive (use code 4 if bird was dead)
7 Metal ring **added, where a metal ring was already present**. N.b. within EURING there is an explicit agreement that ringers must not add a metal ring when one is already present (except in circumstances where the existing ring needs to be replaced because of wear).

Other Marks Information (not a conventional metal ring)

alphabetic, 2 characters

This gives information about any other marks associated with the bird. There are five 2-letter codes which are special cases (although most encounter records will have the special case ZZ - no marks other than metal ring.) For all other codes, the first character gives the type of mark and the second gives the state of this marking.

First character:

Permanent marks:

B	Coloured or numbered leg-ring(s) or flags.
C	Coloured or numbered neck-ring(s).
D	Coloured or numbered wingtag(s).
E	Radio-tracking device.
F	Satellite-tracking device.
G	Transponder.
H	Nasal mark(s).
K	GPS logger.
L	Geolocator (light) logger.

Temporary marks:

R	Flight feathers stamped with the ring number.
S	Tape on the ring.
T	Dye mark (some part of plumage dyed, painted or bleached).

Second character:

B	mark added.
C	mark already present.
D	mark removed.
E	mark changed.
-	unknown.

Special cases:

MM	More than one mark present.
OM	Other mark(s) present.
OP	Other permanent mark(s) present.
OT	Other temporary mark(s) present.
ZZ	No other marks present or not known to be present.

Examples:

BB	Coloured or numbered leg-ring fitted to bird.
DC	Coloured or numbered wing tags on the bird when it was encountered.
GD	Transponder removed from bird.
LE	Geolocator logger changed.
SE	Tape on ring changed
T-	Dye mark - unknown if it was already present, removed, added or changed at this encounter.

Additional information about marks (e.g. colour combinations) can be added in the **Remarks** field if this is required during recovery processing. Details of colour marks are not stored in the EDB.

Species and Subspecies as mentioned by the person who handled the bird**.**

integer, five digits

The first four digits identify the species; the fifth identifies the subspecies.

The full list of codes can be downloaded or accessed interactively at:
www.euring.org/data_and_codes/euring_code_list/index.htm

This field is for the species as reported by the finder, whether or not he has correctly identified the species. If the species is reported as 'unknown bird' or simlar, use the code 00000. If it is reported as a member of a group 'gull', 'duck' etc., use the appropriate code ending in the digit 9. The full, correct species code will be given in the next field, **Species as concluded by the scheme**. Where a bird has been incompletely, or incorrectly, identified by the finder, these two species codes will then be different.

The purely numeric code for species is derived from the sequential numbering of:

Voous K.H. 1977. *List of Recent Holarctic Bird Species*. Published for The British Ornithologists' Union by Academic Press.

Sub-species have been derived from the two volumes by:

Vaurie C. 1959. *The Birds of the Palearctic Fauna, Passeriformes.* H.F. & G. Witherby, London.

Vaurie C. 1965. *The Birds of the Palearctic Fauna, Non-Passeriformes.* H.F. & G. Witherby, London.

Exact spelling of scientific bird names is according to 1) Voous and 2) Vaurie.

Subspecies code. The fifth digit (sub-specific determination) should be used only where the bird has been recognized by the ringer (or finder) as being of the particular subspecies given and not simply allotted to a particular subspecies because of the place or date of capture.
Where the species has only been allocated to a group, the fifth digit is 9 (e.g. (Ardea sp., Larus sp.). In all other cases, the fifth digit must be zero, 0.

Missing codes. Because sometimes birds do fly beyond their known range, because opinions about taxonomy change, and because bird ringers do travel outside the holarctic area, this list of birds has to be enlarged frequently. Creating this version of the EURING code started the discussion about the need for a recent bird world-list. Some time was spent on that subject but the decision was made to postpone the implementation of such a list. In the meantime, if you need a code for a bird not on the web site tables, then email *edb@bto.org* with details of the bird.

Taxonomic changes. A bird species is not immutable. With increasing knowledge, species may be split or lumped. Taxonomists disagree on lumping and splitting. As a result, lists of bird species may consist of from 9200 to 10100 species of birds of the world. Another consequence of new information is that the scientific name of a bird changes when the bird is considered to belong to a different genus from before. Occasionally there may be the discovery of a bird new to science. Thus, there is no such thing as **the** world listing of bird species. The three recently most known lists - Clements (2000), Howard & Moore (2003) and Sibley & Monroe (1990) - differ greatly on the number and sequence of families.

The list (and the spelling of bird names) presented here is still based on 1) Voous and 2) Vaurie. Any addition to this list is, when possible, based on 1) Voous and 2) Vaurie.

Feral species. It is up to the ringer is to judge whether a particular bird is feral or not. Clues can come from plumage, structure, size, habitat, circumstances, other birds nearby etc.

Hybrids. There are countless numbers of hybrids and intermediates. It is impossible to give them all an individual code-number. The EURING code does give many of them the same code: 24998: hybrids or intermediates. However, there are some commonly occurring hybrids, such as Pleskes Tit, and these have now been given their own codes (codes 90000 and above).

Additional sources. When enlarging this species-list EURING does follow Voous (1977) and Vaurie (1959, 1965), but when those two do not give the solution, help is found in:

Clements F.F. 2000. *Birds of the World. A Checklist.* Ibis Publishing Compagny, Vista, CA, USA. ISBN 0-934797-16-1.

Howard R. & Moore A. 2003. *Complete checklist of the Birds of the World.* 3e Edition. London, Helm. ISBN 0-7136-6536-X.

Sibley C.G. & Monroe B.L. 1990. *Distribution and Taxonomy of Birds of the World.* New Haven, Yale University Press. ISBN 0-300-04969-2.

Sibley C.G. & Monroe B.L. 1993. *A Supplement to Distribution and Taxonomy of Birds of the World.* New Haven, Yale University Press. ISBN 0-300-05549-8.

Wells M.G. 1998. *World Bird Species Checklist.* Worldlist, Bushey, UK. ISBN 0-9532420-0-5.

Non-bird species. Codes have been issued for various mammals and other codes reserved for additional bird species. Mammal codes are not listed on the interactive web site but are printed in the appendix. The overall allocation of codes is given in the table below.

First code	Last code	Use
00000	49999	EURING bird species
50000	51999	European bats
52000	59999	Reserved for a world list of bats
60000	64999	Sea-mammals world list
65000	69999	Reserved for personal/scheme use
70000	79999	Reserved
80000	89999	Reserved
90000	90162	EURING bird species -
90163	94999	EURING bird species - hybrids and intermdiates
95000	99998	Reserved
99999		Ring lost or destroyed

Species and Subspecies as concluded by the scheme.

integer, five digits

The importance of this field is to confirm if the Scheme considers the species, given by the person who handled the bird, is correct or not.

Coding this field is the same as in the previous field.

Note that this field should be the same in all records of a particular bird. Thus, if a bird is ringed as a Redwing but reported incorrectly by a finder as a Song Thrush, the **Species as reported** would be 12000 but this field would be 12010. If the report was of an unspecified thrush, the species codes would be 12069 and 12010 respectively.

Manipulated

alphabetic, one character

The options are presented in order with the most important first.

H	Hand reared.
K	Fledging provoked.
C	Captive for more than 24 hours (code date of release).
F	Transported (more then 10 km) **from** co-ordinates coded.
T	Transported (more then 10 km) **to** co-ordinates coded.
M	Manipulated (injection, biopsy, radio- or satellite telemetry etc.).
R	Ringing accident.
E	Euthanised; bird humanely destroyed (reasons will be explained in Circumstances)
P	Poor condition when caught.
N	Normal, not manipulated bird.
U	Uncoded or unknown if manipulated or not.

Code R to be used where ringing has caused injury to the bird and code P where the bird was already in poor condition when it was caught. Note that accidental loss of more than half the rectrices should cause theses codes to be used but not if the loss was during the normal course of the bird's moult.

If more than one of these codes applies to any bird, the appropriate code furthest up the list should be used.

Moved Before the Encounter

integer, one digit

0	Not moved (excluding short movements, usually on foot, from catching place to ringing station).
2	Moved unintentionally by man or other agency.
4	Moved intentionally by man.
6	Moved by water (e.g. found on shoreline).
9	Uncoded or unknown if moved or not.

The movement indicated by these codes is that which has happened before the encounter has been reported and indicates that the bird may have last been alive in the wild state at some place other than the capture / recapture / recovery locality coded.

Moved by water will include not only birds floating down river or drifting in the tide at sea, but also corpses found stranded on the tide-line, found in flotsam inland after floods or found on the shore of large lakes (big enough to have possible significant displacement of the body after death).

Moved intentionally by man will include caged birds offered for sale in markets or shot game birds offered for sale where it is not possible to discover where they were caught or killed. It should also be used for ring or ring and leg (02 and 03 respectively in the field **Circumstances**) found in circumstances where it is obvious that they have been moved by man intentionally (e.g. in a Post Office, in a drawer).

Moved by other agency will most commonly be used for unintentional movement by man when the bird has been struck by and stuck in a moving vehicle. However it can be used for birds killed by predators where they may have moved their (ringed) prey a significant distance.

Catching Method

alphabetic, one character

-	(one 'hyphen') not applicable, because there was no catching at all (for example 'found' or 'found dead' or 'shot'). Field sightings of colour-marked birds or metal rings should be coded with the hyphen but given **Circumstances** code 28 or 80 - 89.
A	**A**ctively triggered trap (by ringer)
B	trap automatically triggered by **B**ird
C	**C**annon net or rocket net
D	**D**azzling
F	caught in **F**light by anything other than a static mist net (e.g. flicked)
G	Nets put just under the water's surface and lifted up as waterfowl (ducks, **G**rebes, divers) swim over it
H	by **H**and (with or without hook, noose etc.)
L	c**L**ap net
M	**M**ist net
N	on **N**est (any method)
O	any **O**ther system (the alphabetic character O)
P	**P**hut net
R	**R**ound up whilst flightless
S	ball-chatri or other **S**nare device
T	Helgoland **T**rap or duck decoy
U	Dutch net for Pl**U**vialis apricaria
V	roosting in ca**V**ity
W	passive **W**alk-in / maze trap
Z	unknown

Catching Lures

alphabetic, one character

-	not applicable, because there was no catching lure at all (for example 'found' or 'found dead' or 'shot')
U	unknown or not coded
A	food
B	water
C	light
D	decoy birds (alive)
E	decoy birds (stuffed specimens or artificial decoy)
F	sound from tape recorder (same species)
G	sound from tape recorder (other species)
H	sound from mechanical whistle
M	more than one lure used
N	definitely no lure used

Sex, as mentioned by the person who handled the bird.

alphabetic, one character

U	Unknown
M	Male
F	Female

Sex, as concluded by the Scheme.

alphabetic, one character

Coding in this field is the same as in the previous field.

U	Unknown
M	Male
F	Female

The importance of this field is to confirm if the Scheme considers the sex, given by the person who handled the bird, is correct or not.

Age, as mentioned by the person who handled the bird.

alphanumeric, one character

0 Age unknown, i.e. not recorded.
1 Pullus: nestling or chick, unable to fly freely, still able to be caught by hand.
2 Full-grown: able to fly freely but age otherwise unknown.
3 First-year: full-grown bird hatched in the breeding season of this calendar year.
4 After first-year: full-grown bird hatched before this calendar year; year of birth otherwise unknown.
5 2nd year: a bird hatched last calendar year and now in its second calendar year.
6 After 2nd year: full-grown bird hatched before last calendar year; year of birth otherwise unknown.
7 3rd year: a bird hatched two calendar years before, and now in its third calendar year.
8 After 3rd year: a full-grown bird hatched more than three calendar years ago (including present year as one); year if bird otherwise unknown.
9 4th year: a bird hatched three calendar years before, and now in its fourth calendar year.

A After 4th year: a bird older than category 9 - age otherwise unknown.
B 5th year: one year older than category 9 - age known exactly to the year. C, D, E, F, G, H, J, K, L, etc. onwards *et seq.*

Because the calendar year is used throughout this coding system all birds change code overnight on December 31st - January 1st. Every code from 2 upwards has two added to the age because a bird identifiable at the end of December as 'First-year' (code 3) will, at the beginning of January be 'Second-year' (code 5) and so on.

The principle is simply understood by considering the codes for a fully grown bird caught during 2008, see below. The top line gives the year indicated by the code, the second line the code for a bird definitely hatched in that calendar year and trapped and aged in 2008, the third (bottom line) the code for a bird of unknown age except that it was hatched not later than that year.

2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996
3	5	7	9	B	D	F	H	K	M	P	R	T
2	4	6	8	A	C	E	G	J	L	N	Q	S

Although only a minority of species can be aged into the alphabetic codes provided, it is felt helpful to have the EURING age code extended to be able to express age on recapture of birds which have been ringed in earlier years.

Do not calculate the age: even if you know the exact age of the bird from its ringing circumstances. The age code is more a statement about the plumage of the bird than about its age in years. For birds where the age can be calculated from ringing data, the task of calculation of ages belongs to the analyst, not the ringer or data coder.

Age, as concluded by the Scheme.

alphanumeric, one character

Coding this field is the same as in the previous field, although the alphabetic codes will rarely be used.

The importance of this field is to confirm if the Scheme considers the age, given by the person who handled the bird, is correct or not.

Status

alphabetic, one character

All full-grown birds must have a Status code, even if it is the unknown/not recorded code, U. Birds ringed as pulli must be coded with a hyphen.

-	bird a pullus (one 'hyphen')
U	**U**nknown or unrecorded.
N	**N**esting or Breeding.
R	**R**oosting assemblage.
K	In Colony (not necessarily breeding but not pullus).
M	**M**oulting assemblage (whether bird moulting or not).
T	Moul**T**ing.
L	Apparently a **L**ocal bird, but not breeding.
W	Apparently a bird **W**intering in the locality.
P	On **P**assage - certainly not a local breeding nor wintering bird (includes birds attracted to lighthouses).
S	At **S**ea - birds on boats, lightships or oil rigs.

Code U (unknown or unrecorded) must be used unless there is complete certainty about the status. Do not make conclusions based on "I do come here often and the birds always behave in that way".

Brood Size only for records of nestlings

integer, two digits

The biologically important information is the number of young alive at the time of ringing, and it must be emphasised to the ringers working in the field that it is this information that is required and **not** the number of young from the brood which happen to have been ringed.

Broods from one female.

--	bird is not a nestling (two hyphens)
00	unknown, not coded.
01	1 chick in the nest.
02	2 chicks in the nest.
...	...
12	12 chicks in the nest.
...	...
99	chicks present but exact number in brood unknown/not recorded.

Broods from more than one female.

Add 50 to the number in the brood.

Examples.

65	15 chicks in the nest from definitely more than one female, (65 = 15 +50).
72	22 chicks in the nest from definitely more than one female, (72 = 22 + 50).
99	chicks present but exact number in brood unknown/not recorded.

Pullus Age

integer, two digits

--	bird is not a pullus (two hyphens)
99	pullus age not recorded
00	pullus age 0 days.
01	pullus age 1 day.
...	...
06	pullus age 6 days.
13	pullus age 13 days.
44	pullus age 44 days.
...	...

For accuracy of pullus age see **Accuracy of Pullus Age** field.

Accuracy of Pullus Age

integer, one digit

-	bird is not a pullus (a 'hyphen').
0	accurate to the day.
1	accurate to within 1 day either side of day coded.
2	accurate to within 2 days either side of day coded.
3	accurate to within 3 days either side of day coded.
4	accurate to within 4 days either side of day coded.
5	accurate to within 5 days either side of day coded.
6	accurate to within 6 days either side of day coded.
7	accurate to within 7 days either side of day coded.
8	accurate to within 8 days either side of day coded.
9	accurate to within 9 days either side of day coded.
U	**U**nrecorded / not known

Date

integer, eight digits

This field must have exactly 8 numbers: do not omit leading zeros for either day or month.

The date in days, months and years to be coded as follows:

	ddmmyyyy
1st January 1977	01011977
5st September 2013	05092013
17th June 1949	17061949
30th March 1965	30031965
15th October 1923	15101923
29th August 1949	29081949
2th July 2008	02072008
30th December 1977	30121977
29th May 2002	29052002
9th November 1896	09111896
18th February 2102	18022102

Any inaccuracy of date is indicated by the contents of the column concerning **Accuracy of Date.** An estimated real date should always be entered in these eight columns.

Do not use hyphens when exact dates are unknown. For example, if the exact day in February 1999 was not known, code **Date** as 15021999 and **Accuracy of Date** as 4.

Accuracy of Date

integer, one digit

0	Accurate to the day.
1	Accurate to within 1 day either side of date coded.
2	Accurate to within 3 days either side of date coded.
3	Accurate to within 1 week either side of date coded.
4	Accurate to within 2 weeks either side of date coded.
5	Accurate to within 6 weeks either side of date coded.
6	Accurate to within 3 months either side of date coded.
7	Accurate to within 6 months either side of date coded.
8	Accurate to within some years only.
9	Date of issue of ring or other earliest possible use of ring (only for ringing record) **or**, date of recovery report (either on letter or postmark) **or**, date of finding coded, but bird long dead, found mummified, ring in owl pellet, hunters collection etc. (may be used even if ringing date within the previous 6 months).

Code inaccuracy as 8 when the time of year given but actual year in doubt: e.g. 'Found over Christmas either 2004 or 2005' should be coded 8 in this column and 25 12 2004 as date, rather than 7 in this column and 25 06 2005.

Note that codes 2-8 should be used to indicate lack of accuracy in the reporting letter - e.g. 'I found this bird about three weeks ago' and **never** because of the finders estimate - e.g. 'it looked as though it had been dead for about three weeks'.

Exact coding of inaccurate dates will depend on exactly what is said by the finder and whether the date to be coded is recent or not. For example 'End of September' might be 27 09 accuracy 2 if the letter was received early in October 2008 but 25 09 accuracy 3 if it was written in December 2008.

Time

alphanumeric, four characters

The actual time of the day in hours and minutes, according to a 24 hour clock in local time: 0008, 0948, 1556, 2359 etc.

When you analyse data be aware of summer- and winter-time in some countries.

When the time is unknown or has not been recorded, use four hyphens, ----

When only the hour of the day is recorded, the last two characters should be hyphens.

Time	Code	Time	Code
0000-0059	00--	1200-1259	12--
0100-0159	01--	1300-1359	13--
0200-0259	02--	1400-1459	14--
0300-0359	03--	1500-1559	15--
0400-0459	04--	1600-1659	16--
0500-0559	05--	1700-1759	17--
0600-0659	06--	1800-1859	18--
0700-0759	07--	1900-1959	19--
0800-0859	08--	2000-2059	20--
0900-0959	09--	2100-2159	21--
1000-1059	10--	2200-2259	22--
1100-1159	11--	2300-2359	23--

Place Code

alphanumeric, four characters

The full list of codes can be downloaded or accessed interactively at:
www.euring.org/data_and_codes/euring_code_list/index.htm

The purpose of the Place Code is solely to identify particular geographical areas in terms of current administrative regions. No political statements are implied by any of these codes.

The **first pair of characters** identifies the country and are always alphabetic.
The **second pair of characters** identifies the sub-division of the country.
These are either alphabetic or numeric.

The use of '00' as the last two characters can mean either a specific sub-division of a country (e.g. ES00 is Álava, Spain) or that codes have not been allocated to subdivisions of that country (e.g. YS00, Somalia).
When the area within a country with subdivisions is not known, e.g. bird reported in 'The Netherlands', then the third and fourth characters should be coded as '--'. Do not use '00' as this could mean a specific part of the country concerned.

When possible all spellings of the names of countries and provinces refer to *The Times Comprehensive Atlas of the World. Tenth edition 1999, reprint with changes 2000. Times Books, 77-85 Fulham Place Road, London W6 8JB, ISBN 0-7230-0792-6*, in this publication always referred as *the Times Atlas*. All boundaries are also taken from this atlas, unless otherwise noted.

Old Place Codes
Old, numeric place codes can be found in the '*EURING Code Manual*' (1966) and in the '*Code Manual New EURING'* (1979). Both are available on the EURING website (www.euring.org).

Internet gazetteers.
There are internet sites where you can search for geographical names and their co-ordinates. A few of those sites are given here, but please remember that websites, like birds, come and go unpredictably.

http://earth.google.com
http://geonames.nrcan.gc.ca/english/
http://nationalmap.gov/
http://www.maporama.com/share/
http://www.multimap.com/
http://calle.com/
http://maps.google.com
http://www.postleitzahl.org/
http://www.find.dk/
http://www.kortal.dk/

Updating the Place Code
Whenever you cannot find a country code in this list please contact edb@bto.org

When codes are updated for the field Place Code, as far as possible we follow the next links:
http://en.wikipedia.org/wiki/ISO_3166-1 ISO 3166-1 country code and for subdivisions of countries use the links from these Wikipedia pages.
https://www.cia.gov/library/publications/the-world-factbook/

Geographical Co-ordinates

integer, fifteen digits

This field must have exactly 15 characters. Do not omit leading zeroes. Note particularly that the longitude requires three digits for the minutes.
Ringing schemes should continue to use their own traditional system for rounding or truncating co-ordinates. Co-ordinates should be given to as high a degree of accuracy as possible and appropriate but it is recognised that, often, the nearest minute of longitude or latitude will be appropriate. Analysts should note that co-ordinates in 1969 EURING code were stored to the nearest tenth of a degree only (and this may have been truncated or rounded). Any records converted from 1969 code will have this further measure of uncertainty.
The co-ordinate datum system is WGS 84.

Latitude:
North and South co-ordinates are given in:

Quadrant	North is **+** and South is **-** (1 character).
Degrees	in the range from 0 to 90 (2 characters).
Minutes	in the range from 0 to 60 (2 characters).
Seconds	in the range from 0 to 60 (2 characters).

Longitude:
East and West co-ordinates are given in:

Quadrant	East is **+** and West is **-** (1 character).
Degrees	in the range from 0 to 180 (3 characters).
Minutes	in the range from 0 to 60 (2 characters).
Seconds	in the range from 0 to 60 (2 characters).

When the co-ordinates are not known exactly, for example when the subdivision in seconds is not known, make a best estimate and code the field **Accuracy of co-ordinates** accordingly. Do not use hyphens in the code when the seconds are not known. For example, use +571800+0015200, do not use +5718--+00152--

Examples:

`+340311-1181456`	(34° 3′ 11″ N	118° 14′ 56″ W)	USA, Los Angeles
`+592624+0244741`	(59° 26′ 24″ N	24° 47′ 41″ E)	Estonia, Tallinn
`+515706+0054513`	(51° 57′ 06″ N	5° 45′ 13″ E)	Netherlands, Vogeltrekstation
`+522526+0004449`	(52° 25′ 26″ N	0° 44′ 49″ E)	England, Thetford
`-335405+0182902`	(33° 54′ 05″ S	18° 29′ 2″ E)	South Africa, Cape Town
`-351748+1490731`	(35° 17′ 48″ S	149° 7′ 31″ E)	Australia, Canberra
`+474425+0085853`	(47° 44′ 25″ N	8° 58′ 53″ E)	Germany, Radolfzell
`+620238+1294221`	(62° 2′ 38″ N	129° 42′ 21″ E)	Russian Federation, Yakutsk
`-210832-1751218`	(21° 8′ 32″ S	175° 12′ 18″ W)	Toku Islands, Nuku'alofa
`+384352-0092634`	(38° 43′ 52″ N	9° 26′ 34″ W)	Portugal, Lisboa
`-225439-0431322`	(22° 54′ 39″ S	43° 13′ 22″W)	Brasil, Rio de Janeiro

Co-ordinates according to the CD-ROM: *Worldmap* from Wolters-Noordhof, the Netherlands.

Accuracy of Co-ordinates

integer, one digit

0 Accurate to the given co-ordinates.
1 Somewhere in a circle with radius 5 km.
2 Somewhere in a circle with radius 10 km.
3 Somewhere in a circle with radius 20 km.
4 Somewhere in a circle with radius 50 km.
5 Somewhere in a circle with radius 100 km.
6 Somewhere in a circle with radius 500 km.
7 Somewhere in a circle with radius 1000 km.
8 Reserved.
9 Somewhere in the country or region given in the field **Place Code**

When information about the accuracy of data in a particular field is required, the accuracy is normally given in the same units of measurements as the main data. This causes a problem for co-ordinates as an inaccuracy in longitude of one degree on the equator has a higher impact than one degree in the north of Norway. Therefore the accuracy of co-ordinates is given in kilometres.

Condition

integer, one digit

This field codes condition of the bird when found and is only modified by other columns where 9 in the field **Accuracy of date** is used to indicate that a bird has been dead for a very long time.

0 Condition completely unknown.
1 Dead but no information on how recently the bird had died (or been killed).
2 Freshly dead - within about a week.
3 Not freshly dead - information available that it had been dead for more than about a week. N.b. for very long dead birds, use 9 in the field **Accuracy of Date,** and 3 here.
4 Found sick, wounded, unhealthy etc. and known to have been released (including ring or other mark identified on a bird in poor condition without the bird having being caught).
5 Found sick, wounded, unhealthy etc. and not released or not known if released.
6 Alive and probably healthy but taken into captivity.
7 Alive and probably healthy and certainly released (including ring or other mark identified on a healthy bird without the bird having being caught).
8 Alive and probably healthy and released by a ringer (including ring or other mark identified on the bird by a ringer without the bird having being caught).
9 Alive and probably healthy but ultimate fate of bird is not known.

Only where the finder provides wholly reliable information enabling a better estimate of the date of death to be determined from the circumstances of finding should that date of death be used (with appropriate accuracy code). Where there is any doubt the **finding** date must be coded and not an unreliable estimated date of death.
For example:

- The finder reported the bird was 'dead for about three weeks'. Code the date of finding as given and give condition code 3.
- I visit the local lake every day to bird watch and noticed, on 1st January 2008, the body of a swan on an island. The bird had not been there the previous day. On 15th February a fisherman took me to the island in his boat and I found the enclosed ring on the Swan's remains. Code 01012008 and 2, not 15022008 and 3.

Circumstances

integer, two digits

The code for circumstances of the encounter has two digits: the first is traditionally referred to as the primary division. The list of primary divisions is given here. The full list of 2-digit codes can be downloaded or accessed interactively at:
www.euring.org/data_and_codes/euring_code_list/index.htm

0	Unknown circumstances or unknown whether through man's agency or naturally (includes attracted to domestic animals).
1	Intentionally by man - shot.
2	Intentionally by man - other means (includes trapped, poisoned, ring number read in field etc.). All captures (=ringing data) and recaptures (caught and released).
3	Accidentally by man - pollution.
4	Accidentally through human agency (not pollution): includes traffic accidents, collision with wires etc., entering man-made artefacts, accidents with machinery, drowned at artificial water. N.b. attracted to domestic animals is 0. Note that 40-42 represent traffic accidents and 43-45 collisions with static objects.
5	Natural causes - diseases and other natural ailments.
6	Predation by any animal other than man (except hunted by falconer's bird - which would be covered by 2 above).
7	Other natural causes. Drowned (natural water bodies), trapped, tangled and collided with natural objects and also weather and starvation or thirst.
8	Bird identified from something else than the metal ring.
9	Other special circumstances
99	Totally unknown circumstance: not even stated to be 'found'.

Note that coding of this field is sometimes inter-related with some other fields including **Manipulated, Circumstances Presumed, Moved, Condition**.
In all parts of this field where a bird has been reported as dead, the fact of killing is given in the code entered for the field **Condition**.
In practice 8|61 (condition=8, circumstances=61) could be used for an apparently healthy bird taken by a ringer from a cat and released.

Circumstances Presumed

integer, one digit

0	No doubt about the circumstances.
1	Circumstances presumed.

Circumstances Presumed can be used in combination with the entries in the field Circumstances to modify the circumstances, e.g. Circumstances presumed, code 1, changes 43 'Killed against wires' to 'Found under wires' etc.

EURING Code Identifier

integer, one digit

This field shows the history of the record. It is included because some information may be lost when records are translated from one version of the code to a newer one. Analysts will need to be aware, for instance, that records that were originally in 1966 code had co-ordinates given to the nearest tenth of a degree rather than to the nearest minute.

All data in the EURING Data Bank will be held in EURING2000 code. Any data submitted in earlier codes will be converted to 2000 code but this field will remain unchanged. Thus, for example, a record originally coded in 1966 code, translated by the scheme to 1979 code and submitted to the EDB in that form will have code identifier 1. When that record is exported from the EDB it will be in 2000 code but still retain code identifier 1 even though it is now in 2000 code. This code indicates the history of the record up to the point at which it was submitted to the EDB.

0	*EURING Code Manual* (1966). Directly coded (no translation).
1	*Code Manual New EURING (*1979), but translated from *EURING Code Manual* (1966).
2	*Code Manual New EURING (*1979). Directly coded (no translation of older codes).
3	Translated from earlier code but exact route uncertain
4	*EURING exchange-code 2000 or 2000+,* Directly coded (no translation of older codes)

Distance

integer, maximum of five characters

Calculated by computer (Imboden & Imboden 1972) as the distance between the current record and the first record (=ringing data). The distance is given in kilometres (00000 - 99999).
A distance is always calculated, even if the geographical co-ordinates are given as inaccurate. Analysts should check the field A**ccuracy of co-ordinates**.

The distance is not present in the first record (=ringing data), in that case code the code is ----- (five hyphens).

Note that the distance and direction between two points can be calculated either according to orthodrome (shortest distance) or loxodrome (constant direction) methods. These two methods can give rather different results (Imboden & Imboden 1972). The method preferred by EURING is loxodrome. Analysts should check which method is used in the data or else feel free to recalculate distances before analysis.

Direction

integer, three characters

Calculated by computer (Imboden & Imboden 1972) as the direction between the current record and the first record (=ringing data). The direction is given in degrees (000 - 359).
A direction is always calculated, even if the geographical co-ordinates are given as inaccurate. Analysts should check the field **Accuracy of co-ordinates**.

The direction is not present in the first record (=ringing data). In that case use the code --- (three hyphens).

Note that the distance and direction between two points can be calculated either according to orthodrome (shortest distance) or loxodrome (constant direction) methods. These two methods can give rather different results (Imboden & Imboden 1972). The method preferred by EURING is loxodrome. Analysts should check which method is used in the data or else feel free to recalculate distances before analysis.

Elapsed Time

integer, maximum five characters

Calculated as the elapsed time between the current record and the first record (=ringing data). The elapsed time is given in days (00000 - 99999). Schemes should always calculate this field before submitting data to the EURING Data Bank.

Elapsed time is always calculated, even if the date is given as inaccurate. Users should check the field **Accuracy of date**.

The elapsed time is not given on the first record (=ringing data), in that case use the code ------ (five hyphens).

Wing Length

numeric

In millimetres, to a maximum precision of 0.5 mm. Normally, wing length will be recorded only to the nearest millimetre.
This is the maximum chord measurement, as described by Svensson (1992).

Third Primary

numeric

Length of the third primary feather, in millimetres, to a maximum precision of 0.5 mm.
This is the third primary feather length (Federlänge), measured with a 1.4 mm diameter vertical pin at the zero end of the ruler as first described by Berthold and Friedrich (1979). For an English description see Bairlein (1995).

State of Wing Point

alphabetic, 1 character

The condition of the longest primary feather. Wing measurements will not normally be taken if the codes B, G or V are applied. If the field is unpopulated it will be assumed that the wing is 'normal' and so any wing length is representative.

U	**U**nknown or not recorded
A	**A**braded
B	**B**roken
G	**G**rowing
M	Feather **M**issing
V	**V**ery abraded

Mass

numeric

In grams, measured to a maximum precision of 0.1 g.

Moult

alphabetic, one character

A single letter code for main, clearly identifiable moult states.

B	active **B**ody and/or covert moult not as part of post-juvenile or main moult.
J	wholly **J**uvenile plumage
M	active **M**oult which includes flight feathers (primary and/or secondaries)
P	partial **P**ost-juvenile moult which does not include flight feathers.
X	Examined for moult, no moult found and not in juvenile plumage.
U	**U**nknown, not examined for moult or not recorded

Plumage Code

alphanumeric, one character

For extra information to enhance age code. One character from either the numeric or alphabetic lists. For many passerines, this code may remain empty. For waders, the traditional numeric codes can be used.

Alphabetic codes for any species

U	**U**nknown or not recorded
A	**A**dult plumage (if no other codes applicable)
B	**B**reeding plumage - where species have a distinct breeding plumage.
D	**D**owny - for nestlings and nidifugous chicks
E	**E**clipse plumage (ducks)
F	**F**irst winter (typically corresponding to EURING age codes 3 or 5)
I	**I**mmature (except for first winter plumage)
J	**J**uvenile
W	**W**inter plumage - where species have a distinct winter plumage.

Numeric codes for waders only

1	full winter plumage
2	trace of summer plumage
3	$^1/_4$ summer plumage
4	$^1/_2$ summer plumage
5	$^3/_4$ summer plumage
6	trace of winter plumage
7	full summer plumage

Hind Claw

numeric

In millimetres, to a maximum precision of 0.1 mm. For details of method see Svensson (1992).

Bill Length

numeric

In millimetres, to a maximum precision of 0.1 mm. Normally, lengths over 100 mm will be given to the nearest millimetre.

If this measurement is recorded, then a code must be given in the next field, **Bill method.**

Bill Method

alphabetic, one character

A single letter code. For details of methods see Svensson (1992). This field is mandatory if the **Bill Length** is given.

C	from tip to **C**ere
F	from tip to **F**eathers
N	from tip to **N**ostril
S	from tip to **S**kull

Total Head Length

numeric

In millimetres, to a maximum precision of 0.1 mm. Normally, lengths over 100 mm will be given to the nearest millimetre. For details of the method see BTO Ringers' Manual.

Tarsus

numeric

In millimetres, to a maximum precision of 0.1 mm. Normally, lengths over 100 mm will be given to the nearest millimetre.

If this measurement is recorded, then a code must be given in the next field, **Tarsus Method.**

Tarsus Method

alphabetic, one character

A single letter code.

M	**M**aximum tarsus - folded foot to extreme end of tarsal joint. (BTO Ringers' Manual)
S	minimum tarsus (**S**vensson 1992) - length of tarso-metatarsal bone
T	Tarsus and **T**oe - from extreme end of tarsal joint to tip of longest toe with foot flattened on a rule. (BTO Ringers' Manual)

This field is mandatory if the **Tarsus** is given.

Tail Length

numeric

In millimetres, to a maximum precision of 0.1 mm. Normally, lengths over 100 mm will be given to the nearest millimetre. For details of the method see Svensson (1992).

Tail Difference

numeric

In millimetres, to a maximum precision of 0.1 mm, normally given to the nearest millimetre.

The difference in length between longest and shortest tail feathers measured along the axis of the tail with the tail closed. The sign is ignored (i.e. rounded and forked tails will both have positive values). For details of the method see Svensson (1992).

Fat Score

integer, one digit

Codes are defined for three methods of assessing fat - the BTO Biometrics Working Group, ESF and Operation Baltic. If a fat score is given, then the relevant code must be given in Fat Score Method.

B - Biometrics Working Group
http://bto.org/sites/default/files/u17/downloads/about/resources/fat_scores.pdf

Score	Description
0	Furcular region: No visible fat. Abdomen: Dark red
1	Furcular region: trace of fat. (~E0.5) Abdomen: Light red/pink
2	Furcular region: base of tracheal pit obscured by fat to about one third full. (~E1.0) Abdomen: Yellow-pink
3	Furcular region: tracheal pit about two-thirds full. Muscle within tracheal pit visible between fat and clavicles. (E~1.5) Abdomen: Yellow-pink
4	Furcular region: completely filled up to far end of clavicles but still concave (not bulging). (~E3.0) Abdomen: Pale yellow
5	As ESF
6	As ESF
7	As ESF
8	As ESF

E - ESF system
http://bto.org/sites/default/files/u17/downloads/about/resources/fat_scores.pdf

Score	Description
0	Furcular region: no visible fat. Abdomen: dark red
1	Furcular region: wide wedge of fat. Abdomen: trace of fat, light red
2	Furcular region: completely covered but deeply concave. Abdomen: slips of fat, light yellow
3	Furcular region: moderate fat reserves cover ends of inter-clavicles but concave. Abdomen: flat or slightly bulging pad, light yellow
4	Furcular region: filled up to far end of clavicles. Abdomen: covered by clearly bulging pad of fat, yellow
5	Furcular region: convex bulge, perhaps overlapping breast muscles. Abdomen: extreme convex bulge, yellow
6	Furcular region and Abdomen: fat covering breast muscles by several mm.
7	Furcular region and Abdomen: 3/4 of breast muscles covered, yellow
8	Furcular region and Abdomen: breast muscles not visible, yellow

P - Operation Baltic
www.seen-net.eu/index.php?id=24

Score	Description
0	Furcular region: Air sac visible, may be some visible fat. Abdomen: No visible fat, or reddish traces only.
1	Furcular region: All interior covered with fat. Abdomen: No visible fat, or reddish traces only.
2	Furcular region: All interior covered with fat. Abdomen: Some infused fat but intestine still visible.
3	Furcular region: All interior covered with fat. Abdomen: Covered in fat, intestine not visible but liver still visible.
4	Furculum: Fat is flat or concave. Abdomen: Covered in fat.
5	Furculum: Fat is convex. Abdomen: Covered in fat. Pectoral muscles: without stripes of fat.
6	Furculum: Fat is convex. Abdomen: Covered in fat. Pectoral muscles: with stripes of fat.
7	Furculum: Fat is convex. Abdomen: Covered in fat. Pectoral muscles: partly covered by fat.
8	Furculum: Fat is convex. Abdomen: Partly covered in fat. Pectoral muscles: Completely covered in fat.

Conversion table between fat score methods

BWG	ESF	Operation Baltic
0	0	0
	1	
1	2	1
	3	
2		2
3	4	4
4		
5	5	5
6	6	6
7	7	7
8	8	8

Fat Score Method

alphabetic, one character

One character code to indicate fat score method used. This field must be populated whenever the **Fat Score** is populated.

B	**B**iometrics Working Group (Ringers' Manual, BTO)
E	**E**SF (Ringers' Manual, BTO)
P	o**P**eration Baltic (www.seen-net.eu/index.php?id=24)

Pectoral Muscle Score

integer, one digit

A single numeric code to describe state of pectoral muscle.

0	Sternum sharp, muscle depressed
1	Sternum easy to distinguish, muscle neither depressed nor rounded.
2	Sternum still discernible, muscle slightly rounded.
3	Sternum difficult to distinguish, Muscle fully rounded.

Brood Patch

alphanumeric, one character

A single character to describe, in chronological order, the state of the brood patch in the breeding season. If a brood patch is present, but its state has not been recorded, use code P.

0	no patch detectable
1	starting
2	well-defined
3	veined and red
4	wrinkled
5	feathering over
P	**P**resent

Photographs illustrating these codes can be downloaded from:
http://www.bto.org/ringing/resources/downloads/index.htm

Primary Score

integer, 2 digits

The sum of the (usually 10) primary scores. (see **Primary Moult** for details). For birds (e.g. finches) where the outermost primary is minute, the score may be out of 45 rather than 50. For birds with 11 primaries, the outermost, tiny primary is ignored. Scores of V or X are regarded as zero.

Primary Moult

alphanumeric, 10 characters

Ten digits, each in the range 0-5 (or V or X).

0	Old feather present
1	Old feather missing or new feather still completely in pin.
2	New feather just emerging from quill up to one-third grown.
3	New feather between one and two thirds grown.
4	More than two thirds grown but waxy sheath still present at base of quills.
5	Feather completely new, no waxy sheath remains visible.
V	Feather **V**ery old (from a generation previous to feathers being moulted).
X	Feather not present on the species (e.g. outermost primary on most finches).

These digits are arranged from inner to outer primaries. For example, a Collared Dove *Streptopelia decaocto*, which had arrested a full-post juvenile moult in the autumn, with three outer primaries unmoulted, and now had begun to moult the inner primaries as part of its first complete adult moult, might be given a code of 5554100VVV. A Chaffinch *Fringilla coelebs,* with nearly completed moult might be given a code of 555554321X.

Old Greater Coverts

integer, maximum 2 digits

The number of unmoulted greater coverts retained after post juvenile moult. This code is normally only applicable for passerines.
There is some disagreement over whether there are 9 or 10 greater coverts. This code allows for either convention. Analysts should, therefore, note that a code of 9 could indicate either 9 or 10 retained feathers.

Alula

Alphanumeric, three characters

Three characters to describe the state of the three alula feathers. The characters are given in order smallest feather to largest.

0	old
1	new or growing
U	unknown whether new or old

Thus typical codes may be U10, 110, 111 etc. Always use U for the smallest feather if it cannot be found to ensure there are exactly three characters in this code.

Carpal Covert

integer, one digit

A single integer to describe state of moult of the carpal covert.

0	old
1	new

Sexing Method

alphabetic, one character

Birds which are sexed by some absolute difference in plumage (e.g. *Turdus merula*) will not have a sex method code applied - it is assumed that the default sexing method is through plumage.

A	**A**ctivity - sexed by observation of activity or behaviour in the field (including song).
B	**B**rood patch (for females of some species)
C	**C**loacal protuberance for males of some species.
D	analysis of **D**NA sample
E	internal **E**xamination of cloaca (e.g. for wildfowl)
L	**L**aproscopy
S	**S**ize or brightness. The bird has been sexed on the basis of some measurement or assessment of brightness of plumage where there is no absolute sexual dimorphism (e.g. on *Parus caeruleus*).
T	post-mor**T**em dissection.

Place Name

text

The name of the place where the encounter occurs. This will be the name given by the ringer/finder or as amended by the ringing scheme.
This field is primarily for use in between-scheme recovery processing and it is not envisaged that this field will be stored in the EDB.

Remarks

text

This field is free for any relevant remarks or other details. It is primarily for use in between-scheme recovery processing and it will not be stored in the EDB. It could be used, for example, to hold some of the finder's details which the scheme needs for recovery processing. Note that any data stored must comply with relevant national data protection legislation.
Ringing schemes can use this field for recording colour-ring codes or details of other unconventional marks.

Reference

text

The scheme's own reference for this bird encounter. This field is primarily for use in between-scheme recovery processing and it is not envisaged that it will be stored in the EDB.

References

For measuring techniques see:

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Baker K. 1993. *Identification Guide to European Non-Passerines. BTO guide 24.* BTO, Thetford. ISBN 0-903793-18-0.
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Pyle P., S.N.G. Howell, R.P. Yunick & D. DeSante 1997. *Identification Guide to North American Passerines.* Slate Creek Press, Bolinas. ISBN 0-9618940-0-8.
Refern, P.F. & Clark, J. A 2001. *Ringers' Manual.* BTO Thetford
Svensson L. 1992. *Identification Guide of European Passerines.* Fourth edition. Svensson, Stockholm. ISBN 91-630-1118-2.

For calculations of distances and directions see:
Imboden C. & D. Imboden 1972. *Formel für Orthodrome und Loxodrome bei der Berechnung von Richtung und Distanz zwischen Beringung- und Wiederfundort.* Die Vogelwarte 26(4): 336-346.

Extensive literature is cited in Svensson (1992).

Appendix 1

European Bats - Species Codes

In the year 2004 the Finnish scheme began to archive bat ringing. They wished to use the EURING code as the basis of their administration of bat ringing and recoveries. Therefore this list of European bat species is included in the species code list. Note that these codes do not appear in the web based bird species code list.

EURING code	Genus	Species	English name
50010	*Rousettus*	*aegyptiacus*	Egyptian rousette
50020	*Rhinolophus*	*ferrumequinum*	Greater horseshoe bat
50030	*Rhinolophus*	*hipposideros*	Lesser horseshoe bat
50040	*Rhinolophus*	*euryale*	Meditteranean horseshoe bat
50050	*Rhinolophus*	*blasii*	Blasius' horseshoe bat
50060	*Rhinolophus*	*mehelyi*	Mehely's horseshoe bat
50069	*Rhinolophus*		Rhinolophus species
50070	*Myotis*	*daubentonii*	Daubenton's bat
50080	*Myotis*	*capacinii*	Long-fingered bat
50090	*Myotis*	*dasycneme*	Pond bat
50100	*Myotis*	*brandtii*	Brandt's bat
50110	*Myotis*	*mystacinus*	Whiskered bat
50120	*Myotis*	*emarginatus*	Geoffroy's bat
50130	*Myotis*	*nattereri*	Natterer's bat
50131	*Myotis*	*nattereri s.s.*	*M. nattereri* s.s.
50132	Myotis	*escalerai*	Escalera's bat formerly with *M. nattereri*
50140	*Myotis*	*bechsteinii*	Bechstein's bat
50150	*Myotis*	*myotis*	Greater mouse-eared bat
50160	*Myotis*	*blythii*	Lesser mouse-eared bat
50169	*Myotis*		Myotis species
50170	*Nyctalus*	*noctula*	Noctule
50180	*Nyctalus*	*leisleri*	Leisler's bat
50190	*Nyctalus*	*azoreum*	Azores noctule
50200	*Nyctalus*	*lasiopterus*	Greater noctule
50209	*Nyctalus*		Nyctalus species
50210	*Eptesicus*	*serotinus*	Serotine
50211	*Eptesicus*	*serotinus s.s.*	*E. serotinus* s.s.
50212	*Eptesicus*	*isabellinus*	Meridional serotine bat formerly with *E. serotinus*
50220	*Eptesicus*	*nilssonii*	Northern bat
50230	*Eptesicus*	*bottae*	Botta's serotine
50239	*Eptesicus*		Eptesicus species
50240	*Vespertilio*	*murinus*	Parti-coloured bat
50250	*Pipistrellus*	*pipistrellus*	Pipistrelle
50260	*Pipistrellus*	*pygmaeus*	Pigmy pipistrelle
50270	*Pipistrellus*	*nathusii*	Nathusius' pipistrelle
50280	*Pipistrellus*	*kuhlii*	Kuhl's pipistrelle
50290	*Pipistrellus*	*maderensis*	Madeira pipistrelle
50299	*Pipistrellus*		Pipistrelle species
50300	*Hypsugo*	*savii*	Savi's pipistrelle
50310	*Plecotis*	*auritus*	Long-eared bat
50311	*Plecotis*	*Plecotus auritus s.s.*	P. auritus s.s.
50312	*Plecotis*	*macrobullaris*	Alpine long-eared bat formerly with P. auritus
50320	*Plecotis*	*austriacus*	Grey long-eared bat
50321	*Plecotis*	*austriacus s.s.*	P. austriacus s.s.
50322	*Plecotis*	*kolombatovici*	Kolombatovic's long-eared bat

			formerly with P. austriacus
50330	*Plecotis*	*teneriffae*	Canary long-eared bat
50339	*Plecotis*		Plecotis species
50340	*Barbastella*	*barbastellus*	Barbastelle
50350	*Miniopterus*	*schreibersii*	Schreiber's bat
50360	*Tadarida*	*teniotis*	European free-tailed bat
50370	*Taphozous*	*nudiventris*	Naked-rumped tomb bat
50380	*Barbastella*	*darjelingensis*	Eastern barbastelle
50390	*Eptesicus*	*anatolicus*	Botta's serotine
50400	*Myotis*	*alcathoe*	Alcathoe's bat
50410	*Myotis*	*aurascens*	Steppe whiskered bat
50420	*Myotis*	*hajastanicus*	Armenian myotis
50430	*Myotis*	*nipalensis*	Nepal myotis
50440	*Myotis*	*punicus*	Felten's myotis
50450	*Myotis*	*schaubi*	Schaub's myotis
50460	*Otonycteris*	*hemprichii*	Desert long-eared bat
50470	*Pipistrellus*	*hanaki*	Hanaki's dwarf bat
50480	*Plecotus*	*sardus*	Sardinian long-eared bat

Codes for difficult-to-separate species: codes 51000 - 51999

Sometimes it is not possible to identify individuals specifically. Some individuals may be assignable more precisely than just to a genus, others may be assignable only to two or more species not of the same genus. In most cases the problem identification is that ultrasound analysis cannot always reliably separate species. The list below is produced in response to requests to provide a list for these difficult cases.

Code	Species	Notes
51000	Unidentified bat	
51010	*Rhinolophus hipposideros, R. euryale* or *R. mehelyi*	Ultrasound analysis not always able to separate these species.
51020	Rhinolophus hipposideros *or R. mehelyi*	Sometimes R. euryale can be eliminated.
51030	*Rhinolophus euryale* or *R. mehely*	Sometimes R. hipposideros can be eliminated.
51040	*Myotis myotis* or M. *blythii*	Large myotis bats
51050	*Nyctalus noctula* or *N. lasiopterus*	
51060	*Nyctalus noctula, N. leisleri* or *Eptesicus serotinus*	
51070	*Nyctalus leisleri* or *Eptesicus serotinus*	Sometimes N. noctula can be eliminated.
51080	*Pipistrellus pipistrellus* or *P. pygmaeus*	Separation also difficult in the hand.
51090	*Pipistrellus pipistrellus* or *P. kuhlii*	Separation difficult in the hand particularly if only remains of body are found.
51100	*Pipistrellus pygmaeus* or *Miniopterus schreibersii*	
51110	*Pipistrellus nathusii* or *P. kuhlii*	
51120	*Eptesicus serotinus* or *E. isabellinus*	Separation also difficult in the hand. Not sympatric with other Eptesicus species.
51130	*Plecotus auritus* or *P. austriacus*	Not sympatric with other similar Plecotus species.

Appendix 2

Sea-mammals - Species Codes

EURING code	Genus	Species	English name
61000			a whale or dolphin
61010			a whale
61020			a large whale
61030			a large whale - indistinct dorsal
61040			a large whale - distinct dorsal
61050			a medium whale
61060			Sei / Minke / Bottlenose
61070			a small whale
62020			large whale - no dorsal
62030	*Balaena*	*mysticetus*	Bowhead Whale
62040	*Balaena*	*glacialis*	Right Whale
62050	*Caperea*	*marginata*	Pygmy Right Whale
62110	*Eschrichtius*	*robustus*	Grey Whale
62210			a large Balaenoptera spec.
62220	*Balaenoptera*	*musculus*	Blue Whale
62230	*Balaenoptera*	*physalus*	Fin Whale
62240	*Balaenoptera*	*borealis*	Sei Whale
62250	*Balaenoptera*	*edeni*	Bryde's Vinvis
62260	*Balaenoptera*	*acutorostrata*	Minke Whale
62270	*Megaptera*	*novaeangliae*	Humpback Whale
62520	*Physeter*	*macrocephalus*	Sperm Whale
62530	*Kogia*	*breviceps*	Pygmy Sperm Whale
62540	*Kogia*	*simus*	Dwarf Sperm Whale
62610	*Monodon*	*monoceros*	Narwhal
62620	*Delphinapterus*	*leucas*	Beluga Whale
62630	*Orcaella*	*brevirostris*	Irrawaddy Dolphin
62710	*Berardius*	*bairdii*	Baird's Beaked Whale
62720	*Berardius*	*arnuxii*	Arnoux's Beaked Whale
62730	*Tasmacetus*	*shepherdi*	Shepherd's Beaked Whale
62740	*Ziphius*	*cavirostris*	Cuvier's Whale
62750	*Hyperoodon*	*ampullatus*	Northern Bottlenose Whale
62760	*Hyperoodon*	*planifrons*	Southern Bottlenose Whale
62770			Mesoplodon sp. - beaked whale
62780	*Mesoplodon*	*pacificus*	Longman's Beaked Whale
62790	*Mesoplodon*	*hectori*	Hector's Beaked Whale
62800	*Mesoplodon*	*mirus*	True's Beaked Whale
62810	*Mesoplodon*	*europaeus*	Gervais' Beaked Whale
62820	*Mesoplodon*	*ginkgodens*	Ginkgo-toothed Beaked Whale
62830	*Mesoplodon*	*grayi*	Gray's Beaked Whale
62840	*Mesoplodon*	*stejnegeri*	Stejneger's Beaked Whale
62850	*Mesoplodon*	*carlhubbsi*	Hubbs' Beaked Whale
62860	*Mesoplodon*	*bowdoini*	Andrews' Beaked Whale
62870	*Mesoplodon*	*layardii*	Straptoothed Whale
62880	*Mesoplodon*	*bidens*	Sowerby's Whale
62890	*Mesoplodon*	*densirostris*	Blainville's Whale
63010			a medium whale - large fin
63020	*Orcinus*	*orca*	Killer Whale
63030			Globicephala or Pseudorca
63040	*Pseudorca*	*crassidens*	False Killer Whale
63050	*Feresa*	*attenuata*	Pygmy Killer Whale
63060	*Peponocephala*	*electra*	Melon-headed Whale
63070	*Globicephala*	*melaena*	Long-finned Pilot Whale

63080	*Globicephala*	*macrorhynchus*	Short-finned Pilot Whale
63110			a dolphin
63120			a patterned dolphin
63130			an unpatterned dolphin
63140	*Souza*	*chinensis*	humpback dolphin
63150	*Souza*	*teuszii*	humpback dolphin
63160	*Souza*	*plumbea*	humpback dolphin
63170	*Steno*	*bredanensis*	Rough-toothed Dolphin
63180	*Sotalia*	*fluviatilis*	Tucuxi
63190	*Tursiops*	*truncatus*	Bottlenose Dolphin
63200	*Stenella*	*coeruleoalba*	Striped Dolphin
63210	*Stenella*	*attenuata*	Pantropical Spotted Dolphin
63220	*Stenella*	*longirostris*	Spinner Dolphin
63230	*Stenella*	*clymene*	Clymene Dolphin
63240	*Stenella*	*frontalis*	Spotted Dolphin
63250	*Delphinus*	*delphis*	Common Dolphin
63260			a Lagenorhynchus spec.
63270	*Lagenorhynchus*	*albirostris*	White-beaked Dolphin
63280	*Lagenorhynchus*	*acutus*	Atlantic White-sided Dolphin
63290	*Lagenorhynchus*	*obliquidens*	Pacific White-sided Dolphin
63300	*Lagenorhynchus*	*obscurus*	Dusky Dolphin
63310	*Lagenorhynchus*	*australis*	Peale's Dolphin
63320	*Lagenorhynchus*	*cruciger*	Hourglass Dolphin
63330	*Lagenodelphis*	*hosei*	Fraser's Dolphin
63340	*Cephalorhynchus*	*heavisidii*	Heaviside's Dolphin
63350	*Cephalorhynchus*	*eutropia*	Chilean Dolphin
63360	*Cephalorhynchus*	*hectori*	Hector's Dolphin
63370	*Cephalorhynchus*	*commersonii*	Commerson's Dolphin
63380	*Lissodelphis*	*borealis*	Northern Right Whale Dolphin
63390	*Lissodelphis*	*peronii*	Southern Right Whale Dolphin
63400	*Grampus*	*griseus*	Risso’s Dolphin
63510	*Phocoena*	*phocoena*	Harbour Porpoise
63520	*Phocoena*	*sinus*	Vaquita
63530	*Australophocaena*	*dioptrica*	Spectacled Porpoise
63540	*Phocoena*	*spinipinnis*	Burmeister's Porpoise
63550	*Neophocaena*	*phocaenoides*	Finless Porpoise
63560	*Phocoenoides*	*dalli*	Dall's Porpoise
63610	*Platanista*	*gangetica*	Ganges River Dolphin
63620	*Platanista*	*minor*	Indus River Dolphin
63630	*Inia*	*geoffrensis*	Boto
63640	*Lipotes*	*vexillifer*	Baiji
63650	*Pontoporia*	*blainvillei*	Franciscana
64010	*Eumetopias*	*jubatus*	Steller's Sea Lion
64020	*Zalophus*	*californianus*	Californian Sea Lion
64030	*Otaria*	*byronia*	Southern Sea Lion
64040	*Neophoca*	*cinerea*	Australian Sea Lion
64050	*Phocarctos*	*hookeri*	New Zealand Sea Lion
64060	*Arctocephalus*	*townsendi*	Guadalupe Fur Seal
64070	*Arctocephalus*	*galapagoensis*	Galapagos Fur Seal
64080	*Arctocephalus*	*philippii*	Juan Fernandez Fur Seal
64090	*Arctocephalus*	*australis*	South American Fur Seal
64100	*Arctocephalus*	*tropicalis*	Subantarctic Fur Seal
64110	*Arctocephalus*	*gazella*	Antarctic Fur Seal
64120	*Arctocephalus*	*pusillus*	Cape/Australian Fur Seal
64130	*Arctocephalus*	*forsteri*	New Zealand Fur Seal
64140	*Callorhinus*	*ursinus*	Northern Fur Seal
64210	*Odobenus*	*rosmarus*	Walrus
64310			an unidentified pinniped

64320	*Halichoerus*	*grypus*	Grey Seal
64330	*Phoca*	*vitulina*	Common Seal
64340	*Phoca*	*largha*	Largha Seal
64350	*Phoca*	*hispida*	Ringed Seal
64360	*Phoca*	*caspia*	Caspian Seal
64370	*Phoca*	*siberica*	Baikal Seal
64380	*Phoca*	*groenlandica*	Harp Seal
64390	*Phoca*	*fasciata*	Ribbon Seal
64400	*Cystophora*	*cristata*	Hooded Seal
64410	*Erignathus*	*barbatus*	Bearded Seal
64420	*Monachus*	*monachus*	Mediterranian Monk Seal
64430	*Monachus*	*tropicalis*	West Indian Monk Seal
64440	*Monachus*	*schauinslandi*	Hawaiian Monk Seal
64450	*Leptonychotes*	*weddelli*	Weddell Seal
64460	*Ommatophoca*	*rossi*	Ross Seal
64470	*Lobodon*	*carcinophagus*	Crabeater Seal
64480	*Hydrurga*	*leptonyx*	Leopard Seal
64490	*Mirounga*	*leonina*	Southern Elephant Seal
64500	*Mirounga*	*angustirostris*	Northern Elephant Seal

Appendix 3 Data Submission to the EDB - Summary of Procedure

The purpose of adding biometric fields to the EURING coding scheme is to encourage schemes to store data in a standard format which will allow simpler data exchange. It is important to stress that it is not expected that all schemes are expected to collect all these data for all birds. Rather, the coding system allows data to be stored where schemes already collect such data. Schemes are encouraged to gather appropriate data systematically but must not feel forced to try to collect all possible data for all birds.

The full Data Submission Guide is available from http://www.euring.org/data_and_codes/euring_code_list/index.html In addition to details of the process given below, it also gives advice about common errors and instructions for submission of ringing totals.

Questions relating to data submission should be emailed to edb@bto.org

3.1 Outline of the data submission process

1. Schemes are expected to submit their entire recovery data set annually.
2. The date of submission should be at a time to suit the ringing scheme.
3. All data should be submitted annually - new recoveries, corrected recoveries and all old recoveries that were submitted previously.
4. Data will be validated at the EDB. Details of errors will be sent back to the schemes.
5. Provided checks are satisfactory, the existing data in the EDB will be deleted and the new data set loaded.

3.2 Rationale

It may seem wasteful and unnecessary to resubmit the entire scheme's recovery data set annually. However, the alternatives would be for schemes to submit data only in response to requests or else submit new recovery data annually, together with any corrected recovery data.
The first system would require schemes to extract and submit data every time there was a request. This might be as often as every two or three weeks. It would be very demanding of schemes' time and resources. Further, it would require a great deal of work at the EDB in checking and combining separate data sets for each request.
The second system also has disadvantages for both the scheme and the EDB. Schemes would have to keep a record of which recoveries had been submitted to the EDB. This would require some additional form of record keeping, particularly where old records had been corrected. There would also be additional work at the EDB for these records. In some cases - perhaps where a ring number had been corrected - records would have to be removed from the data bank manually.
For ringing schemes, and for the EDB, it is far simpler to submit all recovery data every year. A scheme's routine for selecting records to be submitted will always be the same - select all data. Likewise the system at the EDB will always be the same - delete all old data and load all new. These systems can be entirely automatic with the computer doing all the work.
The time of submission should be arranged to suit the individual scheme. This allows schemes to arrange the annual submission to be done at a time when it is most convenient to do so. This should also be better for the EDB. If schemes were all asked to submit data at the same time, the workload at the EDB would become too great at that particular time. Far better to allow the workload to be spread throughout the year.

3.3 Which code - 1979, 2000 or 2000Plus?

It is hoped that all schemes will soon be able to submit data in EURING 2000 code format. However, it is recognised that, for schemes which are already submitting in 1979 code, considerable work may have to be done to change this system. All schemes are under great pressure of time and other resources. Sometimes it will be better to wait for an appropriate time before embarking on the work of changing to the 2000 format. For example, if it is anticipated that the scheme's computer system is to be reorganised in one or two years, then it might be better to wait for this major change - when new systems have to be created anyway - to change to the newer code.
Schemes which have not yet submitted data to the EDB should not use 1979 code.

3.4 Submission of local recaptures and ringing data

Schemes have, traditionally, defined a lower distance or time limit for reporting live recaptures of birds. For example in Britain and Ireland movements of under 5 km for most species have not been recorded in the national recovery database. A list of schemes' practices is found at http://www.euring.org/data_and_codes/obtaining_data/recovery_definitions.htm Each scheme must determine its own lower limit for inclusion of live recaptures in their own database. The EDB will accept all records that schemes decide to include, whatever the lower distance limit may be. Schemes should submit all records for dead recoveries, even where the ringing and recovery location are the same.

The EDB is now able to accept ringing and recapture data for all birds, not only those which have been recaptured or recovered. If ringing records alone (without recovery or recapture data) are submitted, they must be submitted in 2000Plus code.

3.5 Error checking and feedback to schemes

Software written by Vidar Bakken is freely available from the schemes' private area of the EURING web site. This checks data files in 2000 code. Schemes submitting data in 2000 code should use this software to check data before submission.

Data will be further validated at the EDB before loading into the main EDB database. Some errors can be corrected on loading. Typical errors in this category include an incorrect value for unknown data in a particular field, perhaps a U instead of a Z. Other errors cannot be corrected in this way - dates such as 31022007, for example.

Feedback from this validation will be sent to schemes. First will be a general report with comments, where appropriate, on each field. The second type of feedback will be a spreadsheet detailing records with particular errors. Schemes will be able to use this feedback to help improve the veracity of their own ringing recovery data sets. Erroneous records which need to be corrected before being loaded into the EDB need not be resubmitted until the scheme's next annual submission.

3.6 File organisation

Although the EURING Exchange Code 2000, manual is quite clear about the format of encounter records, the organisation of records within the file is not mentioned.

As far as the EDB is concerned, the organisation of files is of little importance. Schemes are free to organise their submission data files in the way most convenient to them.

Some methods which are used are these:

1. All records in a single file, sorted by ring number and date of encounter. This is the most frequently used format and appears to be the most natural.
2. All ringing encounter records in one file; all recovery encounters in a second file. Both files sorted by ring number order.
3. One file for each species. Within the files, data are sorted by ring number and date.

Files are generally submitted as an email attachment to the edb@bto.org. Large files are often zipped in order to ease transmission by email. It is also acceptable to submit data on CD through the postal system.

3.7 Extinct schemes and old place codes

Data from old schemes should normally retain the old scheme code. The only exception to this is where a scheme continues, but under a new code. This can happen as a result of political changes. In these cases, the scheme must decide at which point the scheme code changes. It is possible, for example, to change all historical records for the scheme to the new code, provided all birds with that old code were ringed with rings from the same ringing centre.

Place codes also change according to various political considerations. Again, it is a matter for ringing schemes to determine whether their own records retain the old country and region codes, or whether they are converted to the current equivalent codes. However, for submission to the EDB, it is most helpful if country codes, at least, are converted to the latest version. Extraction and analysis of data from the EDB are made particularly difficult if any country codes are still in the original 1966 numeric codes.

3.8 Unrecorded/unknown data

The EURING code 2000 provided opportunities for recording variables which are vital for any bird encounter record - the ring number, for instance. However, some fields may be useful for many

analyses, but do not carry the same importance as others. These include fields such as the catching method or pullus age. Some schemes demand that ringers record and submit these data, others do not. Where schemes do not record such items, records should be submitted with the appropriate code for unknown or unrecorded (usually U, Z or a hyphen) rather than just leaving a blank character space.
The fields which have been added in the 2000Plus code often do not have a value for unknown/ unrecorded; missing values are represented by two adjacent 'pipe' symbols.

3.9 Derived data

The EURING code provides three fields for derived data. These are for the distance moved, direction travelled and time elapsed since ringing. For the ringing event, these fields must all contain hyphens, not zeros. This provides one simple way of separating the ringing record from subsequent records. Some schemes have found difficulty in calculating the distance and direction fields. These can be calculated by the EDB when the data are loaded. In these cases they should be left as hyphens in the recovery/recapture record. However, always calculate the elapsed time.

3·10 Place name, Remarks and Reference fields

These last three fields in 2000+ code have been included to enable use of the EURING Exchange Code for between-scheme recovery processing. They are not stored in the EDB.
When submitting data to the EDB, schemes can include these three fields if they wish - it makes no difference to the EDB loading process. The important thing is to minimise work for schemes. If it is more conveneient to have one routine for exporting data (to other schemes or to the EDB) then it will be simpler to include these fields which will just be ignored by the EDB loading routine.