Useful Excel functions to analyse IWC data

VERSION 1

Background

The IWC Online and the Observado.org enables National Coordinators to export their data in a spreadsheet format. Using such spreadsheet outputs makes it possible to:

- Review data with filters (i.e. excluding certain dates, sites or species from the analysis);
- Produce tables or graphs for national reports;
- Import the data into BirdStat or TRIM or other appropriate statistical packages for trend analyses.

This document will provide guidance on using these basic Excel functions to make some of the most common reviews and reports.

The spreadsheet output

The IWC application in Observado.org produces a standard IWC output from the data entered by using the Add an IWC count function of the national IWC subsites. For more details see the guidance on <u>using the</u> <u>Observado.org system to collect IWC data</u>. There is also a <u>manual available for the IWC Online system</u>.

National coordinators can export all IWC counts entered into the Observado.org system from their country using the Regional Admin Options \ Exports menu. They can export data from the IWC Online through the export page. The output from both systems will have a very similar structure, shown in Figure 1. The IWC online system has two additional columns for counts that are considered outliers and to indicate if a site is redundant.

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Figure 1

Filtering the data

It might be possible that the user does not wish to use all the data exported from the Observado.org or IWC Online system. In such situations filtering the data using the **Filter** function of Excel can be useful. This function can be found under the Data menu in most Excel versions. The simplest process is to select the data which meets the selection criteria and to copy it into a new spreadsheet for further analysis.

Producing tables and graphs

The most efficient way of producing tables or graphs from a spreadsheet is using the **Pivot Table** function. This function is available in older versions of Excel under the Data menu, but under the Insert menu from Excel 2007 onwards.

The first step for creating a pivot table is to select the table or range that pops up when one clicks on the Insert Pivot Table button in Excel 2010 or its equivalent in other versions of Excel. It is recommended to choose **New worksheet** in response to the question **Choose where you want the PivotTable report to be placed** (Figure 2).

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Figure 2

Following this command a new empty worksheet will be created and the list of fields included in the PivotTable will be listed in a separate panel (Figure 3). These fields can be dragged and dropped to the relevant parts of the table, i.e. they can function as filters, column or row headings or as values.

In the following parts we show how to use each of these to create the most commonly occurring tables and graphs.



Reporting the results of one census

National coordinators need to provide feedback to their network shortly after the counts to maintain the motivation of the network. In such feedbacks the observers also prefer to see their name appearing. Commonly this feedback is given in a cross table showing the species observed as row labels and the sites and participants as column labels. (To avoid that additional Total columns appear, change the subtotals in the Field Settings of the sitename field to None (Figure 4).

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Producing a species overview

Species overviews are frequently needed for national reports as these can indicate which sites are important for a particular species or how the number of the species has changed over time.

To produce such a table, the species name has to be chosen as a report filter. Additional filters may include the count type of the months. Often there is more than one count per month from the same area. If you want to include only one count per site in the report, you can remove the unwanted counts from the list of data used for the pivot table. Alternatively, you can set the value field settings to take the maximum count from a site instead of the total sum (Figure 5).

If years are selected as row labels, the information in the table can be directly converted into a graph using the PivotGraph function (Figure 6).



Figure 5

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Population changes at site level

By making the site name a filter and using the species name as row heading, it is possible to produce an overview about the population changes at site level both in the form of tables (Figure 7) and graphs (Figure 8). To produce graphs showing time series, the years should be selected as row labels as mentioned above.





