

12. Data import in DISTANCE

Program DISTANCE is the “industry standard” software for estimating density and abundance from line transect data.

1. Data

DISTANCE requires input data as a text file, so the first step is to save your Excel data file as a tab delimited text file of the same name.

DISTANCE organises data in a hierarchical structure that has layers according to the type of data. The default data layers are **Global** (the study); **Stratum/Region** (sub-areas/blocks); **Sample/ Line Transect** (searching effort); and **Observation** (sightings). Your data fall into these layers as follows:

Stratum/Region: Stratum, Area

Sample/Line Transect: Team, Transect number, Transect length

Observation: Observer, Colour, Observed group size, Real group size, Perpendicular distance

2. DISTANCE projects

The first step in using DISTANCE is to set up a **Project**, which will hold your data and the results of all your analyses.

Open DISTANCE and select **File > New Project** to bring up the **Create Project** window. Enter a file name for your project, e.g. “Plugs 2012”, which takes you to the **New Project Setup Wizard**.

Under **Step 1: Type of Project**, select **Analyze a survey that has been completed**.

The **Help** button in the bottom left corner takes you to DISTANCE help, which is context specific, comprehensive and very useful.

Go to the next screen, **Step 2: Setup for Analyzing a Survey**, which gives you some information about data structure (see above). Go to the next screen.

Under **Step 3: Survey Methods**, select:

Type of survey – Line transect

Observer configuration – Single observer

Distance measurements – Perpendicular distance

Observations – Clusters of objects

On the next screen, **Step 4: Measurement units**, select:

Distance – Metre (or Meter) [perpendicular distance]

Transect – Metre [searching effort]

Area – Square metre [survey block/area]

Go to the next screen.

Step 5: Multipliers is used for user-supplied constants to scale estimates – ignore this and go the next screen, **Step 6: Finished**, where you need to select **Proceed to Data Import Wizard**.

3. Data import

Step 1: Introduction tells you what you should already have done before getting to this point ...

Under **Step 2: Data Source**, select the data file in the **File Containing Data to Import** window.
Remember: this must be a text file, not an Excel file.

Step 3: Data Destination gives DISTANCE information about how to incorporate your data in the data structure.

Under **Destination data layers**, select Observation for *Lowest data layer* and Region (Stratum) for *Highest data layer*. Under **Location of new records**, select *Add all new records under the first record in the parent data layer*. Under **Creation of new records in the lowest data layer**, select *Create one new record for each line of the import file*.

Under **Step 4: Data File Format**, select *Delimiter > Tab*, *Ignore rows > Do not import first row*, *Decimal symbol > Use "."*. *Grid size* shows you the size of your data file. The first few rows of your data are shown; they should look like they did in the Excel data file.

Step 5: Data File Structure is where you tell DISTANCE to which data layer (*Layer name*) you should assign each column (*field*) in your data. You need to do this correctly because you may not be able to change it later inside DISTANCE.

You also need to give each field a name *Field name*, and a data type *Field type*. In some data layers there are required fields with specific fixed names and types. These are:

Area under **Region** (= Stratum);

Line Length under **Line transect** (= Sample);

Perp distance and Cluster size under **Observation**.

NOTE: that under the **Observation** layer, it makes life easier if you deal with the columns for perpendicular distance (*Perp Distance*) and group size (*Cluster size*) before you assign any other fields.

Assigning your data to layers and fields

To assign the first column of data (Stratum):

Click on [*Ignore*] in the *Layer name* row at the top of the first column of data (Stratum) and select **Region**. Click on the next row, *Field name*, and type **Stratum**. Click on the next row, *Field type*, and select **Text**.

Now assign the next data column (Area).

Click on [*Ignore*] in the *Layer name* row and again select **Region**. Click on the next row, *Field name*, and select **Area**. Click on the next row, *Field type*, which defaults to **Decimal**.

Now assign the data columns Team, Transect number and Transect length to *Layer name* **Line transect**:

Team: *Layer name* > **Line transect**; *Field name* > type **Team**; *Field type* > select **Integer**

Transect number: *Layer name* > **Line transect**; *Field name* > type **Transect number**; *Field type* > select **Integer**

Transect length: *Layer name* > **Line transect**; *Field name* > select **Line Length**; *Field type* defaults to **Decimal**

And finally assign the data columns Observer, Colour, Observed group size and Perpendicular distance to *Layer name* **Observation**.

NOTE: Remember it is safest to do perpendicular distance and group size first.

So first:

Perpendicular Distance: *Layer name* > **Observation**, *Field name* > select **Perp distance**; *Field type* defaults to **Decimal**

Observed Group Size: *Layer name* > **Observation**, *Field name* > select **Cluster size**; *Field type* defaults to **Decimal**

And then:

Observer: *Layer name* > **Observation**, *Field name* > type **Observer**, and *Field type* > select **Text**

Colour: *Layer name* > **Observation**, *Field name* > type **Colour**, and *Field type* > select **Text**

You can ignore the column Real group size - you would not know this information in a real survey. These data will not be input to DISTANCE.

Under **Step 6: Finished**, select *Existing data - Overwrite existing data*.

Check *Save current settings as default* if you want.

Click **Finish** and cross your fingers ...

4. Your data inside DISTANCE

If the data import is accepted, the **Project Browser** screen appears. As before, in the DISTANCE window there is a toolbar at the top and below some buttons for specific tasks. In the Project browser, there are six tabs.

The **Data** tab has two panels. The left panel shows the **Data layers** and the right panel shows the **Contents** of the layers. Select *Region* from the **Data layers** panel to see these data. Now select *Line Transect* and then *Observation* to see the rest of your data.

You can insert/delete data layers, fields (columns) and records (rows) and edit your data as long as the **Lock data sheet** button (fourth button from the left under the Data tab) is not selected.

You don't have to save changes in DISTANCE; everything is saved automatically.

Close DISTANCE. Your project is saved as a **.dst** file together with a folder (**.dat**) which contains the data in an Access database.

5. Exporting DISTANCE projects

If you want to send your project to someone, you first need to export it from within DISTANCE.

Select **File > Export project** from the toolbar. Under **Save as type:** you can choose to export either as a DISTANCE project file (a **.dst** file with associated data) or all bundled up as a zip file (this is best). Everything within your project (data, survey designs, surveys, analyses) will be exported unless you specifically exclude them using the check boxes.

