

James Bay Shorebird Project

Chapter 8: Data Entry Protocol

Since migrant shorebirds and other birds at our study areas are being studied over the long term, it is critical that the collected field data are entered into the computer in a consistent manner. Only then are the data files compatible from year to year, multi-year analyses can be made with minimal effort, the data are easily understood and accessible years after they were collected, and gaps in the database can be identified.

Data Entry Format

All data are entered into established Microsoft Excel spreadsheets, Access database, or Bandit (for banding data). Do not modify these data files by changing their names, by inserting columns, by modifying cell height or column widths, or by changing field formats. The date column in most spreadsheets is defined to show the date in the yyymmdd format. Use consistent capitalization and spacing for phrases entered into cells. Many analysis programs interpret capitalized words as different from small case (for example: ‘Word’ will be interpreted differently than ‘word’ or ‘WORD’. Follow the example data entry row for data provided. If additional information has been collected add necessary columns at the end of the spreadsheet or write a description in the comments section. If you are unsure about data entry, ask questions. It is important to keep data entry, especially inventories of invertebrate and blood samples and banding data, up-to-date. This prevents confusion, loss of samples, or loss of data if datasheets are damaged in the field.

Abbreviations and Acronyms

If using abbreviations, use those defined in this manual. Do not deviate from these codes. However, if additional codes are needed to describe something that has not been outlined in this manual, clearly describe in prose what the codes stand for in a separate spreadsheet labeled “NewCodesyyyy” (where yyyy is the current year) in addition to inserting a comment at the cell holding the column title.

Data Entry and Proofreading

It is critical that all data be entered correctly into the computer. Always enter all data one line at a time to ensure accuracy. Do not enter them column by column. Proofreading all data is a must. Proofreading is most effective if one person reads the field notes out loud, while a second person checks the data entered on the computer. Proofread down one column at a time. Pay attention to the values entered. Double-check whether unusually high or low values are entered correctly. **Always back-up any data that you have entered at the end of each data entry session to a USB external drive.** Ensure you make a copy to both USB drives and keep them up-to date. Yes, we provide two USB drives for back-up.

Navigating through the Data Files

All necessary files have been set up in advance for data entry and are contained in a MS Excel file named sitenameyyyy (sitename= the site at which you are based; yyyy=current year expressed in four digits). Tabs contained within the sitenameyyyy file are described below as they relate to the various projects. Detailed instructions on data entry are given where deemed necessary.

Estimated Daily Totals

WildlifeChecklist_SITENAME

Tab: BirdsSITENAME

Start by entering the effort for the day; include the time start, number observers who spent significant time in the field surveying, the distance of shoreline covered, and any comments about the day's observations (e.g., many individuals seen actively migrating, first influx of birds today). Proceed by entering the number of individuals estimated by the crew for each species observed. Comments about a species and adult and juvenile counts are included in the count column after a vertical bar "|" (on a QWERTY keyboard, the combination of the "shift" key + backslash "\" key). Ensure you keep adult and juvenile shorebird counts separated in the count column using a vertical bar (e.g., Black-bellied Plover: 14|12 adult, 2 Juvenile).

Tab: BiotaSITENAME

Same format as the bird list, except this covers all other floral and faunal observations, such as mammals, lepidopterans, anurans, intertidal flora, and so forth.

Camp Log - a daily narrative

Camlog.docx

Each night, one person in camp should assume the responsibility for keeping a daily camp log while seeking input from other team members. This narrative should include activities in Moosonee at the beginning and end of the field season. Recognize that even qualitative observations by enough people can contribute much to our understanding of the local ecology. Often these observations stimulate new and productive research directions. As it is more readily accessible than the raw data, the camp log may be sourced to produce summary reports. In addition, it is used to plan the next field season, so information such as aircraft activities in and out of the camp and the weights of supplies flown in (e.g., fuel, food, gear, number of personnel) is important to include in the log. Nonetheless, the log need only be a short paragraph that – when applicable – should contain the following information:

- a. General Weather Conditions
- b. Daily Activities – For example: camp setup, shorebird surveys, banding, invertebrate sampling and sorting. If you are unable to complete a task, state the reason (e.g., we were unable to survey today because weather was too severe).
- c. Arrival of Species – Note the arrival of any birds and terrestrial and marine mammals. Although a species log is kept, the daily log usually contains more anecdotal information (e.g., caribou track noted today; Short-eared Owl likely nesting nearby). **Note the arrival of the first Hatch-Year shorebirds to the study area, and departure of the last adults.**
- d. Breeding Activities – Note any breeding activity in the study area.

- e. Interesting Observations – Note observations that are of interest (e.g., predator activity such as raptors in the area, nest defense behaviour, anti-predator behaviour, insects identified, the finding of carcasses, plant growth/identifications).
- f. Suggestions – Feel free to jot down your ideas that may improve the camp/safety protocol, data sheets, and research techniques.

[*SegmentSurveys_SITENAMEyyyy.xlsx*](#)

Use this spreadsheet to enter data collected during daily shorebird surveys. Note that while these data contribute to Daily Estimated Totals (DETs), they contain more detail than is included in DETs and the data should be entered here in that more detailed format. Whereas a total count for each species was recorded for DETs, data should be entered here as it was recorded in your notebook, with each observation on a separate line. Similarly, observations of adults and juveniles of the same species are recorded as separate entries. There is a column for recording age; this is not recorded as a comment. The “Start time” and “End time” columns refer to the start and end times for each segment, not the entire survey period for the day. These data are recorded in long format, so much of the information in the first columns can be copied and pasted downward to some extent to accelerate entry. Please make sure to record the name of the notebook that the raw data is in so that it can be referred back to easily if necessary. Also, if a flock was exhibiting multiple behaviours, ensure they are entered in the format that is outlined in the Bandedbirds look-up codes (appendix 1 of Chapter 2).

There is a second sheet for entering weather data collected during each survey. A common “Date” column in each sheet will link the survey and weather data.

[*Bandedbirds_ResightingEntryTemplate_JamesBay.xls*](#)

Use this spreadsheet to enter your resighting data. This spreadsheet is formatted specifically for uploading resighting data into the Shorebird Resighting Database, bandedbirds.org. **Please maintain the format and use the provided coding.** For those of you using this spreadsheet for the first time, please note that there is a worksheet with full instructions detailing the content of each column for the Resighting worksheet. In addition, there are worksheets listing the required codes to be used in the data entry. A sample worksheet of data entry is also provided. **Of Special Note:** Resighters are being asked to conduct marked-to-unmarked bird scans (ratio scan) every half hour for Red Knot, Ruddy Turnstone and Sanderling. Red Knot are the first priority and should be scanned first of the three species. Please refer to Ratio Resighting Protocol for scanning protocols. These data are distinct from the resighting data entered into the database; therefore, it must be entered on the worksheet titled Ratio Surveys. There is some repetition of columns from the resighting data, so a copy-and-paste from the resighting sheet is advised to fill in the repetitive data such as date, location and name information. All cells should contain data, so use the “drag” function to fill in repetitive data down the columns.

SITENAMEInverts2017

MS Excel file for invertebrate sampling and inventories named will contain several sheets related to invertebrate sampling:

Tab: BenthicMacrofauna

This is where information on benthic core sampling should be documented for macroinvertebrates identified to family.

Tab: Point Bird Counts

This tab is used to enter birds observed within 100m of benthic bird and control sampling locations.

Tab: SIA inventory

This tab is used to enter inventory for any samples collected for stable isotope analysis.

Tab: LowTide Habitat Transects

This tab is used to enter data for mapping distributions of shorebirds across the intertidal and the habitats they are feeding on.

SITENAMEBirdSamples2017

MS Excel file for bird sample inventories named SITENAMEBirdSamples2017 will an inventory of any bird samples collected including blood samples, plasma samples, poop samples, and information for any dead birds if mortality occurs.

SITENAMEBandit_DataEntry_2017

This workbook will be used to enter banding data. Follow the “Read Me” instructions to enter banding data into the workbook. There are separate tabs for new banded birds and for recaptures.

SITENAMEBandingEffort_SRXDetections_2017

This workbook contains two tabs for entry of Banding Effort and Handheld SRX Detections. These data should be recorded in a Rite in the Rain Notebook or datasheets present at the banding location. Numbers of birds of each species within 100m of the net and numbers of birds captured should be recorded as well as any birds detected with an SRX unit.

Additional Software and Files

In addition to Microsoft Office (Word and Excel), each field laptop should have software to connect to field equipment.

Sensorgnome (Motus): qthid 4.1, audacity, beaglebone drivers, and Mozilla Firefox.

Lotek SRX800: SRX800Host.

Vantage Pro Weather Station: WeatherLink.

Garmin GPS Units: Basecamp.

All chapters of the field protocol should be included, along with relevant instruction manuals for field equipment, and additional or contributing project protocols. These should be stored in appropriately named folders on the desktop (e.g., field equipment manuals).

Vantage Pro Weather Station Data, Motus Tower Data, and SRX Telemetry Data are all stored in separate formats. See particular protocol chapters to determine how to store these data.