Excel Tips and Tricks

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Some useful shortcuts

There are a few simple tricks that can save you a lot of time in Excel. Here are four of the most simple and useful.

Move quickly through your data

If you need to move to the end of a data set (or to the start of the next batch of data), you can hold [Ctrl] and then press the arrow (e.g., [→]) in the direction you wish to go.

Quickly selecting data in bulk

To highlight a block of text, hold both [Ctrl] and [Shift] and then press the arrow (e.g., [→]) in the direction you wish to go. Continue to hold [Ctrl] and [Shift] and press another arrow to select a 2D block.

Quickly reproducing a formula for every row of data

It is quite common to want to repeat a formula for every row of data. Consider calculating an area from length and width, for example. This is easy if you only have a few lines, but if you have thousands, you might need another option. After adding the formula to the first line of an otherwise empty column, you simply follow these steps:

1) Select that cell and {Copy} it.
2) Move over one column (e.g., [←]) to some of your data
3) Move down to the last line ([Ctrl] and [↓]).
4) Move back to the column for the formula ([→]).
5) Highlight the part of that column that runs next to your data ([Ctrl], [Shift] and [↑]). This should bring you back up to the cell containing the formula that you copied.
6) {Paste} in the formula into the selected range.

Note, this is one action that can be tricky to do on many sheets at the same time (see below), due to varying dataset lengths.

Same action, many sheets

There are times that you have several sheets containing the same datasets, but from different years, locations, or populations. It is not uncommon to want to add a column to each to insert some calculation, or to change the column headers.

To repeat an action on multiple sheets, select the first sheet, then hold [Shift] and select the others you need as well. They will become 'highlighted' (see Fig. 1). Anything you do in the sheet you are viewing will be exactly replicated in the next sheet. NOTE: If you have data of different lengths, be careful combining with the [Ctrl] and [Shift] and arrow trick above. Anything you do will be repeated in the exact cells on all selected sheets, not (for example) relative to the end of a dataset.
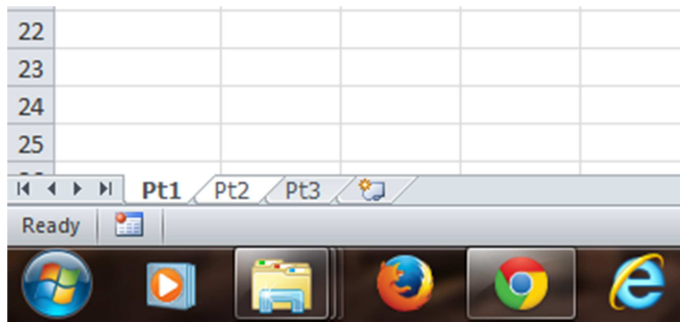
Figure. 1. Selected sheets (Pt1 and Pt2).

Fixing data formats

One of the most common issues arises when data is not 'formatted' correctly following an import from a piece of equipment, such as a tag or GPS device. It is important to know here that Excel effectively works on two levels. It stores the data with properties on a level that you cannot easily see (if at all). On top of that are the data that you can see in the format that you have selected. This is most important to realise with regard to dates and times (see below). Thus, if you 'format' cells to look in a particular way, the actual content of the cell remains unchanged, while your view of it becomes different. This can make changing the properties of the actual content somewhat tricky. Some of the most common issues can be addressed as follows.

Missing data

Date, imported or not, often has missing data (i.e., blank cells). For a variety of reasons, you may wish to replace these values with "na" or similar. This can be easily done using a filter. Provided that your data is in columns that are all with headers (i.e., every cell across the top has a value), you can initiate a filter by simply clicking on the top left cell adding a {Filter} using the {Sort & Filter} menu (Fig. 2).
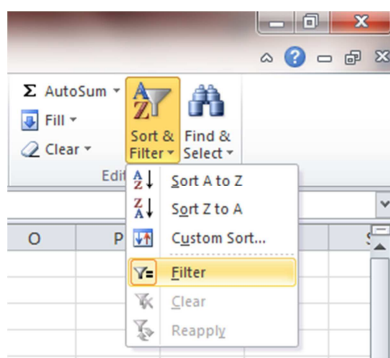

Figure 2. Adding a {Filter}.

You then simply select {Blanks} from the list of values in drop-down from the {Filter arrow} in the column of interest (which can be most easily done by unchecking {Select All} and then rechecking {Blanks}) (Fig.3). You can then use the technique presented under *Quickly reproducing a formula for every row of data* for filling in the blanks. Finally, you can remove the {Filter} by unselecting it in the {Sort & Filter} menu once again (Fig. 2).
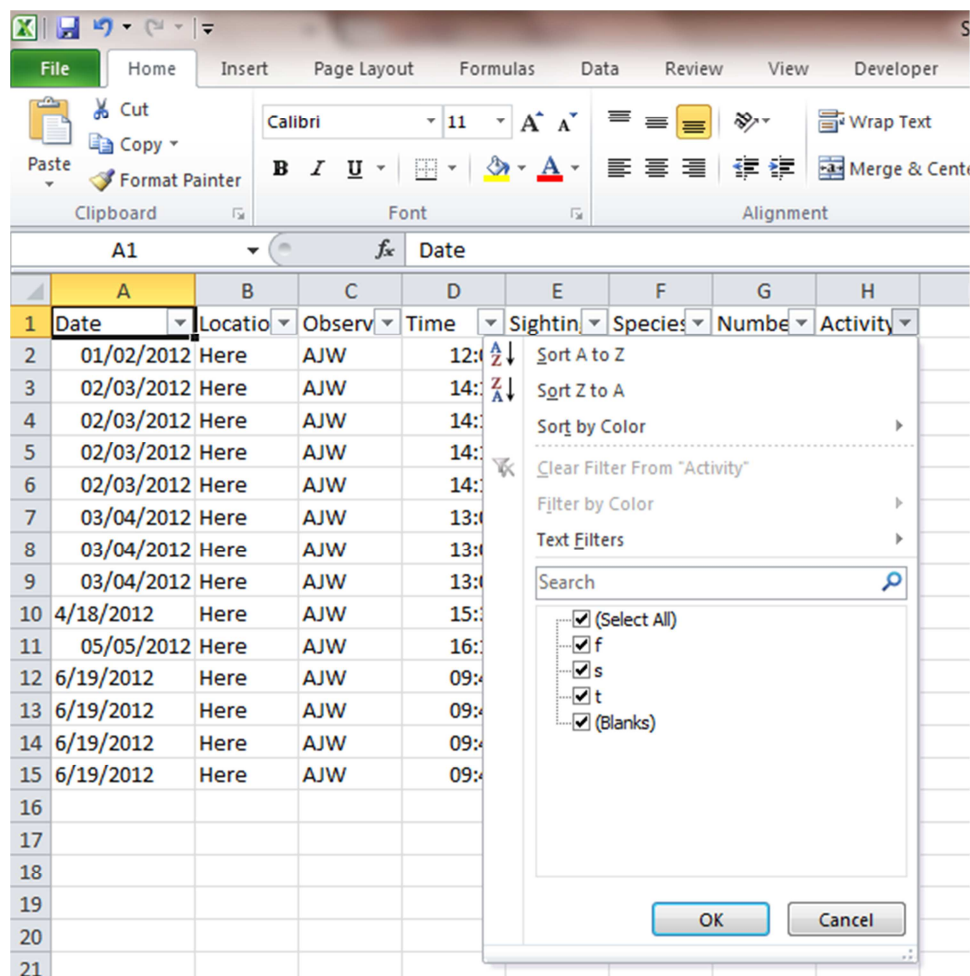
Figure. 3. Applying a {Filter}

Numbers that are not numbers

Upon imports, it is not uncommon for numbers and dates to be 'seen' by Excel to be text. As a result of this, the values cannot be used in many formulae correctly. Sorting and searching may also be compromised. The easiest way to 'force' Excel to recognise dates, times and numbers as numerical values as follows:

1) Temporarily add a column next to the data you are trying to 'convert'.
2) Add a formula to that column (see *Quickly reproducing a formula for every row of data*) "<Original Data>+1-1" (See Fig. 4).
3) {Copy} that entire column.
4) {Paste Special (Values)} the figures back into the original column.
5) Delete the temporary column.

Note that use of "…+0" does not work, as Excel seems to 'realise' it doesn't have to do anything to the cell.

StudentPres_2.xlsx [G

File | Home | Insert | Page Layout | Formulas | Data | Review | View | Developer | Add-Ins

TIME | =G2+1-1

	A	B	C	D	E	F	G	H	I	J
1	Date	Location	Observer	Time	Sighting	Species	Number		Activity	
2	01/02/2012	Here	AJW	12:00	0	na	0	=G2+1-1	na	
3	02/03/2012	Here	AJW	14:10	0	na	0		na	
4	02/03/2012	Here	AJW	14:12	1	pp	1		t	
5	02/03/2012	Here	AJW	14:14	2	pp	2		t	
6	02/03/2012	Here	AJW	14:18	3	pp	1		f	
7	03/04/2012	Here	AJW	13:00	0	na	0		na	
8	03/04/2012	Here	AJW	13:02	1	pp	2		f	
9	03/04/2012	Here	AJW	13:08	2	tt	6		s	
10	4/18/2012	Here	AJW	15:30	0	na	0		na	
11	05/05/2012	Here	AJW	16:10	0	na	0		na	
12	6/19/2012	Here	AJW	09:40	0	na	0		na	
13	6/19/2012	Here	AJW	09:45	1	tt	3		f	
14	6/19/2012	Here	AJW	09:48	2	pp	1		t	
15	6/19/2012	Here	AJW	09:49	3	pp	1		t	
16										
17										

Figure. 4. 'Forcing' Excel to recognise numbers as numbers through use of a formula.

Dealing with dates

Dealing with dates can be quite tricky, especially when working with collaborators of export from a device that uses a different date format (e.g., your machine is on a UK data setting – day / month / year – but the tag you are using uses an American date setting – month / day / year). At this point, it is important to understand that Excel dates are stored as numerical values, counting up from 1 on 01/01/1900. This is the 'real' value that you have trouble accessing, as the cell entry line and cell itself show the date format. If you reformat the cell as a number, you can see the real value behind the date.

The result of this is that Excel will recognise some foreign formats as dates (e.g., 05/04/2011), although the month and date values will be switched. Others values will not correspond to dates at all (e.g., 05/18/2011) as the 'month' is over 12. These cells will be 'viewed' by Excel as text.

Although there are ways to deal with this in Excel, the easiest and safest (in terms of being confident in the result) method of handling these is to do so in a text editor, such as Word. This is done as follows:

1) Highlight the column of data containing the dates (see *Quickly selecting data in bulk*).
2) {Copy} it and then {Paste} it into Word (or similar).
3) {Select All} in Word.
4) {Replace} the term "/" with ",".
5) {Save As} a '.txt' file on the Desktop, or similar. (Note, if Word asks you if you want to save in that file type as formatting will be lost, select 'Yes'.)
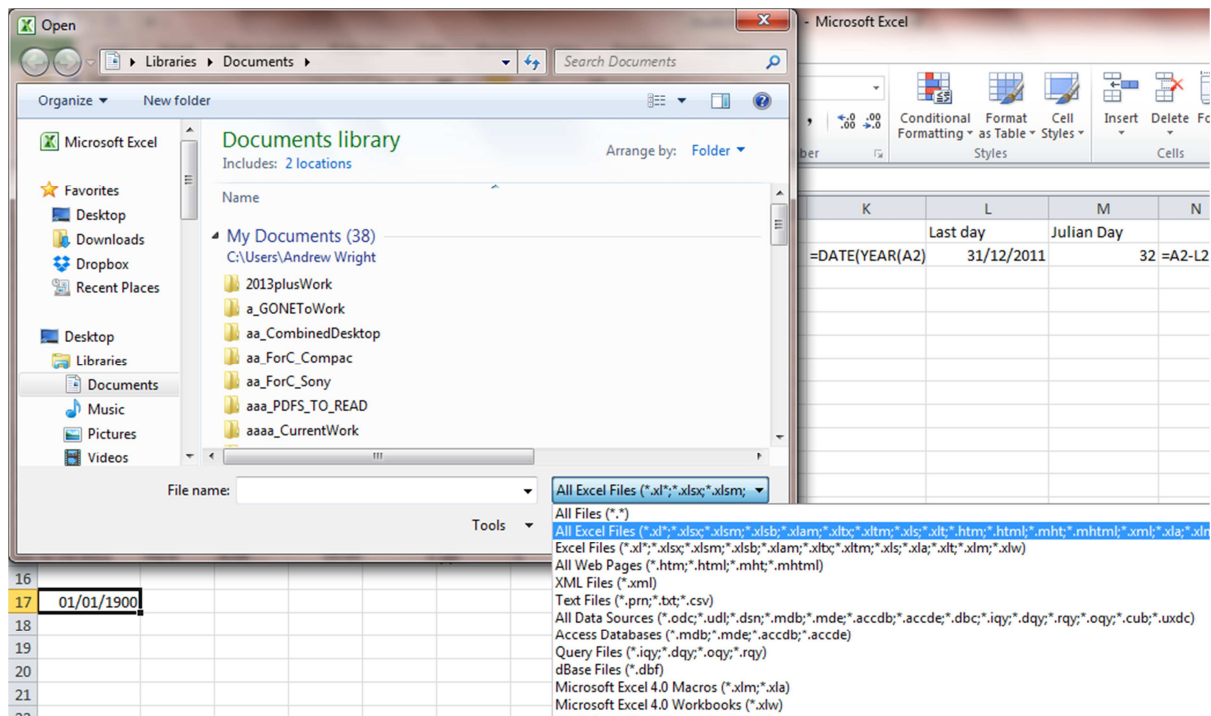
Figure. 5. Selecting {All Files (*.*)} to open a text file in Excel.

6) Go back to Excel and {Open} the file you just created. Note that you will need change the {File Type} to {All Files (*.*)} to be able to do this (Fig. 5).

7) In the {Text Import Wizard – Step 1 of 3} select {Delimited} and then {Next} (Fig. 6).

8) In the {Text Import Wizard – Step 2 of 3} unselect {Tab}, select {comma} and then {Next} (as in Fig. 7).

9) In the {Text Import Wizard – Step 3 of 3} you can leave the formats of the columns on the default setting and just select {Next} (Fig. 8).
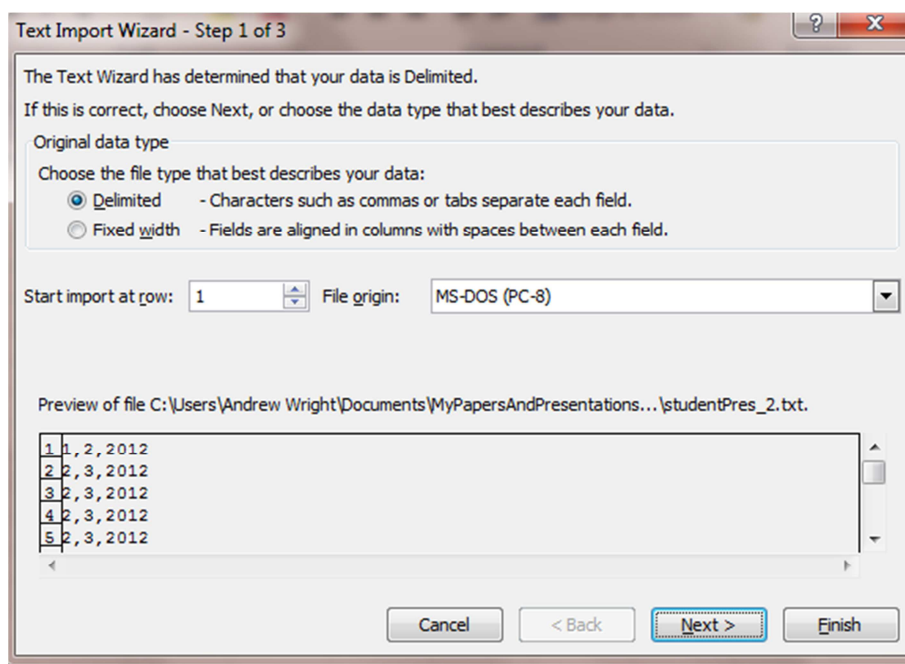
Figure. 6. Selecting Delimited format in {Text Import Wizard – Step 1 of 3} to open the new date text file in Excel.

10) You can then reconstruct the date in your local format using the following formula: "=DATE(<year value>,<month value>,<day value>)" – for a UK date format (Fig. 9). Excel will provide guidance as you type "=DATE(" with the value orders.

11) Repeat the formula down the length of the column (see *Quickly reproducing a formula for every row of data*).

12) {Paste Special (Values)} the resulting figures back into the original column.
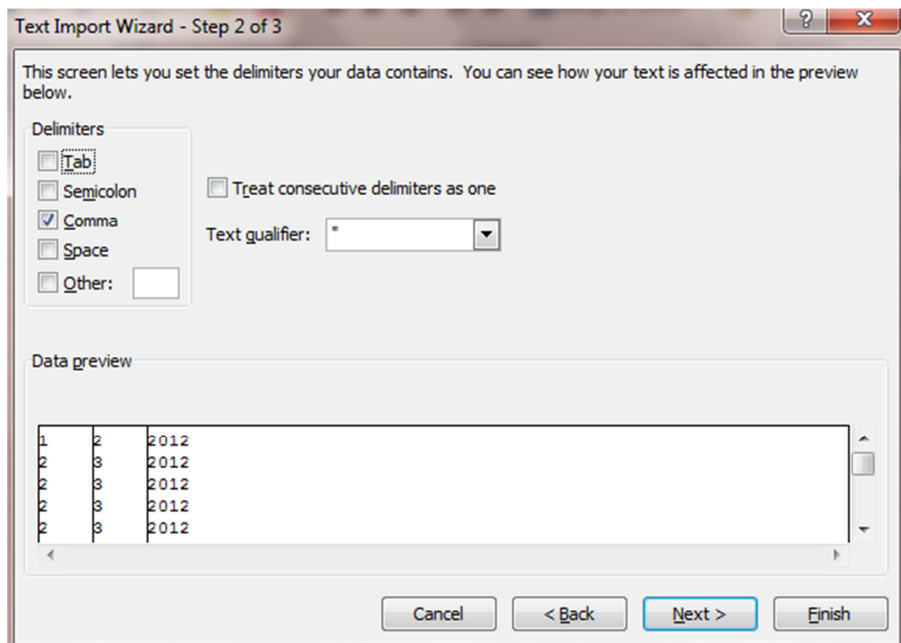
Figure. 7. Selecting {comma} delimiters in {Text Import Wizard – Step 2 of 3} to open the new date text file in Excel.
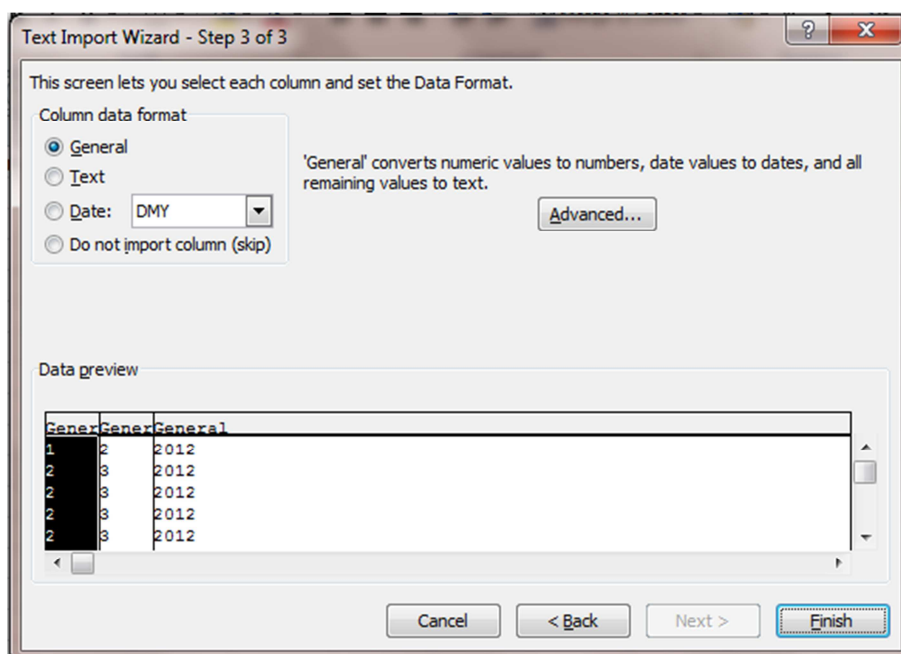
Figure. 8. Leaving column formats in the default {General} setting in {Text Import Wizard – Step 3 of 3} to open the new date text file in Excel.
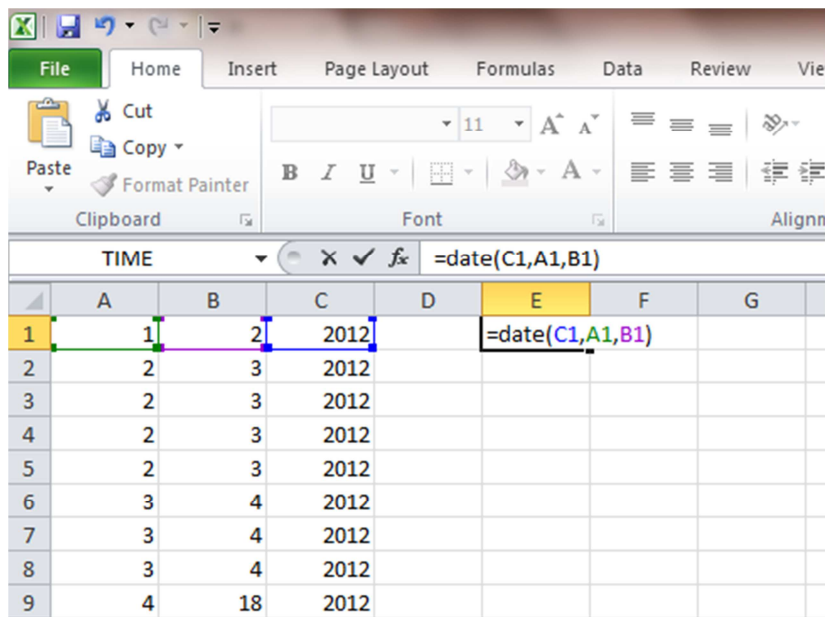
Figure. 9. Reconstructing the data values in your local format.

This process, while seemingly extensive and time consuming, deals with all the dates (regardless of their 'appearance' to Excel' in exactly the same way. While other ways do exist to handle this problem, this approach allows you to handle the issue in the confidence that the result will be correct for every date value.

Merging cell values and accessing part of their content

The use of individual identifiers is almost universal in biological data, so that each sample or data point can be referenced. These values typically incorporate some elements of other variables (e.g., year, species, sequential number, etc.). It is thus useful, from time to time, to be easily able to construct such identification variables, as well as extract the various elements of the data from them.
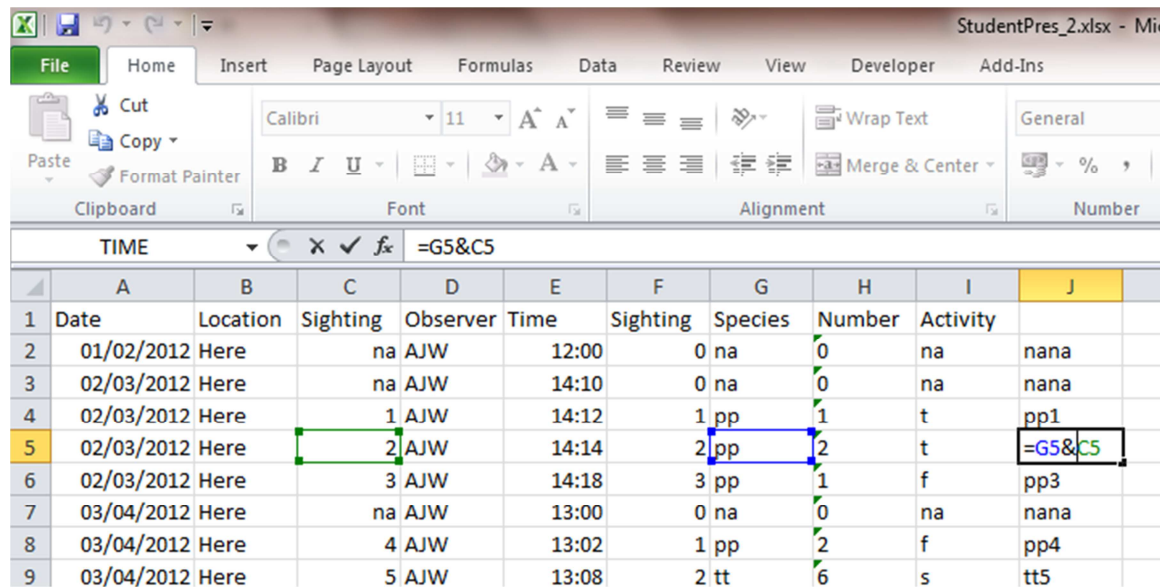
Extracting parts of cell values

Excel provides numerous functions for extracting part of the value of a given cell. Some of the most useful are: "LEFT", "RIGHT", "YEAR", "MONTH", "DAY", "HOUR", "MINUTE", and "SECOND". "LEFT" and "RIGHT" will select a number of characters from the beginning or end of a value or text string respectively. They can also be used in combination to obtain values in the centre of a value or text string. For example, the formula "=RIGHT(LEFT("abcdefghijk",5),3)" will produce the result "cde" as that it selects the right 3 characters from the text "ab**cde**" that was previously generated by taking the left 5 characters from the entire text string "**abcde**fghijk". The other functions listed will pull out the relevant value from a date-time cell (e.g., "YEAR" on values in the {Column A} in Fig. 10. would produce a value of "2012").

Merging cell values

Merging cell values in their entirety is quite easy (with the possible exception of dates, which will be added as their underlying numerical values). The formula is simply: "=<cell 1>&<cell 2>" (Fig. 10).
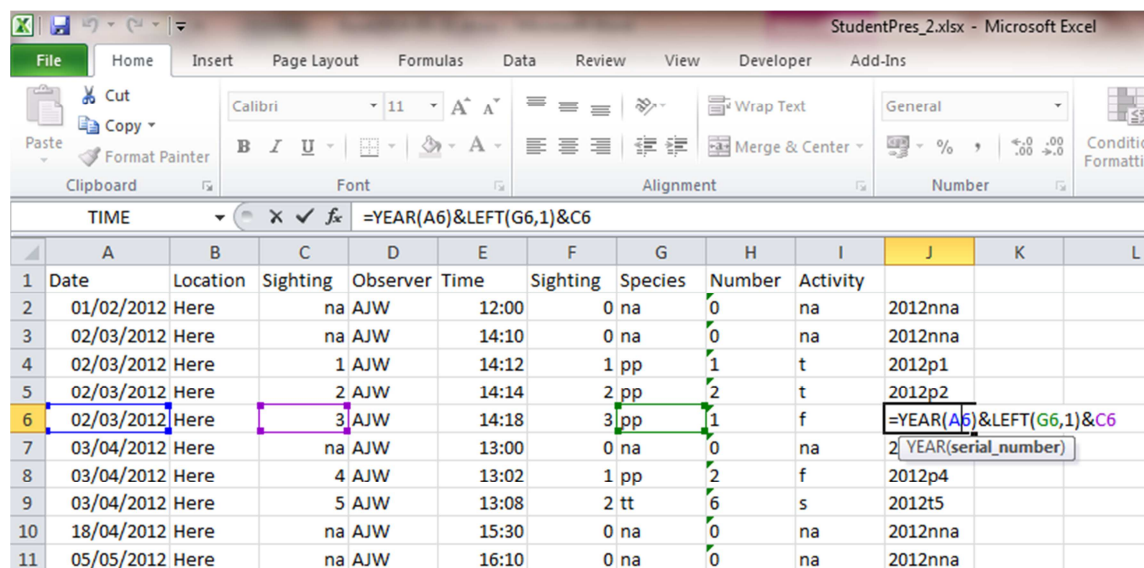
The merge can incorporate three of more cells merely by adding more elements, with a "&" between each one.

Figure. 10. Merging the complete contents of two cells.

However, ID codes may not require whole cell values, but merely fractions, such as the year from a date value. The desired result can be easily achieved by using a combination of the various available extraction functions with one or more "&"s (see Fig. 11).

Figure. 11. Creating a unique ID from the year of the sighting, the genus of the animal and consecutive sighting number. None that lines that do not represent sightings end in "nna".

Julian days

Julian Day may be a useful value in creating individual IDs. However, Excel does not provide a single formula that determines this value. To obtain this value, you need to add two additional columns. In the first, you create a value representing the last day of the previous year from the date of interest using the formula "=DATE(YEAR(<cell with date>)-1,12,31)" (Fig. 12).

Figure. 12. The first step in obtaining Julian day is to create a date value for the last day of the previous year.

In the second column, you simply take the value of the new date (e.g., "31dec…") from the date of interest by simply "=<cell 1>-<cell 2>" (Fig. 13).

Figure. 13. The second step in obtaining Julian day is to calculate the difference between the last day of the previous year and the date of interest.