

**RESIGHTING PROTOCOL FOR INDIVIDUALLY COLOR-MARKED SHOREBIRDS ON
DELAWARE BEACHES
MAY 2006**

OBJECTIVES

1. To assess the length of stay of individual birds in Delaware Bay during the 2006 season.
2. To assess the movement of individuals between sites and to back up radio telemetry studies.
3. To assess the return rates of individual marked birds to feed into survival analyses.

OVERVIEW

An individually marked bird is one whose bands or flags allow us to recognize a single bird, as opposed to cohort-marked birds that only allow us to assign a bird to a group of birds. At the start of the 2006 season there will be approximately 600 individually marked Ruddy Turnstone present in the population and over 2,500 individually marked Red Knot. These birds either have a unique combination of color bands or an inscribed flag bearing two or three characters (letters or numbers), plus one or more color bands. In addition, there will be many thousands of birds with cohort marks. We will not be recording these cohort-marked birds. To aid identification of individually marked birds, the distinguishing features for individuals and cohort marked birds are given below.

SURVEY EFFORT

Ideally, we would scan every flock every day throughout the season and record every individually marked bird. This is, however, not practical. It is therefore important that we cover every area that has significant populations of Red Knot and, to a lesser extent Ruddy Turnstone, every three days. In order to work out which sites to visit on each day, there will be a sheet with a log of site visits and number of birds present kept at the Reserve. Each evening we will update the log and decide what the priority sites are for the next day.

RESIGHTING PROTOCOL

Before you leave to visit a site you must ensure that you have the following:

- *Site cover sheet and resighting datasheet.*
- Maps of survey sites.
- Body profile and plumage score diagrams.
- Spotting scope, binoculars, and field guides.
- Personal gear

When you first arrive on the site, **fill out the cover sheet completely** even if there are no flocks or no marked birds present. This is important to assess such things as sources of disturbance. Estimate of the number of each species including gulls that are present. **Note: This is an estimate and should only take you a short time to complete.**

Priority should be given to simply recording all individually marked birds you can identify (Casual Scans). Secondary importance should be given to completing interval scans given the conditions at the site and observer ability. Finally, recording abdominal profile and plumage scores should be attempted by only those that are comfortable with assessing those characters. The conditions most encountered in the field are spread out flocks and dense flocks and each require a different approach.

Spread out flocks – interval scans

Start with your scope on one edge of the flock. Count the number of non-individually marked (**including any cohort marked birds as unmarked**) birds until you come to an individually marked bird.

Record the following on the datasheet:

1. The number of unmarked birds you have counted.
2. The combination of the individual.
3. The plumage state (if possible).
4. The abdominal profile (if possible).

Then continue moving through the flock, counting the number of unmarked birds, until you get to the next individually marked bird and repeat the process. If you pick up another individually marked bird before continuing your count, record that individually marked bird as the start of a new count by just leaving the number box blank. If there is a substantial take-off, then start the whole procedure again, starting on a new line within the sheet writing above it 'flock taken off' and any changes to time, flock size, if they are significant. If there is nothing on this line, it is assumed that you are continuing to move through the flock when you get onto the next line of data. If you change species, record that species on a different sheet but ensure that you write site name and date down and time as a minimum. If you use multiple sheets for the same flock or site, ensure that the header information is completed on every sheet (date, site etc) and that you enter the sheet number in the top right of the form.

Dense flocks

If the flock is very dense, so it is not really possible to count the number of individuals that you have checked between each marked bird, just run through the flock searching for individually marked birds. It is vital, however, that every time you see an individually marked bird you record it whether or not you have already seen it. Do not say to yourself, 'I've seen that bird before today'. This will enable us later to work out the proportion of individually marked birds within the flock that you have seen. When you feel you have recorded virtually all the individually marked birds in the flock, if possible, try and go through the edge of the flock counting the number of individuals between each marked bird.

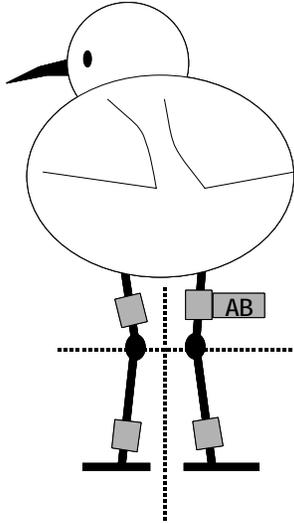
Upon returning to the Reserve:

Be sure to do the following:

1. Enter into the log the numbers of birds present on the sites you have visited and the approximate number of individuals that you have seen that day. This does not need to be accurate, but we need to know if you managed to see a large number or just one or two.
2. Check that all your paperwork is filled in completely as it is much easier to remember bits of information that you have missed that day, rather than a few days later.
3. Put all your sheets in the folder ready for inputting.

HOW TO RECORD COLOR COMBINATIONS

The easiest way to record color combinations is to think of the birds legs divided up by a cross as in the picture below (similar to the cross on your datasheet) and copy the color markings as you see them. So the bird's upper left leg goes in the top left corner of the cross, the birds lower left leg goes in the lower left corner of the cross and so on. If there are two or more bands or flags in a position, list them from top downwards on the sheet just as you see them. The colors you may see are listed below along with a single letter code that you should use on the recording sheet:



- White = W
- Black = N (for noir)
- Red = R
- Orange = O
- Yellow = Y
- Dark Green = G
- Light Green = L (for lime)
- Dark Blue = B
- Light Blue = P (for pale blue)
- Gray = S (for silver)
- Brown = U (for umber)

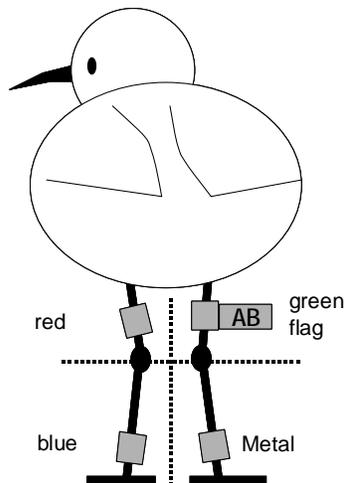
M = Metal band

If there are no bands or flags in a position place a dash (-) in that quadrant of the cross

If there is a band but you are not sure what it is, record with an X

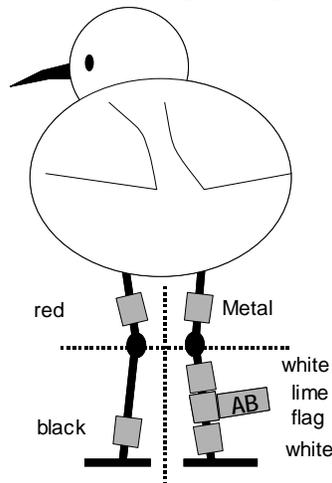
Record a flag as an F with a subscript for the color. Therefore a dark green flag would be recorded as F_G.

If you see an inscribed flag it is important that you record the color and inscription. A lime flag bearing the inscription AB (as in the diagram) would be recorded as F_L(AB). For more examples of how codes should be written see below and the example completed form.



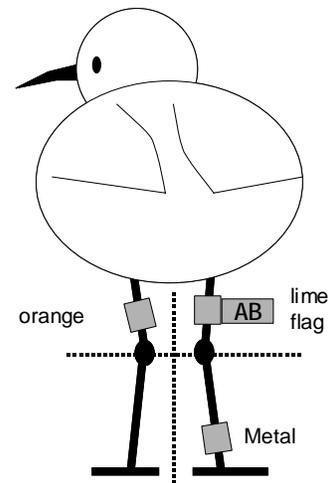
R	F _G (AB)
B	M

Or, R/B:F_G(AB)/M



R	M
N	W
	F _L (AB)
	W

R/N:M/WF_L(AB)W



O	F _L (AB)
-	M

O/-:F_L(AB)/M

COLOR BAND AND FLAG COMBINATIONS – INDIVIDUAL MARKS

Ruddy Turnstone:

$F_G/??:M/-$ or $F_G/-:M/??$ or $M/?:F_G/-$ or $M/-:F_G/??$ Where ? can be R, Y, B, G or L

(note that the color bands should be wide spiral bands rather than narrow butted bands - any narrow ones could be cohort marks that have lost one or more bands.

F_L

Any bird bearing a lime flag (FL) with an inscription. Note there may be color bands in other positions. If the flag contains only two characters the color of the band (Orange or Green) is vital for us to identify this individual.

Red Knot:

F_G

Any green flagged birds (F_G) also bearing four color bands below the knee will be individuals. The four colors may be split two and two, e.g. $F_G/?:M/??$ or one and three, e.g. $F_G/?:M/???$ or even with the flag positioned within, e.g. $-/?F_G?:M/??$

Any bird with a pale blue band should be recorded as an individual as it will have been marked outside Delaware Bay.

F_L

Any bird bearing a lime flag (FL) with an inscription. Note there may be color bands in other positions. If the flag contains only two characters the color of the band (Orange or Green) is vital for us to identify this individual.

F_O (Birds Marked In ARGENTINA)

Record every bird as an individual

Any bird bearing an inscribed orange flag is an individual. Inscriptions may be two or three characters. Note that old flags may have lost the lettering, but careful inspection may reveal the engraving of the letters (but this is hard to see once the ink has come away). In addition there are some cohort marks but please record as if the bird is an individual.

F_R (Birds marked in CHILE)

Record every bird as an individual.

F_B (Birds marked in BRAZIL)

Record every bird as an individual.

F_w (Birds marked in the ARCTIC)

Record every bird as an individual.