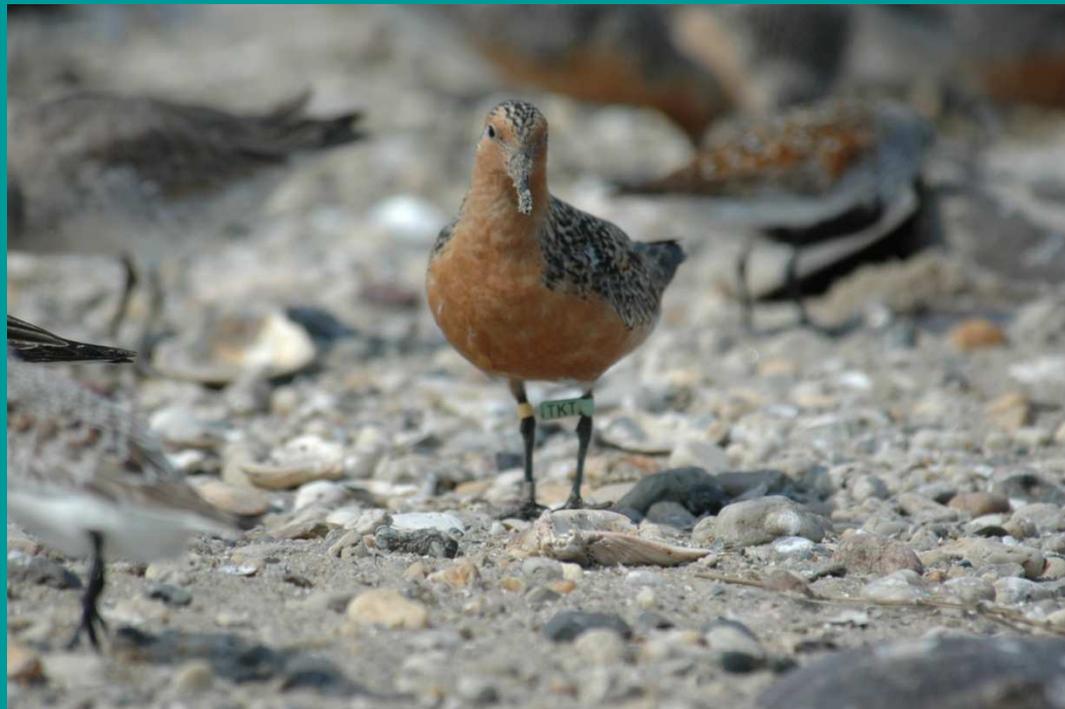


Resighting Individually Marked Birds...



Your resighting work will be part of an international effort to individually mark Red Knot (*Calidris canutus*) in the Western Hemisphere in order to better understand their ecology, population status, and trends. Ruddy Turnstone (*Arenaria interpres*), Sanderling (*Calidris alba*), and Semipalmated Sandpipers (*Calidris pusilla*) are our other target species and have also been marked. We sometimes come upon other species that are marked as well. Approximately 10% of the red knot population in the Western Atlantic flyway has been individually marked at this point. The birds are marked with colored flags and bands.



The seasonal goals for the resighting portion of the Delaware Shorebird project are to:

1. Estimate the sizes of flocks of shorebirds and gulls throughout the season at roughly a dozen field sites
2. Obtain the maximum number of resightings of individually marked shorebirds
3. Collect data on the ratio of mark:unmarked individuals to use in estimating population size for red knots, ruddy turnstones, and sanderlings

The data gathered in this part of the project is used to estimate population sizes, determine arrival and departure dates of individuals, calculate stopover duration, assess patterns of site use by individuals, assess survival, provide lifespan estimates, and is valuable for other specialized analyses as well.

Note that we will also be capturing shorebirds periodically to monitor weight gain and individually mark additional birds, see the Cannon Netting module for more information about that part of the project.

Birds have been marked for resighting in three different ways:

- ❖ Flags with 2 characters (may have additional color bands)
- ❖ Flags with 3 characters (may have additional color bands)
- ❖ Flags with no characters plus colored bands

**** You are only expected to record birds with characters on the flag.**



2 characters



3 characters



No characters

A Note on Birds without characters on the Flag

Birds were primarily marked in this way as cohorts prior to 2003. A cohort means a group of birds were marked the same way. The addition of color bands made some of these birds identifiable as individuals.

Over the years some birds have lost one or more bands, which can make it uncertain whether it is cohort or individually marked. In addition there is difficulty in determining color due to fading and staining of the plastic. Finally, due to the number of bands that need to be accurately recorded and their position on the legs, there has been difficulty getting reliable observations. *For these reasons you will not be expected to record birds marked in this way.*



Birds with characters on the flag

Birds marked with flags that have characters are our target for resighting. The characters identify birds as individuals. Some can be identified as individuals by the flag code alone, others need the additional color markers. When in doubt, record all color markers and the flag code.

For flags that are light green (lime) with 3 character codes, dark green, white, red, or purple-red you only need the flag color and code, see examples below. If things are moving fast, you can save time by not looking for the other color markers in these cases.



US: Light Green
with 3 Characters



US: Dark Green



Canada: White



Chile: Red
with Yellow
Characters

Birds with characters on the flag, con't.

For flags that are light green (lime) with only 2 characters, or other colors including orange, dark blue, yellow, black and dark pink, the color band (usually there is only one) must be recorded as well as the flag code.



US: Light Green with 2 Characters



Argentina or Uruguay: Orange with Black Letters



Brazil or Paraguay: Dark Blue



Peru, Ecuador, or Bolivia: Yellow



Carribean: Dark Pink

See next slide to see a map of the color scheme.

Appendix A. Pan American Shorebird Program (PASP) Flags and Band Colours



| REGION | FLAG | COUNTRY | BAND | |
|------------------------|-------------------------|-----------------------|-----------------|-----------|
| Canada | White | Canada | -- ¹ | |
| | | St-Pierre et Miquelon | -- | |
| United States | Dark Green ² | United States | -- ¹ | |
| Mexico | Purple Red | Mexico | -- ¹ | |
| Central America | Grey | Belize | Light Green | |
| | | Costa Rica | Black | |
| | | El Salvador | Dark Blue | |
| | | Guatemala | Orange | |
| | | Honduras | Grey | |
| | | Nicaragua | Dark Green | |
| Central America | Grey | Panama | White | |
| | | | | |
| Caribbean ³ | Pink | Bermuda | Dark Blue | |
| | | Cuba | Dark Green | |
| | | Dominican Rep. | White | |
| | | Guadeloupe | Light Green | |
| | | Haiti | Red | |
| | | Jamaica | Black | |
| | | Martinique | Orange | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| South America | Black | Colombia | Yellow | |
| | | French Guiana | Red | |
| | | Guyana | White | |
| | | Suriname | Light Green | |
| | | Venezuela | Black | |
| | | | | |
| | South America | Yellow | Bolivia | Dark Blue |
| | | | Ecuador | Red |
| | | | Peru | Yellow |
| | South America | Dark Blue | Brazil | Dark Blue |
| | | | Paraguay | Orange |
| | | | | |
| | | | | |
| South America | Orange | Argentina | White | |
| | | Uruguay | Dark Blue | |
| | | | | |
| Chile | Red | Chile | -- ¹ | |

Notes:

¹ Regions that only contain one country do not need country bands.

² Shorebirds banded in the US were previously marked with Light Green (Lime) flags; some of these birds can still be observed in the field.

³ Caribbean countries listed here are those that participated in the original PASP protocol. Others can be added as required.

Overview

This training module is designed to teach you how to re-sight and record the information you collect. You will be part of a team of 2 or more people who will be assigned to go to a specific location and record what you see for a period of time. Your team will record three types of information.

1. **General Site Information:** where, when, who was on the team, what the conditions were, and an estimate the number of birds by species in that location. A Site Visit Form is used to record this information.
2. **Individually Marked Birds:** Most of your time will be spent recording information on marked birds. You will “resight” as many birds with inscribed flags as you can accurately record. A Field Resighting Data Sheet can be used to record this information. **Accuracy is critical, otherwise the resighting data cannot be used.**
3. **Ratio of Marked to Unmarked Birds:** The ratio of marked to unmarked birds gives us an estimate of the populations size. A Ratio Form can be used to record this information.

You will be outside most of the time doing this. It is a good idea to dress for changing conditions, have water and snacks, as well as sunscreen and insect repellent.

Site Visit, Ratio & Scan Forms

Check if NO flags obs =

#REKN Sheets = #RUTU Sheets = #SAND Sheets = #SESA Sheets = #DUMJ Sheets = #RATIO Sheets =

FOR OFFICE USE
Sheet ID 2014 _____

Dufwara = Shorebird Project - Visit summary form (aka Cover Sheet) NOT MISPELLION
Visit details - fill out on separate sheet (no shorebirds present)

Date (spell month) Start End Site

Observers # visit check when flag sheets

ies - count & check TC, ES
TC = true count
ES = to nearest 10, 50 etc by
GU = guesstimate (halfmark)

Red Knot
TC = ES = GU =
Ruddy Turnstone
TC = ES = GU =
Sanderling
TC = ES = GU =
Semipalmated Sandpiper
TC = ES = GU =
Short-billed Dowitcher
TC = ES = GU =
Dunlin
TC = ES = GU =
Laughing Gull
TC = ES = GU =
Ring-billed Gull
TC = ES = GU =
Herring Gull
TC = ES = GU =
Great Black-backed Gull
TC = ES = GU =
NO BIRDS PRESENT
BIRDS NOT COUNTED

Sky (% overcast)

Wind (Beaufort Scale) - check one
0 - Calm (smoke rises vertically) Sea flat.
1 - Light Air (smoke drifts) Ripples without crests
2 - Light breeze (feel wind on face) small waves, glassy crests
3 - Gentle breeze (leaves moving) large waves, scattered whitecaps
4 - Moderate breeze (raises dust & paper) small waves, breaking crests
5 - Fresh breeze (trees sway) Moderate waves many whitecaps, spray
6 - Strong breeze (large branches move) Long waves, white foam crests

Wind direction - check one
Onshore
Offshore
Alongshore

(check percent roosting)
0
25
50
75
100

Tide state (approx) check one
1 = HIGH
2 = near high/RISING
3 = near high/FALLING
4 = half/RISING
5 = half/FALLING
6 = low/RISING
7 = near low/FALLING
8 = LOW
9 = UNKNOWn

Disturbances
Source / number of
Boat
Pedestrian
Plane
Vehicle
Presigne
Researcher
Unknown

Rain - check one
None
Light
Moderate
Heavy

Visibility Low Moderate High

Sturgeon Observation
Location/Condition/Comment
Approximate Length
Photo Taken? Yes No

Entered by Checked by Corrected by

Site Visit Form

RESIGHTING TRANSCRIPTION SHEET (2014) OFFICE USE
Top sheet ID 2014 _____

Species / sheet Observer (first initial and last name) (& scribe if different) Date: Site (or sub-site):

INSTRUCTIONS
Only ONE SPECIES per sheet.
Work down the column.
Indicate each half hour time block (e.g. 1030 for 1030 to 1059, use 24 hr time and include leading zeros for times before 10:00).
Group by flag color within each half-hour period.
Draw line down column for repeating entries for time and flag color.
Record extra color on opposite leg for 2-character time flags.
Flag Conditions: record the overall appearance of the flag. Examples: Faded (F), Stained (S), No Ink (NI), Faded Ink (FI), Flag Upside down (FU), Band Open (BO), or Broken (BR).
Geolocator: Note whether a bird is carrying other a geolocator or other additional tracking devices when you have completed ALL your resighting sheets, put a check against your name on the front V-visit sheet to indicate you have completed your flag resighting sheets.
Last person to fill in flag-resighting sheets - Number sheets (top right) across all observers (not just your own) grouped by:

| Time (24 hr) | Color | Flag Code | Extra Color | Cond | Geolocator | Number | Time (24 hr) | Color | Flag Code | Extra Color | Flag Cond | Geolocator | Number |
|--------------|-------|-----------|-------------|------|------------|--------|--------------|-------|-----------|-------------|-----------|------------|--------|
| 1 | | | | | | | 26 | | | | | | |
| 2 | | | | | | | 27 | | | | | | |
| 3 | | | | | | | 28 | | | | | | |
| 4 | | | | | | | 29 | | | | | | |
| 5 | | | | | | | 30 | | | | | | |
| 6 | | | | | | | 31 | | | | | | |
| 7 | | | | | | | 32 | | | | | | |
| 8 | | | | | | | 33 | | | | | | |
| 9 | | | | | | | 34 | | | | | | |
| 10 | | | | | | | 35 | | | | | | |
| 11 | | | | | | | 36 | | | | | | |
| 12 | | | | | | | 37 | | | | | | |
| 13 | | | | | | | 38 | | | | | | |
| 14 | | | | | | | 39 | | | | | | |
| 15 | | | | | | | 40 | | | | | | |
| 16 | | | | | | | 41 | | | | | | |
| 17 | | | | | | | 42 | | | | | | |
| 18 | | | | | | | 43 | | | | | | |
| 19 | | | | | | | 44 | | | | | | |
| 20 | | | | | | | 45 | | | | | | |
| 21 | | | | | | | 46 | | | | | | |
| 22 | | | | | | | 47 | | | | | | |
| 23 | | | | | | | 48 | | | | | | |
| 24 | | | | | | | 49 | | | | | | |
| 25 | | | | | | | 50 | | | | | | |

Entered by Checked by Errors to be corrected Errors Corrected by
Yes / No

Resighting Transcription Form

Sheet ___ of ___

FLAGGED RATIO TRANSCRIPTION SHEET ONLY 1 SPECIES PER SHEET PLEASE write clearly! Record names as first initial and last name. FOR OFFICE USE Top sheet ID 2014 _____

Species: Date: Site: At Mispellion record sub-beach

Begin scanning across a flock counting each bird you see and total number with inscribed flags (any color) (use tally counter). You must see both legs to confirm that a bird is not flagged. Target sample for each scan is 50, if birds fly before 50 are counted record counts to that point. Attach this data sheet to your cover sheet. Combine data from multiple observers who were at the same site (or Mispellion sub-site) at the same time. Still only 1 species per sheet.

| Time (24hr) | Total # Scanned | # with flags | # who flag | Observer | Scribe (if different) |
|-------------|-----------------|--------------|------------|----------|-----------------------|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |

Entered _____ Checked _____ Corrections: Y N Corrected _____

Ratio Form

Site Visit Form

The Site Visit Form begins with general information that includes: Scan Sheets, Observers, Date and Time, Location, Tides, Weather, and Visibility.

| | | | | | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Check if NO flags obs <input checked="" type="checkbox"/> | # REKN Sheets | # RUTU Sheets | # SAND Sheets | # SESA Sheets | # DUNL Sheets | # RATIO Sheets | FOR OFFICE USE Sheet ID: 2014 _____ |
| Delaware Shorebird Project - Visit summary form (aka Cover Sheet) NOT MISPELLION Visit details - fill out on every visit (even if no shorebirds present) | | | | | | | |
| Date (spell month) <u>13 May</u> Start <u>09:15</u> End <u>10:45</u> (24hr) | | | | | | | Site <u>South Bowers</u> |
| Observers <u>G. Breese</u> <u>J. Weeds</u> | | | | | | | Species - count & check TC, ES or GU TC = true count ES = to nearest 10, 50 etc by extrapolation GU = guesstimate (ballpark) Red Knot TC <input checked="" type="checkbox"/> ES <input type="checkbox"/> GU <input type="checkbox"/> <u>8</u> Ruddy Turnstone TC <input checked="" type="checkbox"/> ES <input type="checkbox"/> GU <input type="checkbox"/> <u>22</u> Sanderling TC <input type="checkbox"/> ES <input type="checkbox"/> GU <input type="checkbox"/> <u>0-0</u> Semipalmated Sandpiper TC <input type="checkbox"/> ES <input checked="" type="checkbox"/> GU <input type="checkbox"/> <u>100</u> Short-billed Dowitcher TC <input type="checkbox"/> ES <input type="checkbox"/> GU <input type="checkbox"/> <u>0-0</u> Dunlins TC <input type="checkbox"/> ES <input checked="" type="checkbox"/> GU <input type="checkbox"/> <u>50</u> Laughing Gull TC <input type="checkbox"/> ES <input checked="" type="checkbox"/> GU <input type="checkbox"/> <u>250</u> Ring-billed Gull TC <input type="checkbox"/> ES <input checked="" type="checkbox"/> GU <input type="checkbox"/> <u>20</u> Herring Gull TC <input checked="" type="checkbox"/> ES <input type="checkbox"/> GU <input type="checkbox"/> <u>9</u> Great Black-backed Gull TC <input type="checkbox"/> ES <input type="checkbox"/> GU <input type="checkbox"/> <u>0-0</u> <u>Spotted Sandpiper</u> TC <input type="checkbox"/> ES <input type="checkbox"/> GU <input type="checkbox"/> <u>3</u> TC <input type="checkbox"/> ES <input type="checkbox"/> GU <input type="checkbox"/> TC <input type="checkbox"/> ES <input type="checkbox"/> GU <input type="checkbox"/> TC <input type="checkbox"/> ES <input type="checkbox"/> GU <input type="checkbox"/> NO BIRDS PRESENT <input type="checkbox"/> BIRDS NOT COUNTED <input type="checkbox"/> |
| Sky (% overcast) <u>80</u> | | | | | | | |
| Wind (Beaufort Scale) - check one | | | | | | | |
| <input type="checkbox"/> 0 - Calm (smoke rises vertically) Sea flat. <input type="checkbox"/> 1 - Light Air (smoke drifts) Ripples without crests <input type="checkbox"/> 2 - Light breeze; (feel wind on face) small wavelets, glassy crests <input checked="" type="checkbox"/> 3 - Gentle breeze (leaves moving) large wavelets, scattered whitecaps <input type="checkbox"/> 4 - Moderate breeze (raises dust & paper) small waves, breaking crests <input type="checkbox"/> 5 - Fresh breeze (trees sway); Moderate waves many whitecaps, spray <input type="checkbox"/> 6 - Strong breeze (large branches move) Long waves, white foam crests | | | | | | | |
| Wind direction - check one | | | | Shorebird activity (check percent roosting) | | | |
| <input checked="" type="checkbox"/> Onshore <input type="checkbox"/> Offshore <input type="checkbox"/> Alongshore | | | | <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 25 <input type="checkbox"/> 50 <input type="checkbox"/> 75 <input type="checkbox"/> 100 | | | |
| Tide state (approx) check one | | | | Disturbances | | | |
| <input type="checkbox"/> 1 = HIGH <input type="checkbox"/> 2 = near high/RISING <input checked="" type="checkbox"/> 3 = near high/FALLING <input type="checkbox"/> 4 = half/RISING <input type="checkbox"/> 5 = half/FALLING <input type="checkbox"/> 6 = low/RISING <input type="checkbox"/> 7 = near low/FALLING <input type="checkbox"/> 8 = LOW <input type="checkbox"/> 9 = UNKNOWN | | | | Source / number of Boat Pedestrian <u>2</u> Plane Vehicle Peregrine Researcher <u>4</u> Unknown <u>3</u> Other Other | | | |
| Rain - check one | | | | Visibility | | | |
| <input checked="" type="checkbox"/> None <input type="checkbox"/> Light <input type="checkbox"/> Moderate <input type="checkbox"/> Heavy | | | | Low <input type="checkbox"/> Moderate <input type="checkbox"/> High <input checked="" type="checkbox"/> | | | |
| Sturgeon Observation | | | | | | | |
| Location/Condition/Comment | | | | | | | |
| Approximate Length _____ Photo Taken? Yes <input type="checkbox"/> No <input type="checkbox"/> | | | | | | | |
| Entered by _____ Checked by _____ Corrected by _____ | | | | | | | |

Site Visit Form: Observers, etc

Delaware Shorebird Project - Visit summary form (aka Cover Sheet) NOT MISPELLION
 Visit details - fill out on every visit (even if no shorebirds present)

| | | | | | |
|--------------------|--------|-------------------------------------|-------|-------------------------------------------------|--------------|
| Date (spell month) | 13 May | Start | 09:15 | End | 10:45 (24hr) |
| Observers | | check if visit scribe | | check when flag sheets completed (or x if none) | |
| G. Breese | | <input checked="" type="checkbox"/> | | <input type="checkbox"/> | |
| J. Woods | | <input type="checkbox"/> | | <input type="checkbox"/> | |
| | | <input type="checkbox"/> | | <input type="checkbox"/> | |
| | | <input type="checkbox"/> | | <input type="checkbox"/> | |
| | | <input type="checkbox"/> | | <input type="checkbox"/> | |
| | | <input type="checkbox"/> | | <input type="checkbox"/> | |

Site South Bowers

Delaware Shorebird Project

Species - count & check TC, ES or GU
 TC = true count
 ES = to nearest 10, 50 etc by extrapolation
 GU = guesstimate (ballpark)

Red Knot 8

This section is used to record the who visited the site, who was the scribe (recorded data), the date and time of the visit, and the location visited. Make sure to:

- Use first initial and complete last names to avoid confusion

- Write the month as a word to avoid confusion

- Use 24 hour time and use leading zeros (9am = 09:00)

- Be consistent with location names

12 Hour Time vs 24 Hour Time

| | | | | |
|-----------|---|----------|---|-------|
| | | 8:00 am | = | 08:00 |
| morning | | 10:15 am | = | 10:15 |
| noon | → | 12:00 pm | = | 12:00 |
| | | 3:20 pm | = | 15:20 |
| afternoon | | 4:00 pm | = | 16:00 |
| | | 6:30 pm | = | 18:30 |
| evening | | 9:57 pm | = | 21:57 |
| midnight | → | 12:00 am | = | 00:00 |
| | | 2:00 am | = | 02:00 |
| | | 4:00 am | = | 04:00 |

Site Visit Form: Bird Info

Total numbers of birds are recorded on the Site Visit Form.

Enter a “-0-” in the block for species not observed rather than just leaving it blank. This will ensure that the person entering the data knows that species were not present rather than not counted.

Indicate whether it is a True Count (TC), Extrapolated Estimate (ES), or a Guesstimate (GE).

True Count: Each bird was counted

Extrapolated Estimate: Numbers were systematically estimated

Guesstimate: A quick estimate was done, basically a first impression

| Species - count & check TC, ES or GU | |
|------------------------------------------------------------------------------------------------|-----|
| TC = true count | |
| ES = to nearest 10, 50 etc by extrapolation | |
| GU = guesstimate (ballpark) | |
| Red Knot | |
| TC <input checked="" type="checkbox"/> ES <input type="checkbox"/> GU <input type="checkbox"/> | 8 |
| Ruddy Turnstone | |
| TC <input checked="" type="checkbox"/> ES <input type="checkbox"/> GU <input type="checkbox"/> | 22 |
| Sanderling | |
| TC <input type="checkbox"/> ES <input type="checkbox"/> GU <input type="checkbox"/> | -0- |
| Semipalmated Sandpiper | |
| TC <input type="checkbox"/> ES <input checked="" type="checkbox"/> GU <input type="checkbox"/> | 100 |
| Short-billed Dowitcher | |
| TC <input type="checkbox"/> ES <input type="checkbox"/> GU <input type="checkbox"/> | -0- |
| Dunlin | |
| TC <input type="checkbox"/> ES <input checked="" type="checkbox"/> GU <input type="checkbox"/> | 50 |
| Laughing Gull | |
| TC <input type="checkbox"/> ES <input checked="" type="checkbox"/> GU <input type="checkbox"/> | 250 |
| Ring-billed Gull | |
| TC <input type="checkbox"/> ES <input checked="" type="checkbox"/> GU <input type="checkbox"/> | 20 |
| Herring Gull | |
| TC <input checked="" type="checkbox"/> ES <input type="checkbox"/> GU <input type="checkbox"/> | 9 |
| Great Black-backed Gull | |
| TC <input type="checkbox"/> ES <input type="checkbox"/> GU <input type="checkbox"/> | -0- |
| Spotted Sandpiper | |
| TC <input checked="" type="checkbox"/> ES <input type="checkbox"/> GU <input type="checkbox"/> | 3 |
| TC <input type="checkbox"/> ES <input type="checkbox"/> GU <input type="checkbox"/> | |
| TC <input type="checkbox"/> ES <input type="checkbox"/> GU <input type="checkbox"/> | |
| TC <input type="checkbox"/> ES <input type="checkbox"/> GU <input type="checkbox"/> | |
| NO BIRDS PRESENT | |
| <input type="checkbox"/> | |
| BIRDS NOT COUNTED | |
| <input type="checkbox"/> | |

Site Visit Form: Weather & Disturbance

| | |
|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Sky (% overcast) | 80 |
| Wind (Beaufort Scale) - check one | |
| <input type="checkbox"/> | 0 - Calm (smoke rises vertically) Sea flat. |
| <input type="checkbox"/> | 1 - Light Air (smoke drifts) Ripples without crests |
| <input type="checkbox"/> | 2 - Light breeze; (feel wind on face) small wavelets, glassy crests |
| <input checked="" type="checkbox"/> | 3 - Gentle breeze (leaves moving) large wavelets, scattered whitecaps |
| <input type="checkbox"/> | 4 - Moderate breeze (raises dust & paper) small waves, breaking crests |
| <input type="checkbox"/> | 5 - Fresh breeze (trees sway); Moderate waves many whitecaps, spray |
| <input type="checkbox"/> | 6 - Strong breeze (large branches move) Long waves, white foam crests |
| Wind direction - check one | |
| <input checked="" type="checkbox"/> | Onshore |
| <input type="checkbox"/> | Offshore |
| <input type="checkbox"/> | Alongshore |
| Tide state (approx) check one | |
| <input type="checkbox"/> | 1 = HIGH |
| <input type="checkbox"/> | 2 = near high/RISING |
| <input checked="" type="checkbox"/> | 3 = near high/FALLING |
| <input type="checkbox"/> | 4 = half/RISING |
| <input type="checkbox"/> | 5 = half/FALLING |
| <input type="checkbox"/> | 6 = low/RISING |
| <input type="checkbox"/> | 7 = near low/FALLING |
| <input type="checkbox"/> | 8 = LOW |
| <input type="checkbox"/> | 9 = UNKNOWN |
| Rain - check one | |
| <input checked="" type="checkbox"/> | None |
| <input type="checkbox"/> | Light |
| <input type="checkbox"/> | Moderate |
| <input type="checkbox"/> | Heavy |
| Shorebird activity (check percent roosting) | |
| <input type="checkbox"/> | 0 |
| <input checked="" type="checkbox"/> | 25 |
| <input type="checkbox"/> | 50 |
| <input type="checkbox"/> | 75 |
| <input type="checkbox"/> | 100 |
| Disturbances | |
| <i>Source / number of</i> | |
| Boat | |
| Pedestrian | 2 |
| Plane | |
| Vehicle | |
| Peregrine | |
| Researcher | 4 |
| Unknown | 3 |
| Other | |
| Other | |
| Visibility Low <input type="checkbox"/> Moderate <input type="checkbox"/> High <input checked="" type="checkbox"/> | |

Weather and tide conditions are recorded. For tides, check the tide schedule for that area to see when high or low was predicted.

Percent roosting is meant to give an overall impression.

Disturbance includes non human as well as human disturbance. You are not expected to spend a lot of time on this, simply give a reasonable sense for what was occurring. Pay particular attention to boats and peregrine falcons and include them in disturbance events.

Visibility refers to how well you can see flags.

Site Visit Form: Sturgeon

Sturgeon Observation

Approximate Length _____

Photo Taken? Yes No

Location/Condition/Comment

Occasionally dead Sturgeon are encountered on the beach. Sturgeon are ancient fish, dating back at least 70 million years, and can be found along the entire Atlantic coast from Florida to Labrador, Canada. Sturgeon may live up to 70 years old. Since colonial times, sturgeon have supported commercial fisheries and in the late 1800s, they were second only to lobster among important fisheries with landings estimated at seven million pounds per year. Overharvesting of sturgeon for flesh and eggs (known as caviar) continued through the 1990s. Currently rare, sightings provide valuable information for scientists and managers working to conserve them.



Site Visit Form: Mispillion

| | | | | | | | |
|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|----------------|-------------------------------------|
| Check if NO flags obs <input checked="" type="checkbox"/> | # REKN Sheets | # RUTU Sheets | # SAND Sheets | # SESA Sheets | # DUNL Sheets | # RATIO Sheets | FOR OFFICE USE Sheet ID: 2014 |
| Delaware Shorebird Project - Visit summary form (aka Cover Sheet) MISPELLION | | | | | | | |
| Visit details - fill out on every visit (even if no shorebirds present) | | | | | | | |
| Date (spell month) 13 May | Start 12:00 | End 15:00 (24hr) | Site MISPELLION HARBOR (all beaches counted) | | | | |
| Observers O. Breece T. Woods | check if visit scribe <input checked="" type="checkbox"/> | check when flag sheets completed (or x if none) | Shorebird activity (check percent roosting) | | | | |
| | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> 0 <input type="checkbox"/> 25 <input type="checkbox"/> 50 <input type="checkbox"/> 75 <input type="checkbox"/> 100 | | | | |
| Sky (% overcast) 50 | Disturbances | | | | | | |
| Wind (Beaufort Scale) - check one | Source / number of | | | | | | |
| <input type="checkbox"/> 0 - Calm (smoke rises vertically) Sea flat. | Boat 1 | | | | | | |
| <input type="checkbox"/> 1 - Light Air (smoke drifts) Ripples without crests | Pedestrian | | | | | | |
| <input checked="" type="checkbox"/> 2 - Light breeze; (feel wind on face) small wavelets, glassy crests | Plane | | | | | | |
| <input type="checkbox"/> 3 - Gentle breeze (leaves moving) large wavelets, scattered whitecaps | Vehicle | | | | | | |
| <input type="checkbox"/> 4 - Moderate breeze (raises dust & paper) small waves, breaking crests | Perigrine 1 | | | | | | |
| <input type="checkbox"/> 5 - Fresh breeze (trees sway); Moderate waves many whitecaps, spray | Researcher 3 | | | | | | |
| <input type="checkbox"/> 6 - Strong breeze (large branches move) Long waves, white foam crests | Unknown 5 | | | | | | |
| Wind direction - check one | Visibility Low <input type="checkbox"/> | | | | | | |
| <input type="checkbox"/> Onshore | Moderate <input type="checkbox"/> | | | | | | |
| <input checked="" type="checkbox"/> Offshore | High <input checked="" type="checkbox"/> | | | | | | |
| <input type="checkbox"/> Alongshore |  <p>Mispillion Harbor ONLY</p> <p>Enter counts on back of sheet</p> | | | | | | |
| Tide state (approx) check one | | | | | | | |
| <input type="checkbox"/> 1 = HIGH | Sturgeon Observation | | | | | | |
| <input checked="" type="checkbox"/> 2 = near high/RISING | Location/Condition/Comment | | | | | | |
| <input type="checkbox"/> 3 = near high/FALLING | Approximate Length _____ Photo Taken? Yes <input type="checkbox"/> No <input type="checkbox"/> | | | | | | |
| <input type="checkbox"/> 4 = half/RISING | Entered by _____ | | | | | | |
| <input type="checkbox"/> 5 = half/FALLING | Checked by _____ | | | | | | |
| <input type="checkbox"/> 6 = low/RISING | Corrected by _____ | | | | | | |
| <input type="checkbox"/> 7 = near low/FALLING | | | | | | | |
| <input type="checkbox"/> 8 = LOW | | | | | | | |
| <input type="checkbox"/> 9 = UNKNOWN | | | | | | | |
| Rain - check one | | | | | | | |
| <input checked="" type="checkbox"/> None | | | | | | | |
| <input type="checkbox"/> Light | | | | | | | |
| <input type="checkbox"/> Moderate | | | | | | | |
| <input type="checkbox"/> Heavy | | | | | | | |

| Lighthouse Road (incl. boat ramp etc) | | | | |
|---------------------------------------|-------|-------------------------------------|-------------------------------------|--------------------------|
| Species | Count | TC | ES | GU |
| Red Knot | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ruddy Turnstone | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sanderling | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Dunlin | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Semipalmated Sandpiper | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Short-billed Dowitcher | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| check if NO BIRDS PRESENT | | <input type="checkbox"/> | | |
| check if BEACH NOT COUNTED | | <input checked="" type="checkbox"/> | | |
| Swain's Beach | | | | |
| Species | Count | TC | ES | GU |
| Red Knot | 0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ruddy Turnstone | 60 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Sanderling | 0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Dunlin | 0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Semipalmated Sandpiper | 0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Short-billed Dowitcher | 5 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| check if NO BIRDS PRESENT | | <input type="checkbox"/> | | |
| check if BEACH NOT COUNTED | | <input type="checkbox"/> | | |
| Osprey Beach | | | | |
| Species | Count | TC | ES | GU |
| Red Knot | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ruddy Turnstone | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sanderling | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Dunlin | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Semipalmated Sandpiper | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Short-billed Dowitcher | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Laughing Gull | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ring-billed Gull | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Herring Gull | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Great Black-backed Gull | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| check if NO BIRDS PRESENT | | <input checked="" type="checkbox"/> | | |
| check if BEACH NOT COUNTED | | <input type="checkbox"/> | | |
| DuPont Nature Center | | | | |
| Species | Count | TC | ES | GU |
| Red Knot | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ruddy Turnstone | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sanderling | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Dunlin | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Semipalmated Sandpiper | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Short-billed Dowitcher | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Laughing Gull | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ring-billed Gull | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Herring Gull | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Great Black-backed Gull | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| check if NO BIRDS PRESENT | | <input checked="" type="checkbox"/> | | |
| check if BEACH NOT COUNTED | | <input type="checkbox"/> | | |

Remember
 TC true count
 ES extrapolated estimate - counted in 10s, 50s, 100s etc
 GU guesstimate - i.e. a ballpark number

| Shell Beach | | | | |
|------------------------------------------|-------|-------------------------------------|-------------------------------------|--------------------------|
| Species | Count | TC | ES | GU |
| Red Knot | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ruddy Turnstone | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sanderling | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Dunlin | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Semipalmated Sandpiper | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Short-billed Dowitcher | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| check if NO BIRDS PRESENT | | <input checked="" type="checkbox"/> | | |
| check if BEACH NOT COUNTED | | <input type="checkbox"/> | | |
| Breakwall (incl. outer island) | | | | |
| Species | Count | TC | ES | GU |
| Red Knot | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Ruddy Turnstone | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sanderling | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Dunlin | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Semipalmated Sandpiper | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Short-billed Dowitcher | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| check if NO BIRDS PRESENT | | <input type="checkbox"/> | | |
| check if BEACH NOT COUNTED | | <input checked="" type="checkbox"/> | | |
| Point Beach (& Center Island if exposed) | | | | |
| Species | Count | TC | ES | GU |
| Red Knot | 60 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Ruddy Turnstone | 200 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Sanderling | 0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Dunlin | 500 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Semipalmated Sandpiper | 1,000 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Short-billed Dowitcher | 1,000 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Laughing Gull | 40 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Ring-billed Gull | 0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Herring Gull | 5 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Great Black-backed Gull | 13 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| check if NO BIRDS PRESENT | | <input type="checkbox"/> | | |
| check if BEACH NOT COUNTED | | <input type="checkbox"/> | | |
| Back Beach | | | | |
| Species | Count | TC | ES | GU |
| Red Knot | 100 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Ruddy Turnstone | 750 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Sanderling | 10 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Dunlin | 1,400 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Semipalmated Sandpiper | 500 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Short-billed Dowitcher | 60 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Laughing Gull | 200 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Ring-billed Gull | 0 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Herring Gull | 50 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Great Black-backed Gull | 2 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| check if NO BIRDS PRESENT | | <input type="checkbox"/> | | |
| check if BEACH NOT COUNTED | | <input type="checkbox"/> | | |

For Mispillion Harbor, there is a modified Site Visit form. This includes more detail for bird numbers at specific Locations in Mispillion Harbor. Be sure to fill in both the front and back.

Resighting Data

The task that you will spend most of your time on will be recording individually marked birds.

Accuracy is critical. If you are not sure, do not report it.

Most people record this data in their field note book. Data sheets are available if you prefer. If you are new to this, work in pairs, with one writing and the other observing.

The next few slides will describe how birds are marked, what to observe, and how to record the information properly.



Recording Information for Individually Marked Birds:



Information to record: Species flag color 3 character code

In this photo: Red Knot Light Green Flag HCE

Or to write it more efficiently: REKN FEI_g(HCE)

Note: In some cases any additional color bands or geolocators will be needed to be recorded as well. See later slides.

Species Codes

- Red Knot = REKN
- Ruddy Turnstone = RUTU
- Sanderling = SAND
- Semipalmated Sandpiper = SESA

Note: This code (which is widely used for birds) uses the first two letters of the first and last word, or, in the case of the bird having only one word for its common name, the first 4 letters.

Flag/Band Position

Historically, the position that a band or flag has on the legs of a bird was significant. The scheme used is as if you are looking at the bird from the rear:



With inscribed flags, this is generally not needed anymore. When you do need to indicate leg position, start with upper left, then lower left, then upper right, then lower right. For this bird one would write: o | dg : m | -

Information to record for birds with a 2 character light green or other Flags for which the other color markers are needed:

Information to record:

Species

flag color

Flag code

Any Colored Band(s),
geolocators, metal bands,
or nothing (-) if nothing.

Note: Without these extra
markers the bird cannot
be identified as an
individual so the
resighting cannot be used.



In this photo:

REKN FEI_g(XL) o

To record this using the standard Pan American Protocol, it would be written
as FEI_g(XL) | - : o | m

For the meaning of the standardized Pan American codes, see next slide

Pan American Standard Codes to use:

Engraved Flag = FE

No band or Color Marker Present = -

Geolocator Present = geo or GEO

Metal Band = m

Note: For a complete list of codes, see the Pan American Shorebird Program Marking Protocol, September 2014

| Colour | Code |
|-------------|------|
| Black | bk |
| White | w |
| Red | r |
| Orange | o |
| Yellow | y |
| Dark Green | dg |
| Light Green | lg |
| Dark Blue | db |
| Light Blue | lb |
| Pink | lp |
| Dark Pink | dp |
| Purple | pu |
| Brown | bn |
| Grey | gy |

Remember: Cases When you Need to Record More than the Flag Inscription:

- 1) Two Character Lime or Light Green Flags.
- 2) Flag colors Grey, Dark Pink, Black, Yellow, Dark Blue, and Orange –See slide # 7 for the country codes. For these color flags, please record any other color markers present.

If there are no additional color markers, record that as well using the standard code “ – “.

When in doubt, record any other color markers and/or geolocators present, and record nothing “-” if no other color markers are present. You will never be wrong recording everything on the legs.

Cases When you only need the flag color and code:

For flags that are light green (lime) with 3 character codes, dark green, white, red, or purple-red you only need the flag color and code.

Resighting Protocol

Time should be recorded at the start and then every 30 minutes, on the hour and half hour. Try not to duplicate birds within one time period.

Do record the same bird in different time periods. This provides information on turnover rates.

Double check what you have written in your field notebook to make sure you have written clearly and will be sure what the information says. You will be transcribing this data to the Resighting Transcription Sheet when you get back to the house at Slaughter Beach.

Resighting Transcription Sheet

OFFICE USE
Top sheet ID 2015 _____

RESIGHTING TRANSCRIPTION SHEET (2015)

| | | | |
|-----------------|----------------------------------------------------------------|--------|---------------------|
| Species / sheet | Observer (first initial and last name) (& scribe if different) | Date | Site (or, subsite): |
| REKN1 | G. Breese | 12 May | North Bowers |

INSTRUCTIONS: Only **ONE SPECIES** per sheet. Work down the columns.
 Indicate each half hour time block (e.g. 1030 for 1030 to 1059, use 24 hr time and include leading zeros for times before 10:00).
 Group by flag color within each half-hour time period.
 Draw line down column for repeating entries for time and flag color.
 Record extra color on opposite leg for 2-character lime flags.
Flag Condition: Record any irregular condition of the flag: Flag [color] Faded (FF), Flag Stained (FS), No Ink(IN), Faded Ink (IF), Flag Upside down (FU), Flag Open (FO), Flag Broken (FB), or Flag Dirty (FD). Note: generally INK fades not Flags i.e. IF not FF
Geolocator: Note whether a bird is carrying a geolocator (Geo) or other additional tracking devices
 When you have completed ALL your resighting sheets, put a check against your name on the front / visit sheet to indicate you have completed your flag re-sighting sheets
Last person to fill in flag re-sighting sheets - Number sheets (top right) across all observers (not just your own) grouped by species.

| | Time (24 hr) | Flag Color | Flag Code | Extra Color | Flag Cond. | Geolocator | Sex (r/u/a) | | Time (24 hr) | Flag Color | Flag Code | Extra Color | Flag Cond. | Geolocator | Sex (r/u/a) |
|----|--------------|------------|-----------|-------------|------------|------------|-------------|--|--------------|------------|-----------|-------------|------------|------------|-------------|
| 1 | 0930 | lg | AAR | | | | | | 26 | | | | | | |
| 2 | | | PO | dg | | | | | 27 | | | | | | |
| 3 | | | LGT | | IF | | | | 28 | | | | | | |
| 4 | | | HST | | | geo | | | 29 | | | | | | |
| 5 | | dg | AU1 | | | | | | 30 | | | | | | |
| 6 | | | AKO | | | | | | 31 | | | | | | |
| 7 | | o | ATM | w | | | | | 32 | | | | | | |
| 8 | | | XZ | w | | | | | 33 | | | | | | |
| 9 | 1000 | r | UW | | | | | | 34 | | | | | | |
| 10 | | lg | JL | w | | | | | 35 | | | | | | |
| 11 | | dg | AA4 | | | | | | 36 | | | | | | |
| 12 | | | AU1 | | | | | | 37 | | | | | | |
| 13 | | | | | | | | | 38 | | | | | | |
| 14 | | | | | | | | | 39 | | | | | | |
| 15 | | | | | | | | | 40 | | | | | | |
| 16 | | | | | | | | | 41 | | | | | | |
| 17 | | | | | | | | | 42 | | | | | | |
| 18 | | | | | | | | | 43 | | | | | | |
| 19 | | | | | | | | | 44 | | | | | | |
| 20 | | | | | | | | | 45 | | | | | | |
| 21 | | | | | | | | | 46 | | | | | | |
| 22 | | | | | | | | | 47 | | | | | | |
| 23 | | | | | | | | | 48 | | | | | | |
| 24 | | | | | | | | | 49 | | | | | | |
| 25 | | | | | | | | | 50 | | | | | | |

Entered by _____ Checked by _____ Errors to be corrected _____ Errors Corrected by _____
 Yes / No _____

When you return to the Shorebird House at the end of the day, you will fill out a transcription sheet for data entry. Be sure to do this at the end of the day, so the data is not lost and all data sheets for a given visit are kept together. **Please write legibly!!!**

Resighting Transcription Sheet

RESIGHTING TRANSCRIPTION SHEET (2015)

OFFICE USE

Top sheet ID: 2015 _____

| | | | |
|-----------------|----------------------------------------------------------------|--------|--------------------|
| Species / sheet | Observer (first initial and last name) (& scribe if different) | Date: | Site (or subsite): |
| REKN1 | G. Broese | 12 May | North Bowers |

INSTRUCTIONS: Only **ONE SPECIES** per sheet. Work down the columns.

Indicate each half hour time block (e.g. 1030 for 1030 to 1059, (use 24 hr time and include leading zeros for times before 10:00).

Group by flag color within each half-hour time period.

Draw line down column for repeating entries for *time* and *flag color*.

Record extra color on opposite leg for 2-character lime flags.

Flag Condition: Record any irregular condition of the flag: Flag [color down (FU), Flag Open (FO), Flag Broken (FB), or Flag Dirty (FD). Note

Geolocator: Note whether a bird is carrying a geolocator (Geo) or not

When you have completed ALL your resighting sheets, put a check at completed your flag re-sighting sheets

Last person to fill in flag re-sighting sheets - Number sheets (top right)

| | Time (24 hr) | Flag Color | Flag Code | Extra Color | Flag Cond. | Geolocator | Sex (futa) |
|----|--------------|------------|-----------|-------------|------------|------------|------------|
| 1 | 0930 | lg | AA8 | | | | |
| 2 | | | PO | dg | | | |
| 3 | | | L9T | | IF | | |
| 4 | | | H5T | | | geo | |
| 5 | | dg | AU1 | | | | |
| 6 | | | AK0 | | | | |
| 7 | | o | ATM | w | | | |
| 8 | | | XZ | w | | | |
| 9 | 1000 | r | UW | | | | |
| 10 | | lg | JL | w | | | |
| 11 | | dg | AA4 | | | | |
| 12 | | | AU1 | | | | |
| 13 | | | | | | | |

Notes:

PLEASE write legibly!!!

Only one species per sheet

Indicate half our time segments

Vertical line indicates repeated data

Please group your observations by time and flag color to make data entry easier

Do not repeat birds within the ½ hr

Do repeat birds across ½ hr segments, for example flag code “AU1” is in both 10:30 and 11:00 half hour segments

Note Flag Condition and Geolocator notes at top of sheet, use accordingly.

Letters that often are hard to read

U vs V

5 vs S

6 vs G

2 vs Z

0 vs D

7 vs 1

8 vs B or 3

Use caution when reading these letters in the field as they can be difficult to tell apart. Please write these letters clearly and distinctly in your field notebook and on the transcription sheet so that they are entered into the database correctly. Hint: use \$ for S and cross Z's, 7's and 0's to make these unambiguous. Make V's, 5's, G's, B's and D's very square/pointy.

Confusing Flag Colors

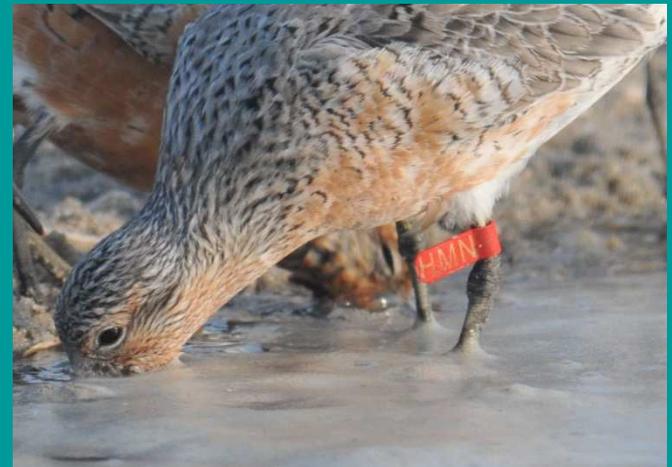
As flags weather, the colors can fade and, depending upon the lighting, can be confused with other colors. The most commonly confused colors are orange and red. Orange flags always have black letters and red always has yellow letters. The new orange flags are relatively dark and can be confused with a faded red flag under some lighting conditions, so pay attention.



Orange has
Black Letters



Orange has
Black Letters



Red has
Yellow Letters

Example of faded flag with faded ink :



Here is an example of a faded flag with faded ink. The flag can also become broken, the glue may fail allowing the flag to open up, etc. This can make the characters on the flags difficult or impossible to read. In addition, different lighting conditions can make the colors difficult to determine. Taking your time to be certain of the observations and noting these conditions can be helpful in difficult cases. However, sometimes you will not be certain, in which case the observation cannot be used and should not be reported.

Examples of bird with a geolocator:



Some birds are outfitted with geolocators. These electronic devices keep time and measure light. If recaptured, the data can be downloaded to get an approximate position of the bird, using day length and sunrise. Report using “geo” as you would for a color marker.

Site Visit Form: After You have Returned to the House

| | | | | | | | |
|----------------------------------------------------------------------------------|------------------|-------------------------------------|------------------|----------------------------------------------------|------------------|----------------|-------------------------------------------------------------------------------------|
| Check if NO flags obs <input checked="" type="checkbox"/> | # REKN Sheets | # RUTU Sheets | # SAND Sheets | # SESA Sheets | # DUNL Sheets | # RATIO Sheets | FOR OFFICE USE Sheet ID: 2014 _ _ |
| Delaware Shorebird Project - Visit summary form (aka Cover Sheet) NOT MISPILLION | | | | | | |  |
| Visit details - fill out on <u>every visit</u> (even if no shorebirds present) | | | | | | | |
| Date (spell month) | 13 May | Start | 09:15 | End | 10:45 (24hr) | Site | South Bowers |
| Observers | | check if visit scribe | | check when flag sheets completed (or x if none) | | | |
| G. Breese | | <input checked="" type="checkbox"/> | | <input type="checkbox"/> | | | |
| J. Woods | | <input type="checkbox"/> | | <input type="checkbox"/> | | | |
| | | <input type="checkbox"/> | | <input type="checkbox"/> | | | |
| Species - count & check TC, ES or GU | | | | | | | |
| TC = true count | | | | | | | |

After you have finished transcribing your resighting observations onto Resighting Transcription Sheets, locate the Site Visit form (cover sheet) and check off that you have completed your “flag sheets” beside your name. If you are the last (or only) observer to complete your flag sheets, fill out the header on the Site Visit Form indicating how many Resighting and Ratio Transcription Sheets go with that Site Visit Form. Number all the sheets across all observers, by species. Assemble the data sheets in the following order: Site Visit Form, Ratio Transcription Forms, and Resighting Transcription Sheets (group by species then by observer). Staple and place them with the other datasheets waiting to be entered into the database. Note, the Ratio Scanning is discussed later in this training module.

Site Visit Form: After You have Finished Resighting

Please double check and make sure you have filled out all parts of each form.

This helps the people doing data entry and data error checking (quality control). If data is missing, there may be no way to get it later, potentially rendering the associated data useless.

Be sure to complete this when you get back to the house and definitely before you leave the house for the day. Data on “orphaned” forms may have to be discarded or the data entered out of the normal sequence for error checking, increasing the chance of making mistakes.

Please write legibly!!!!

To Help you gain expertise in resighting and recording these observations, here are some examples

- Note what is being recorded and how it is written down

To refresh your memory, there are four species of birds we are targeting, can you identify them?



Note: The Shorebird Identification Module should be taken if you are not confident with shorebird identification.

To refresh your memory, there are four species of birds that may be flagged, can you identify them?



red knot - REKN



ruddy turnstone - RUTU



Sanderling - SAND



semipalmated sandpiper - SESA

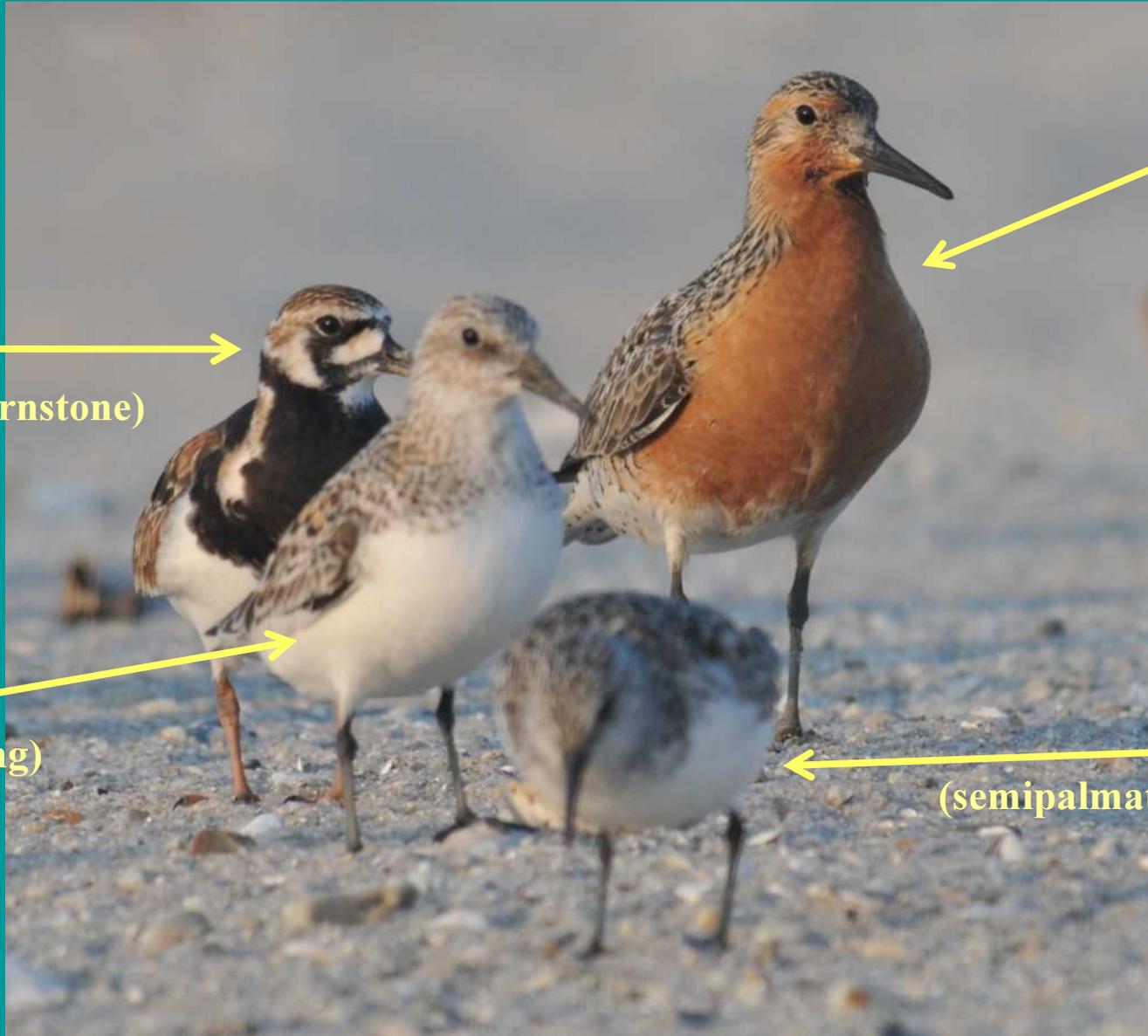
Relative sizes and colors:

RUTU
(ruddy turnstone)

SAND
(sanderling)

REKN
(red knot)

SESA
(semipalmated sandpiper)



Two other species commonly encountered with our target species are dunlin



Note: Some dunlin (DUNL) have been flagged. If one is encountered, record it.

And short-billed dowitcher (SBDO).



Example 1



Example 1

This is a red knot, with a flag colored light green or lime, inscribed with code PLE

Or, more simply

REKN FEIlg(PLE)

Since this is a 3 character light green flag this is all the information needed, recording the yellow band is not needed, but won't hurt:

REKN FEIlg(PLE) y

Note the full standard Pan American code would be:

FEIlg(PLE) | - : y | m

Example 2



Example 2

RUTU FEI_g(HYC)

Note this is a ruddy turnstone. Since this is a 3 character light green or lime colored flag this is all the information needed, there is no need to check the legs for other color markers.

Note the full standardized Pan American code would be:

FEI_g(HYC) | - : U | m

Example 3



Example 3

REKN

FEI_g(XL)

o

Since this is a 2 character light green flag you need to record the colored band as well as the flag.

The Full standard Pan American code would be:

FEI_g(XL) | - : o | m

The next 20 slides will give you practice

- Pretend you are in the field
- Decide whether to record the information or not
- Write down flag codes and other information
- After every 5 slides you will see what should have been recorded.
- Accuracy is more important than speed
- If you notice a flag who's condition is irregular, report it using the codes on the Resighting Transcription Sheet:
Flag [color] Faded (FF), Flag Stained (FS), No Ink(IN), Faded Ink (IF), Flag Upside down (FU), Flag Open (FO), Flag Broken (FB), or Flag Dirty (FD).
Mark birds with Geolocators (G) or geo

Example 4



Example 5



Example 6



Example 7



Example 8



Example 4: REKN FEIlg(JTH) FS (flag stained)

Example 5: nothing to record for this sanderling (SAND)

Example 6: REKN FEIlg(YJT)

Example 7: REKN FEEdg(AUA)

Example 8: REKN FEIlg(UKV)

Since these are all 3 character light green or dark green flags, this is all you need

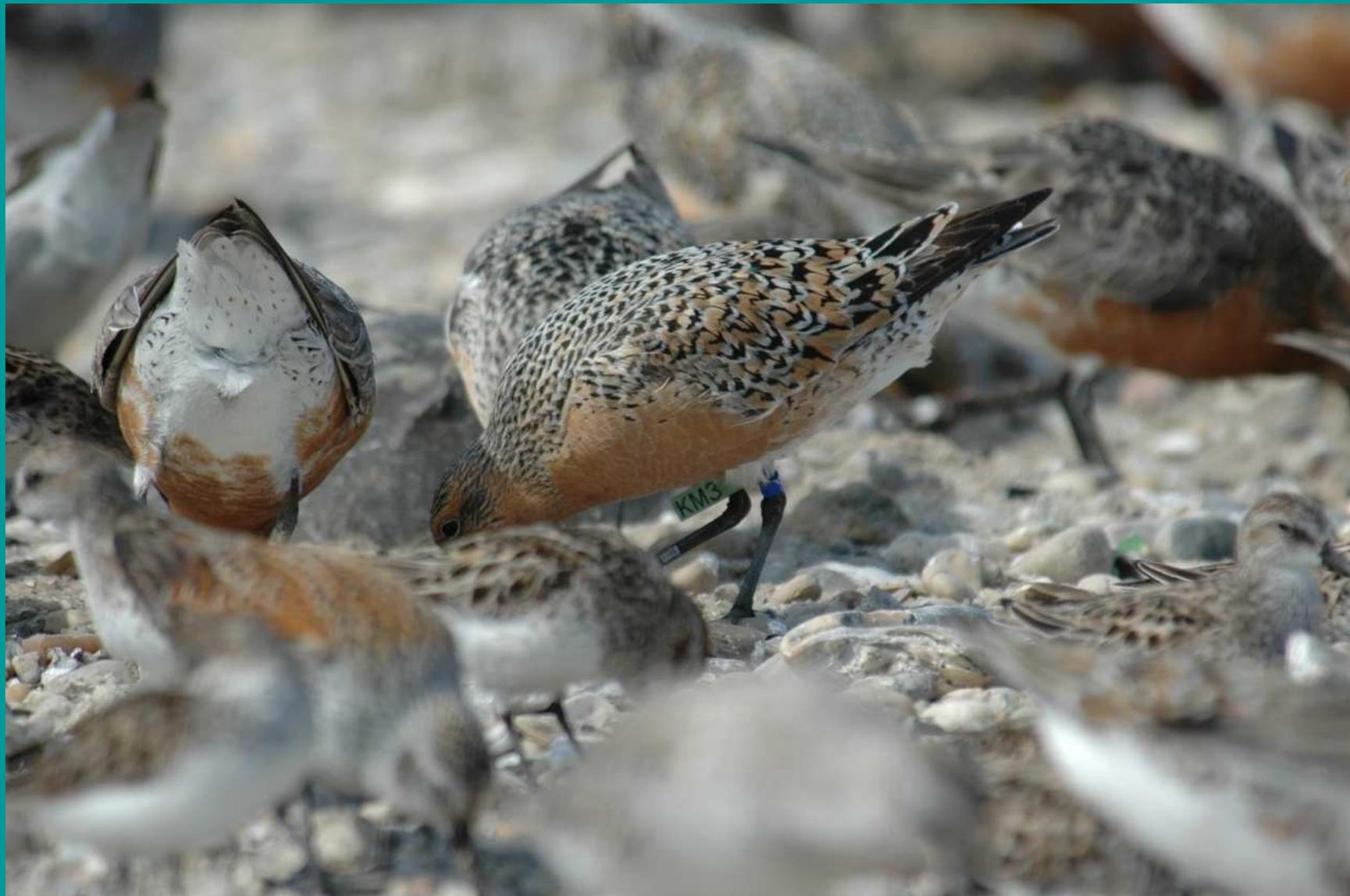
Example 9



Example 10



Example 11



Example 12



Example 13



Example 9: nothing to record (REKN)

Example 10: SAND FEI_g(VKX)

Example 11: REKN FEI_g(KM3)

Example 12: RUTU FEI_g(XMC) FS (flag stained)

Example 13: REKN FE_w(V7)

Note that these are light green 3 character and white flags, so you do not need to record the extra color markers.

Example 14



Example 15



Example 16



Example 17



Example 18



14: RUTU FEI_g(KPN) ink faded

15: REKN FE_o(NJ) dg

16: nothing to record on this REKN

17: REKN Flag obscured by dirt, cannot report this bird

18: REKN FE_r(EN)

Note that the orange flag requires the additional color marker to be recorded, but the 3 character light green and red flags do not.

Example 19



Example 20



Example 21



Example 22



Example 23



19: REKN FE_o(CNP) -

20: REKN FE_{lg}(HM7)

21: RUTU nothing to report, flag code obscured by feathers

22: REKN FE_{lg}(X4) dg

23: RUTU FE_{lg}(AJK)

Note that the orange flag needs to have any color markers, or as in this case, a dash to signify that there were none, recorded. And the 2 character light green needs the additional color marker recorded.

Example 24



Example 25



Example 26



Example 27



Example 28



Example 29



24: REKN FEI_g(EHC) FS (flag stained)

25: REKN FEI_g(T6M) (if you can't make out the "M" don't report it.)

26: REKN FE_{db}(AB) y

27: REKN FEI_g(87) o

28: RUTU FEI_g(LNA)

29: REKN FE_{dg}(HKN)

Note that the dark blue flag and the 2 character light green flag require additional color markers to be recorded.

Ratio of Marked:Unmarked

After you have gained experience and knowledge resighting, you may be asked to collect Ratio Scan data as well. The purpose of this data is to provide estimates of population size.

The protocol for collecting this data has been carefully worked out to meet statistical needs.

Further, it is not easy to do this as birds run back and forth across the beach.

It is important to get enough experience that you are comfortable and confident in your resighting data, before you begin collecting ratio scan data.

For this task we classify birds into two groups, those with inscribed flags (of any color) vs birds with no inscribed flags, see next slide.

Ratio of Marked:Unmarked

- Do Ratio Scans for REKN, RUTU, SESA, and SAND for every site visit if possible. Be sure to record the species scanned for each scan ratio recorded. Do one species at a time, REKN is the top priority for this.
- Choose a representative portion of the flock and count in one direction to minimize double counting.
- Scan a total of 50 birds, if you can.
- Record the total number of birds scanned. You must be able to determine that a bird either has or does not have an inscribed flag to include it. Do not include birds with a leg tucked up against their body, or that have a leg blocked from your view.
- Record the number of birds that had an inscribed flag.
- Repeat this count every 30 min if you are there long enough
- **Do not count birds unless you are sure they have or do not have inscribed flags.** This means that you will not be able to include every bird you see in this ratio scan, and in practice you will need more than 50 birds in a flock to get a 50 bird ratio scan. That is fine, what is needed is an accurate ratio.
- If you only have a small number of birds, do a scan when you first arrive, but do not repeat it on the substantially the same birds multiple times.

Ratio of Marked:Unmarked, con't.

Remember any bird **without an inscribed flag is an unmarked** bird and any **inscribed flag of any color is a marked** bird, for this purpose.

People typically record ratio scans in their notebook. Make sure you record:

Species

Number with inscribed flags

Total number of birds scanned.

For example:

REKN 4 Flagged, total scanned 37

Ratio Transcription Sheet

Back at the shorebird house, be sure to fill out the ratio transcription sheet.

Sheet 1 of 1

| | | | |
|--------------------------------------------------------------------|------------------------|------------------------------------------------------------------|---------------------|
| FLAGGED RATIO TRANSCRIPTION SHEET | | ONLY 1 SPECIES PER SHEET | FOR OFFICE USE |
| PLEASE write clearly! Record names as first initial and last name. | | | Top sheet ID:2014 _ |
| Species: REKN | Date: 17 Mdy | Site: At Mispillion record sub-beach Misp - Back Beach | |

Begin scanning across a flock counting each bird you see and total number with inscribed flags (any color)(use tally counter). You must see both legs to confirm that a bird is not flagged. Target sample for each scan is 50; if birds fly before 50 are counted record counts to that point. Attach this data sheet to your cover sheet. Combine data from multiple observers who were at the same site (or Mispillion subsite) at the same time. Still only 1 species per sheet.

| | Time (24hr) | Total # Scanned | # with flags | # w/o flags | Observer | Scribe (if different) |
|---|-------------|-----------------|--------------|-------------|-----------|-----------------------|
| 1 | 15:30 | 48 | 5 | 43 | G. Broese | |
| 2 | 16:00 | 50 | 6 | 44 | | |
| 3 | 16:30 | 30 | 3 | 27 | | |
| 4 | | | | | | |
| 5 | | | | | | |

All observers can put their data on one sheet. For example, if three observers did ratio scans for REKN, then all three can put their data on one sheet. But do not mix species on the same sheet.

Tagged Horseshoe Crabs



If you find a tagged Horseshoe Crab Record that too.

Two different tags have been used, each has a different phone number, but tag numbers could be the same. Record the information on the Data Sheet:

Tag #

Telephone Number on the Tag

Date

Location

Alive or Dead

Tag removed or not

Observer

Notes



Horseshoe Crab Resightings Data Sheet

Year:

| Tag # | Telephone Number (1-888-LIMULUS or 877-TAG-CRAB) | Date | Location | Animal alive or dead? | Tag Removed? | Observer(s) | Notes |
|-------|--------------------------------------------------------|------|----------|--------------------------|-----------------|-------------|-------|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |

Further Information

You will be provided additional information in the form of verbal instruction, written instructions, and practical experience with more advanced team members.

Please ask questions when you are uncertain.

Remember, it is better to have only a few resightings that you are sure about, than a lot of uncertain resightings. Take time to be certain.

Table 1. Key to codes for recording colour band combinations on shorebirds.

| Colour | Code | Description | Code |
|-------------|------|--------------------------------------------------------------------------|-------------|
| Black | bk | Separates markers on the same leg segment (comma) | , |
| White | w | Separates upper vs. lower leg (vertical bar; symbol above \ on keyboard) | |
| Red | r | Separates left vs. right leg (colon) | : |
| Orange | o | Separates colours on split bands (forward slash) | / |
| Yellow | y | | |
| Dark Green | dg | Marker Type (<i>where x = colour</i>) | Code |
| Light Green | lg | Metal Band | m |
| Dark Blue | db | Coloured Band | x |
| Light Blue | lb | Coloured Flag | Fx |
| Pink | lp | Bi-Coloured Flag | Fx/x |
| Dark Pink | dp | Tri-Coloured Flag | Fx/x/x |
| Purple | pu | Engraved Band (<i>where # = alpha or numeric code</i>) | Ex(###) |
| Brown | bn | Engraved Flag (<i>where # = alpha or numeric code</i>) | FEx(###) |
| Grey | gy | no bands or flags present (single dash) | - |
| | | Geolocator | GEO |
| | | Satellite | SAT |
| | | unknown character on code | Q |
| | | unknown colour or bands on particular portion or sub-portion of leg | U |

Credits

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