

Bird Area Survey Standard Operating Procedures

USGS Western Ecological Research Station SFBE

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Purpose/Objective:

Waterbirds feed on a variety of resources produced in a healthy estuary, including benthic and terrestrial invertebrates, seeds of marsh vegetation, and the stems, leaves and seeds of aquatic vegetation. As such, birds are useful monitoring indicators of the success of the estuary restoration project.

Equipment:

binoculars
spotting scope
datasheet/notebook, pencil

site map showing UTM grid
watch/timer
GPS (optional)

Methods:

Surveys should be conducted during high and low tides. High tide surveys are designed to capture the presence of waterfowl and dabbling ducks, and low tide surveys target shorebirds. The study site will be partitioned into 100-250 m UTM grids overlaid on a site map using ArcGIS so that an observer can reference the location in which birds are detected. Data recorded during area surveys includes: project, date, start time, end time, tide, weather, area/grid, species, numbers of each species, environment of sightings, and bird behavior. Area surveys are a snapshot of bird use in a particular area. As such, birds are identified and enumerated quickly while moving throughout the study area. Good bird surveys are a balance of maintaining scientific accuracy while also working efficiently.

Record all birds within defined areas (also include individuals that have originated or ended their flight within the study area). Only count birds in the study area. Birds observed on levees should be recorded as such. Record each species using a four-letter code composed of either the first four letters of the common name or the first two of each if the common name consists of two words. (e.g. RTHA=red-tailed hawk, RPHE=ring-necked pheasant). When in doubt, be conservative. If you are not sure of the species of a bird, record the taxonomic group you are certain of. For example, record "dabbling duck" if you don't know the species, or "duck" if you don't know the species or foraging guild.

Record the environment and behavior of each bird or group of birds observed. Codes for weather, habitat and behavior are:

Weather:

wind: (0 = 0-5mph; 1 = >5-15 mph; 2 = >15mph)

sky: (% sky cover)

precip: (0 = no rain, 1 = mist/drizzle, 2 = light rain, 3 = moderate to heavy rain)

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Habitat/Environment:

MF = mudflat (exposed during low tide)
 MP = marsh plain
 BD = bare dirt
 UP = upland
 LV = levee or dike
 OW = open water
 SH = shallow water

PO = pond or pooled water
 AE = aerial
 CW = in channel water
 SC = dry or seasonal channel
 RV-CK = river or creek
 OP = outside project (still in grid)
 UNK = unknown (note if on manmade structure)

Behavior:

FO = foraging
 RO = roosting
 PR = preening
 FL = flyover
 SW = swimming
 CA = calling

AL= alert
 UN = unknown
 CD = courtship display
 CN = carrying nest material
 CF = carrying food
 AG = aggression

Data Entry and Analysis:

New bird species should be added to the master bird list in the bird database. Data can be summarized by species richness, total bird abundance or density. Once summarized, bird survey data can be used in multiple analyses. Examples include:

1. Change in bird composition over time, season, and/or since restoration action (Figure 1).
2. Differences in bird composition between high and low tide.
3. Spatial distribution of birds throughout and between study sites.
4. Differences in bird behaviors by guild, season and/or study site.
5. Differences in habitat usage by guild, season, and/or study site.

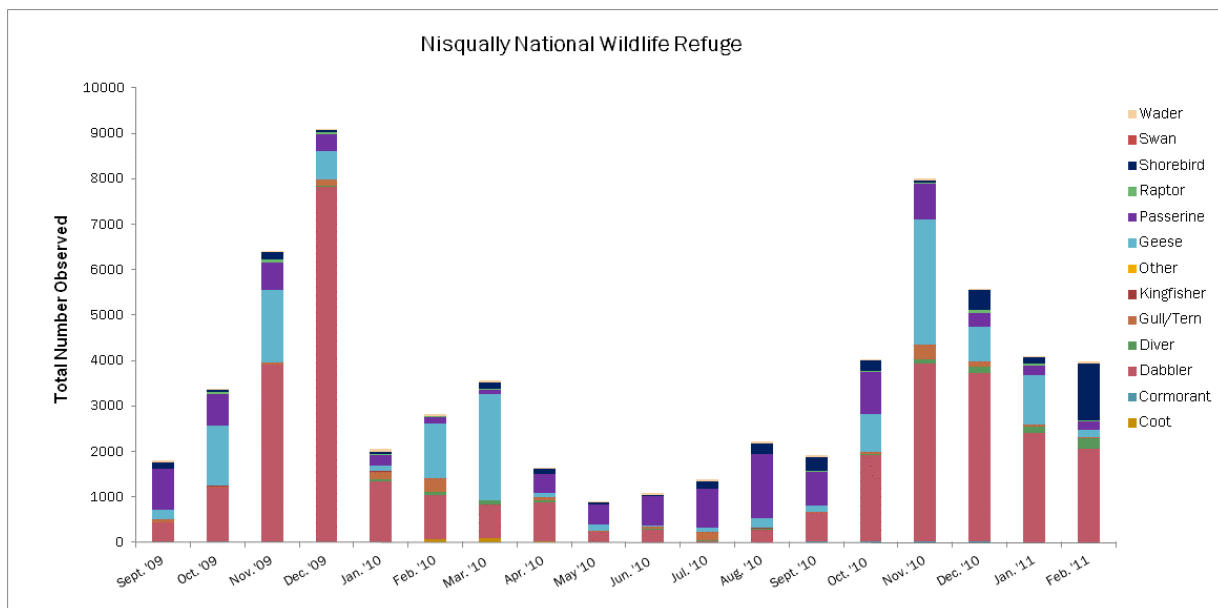


Figure 1. Total number of observed birds by guild during pre and post-dike removal monthly surveys at the Nisqually National Wildlife Refuge. Data includes areas within the footprint of the Brown Farm Dike and the new enhanced freshwater wetland. Monthly data is based upon one bird survey. Dike was removed between the September and October 2009 surveys.

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Page ____ / ____.

Site: _____ **Area Bird Survey Form** **Date:** _____ **Tide:** _____

Observers	Start Tide/End Tide /	Start Time/End Time /	Temp	Wind (0-5)	%Sky cover	Precipitation
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Habitat/Environment: MF = mudflat (exposed during low tide), MP = marsh plain, BD = bare dirt, OW = open water, SH = shallow water, UL = upland, LV = levee or dike PO = pond or pooled water, AE = aerial, CE = channel edge, CW = in channel water, SC = dry or seasonal channel, RV-CK = river or creek, OP = outside project (still in grid), UNK = unknown, note if on manmade structure

Behavior: FO = foraging, RO = roosting, CA = calling, FL = flyover, SW = swimming, PR = preening, AL = alert, UN = unknown, CD = courtship display, CN = carrying nest material, CF = carrying food, AG = aggressive display

Grid	Species	Number	Habitat/Environment	Behavior	Notes/Time
			MF MP BD OW SH UL LV PO AE CE CW SC RV- CK OP UNK	FO RO CA FL SW PR AL UN CD CN CF AG	
			MF MP BD OW SH UL LV PO AE CE CW SC RV- CK OP UNK	FO RO CA FL SW PR AL UN CD CN CF AG	
			MF MP BD OW SH UL LV PO AE CE CW SC RV- CK OP UNK	FO RO CA FL SW PR AL UN CD CN CF AG	
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