



WETLANDS INTERNATIONAL / IUCN SSC
SWAN SPECIALIST GROUP

CIRCUMPOLAR

CODE AND COLOUR PROTOCOL

FOR NECK COLLARS FOR

MUTE SWAN CYGNUS OLOR
WHOOPE SWAN CYGNUS CYGNUS
BEWICKS SWAN CYGNUS BEWICKII
TUNDRA SWAN CYGNUS COLUMBIANUS AND
TRUMPETER SWAN CYGNUS BUCCINATOR

First edition 1972
Revised 1980 and 2010

by

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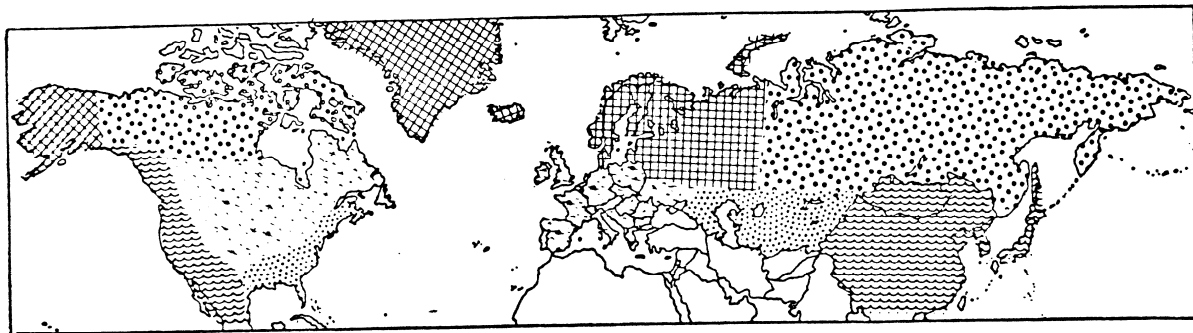
History











Use of neck collars for the study of swan biology was introduced by Sladen in 1969 in North America and later in 1973 a protocol was introduced for Europe and Asia and thus the whole circumpolar area. The protocol has been followed in Europe and Asia with a few exceptions, whereas it seems to have more or less collapsed in North America since about 2000.

Colours and codes

The original colour protocol for the northern swans. Please note that the map was prepared in 1972 and geographical names in the USSR has changed since. An updated map for Eurasia is shown in Fig. 2.

Figure 1 Circumpolar colour protocol for the northern swans
Cygnus olor; *Cygnus columbianus columbianus*; *Cygnus columbianus bewickii*;
Cygnus c. cygnus; *Cygnus cygnus buccinator*



NORTH AMERICA		EUROPE & ASIA	
	YELLOW Alta. Sask, Man, Ont, PQ, Nfld, ND, SD, Neb, Kan, Okl, Minn, Iowa, Mo, Ark, Wis, Ill, Mich, Ind, Ky, Tenn, Ohio, W. Va, Pa, NY		Austria, Belgium, Bulgaria, Czechoslovakia, FRG, France, GDR, Greece, Hungary, Ireland, Italy, Netherlands, Poland, Rumania, Spain, Switzerland, UK, Yugoslavia, SW USSR (Ukrainian, Moldavian republics)
	BLUE Alaska		Denmark, Estonia, Finland, Greenland, Iceland, Latvia, Lithuania, Norway, Sweden, NW RSFSR – W from Ural Mts., N from 50° N, White Russia
	ORANGE (RED) NWT, Yukon		Eastern RSFSR – east from Ural Mts. north from 50° N, NE Kazakhstan
	GREEN BC, Wa, Ore, Ca, Nv, Az, Ut, NM, Tx, Co, Wy, Mt, Id		Formosa, Japan, Mongolia, N & S Korea, Peoples' Republic of China
	BLACK/WHITE La, Miss, Ala, Ga, Fla, SC, NC, Va, Md, Del, NJ, Conn. RI, Mass, NH, Vt, Me, NB, NS		Southern USSR south from 50° N (lower reaches of Don & Volga Rivers, Caucasus, S Kazakhstan, Middle Asia)

The method relies on four digit codes that combine letters with numbers. The important features are as follows:

1. Five simple and easily recognized colours only are used. These are blue, green, yellow, orange (or red) and black (or white)
2. The entire distribution of the species and/or subspecies is first considered and the colours then allocated permanently to specific areas. The colour protocol for North America was completed in 1970 and for Eurasia in early 1974 and were for the first time in any northern hemisphere waterfowl project, working a truly circumpolar colour protocol (see fig. 1). It is important to stress that all swans, regardless of species, must be neck-banded with the colour of the area where they are captured. For example *Cygnus olor*, marked with blue neck-collars in Denmark and yellow in the Netherlands, *Cygnus bewickii* and *Cygnus cygnus* with red/orange in Russia east of the Urals, and *Cygnus cygnus* in Japan with green collars
3. The code must always be a four digit letter-number combination engraved vertically. It is usually repeated four times around the neck-collar and/or matching tarsus rings. Occasionally a swan wears its collar with a few neck feathers overlapping the top, and thus A13 could also be A130, A131 to A139 if the last number was obliterated by plumage. Therefore, we insist on four digits being present (and needed to be read) on every collar. Any program that includes two or three digit letter-number codes reading vertically for the same species will do much harm to the concept of international protocols.
4. The code is characteristic for the species, the position of the letter(s) providing the clue. Thus A234 is *columbianus*, 234A *bewickii*, AA23 *olor*, 23AA *buccinator* and 2A34 *cygnus* (see table). For Europe, where no confusion with *buccinator* is possible, also 23AA has been used for *olor*.
5. Only 12 letters of the Roman alphabet (see table) are used. These letters are those that can only be read one way round, and cannot be confused for numbers. Thus we have omitted fourteen letters because of similarities: B = 8, D = 0 = Q; G = C; H, N, S and X are the same when read the wrong way e.g. H096 *columbianus* could be 960A *bewickii*; I = 1, L = 7; V = U or VV = W = M; Z = 2.
6. No code series for a species is duplicated in another of the five colours. For example, the A001 to A000 series is blue for *columbianus* and the C001 series black; they are not interchangeable. Thus, if someone reports a black neck-collar on a *columbianus* with code A001, they have either read the letter wrong or made an error in reporting the colour.



7. Matching colour tarsus bands with identical codes are placed on the tarsus opposite the national metal band. In recent years this has often been omitted as new thicker and long-lasting plastic for neck collars has been used.
8. The code digits on *columbianus* and *bewickii* neck-collars are 25 mm high and on the tarsus rings 13 mm. The neck and tarsus bands are usually 80 mm and 38 mm respectively. These are larger for *olor*, *cygnus* and *buccinator*. An overlap of about 35 mm is bonded with fast drying cement.
9. To standardize the position of the code to facilitate routine reading in the field, we require the letters to be placed below (i.e. against the body on the neck and the foot on the tarsus (Fig. 2). The position of the letters will thus indicate which way the band should be read (either up or down) and at the same time aid in distinguishing the species-specific lettering.
10. The whole system is agreed upon by workers and co-workers with fairly detailed allocation of codes per area-colour and species. This avoids the danger of unbalanced and non-ecologically oriented “first-come-first-served” protocols being established which invariably emphasize local studies
11. Reading the codes in the field is dependent on (1) a powerful spotting scope preferably a zoom lens x20 – x60 (2) a steady tripod or car window clamp, and (3) as important, a skill at approaching the birds without scaring them. In good light the swan neck-collars can be read easily at 400 m and often at 800 m
12. To avoid duplicating of codes and collars only one institution (person) should be in charge of distributing codes and collars. This person should be designated at the international swans symposia held with regular intervals and should keep records of all codes used and to be used.

Fig. 2 Colours for neck-collars in different areas in Europe and Asia. In some cases orange has been used instead of red, and white instead of black.

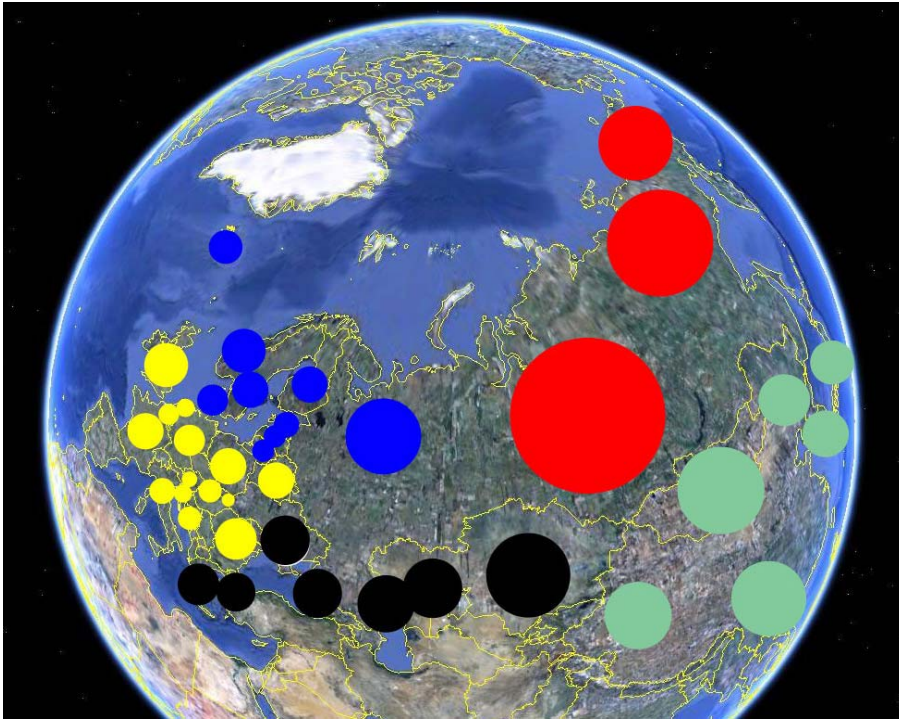


Table. Four digit letter-number codes for northern swan neck-collars.

Table. Four digit letter-number codes for northern swan neck and tarsus bands

Cygnus (sub)species	Code	First Batch				2nd Batch	Last Batch		Total Combinations
		Start With	Next To Last	End With	Combinations	Start With	Start With	End With	
<i>C. olor</i>	2 letters 2 numbers	AA01	AA99	AA00	100	AC01	YY01	YY00	14 400
<i>C. columbianus columbianus</i>	1 letter 3 numbers	A001	A999	A000	1,000	C001	Y001	Y000	12 000
<i>C. columbianus bewickii</i>	3 numbers 1 letter	001A	999A	000A	1,000	001C	001Y	000Y	12 000
<i>C. cygnus cygnus</i>	1 number 1 letter 2 numbers	0A01	0A99	1A00	100	1A01	9Y01	0Y00	12 000
<i>C. cygnus buccinator</i>	2 numbers 2 letters	01AA	99AA	00AA	100	01AC	01YY	00YY	14 400

Total combinations for each species are for 12 letters only: -

A,C,E,F,J,K,M,P,R,T,U,Y. H can be used in non-reversible combinations.

These letter are not repeated in more than one colour (e.g. A001 to A000 is blue, C001 to C000 black (never blue). Colours relate to ecological and/or geographic areas (see Figure 1).

Since there is no possible overlapping between the North American and Eurasian *C.olor*, the code system is repeated on each continent but using different colours. As *C. buccinator* is a truly north American species the same code system is used for European *C.olor* since 2000.

A not yet solved problem is codes for the small but interesting hybrid population of *C.bewickii* x *C.columbianus* in Chukotka (Russia).

A complete list of codes used in different countries/areas is comprehensive.

Information for Europe and Asia can be obtained from the coordinator

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For many project information can be found at <http://www.cr-birding.be/>

WI/IUCN/SSC Swan Specialist Group Website

<http://www.wetlands.org/Aboutus/Networkpartnersanddonors/Networkofspecialists/SwanSpecialistGroup/tabid/198/Default.aspx>