

Summary of the Standardized North American Marsh Bird Monitoring Protocols

**Modified From Courtney Conway
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Objectives:

1. Determine distribution of marsh birds within an area.
2. Estimate / compare density of marsh birds among management units, wetlands, or regions.
3. Estimate population trend for marsh birds at local or regional scale.
4. Evaluate incidental effects of management actions on marsh birds.
5. Document habitat types / conditions that may influence marsh bird abundance or occupancy.

Required Equipment: CD player, marsh bird CD, clip board, GPS, pencil, extra batteries & data sheet

Survey Protocols:

- At least three surveys should be conducted. Repeat surveys should be conducted at least 10 days apart.
- Marsh bird surveys should be conducted in the morning, 30 minutes before sunrise and end when birds cease calling.
- Observers should stand 2 meters to one side of speakers to avoid detection interference.
- Speakers should face the same direction, be positioned toward the center of the marsh, and should not be moved during the survey. Please note the direction of the speakers so that future observers can remain consistent.
- Surveys should be conducted when wind speed is <20 km/hr (12 mph) and not during sustained rain or heavy fog.
- Always conduct surveys in same chronology.

Data Sheet – Recording Survey Conditions

- Enter start time for each survey and circle the tide and stage of tide.
- Record how the survey was conducted, whether on foot, by canoe, airboat etc. It is important to record type of boat used for a survey because it may affect vocalization probability.
- Record Ambient temperature, background noise (see codes), wind speed (see Beaufort numbers), wind direction, and sky condition (see U.S. Weather Bureau codes).

Background Noise Codes

0 – no noise

1 – faint noise

2 – moderate noise (probably can not hear birds beyond 100m)

3 – loud noise (probably can not hear birds beyond 50m)

4 – intense noise (probably can not hear birds beyond 25m)

Wind Speed Codes (use Beaufort Number on Data Sheet)

Beaufort Number	Wind speed indicators	Wind Speed mph / kmph
0	Smoke rises vertically	< 1 / < 2
1	Wind direction shown by smoke drift	1-3 / 2-5
2	Wind felt on face; leaves rustle	4-7 / 6-12
3	Leaves, small twigs in constant motion; light flag extended	8-12 / 13-19
4	Raises dust and loose paper; small branches are moved	13-18 / 20-29
5	Small trees in leaf sway; crested waves lets on inland waters	19-24 / 30-38

Sky Condition Codes – U.S. Weather Bureau Codes

- 0 – Clear or a few clouds
- 1 – Partly cloudy (scattered) or variable sky
- 2 – Cloudy (broken) or overcast
- 4 – Fog or smoke
- 5 – Drizzle
- 7 – Snow
- 8 – Showers

Data Sheet – Recording Species

- Every individual bird that is a Primary species is recorded on a separate line. Also record when in the survey sequence (Before, Pass 1, BLRA, etc) it vocalized, type of vocalization, and distance of the individual from survey point based on initial vocalization.
- Each time an individual is heard, record a “1” in the appropriate column (regardless of how many times it called during that period) and record an “s” in the column if the bird was seen. If the individual is heard and seen then record “1s” in the column. If the individual is not detected in a time interval, then leave the column blank.
- During the five minute passive period, record the number of Secondary species (all birds using the marsh). For example, if the first Seaside Sparrow was seen/heard 70 meters away during passive minute 1 – 2, record SESP in the *Species* column, a check or a x-mark in the 50 – 100 column, and a “1” in the *Pass 1 – 2* column. If additional Seaside Sparrow individuals are detected within 50 – 100m, record the number of individuals on the same row in the appropriate *Responded During* column(s). If a Seaside Sparrow is detected 0 – 50m or 100+m away, record the data in a new row. Type of vocalization does not need to be specified for Secondary species.

Example:

If a Virginia rail was heard 50 meters away doing the *kicker* call during the BLRA call sequence, the observer would record VIRA in the *Species* column, a “1” in the *BLRA* column, “kicker” in the *Call Type* column, and “50” in the *Distance* column. If the same individual calls during the CLRA vocalization and then flew, then record a “1s” in the *CLRA* column on the same line. If the bird called constantly throughout the survey, all columns would have a “1”. If an unknown species is detected, write unknown in the *Species* column and take notes regarding the vocalization. If too many individuals of a species are calling at once, estimate the number and note the number is an estimate in the *Comments* column. Record any ancillary information that may have influenced bird detection in the *Comments* column.

Primary Species and 4 letter AOU codes

Each individual of the following species gets recorded on a separate line on the data sheet

SORA - Sora
VIRA - Virginia rail
CLRA - Clapper rail
KIRA - King rail
BLRA - Black rail
YERA - Yellow rail
AMCO - American coot
COMO - Common moorhen
PUGA - Purple gallinule
LIMP - Limpkin
PBGR - Pied-billed grebe
AMBI - American bittern
LEBI - Least bittern

Selected Secondary Species (this is not a comprehensive list, please record all species using marsh during the survey)

LEGR - Least grebe
EAGR - Eared grebe
GRHE - Green heron
GBHE - Great blue heron
GLIB - Glossy ibis
WFIB - White-faced ibis
WHIB - White ibis
NOHA - Northern harrier
SACR - Sandhill crane
WILL - Willet
WISN - Wilson's snipe
BLTE - Black tern
FOTE - Forster's tern
BEKI - Belted kingfisher
ALFL - Alder flycatcher
WIFL - Willow flycatcher
SEWR - Sedge wren
MAWR - Marsh wren
COYE - Common yellowthroat
YEWA - Yellow warbler
LCSP - LeConte's sparrow
SSTS - Saltmarsh sharp-tailed sparrow

NSTS - Nelson's sharp-tailed sparrow

SESP - Seaside sparrow

SAVS - Savannah sparrow

SWSP - Swamp sparrow

RWBL - Red-winged blackbird

YHBL - Yellow-headed blackbird

BTGR - Boat-tailed grackle

Rapid Assessment of Vegetation in Avian Point-Count Circles

The plant communities associated with all of the bird-monitoring plots in all marsh study units will be described. A subset of these plots will be sampled using Habitat SOP-1, Vegetation Monitoring in Salt Marshes Using the Rapid Assessment Method, which includes determining percent cover of plant communities and habitats within each point-count circle, sampling plant species composition along a transect that bisects the point-count circle, and describing the land use surrounding the point-count circle. Coordinates for the subset to be sampled using the full Rapid Assessment Method are provided with the habitat sampling maps. Vegetation associated with remaining bird-monitoring plots (i.e. those that are *not* designated as vegetation survey plots for application of the full Rapid Assessment Method) will be described using *one portion only* of the Rapid Assessment Method: determining the percent cover of plant communities and habitats within the point-count circle. These methods are included in Habitat SOP-1 and are repeated below.

1. Survey the entire 50-m diameter plot from the center survey point by using your binoculars to scan 360-degrees (i.e. the full point-count circle). Walk within the circle plot as needed to view the plant communities while minimizing disturbance to the vegetation. Look for the following plant communities and open water features:

- *Spartina alterniflora*-dominated (“Low Marsh”)
- Perennial turf grasses (“High Marsh”)
- Salt Marsh Terrestrial Border
- Brackish Terrestrial Border
- Invasives
- Pannes, Pools and Creeks
- Open Water
- Upland

2. Using the cover class guide (Appendix) and the table below, estimate the cover for each of the above communities. Fill in the cover class and note dominant species on the Bird Point Count Circle - Plant Communities and Habitats (Data Sheet attached).

Cover classes:

+: Absent or Less than 1%

1: 1% to 5% cover

2: 6% to 10% cover

3: 11% to 25% cover

5: 51% to 75% cover

6: 76% to 100% cover

Bird Point Count Circle– Plant Communities and Habitats

Marsh Study Unit Name: _____ **Bird Survey Point #** _____

Center GPS Coordinates: Lat. or Northing _____ **Long. or Easting** _____

Date: _____ **Time:** _____ **Tide:** _____ **Personnel:** _____

Cover classes: +(<1%) 1(1-5%) 2(6-10%) 3(11-25%) 4(26-50%) 5(51-75%) 6(76-100%)

Communities and Habitats in 100m Diam. Survey Plot	Cover class	Dominant species
<u><i>S. alterniflora</i> dominated (“low marsh”)</u> - Regularly flooded by daily tides; - Strongly halophytic; - Dominated by tall form (75cm+) <i>S. alterniflora</i>		
<u>Perennial turf grasses (“high marsh”)</u> - Flooded by mean tide or greater; - Strongly to moderately halophytic; - Dominated by <i>S. patens</i>, <i>D. spicata</i>, <i>J. gerardii</i> - Includes areas of short form <i>S. alterniflora</i> as well as solitary forbs such as <i>L. nashii</i>, <i>A. tenuifolius</i> and <i>T. maritimum</i>		
<u>Salt marsh terrestrial border</u> - Infrequently flooded by spring and storm tides - Moderately halophytic; - Could include areas of higher elevation on marsh platform commonly islands or linear patches next to excavated ditches) - Most common: <i>I. frutescens</i>; <i>S. sempervirens</i>; <i>P. virgatum</i>; <i>A. pungens</i>		
<u>Brackish terrestrial border</u> - Rarely flooded by tides, but often tidal influenced fresh/brackish - Not halophytic but tolerant of maritime conditions (spray and infrequent pulses) - Could include fresher areas of high water table on marsh plain - Most common: <i>T. angustifolia</i>, <i>S. robustus</i>, <i>S. pectinata</i> - Could include native <i>P. australis</i> if properly identified		
<u>Invasives</u> - Invasives such as <i>P. australis</i> and <i>L. salicaria</i> - Colonization and spread often result of disturbance		
<u>Pannes, Pools and Creeks</u> Channels, creeks, ditches, pannes and pools		n/a
<u>Open Water</u> Larger areas of water: bays, rivers, ponds		n/a
<u>Upland</u> Non-wetland areas of upland that fall into the 100m diameter circle; includes land uses of all types (e.g. natural and developed)		n/a