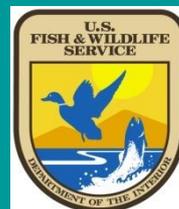
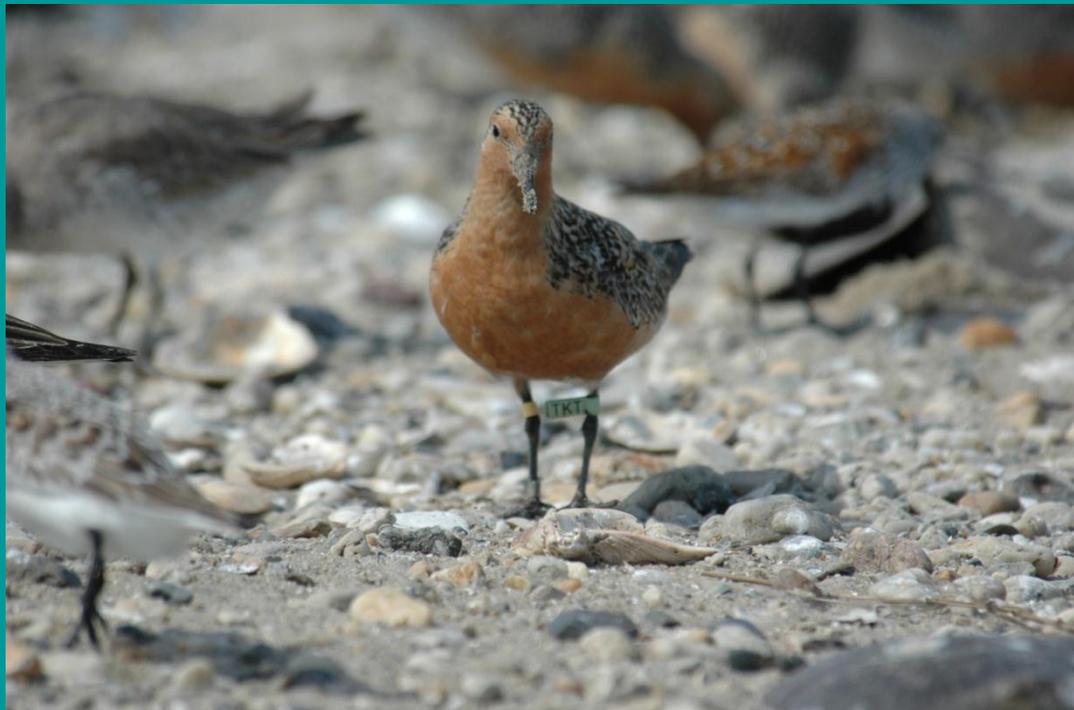


Resighting Individually Marked Birds...



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*) have also been marked. 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 plus color band
- ❖ 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

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. With one exception, all can be identified as individuals by the flag code alone.

That exception is US (lime colored) Flags that have only 2 characters (see second photo from left). In this case, duplicate codes were used and the color band (usually there is only one and it is on the opposite leg) must be recorded as well as the flag code.

This bird needs to have the Flag Code AND Band Color recorded



US



US



Chile



Argentina



Argentina

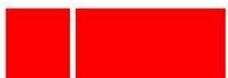


Brazil

Flag Colors by Country

Each country has been assigned a specific color flag to use. The flag colors you will most likely see are:

Flag colors and inscriptions:

Canada				
	Pre-2003	2003	2004	2007
USA				
Brazil				
Argentina				
Chile				

The convention for recording flags is to write an “F” to designate it is a flag and the first letter of the color for example: Brazil would be FB

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 = #RLTU Sheets = #SAND Sheets = #SESA Sheets = #DUNL Sheets = #RATIO Sheets =

FOR OFFICE USE
Sheet ID: 2014 _____

Dufur Cove Shorebird Project - Visit summary form (aka Cover Sheet) NOT MISPELLION
Visit details - fill out on separate sheet, even if no shorebirds present!

Date (spell month) _____ Start _____ End _____ Site _____

Observers _____ 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:
TC: ES: GU:
TC: ES: GU:
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 (leaves rustle & paper) small waves, breaking crests
5 - Fresh breeze (leaves swirl) Moderate waves many whitecaps, spray
6 - Strong breeze (leaves branches move) Long waves, white foam on 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 = UNKNOW/N

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

Rain - check one
None
Light
Moderate
Heavy
Visibility Low Moderate High

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

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 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 sex & color on opposite leg for 2-character time flags.
Flag Condition: 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).
Geolocation: Note whether a bird is carrying either a geolocator or other additional tracking device 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

Time (24 hr)	Color	Flag Code	Extra Color	Cond	Geolo catbr	roost	Time (24 hr)	Flag Color	Flag Code	Extra Color	Flag Cond	roost	Time
1							20						
2							21						
3							22						
4							23						
5							24						
6							25						
7							26						
8							27						
9							28						
10							29						
11							30						
12							31						
13							32						
14							33						
15							34						
16							35						
17							36						
18							37						
19							38						
20							39						
21							40						
22							41						
23							42						
24							43						
25							44						
26							45						
27							46						
28							47						
29							48						
30							49						
31							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 Missillon 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 Missillon sub-site) at the same time. Still only 1 species per sheet.

Time (24hr)	Total # Scanned	# with flags	# who flags	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					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					

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>							
check if visit scribe <input checked="" type="checkbox"/> check when flag sheets completed (or x if none) <input type="checkbox"/>							
Sky (% overcast) <u>80</u>							Species - count & check TC, ES or GU TC = true count ES = to nearest 10, 50 etc by extrapolation GU = guesstimate (ballpark)
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							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> Dunlin 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> Spotted Sandpiper TC <input checked="" 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"/>
Wind direction - check one <input checked="" type="checkbox"/> Onshore <input type="checkbox"/> Offshore <input type="checkbox"/> Alongshore			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		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			Disturbances Source / number of Boat Pedestrian <u>2</u> Plane Vehicle Peregrine Researcher <u>4</u> Unknown <u>3</u> Other Other		Visibility 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
 TC ES GU 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

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

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

Disturbances

Source / number of	
Boat	
Pedestrian	2
Plane	
Vehicle	
Peregrine	
Researcher	4
Unknown	3
Other	
Other	

Rain - check one

<input checked="" type="checkbox"/>	None
<input type="checkbox"/>	Light
<input type="checkbox"/>	Moderate
<input type="checkbox"/>	Heavy

Visibility Low Moderate High

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 <input type="checkbox"/> No <input type="checkbox"/>
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

Observers G. 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)
 0
 25
 50
 75
 100

Sky (% overcast) 50

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 wavelets, glassy crests
 3 - Gentle breeze (leaves moving) large wavelets, 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

Visibility Low
 Moderate
 High

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

Rain - check one
 None
 Light
 Moderate
 Heavy

Sturgeon Observation
 Location/Condition/Comment _____
 Entered by _____ Checked by _____ Corrected by _____

Approximate Length _____ Photo Taken? Yes No

Mispillion Harbor ONLY

Enter counts on back of sheet



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"/>
Other		<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"/>
Other	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"/>		

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"/>
Other		<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"/>
Other		<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"/>
Other		<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"/>
Other		<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	200	<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"/>
Other	Oyster catcher	<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"/>
Other		<input type="checkbox"/>	<input 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	Orange Flag	CNP
Or to write it more efficiently:	REKN FO (CNP)		

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.

Information to record for birds with a 2 character Lime Flag:

Information to record:

Species

flag color

2 character code

Colored Band(s)



In this photo:

Note: If you do not see the colored band, do not record the bird, as it is not an individual without the colored band (ring).

REKN FL (XL) ○

Flag Reporting, con't.

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: 2014 _____

RESIGHTING TRANSCRIPTION SHEET (2014)

Species / sheet	Observer (first initial and last name) (& scribe if different)	Date:	Site (or subsite):
REKN ₁	G. Greese	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 time flags.
 Flag Conditions: Record any irregular condition of the flag: Flag 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)
 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.	Geolo cator	Sex (r/f/b)		Time (24 hr)	Flag Color	Flag Code	Extra Color	Flag Cond.	Geolo cator	Sex (r/f/b)
1	10:30	L	AAB						26						
2			POE						27						
3			L9T		IF				28						
4			#5T			Geo			29						
5		O	ATM						30						
6			XZ						31						
7		R	UW						32						
8	11:00	L	JLB						33						
9			POE						34						
10			PPC		FS				35						
11			UC	O					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

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.

Resighting Transcription Sheet

RESIGHTING TRANSCRIPTION SHEET (2014)

OFFICE USE

Top sheet ID:2014 _____

Species / sheet REKN, 1	Observer (first initial and last name) (& scribe if different) G. Breese	Date: 12 Mdy	Site (or subsite): 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 Faded (FF), Flag Stained (FS), Flag Broken (FB), or Flag Dirty (FD)

Geolocator: Note whether a bird is carrying a geolocator (Geo) or other additional tracker

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

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

	Time (24 hr)	Flag Color	Flag Code	Extra Color	Flag Cond.	Geolocator	Sex (rutu)	T (2)
1	10:30	L	AAB					26
2			POE					27
3			L9T		IF			28
4			H5T			Geo		29
5		O	ATM					30
6			XZ					31
7		R	UW					32
8	11:00	L	JL8					33
9			POE					34
10			PPC		FS			35
11			UC	O				36
12								37

Notes:

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 “POE” is in both 10:30 and 11:00 half hour segments

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

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.

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</u> visit (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.

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

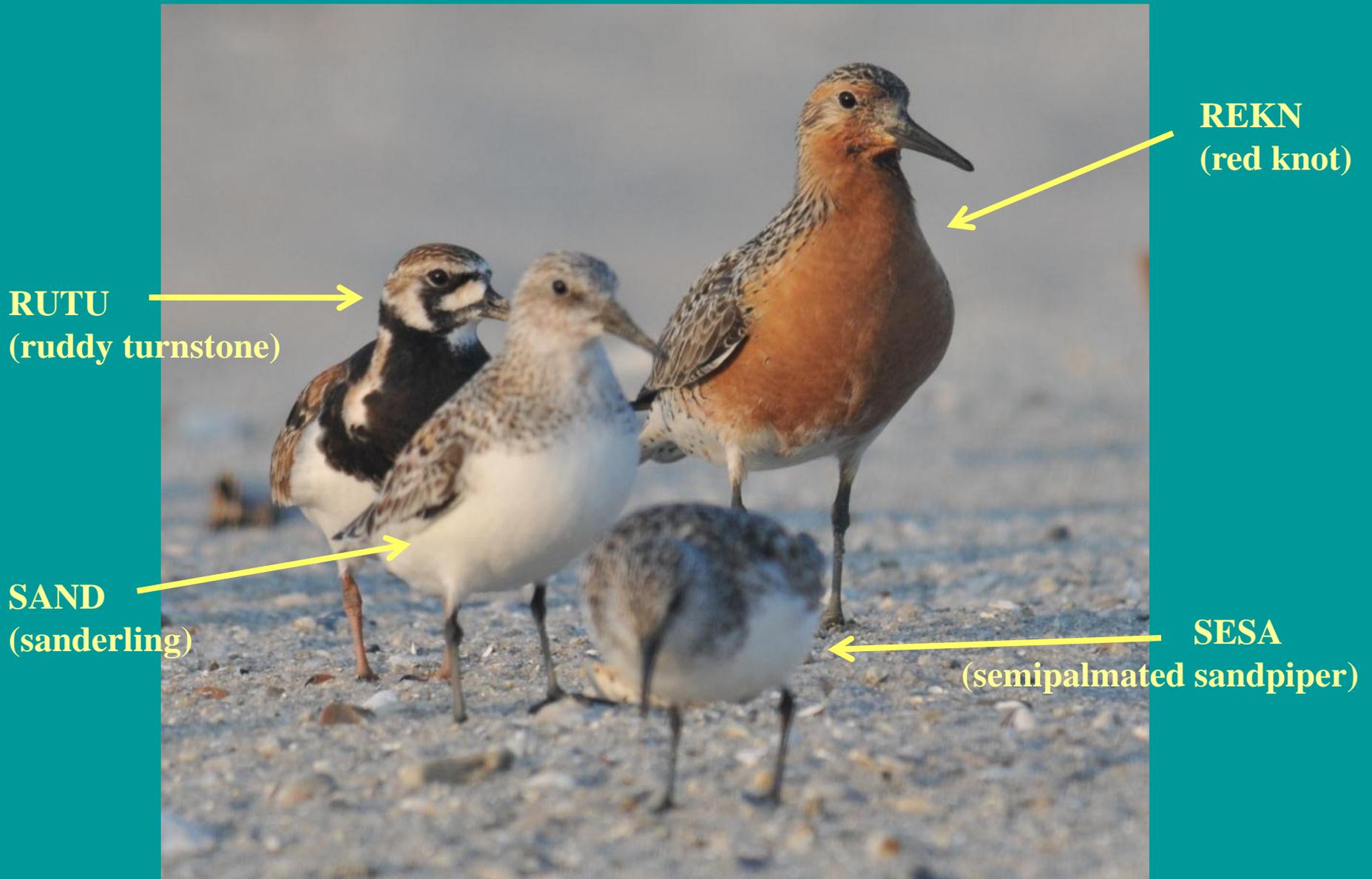


Sanderling - SAND



semipalmated sandpiper - SESA

Relative sizes and colors:



Two other species commonly encountered with our target species are dunlin



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

And short-billed dowitcher.



Example 1



Example 1

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

Or, more simply

REKN FL (PLE)

Since this is a 3 character flag this is all the information needed.

Example 2



Example 2

RUTU FL (HYC)

Note this is a ruddy turnstone. Since this is a 3 character Lime colored flag this is all the information needed.

Example 3



Example 3

REKN

FL (XL)

O

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

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:
Faded (F), Stained (S), No Ink (NI), Faded Ink (FI), Upside Down (FU), Flag Open (BO), Broken (BR).
- Mark birds with Geolocators (G)

Example 4



Example 5



Example 6



Example 7



Example 8



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

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

Example 6: REKN FL (YJT)

Example 7: REKN FL (UUP)

Example 8: REKN FL (UKV)

Example 9



Example 10



Example 11



Example 12



Example 13



Example 9: nothing to record (REKN)

Example 10: SAND FL (VKX)

Example 11: REKN FL (KM3)

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

Example 13: REKN FL (KEJ)

Example 14



Example 15



Example 16



Example 17



Example 18



14: RUTU FL (KPN) ink faded

15: REKN FO (NJ)

16: nothing to record on this REKN

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

18: REKN FR (EN)

Example 19



Example 20



Example 21



Example 22



Example 23



19: REKN FO (CNP)

20: REKN FL (HM7)

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

22: REKN FL (X4) G

23: RUTU FL (AJK)

Example 24



Example 25



Example 26



Example 27



Example 28



Example 29



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

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

26: REKN FB (AB)

27: REKN FL (87) O

28: RUTU FL (LNA)

29: REKN FO (K4S)

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.

Ratio of Marked:Unmarked

- Do Ratio Scans for REKN, RUTU, and SAND. Be sure to record the species scanned for each scan ratio recorded. Do one species at a time.
- 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. Do not record data if you scan less than 20 birds.
- 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.

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.

Credits

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