

A FIRST INVENTORY OF COLOUR--BANDING PROJECTS IN  
THE SUBANTARCTIC AND ANTARCTIC, 1965-- 1984

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INTRODUCTION

With the increasing use of colour bands to mark birds the probability of more than one bander using the same colour code on the same species has become greater. This problem has led to action being taken to co-ordinate colour-banding of waders (Charadrii) (Myers *et al.* 1983, Townshend 1983). The need to co-ordinate colour-banding of seabirds in the Subantarctic and Antarctic has recently been identified (BIOMASS Working Party on Bird Ecology 1983). This report lists, for the first time, such details for the Southern Ocean region.

METHODS

Countries known to be, or to have been, involved in banding seabirds (including sheathbills *Chionis* sp.) in the Subantarctic and Antarctic were asked to submit details of their colour-banding activities to the Central Data Bank for Antarctic Bird Banding (CDB) (see Oatley & Cooper 1985) in 1982. Countries which did not reply, or which submitted incomplete or inadequate information, were approached again during late 1983.

RESULTS

A total of 13 countries was initially canvassed to supply data. Full, detailed information was received from four countries: Australia, France, South Africa and the United Kingdom. Table 1 lists all countries approached and comments on what replies, if any, were received.

Table 2 lists details of colour bands used on seabirds in the Antarctic and Subantarctic by the four countries which supplied comprehensive data.

Table 3 summarizes the colour-banding effort listed in Table 2. Totals of rows indicate which species have received most attention and totals of columns show which colours have been most frequently used.

TABLE 1

COUNTRIES FROM WHICH COLOUR-BANDING  
DETAILS WERE REQUESTED AND THEIR REPLIES

| Country                     | Reply  |
|-----------------------------|--|
| Argentina                   | No colour bands used up to 1982.<br>No reply to 1983 enquiry.                        |
| Australia                   | Details supplied (Table 2).  |
| Chile                       | No colour bands used up to 1982.<br>No reply to 1983 enquiry.                        |
| Federal Republic of Germany | No banding or colour-banding yet undertaken.   |
| France                      | Details supplied (Table 2).  |
| German Democratic Republic  | No reply (colour-banding has apparently taken place; J.P. Croxall <i>in litt.</i> ). |
| Japan                       | No reply.  |
| New Zealand                 | No current colour-banding activities. No details of past efforts supplied.           |
| Poland                      | No birds ringed in Antarctica since February 1981. Colour bands not used.            |
| South Africa                | Details supplied (Table 2).  |
| U.S.S.R.                    | No reply.  |
| United Kingdom              | Details supplied (Table 2).  |
| United States of America    | Limited details supplied.*   |

\* G.M. Jonkel *in litt.* states that red, yellow, white, green and blue leg bands had been "authorized" for use on Southern Giant Petrels *Macronectes giganteus*, Imperial Cormorants *Phalacrocorax atriceps*, Antarctic Terns *Sterna vittata* and American Sheathbills *Chionis alba*, and these colours with the addition of black on South Polar Skuas *Catharacta maccormicki* and Kelp Gulls *Larus dominicanus*. It is not yet known whether, in fact, such colours have been used on these species.

TABLE 2

## FIRST SCHEDULE OF COLOUR BANDS USED IN THE SUBANTARCTIC AND ANTARCTIC, 1965-1984

| Species   | Age Class               | Locality          | Date           | Colours used <sup>1</sup>             | No. per leg | Leg Used    | Type of band        | No. banded       |
|---|-------------------------|-------------------|----------------|---------------------------------------|-------------|-------------|---------------------|------------------|
| AUSTRALIA (Antarctic Division)                                |                         |                   |                |                                       |             |             |                     |                  |
| Wandering Albatross<br><i>Diomedea exulans</i>                | Adults, mainly breeders | Macquarie Island  | 1965-1982      | W, R, Y, G, B, N (individually coded) | 1 or 2      | L &/or R    | ?                   | 152 <sup>2</sup> |
| Lightmantled Sooty Albatross<br><i>Phoebastria palpebrata</i> | Adults                  | Macquarie Island  |                | W, R, Y, G, B, N                      | 1           | L & R       | ?                   | 50               |
| FRANCE (T.A.A.F.)   |                         |                   |                |                                       |             |             |                     |                  |
| King Penguin<br><i>Aptenodytes patagonicus</i>                | ?                       | Possession Island | ?              | Y (individually numbered 1-60)        | 1           | R (flipper) | Darvic tag          | 60               |
| Gentoo Penguin<br><i>Pygoscelis papua</i>                     | ?                       | Possession Island | 1983 (planned) | W, Y (individually numbered)          | 1           | R (flipper) | Darvic engraved tag | ?                |
| Wandering Albatross<br><i>Diomedea exulans</i>                | Adults                  | Possession Island | 1977-1979      | W, R, Y, G, B, N (individually coded) | 3           | ?           | Plastic             | 86 <sup>3</sup>  |

| Species  | Age Class                      | Locality          | Date           | Colours used                          | No. per leg        | Leg Used             | Type of band                             | No. of banded         |
|--|--------------------------------|-------------------|----------------|---------------------------------------|--------------------|----------------------|--|-----------------------|
| Sooty Albatross<br><i>Phoebastria fusca</i>              | Adults                         | Possession Island | 1979-1981      | W, R, Y, G, B, N (individually coded) | 3                  | R                    | Plastic                                  | 135                   |
| Lightmantled Sooty Albatross<br><i>P. palpebrata</i>     | Adults                         | Possession Island | 1980-1981      | W, R, Y, G, B, N (individually coded) | 3                  | R                    | Plastic                                  | 27                    |
| Southern Giant Petrel<br><i>Macronectes giganteus</i>    | ?                              | Terre Adelie      | 1981-1984      | W, engraved black nos. 01-219         | 1                  | L                    | Darvic                                   | ?                     |
| Antarctic Fulmar<br><i>Fulmarus glacialisoides</i>       | Adults &                       | Terre Adelie      | 1981-1984      | Y, engraved black nos. 0-199          | 1                  | L                    | Darvic                                   | ?                     |
| Whitechinned Petrel<br><i>Procellaria aequinoctialis</i> | Juveniles (= chicks?)          | Terre Adelie      | 1981-1984      | W, engraved black nos. 0-99           | 1                  | L                    | Darvic                                   | ?                     |
|  | Adults                         | Possession Island | 1983 (planned) | ? engraved nos.                       | ?                  | ?                    | Darvic                                   | ?                     |
| Subantarctic Skua<br><i>Catharacta antarctica</i>        | Adults & Juveniles (= chicks?) | Possession Island | 1973-1975      | W, R, Y, G, B, N (individually coded) | 1<br>2<br>3<br>1/2 | R<br>R<br>R<br>L & R | Plastic<br>Plastic<br>Plastic<br>Plastic | 22<br>36<br>113<br>70 |

| Species   | Age Class                     | Locality                          | Date                | Colours used                          | No. per leg | Leg Used    | Type of band    | No. banded |
|---|-------------------------------|-----------------------------------|---------------------|---------------------------------------|-------------|-------------|-----------------|------------|
| South Polar Skua<br><i>C. maccormicki</i>                     | ?                             | Terre Adelie                      | 1981-1984           | Y, engraved black nos. O-399          | 1           | L           | Darvic          | ?          |
| Lesser Sheathbill<br><i>Chionis minor</i>                     | Adults                        | Possession Island                 | Up to 1982          | WR, Y, G, B, N (individually coded)   | 1/2         | L & R       | Plastic         | 92         |
|   | Juveniles (= chicks?)         | Possession Island                 | Up to 1982          | ?                                     | 1           | L           | Plastic         | c.150      |
|   | Adults, Juveniles (= chicks?) | Possession Island                 | From 1983 (planned) | Y (individually numbered)             | 1           | ?           | Darvic          | ?          |
| SOUTH AFRICA (FitzPatrick Institute, University of Cape Town) |                               |                                   |                     |                                       |             |             |                 |            |
| Rockhopper Penguin<br><i>Eudyptes chrysocome</i>              | Breeding adults               | Seal Beach, Gough Island          | 1982-1984           | Y                                     | 1           | L (flipper) | stainless steel | 87         |
| Yellow nosed Albatross<br><i>Diomedea chlororhynchos</i>      | Breeding adults               | Meteorological Base, Gough Island | 1983-1984           | W, R, Y, G, B, N (individually coded) | 3           | L           | Darvic coil     | 201        |

| Species   | Age Class                    | Locality                          | Date             | Colours used                              | No. per leg | Leg Used | Type of band   | No. banded |
|---|------------------------------|-----------------------------------|------------------|---|-------------|----------|----------------|------------|
| Sooty Albatross<br><i>Phoebastria fusca</i>                   | Adults (mainly non-breeders) | Marion Island                     | 1974-1975 & 1980 | R, O, Y, G, B, P, N (individually coded)  | 1 or 2      | L or R   | Celluloid coil | c. 250     |
|   | Breeding adults              | Meteorological Base, Gough Island | 1984             | W, R, Y, G, B, N (individually coded)     | 3           | L        | Darvic coil    | 24         |
|   | Adults                       | Marion Island                     | 1974-1975 & 1980 | R, Y (individually coded)                 | 1 or 2      | L or R   | Celluloid coil | < 5        |
| Lightmantled Sooty Albatross<br><i>Phoebastria palpebrata</i> | Adults                       | Marion Island                     | 1983-1984        | G (individually numbered 000-391)         | 1           | L        | Darvic coil    | 341        |
|   | Adults                       | Marion Island                     | 1984             | W, R, O, Y, G, B, N, (individually coded) | 1 or 2      | L & R    | Darvic coil    | 12         |
| Northern Giant Petrel<br><i>M. halli</i>                      | Chicks                       | Marion Island                     | 1983-1984        | G   | 1           | R        | Darvic coil    | 401        |
|   | Adults                       | Marion Island                     | 1979             | W, Y, G (individually coded)              | 1           | L or R   | ?              | 5          |
| Giant Petrel<br><i>Macronectes giganteus</i>                  | Adults                       | Marion Island                     | 1983-1984        | N (individually numbered 000-345)         | 1           | L        | Darvic coil    | 285        |

| Species  | Age Class          | Locality                       | Date      | Colours used   | No. per leg | Leg Used | Type of band               | No. banded |
|--|--------------------|--------------------------------|-----------|--|-------------|----------|----------------------------|------------|
| Northern<br>Giant Petrel<br><i>M. halli</i>                | Chicks             | Marion Island                  | 1983-1984 | N  | 1           | R        | Darvic coil                | 44         |
| Imperial<br>Cormorant<br><i>Phalacrocorax<br/>atriceps</i> | Breeding<br>Adults | "Burger Bay",<br>Marion Island | 1978      | W, R, Y, G, B<br>(individually<br>coded)             | 1 or 2      | ?        | Celluloid<br>coil          | 10         |
|  | Breeding<br>Adults | Marion Island                  | 1984      | W, R, Y, G, B, N<br>(individually<br>coded)          | 1 or 2      | L & R    | Darvic<br>coil             | 62         |
| Lesser<br>Shearbill<br><i>Chionis<br/>minor</i>            | Adults &<br>Chicks | Marion Island                  | 1974-1977 | W, R, O, Y,<br>G, B, P, N<br>(individually<br>coded) | 1 or 2      | L &/or R | Plastic<br>(few<br>Darvic) | 270        |
| Subantarctic<br>Skua<br><i>Catharacta<br/>antarctica</i>   | Adults             | Marion Island                  | 1983-1984 | W, R, Y, G, B, N<br>(individually<br>coded)          | 1 or 2      | L &/or R | Darvic<br>coil             | 125        |
|  | Breeding<br>adults | Gough Island                   | 1983-1984 | W, R, Y, G, B, N<br>(individually<br>coded)          | 2           | L        | Darvic<br>coil             | 30         |
| Kelp Gull<br><i>Larus<br/>dominicanus</i>                  | Adults             | Marion Island                  | 1983-1984 | W, R, Y, G, B<br>(individually<br>coded)             | 1 or 2      | L        | Darvic<br>coil             | 7          |

| Species   | Age Class         | Locality    | Date      | Colours used  | No. per leg | Leg Used | Type of band | No. banded |
|---|-------------------|-------------|-----------|---|-------------|----------|--------------|------------|
| 1   |                   |             |           |   |             |          |              |            |
| UNITED KINGDOM (British Antarctic Survey)             |                   |             |           |   |             |          |              |            |
| Wandering Albatross<br><i>Diomedea exulans</i>        | Chicks and adults | Bird Island | 1978-1980 | W, R, O, Y, G, B, N (individually numbered 000-997) | 1           | R        | tall Darvic  | c. 3 500   |
|   | Adults            | Bird Island | 1981-1984 | W, G (individually lettered and numbered)           | 1           | L        | tall Darvic  | 650        |
|   | Chicks            | Bird Island | 1983-1984 | O, N (individually lettered and numbered)           | 1           | R        | tall Darvic  | 200        |
| Greyheaded Albatross<br><i>D. chrysostroma</i>        | Adults            | Bird Island | 1978-1984 | R, O, Y, G, B, N (individually numbered 000-999)    | 1           | L or R   | tall Darvic  | c. 1 200   |
| Blackbrowed Albatross<br><i>D. melanophris</i>        | Adults            | Bird Island | 1978-1984 | W, R, Y, G, N (individually numbered 000-999)       | 1           | L or R   | tall Darvic  | c. 450     |
| Southern Giant Petrel<br><i>Macronectes giganteus</i> | Adults            | Bird Island | 1978-1981 | W, R, O, Y (individually numbered)                  | 1           | L or R   | tall Darvic  | 267        |



| Species   | Age Class                 | Locality     | Date               | Colours used <sup>1</sup>            | No. per leg | Leg Used | Type of band | No. banded |
|---|---------------------------|--------------|--------------------|--------------------------------------|-------------|----------|--------------|------------|
| Southern Giant Petrel<br><i>M. giganteus</i>      | Chicks                    | Bird Island  | 1983               | R<br>(individually numbered 200-229) | 1           | L or R   | tall Darvic  | 21(?)      |
| Northern Giant Petrel<br><i>M. halli</i>          | Adults                    | Bird Island  | 1978-1981          | W,R,O,Y<br>(individually numbered)   | 1           | L or R   | tall Darvic  | 142        |
| Giant petrel hybrids                              | Adults                    | Bird Island  | 1978-1981          | W 885,O 452,<br>Y 549                | 1           | L        | Darvic       | 3          |
| Blue-eyed Shag<br>(Imperial Cormorant)            | Chicks                    | Bird Island  | 1978-1981          | R 200-205<br>Y 202                   | 1           | R        | tall Darvic  | 7          |
| <i>Phalacrocorax atriceps</i>                     | Adults (mainly known-age) | Signy Island | 1979-1981 (mainly) | W,R,Y,G,B,Br,                        | Up to 3     | L or R   | small Darvic | c. 400     |
| Subantarctic Skua<br><i>Catharacta antarctica</i> | Adults                    | Signy Island | 1981-1983          | as above                             | 1 - 2       | R        | small Darvic | c. 5       |
|   | Adults and chicks         | Bird Island  | 1983-1984          | as above                             | 1 - 2       | L or R   | small Darvic | c. 50      |

| Species   | Age Class | Locality     | Date               | Colours used      | No. per leg | Leg Used | Type of band | No. banded |
|---|-----------|--------------|--------------------|-------------------|-------------|----------|--------------|------------|
| South Polar Skua<br><i>C. maccormicki</i>           | Adults    | Signy Island | 1981-1983          | W, R, Y, G, B, Br | 1 - 2       | R        | small Darvic | 6          |
|   | Chicks    | Signy Island | 1981-1983          | as above          | 1 - 2       | L        | small Darvic | c. 25      |
| American (Greater) Shearbill<br><i>Chionis alba</i> | Adults    | Signy Island | 1979-1981 (mainly) | as above          | 1 - 2       | L or R   | small Darvic | c. 30      |

1. W = white, R = red, O = orange, Y = yellow, G = green, B = blue, P = purple, N = black, Br = brown.
2. Seven colour combinations duplicated.
3. Discontinued due to band loss; use of engraved yellow Darvic bands planned or commenced for adults but details not clear.
4. The Rockhopper Penguins *Eudyptes chrysocome* at Gough Island have been marked with standard flipper bands (Cooper & Morant 1981) which have yellow paint 'baked' into the inscription.

TABLE 3

## SUMMARY OF COLOUR-BANDING PROJECTS BY COLOUR AND SPECIES

| Species                      | Number of national sites where this colour used |           |          |           |           |           |          |           |          |            | Totals |
|------------------------------|---|-----------|----------|-----------|-----------|-----------|----------|-----------|----------|------------|--------|
|                              | White   | Red       | Orange   | Yellow    | Green     | Blue      | Purple   | Black     | Brown    | Totals     |        |
| King Penguin                 |   |           |          | 1         |           |           |          |           |          |            | 1      |
| Gentoo Penguin               | 1   |           |          | 1         |           |           |          |           |          |            | 2      |
| Rockhopper Penguin           |   |           |          | 1         |           |           |          |           |          |            | 1      |
| Wandering Albatross          | 3   | 3         | 1        | 3         | 3         | 3         |          |           |          |            | 19     |
| Blackbrowed Albatross        | 1   |           |          |           | 1         |           |          |           |          |            | 1      |
| Greyheaded Albatross         | 1   | 1         |          | 1         | 1         |           |          | 1         |          |            | 6      |
| Yellow nosed Albatross       | 1   | 2         |          | 2         | 2         |           | 1        | 2         |          |            | 13     |
| Sooty Albatross              |   |           | 1        |           |           |           |          |           |          |            |        |
| Lightmantled Sooty Albatross | 2   | 3         |          | 3         | 2         | 2         |          | 2         |          |            | 14     |
| Southern Giant Petrel        | 2   | 1         | 1        | 1         | 1         |           |          |           |          |            | 6      |
| Northern Giant Petrel        | 2   | 1         | 1        | 2         | 1         |           |          | 1         |          |            | 8      |
| Giant petrel hybrids         | 1   | 1         | 1        | 1         |           |           |          |           |          |            | 4      |
| Antarctic Fulmar             | 1   |           |          | 1         |           |           |          |           |          |            | 2      |
| Imperial Cormorant           | 2   | 2         |          | 2         | 2         | 2         |          | 1         |          |            | 11     |
| Subantarctic Skua            | 2   | 2         |          | 2         | 2         |           |          | 2         |          |            | 12     |
| South Polar Skua             | 1   |           |          | 1         |           |           |          |           |          |            | 2      |
| Kelp Gull                    | 1   | 1         |          | 1         | 1         |           |          | 1         |          |            | 6      |
| Lesser Shearwater            | 2   | 2         | 1        | 2         | 2         |           | 1        | 2         |          |            | 14     |
| <b>Totals</b>                | <b>23</b>                                       | <b>19</b> | <b>6</b> | <b>25</b> | <b>17</b> | <b>16</b> | <b>2</b> | <b>14</b> | <b>1</b> | <b>123</b> |        |

## DISCUSSION

It is certain that Table 2 does not list all the colour-banding efforts in the Southern Ocean. It is also evident, given the numbers of colours that can be used, that there is considerable potential for overlap of colour combinations used in different places on the same species. From Table 3 it is apparent that yellow is the most frequently used colour, and that orange, a potentially good colour for long-distance sightings, has been underutilized. Because of the apparent island fidelity of breeding seabirds, duplication of markings by different national teams will probably not cause problems at study colonies. However, it may become difficult or impossible to be certain of the origins of colour-banded birds sighted away from their breeding localities.

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