Reports and report templates

Updated June 2026



Harking back to an earlier version of BRAHMS published in 1996... a short article published in Oxford Plant Systematics 4. This early version ran under MS DOS.

For installation and upgrading: https://herbaria.plants.ox.ac.uk/bol/brahms/support/installv8
Training guide: https://herbaria.plants.ox.ac.uk/bol/content/software/v8/Getting_Started_BRAHMS.pdf
Demonstration database: https://herbaria.plants.ox.ac.uk/bol/brahms/support/conifers

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For licensing enquiries, contact brahms@innovation.ox.ac.uk
For technical enquiries, contact brahms@biology.ox.ac.uk
http://herbaria.plants.ox.ac.uk/bol/brahms/software/v8

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Introduction

BRAHMS provides tools to design report templates. These templates can then be used to produce almost any report output starting from basic lists and labels to more complex designs with indexes and calculated summaries.

BRAHMS is dynamically linked to a third-party reporting tool called *Stimulsoft*. We use this as it is rich in reporting features and many of these can be controlled from within BRAHMS. Those interested to explore to full extent of its capabilities are encouraged to refer to https://www.stimulsoft.com/en/documentation/online/user-manual/.

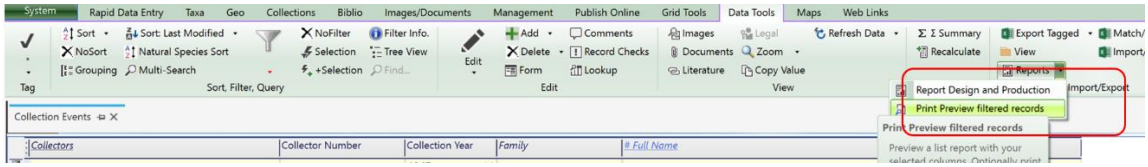
The documentation here includes the steps used to create sample reports. This is the best way to learn. While the design steps in the examples that follow may seem complex, once mastered, you will be able to design almost any report you need. It's satisfying to conquer reporting, and it makes your database efforts all the more worthwhile.

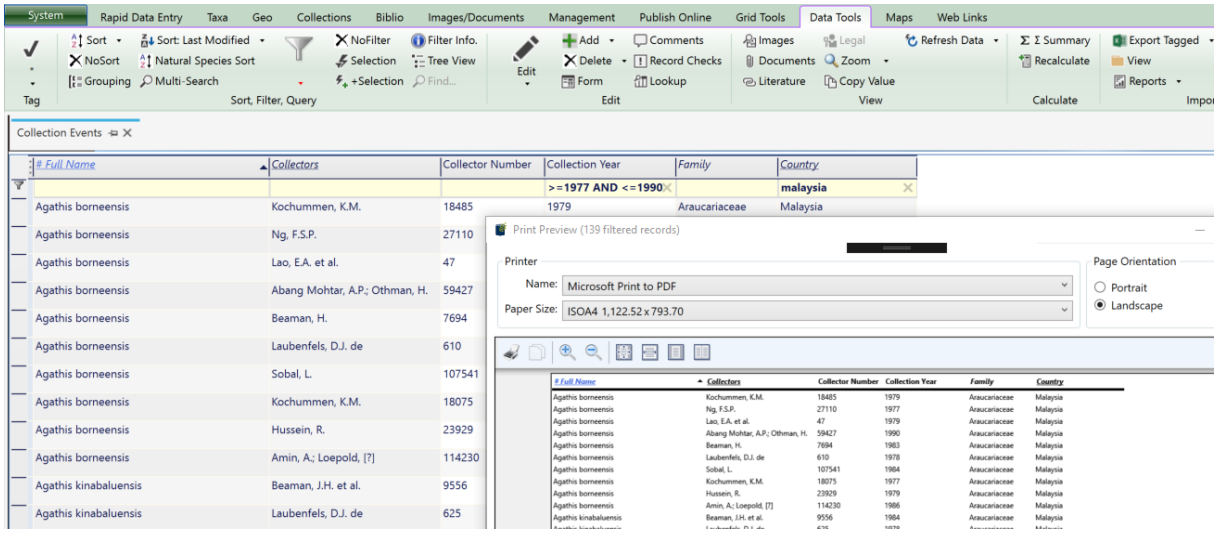
In this guide, the tutorial on preparing specimen labels provides the most comprehensive details on report design features.

It is best to use a large monitor and a proper mouse when working with report design.

Quick lists using Print Preview Filtered Records

This option is separate to the main reporting tool. While it lacks the flexibility of the reporter, for certain purposes, it is a useful way to produce quick lists from the opened table, respecting any filters set and columns selected. Unlike the main reporter, this option does not work with tagged records – although you can set a filter on tagged records.



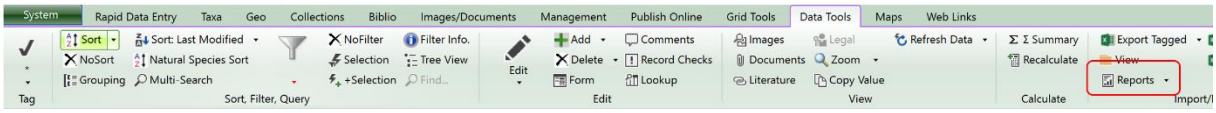


An example print-preview report with filters. It's best to restrict to a small number of columns otherwise the report wraps to new pages – even if you choose landscape mode. Keep columns as narrow as possible.

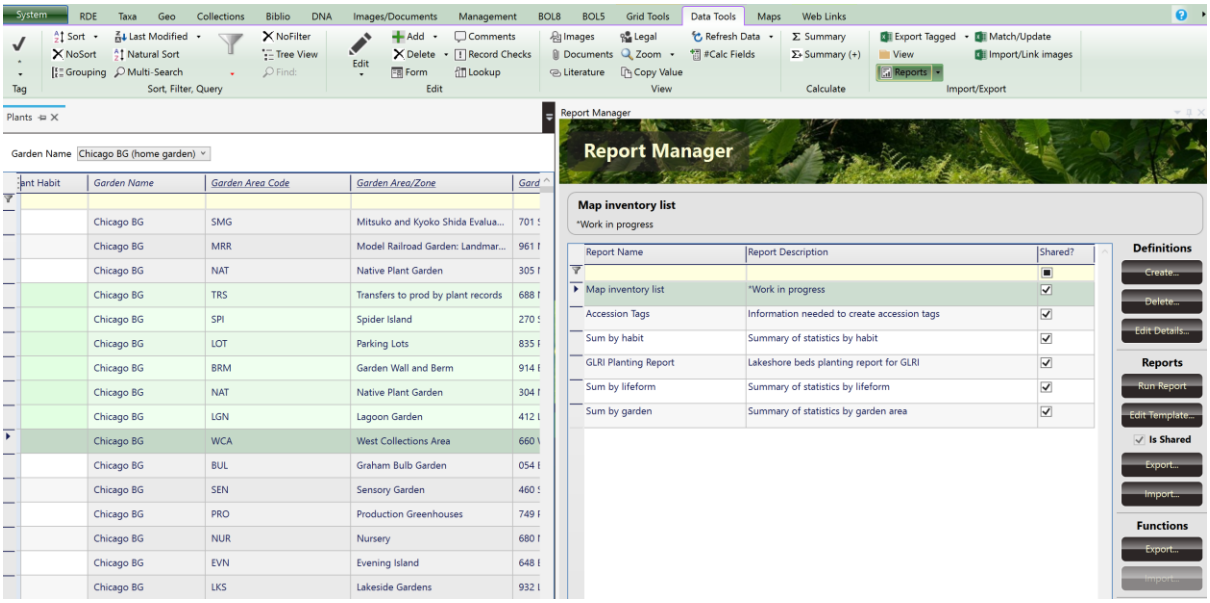
The Report Manager

Introduction

The Report Manager provides access to all the main reporting functions in BRAHMS. The manager allows you to create, edit and run report templates. You can also import and export your report designs and functions. The Manager is opened using **Data Tools > Reports**.



*The reporter is accessed from any table using the **Reports** option on the **Data Tools** toolbar.*

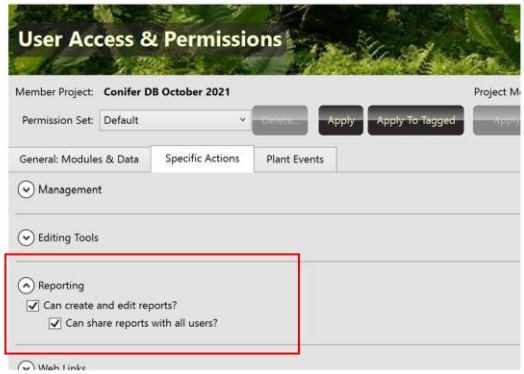


The Report Manager for a user that has create/edit permissions showing the various edit options on the right side. This example screen shows reports used in the main plants table. Data provided by Chicago Botanic Garden.

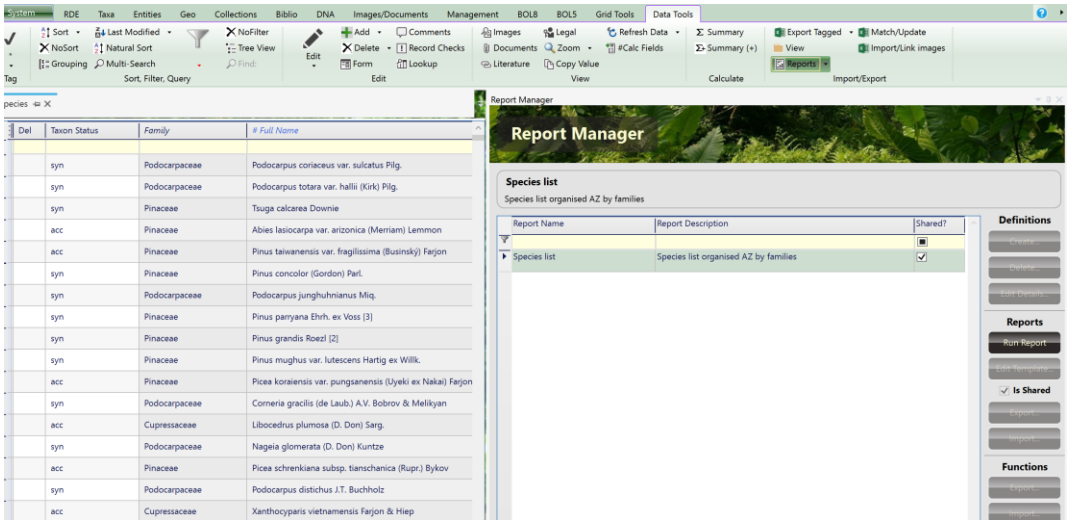
Report templates that have the Shared option selected will be visible to all users. Thus, if you are a database manager/administrator, you can provide all the standard reporting templates you need for the other users. These users will then select the required report and run it, no design required.

Report Manager permissions

Admin level users will always have the ability to create and edit report templates. For other users, you can assign permissions from the Reporting section as below:



*Select **System > Users and Permissions > Specific actions**. A user that does not have these permissions assigned will only be able to run existing report templates as registered in your Report Manager for any given table.*



The Report Manager as seen by a user that does not have create/edit permission. Only users with permission can create and edit templates. Most users on networked systems will use the Run option to use report templates that have already been designed.

Report template storage and the import/export options

When you design new report templates, they are stored in a BRAHMS database table. There is no external report template file. However, you can exchange reports by **Exporting** your report template to an .mrt file. You can also **Import** .mrt files that you may have been sent from another project – or perhaps one you previously exported and saved. Import and export options are provided on the Report Manager.

Sharing report templates

If you share a report template, all users will see and be able to use this report template. If you do not, it will only be visible to the user that created it. Shared templates cannot be edited by others. Only the person who created the template can edit it.

Report templates

What is a report template?

A template is a set of report design instructions used to create reports from tagged records in the current opened table. The templates themselves are stored inside your BRAHMS database, not as external files. When you create and edit a report template, everything is saved and stored in your database as soon as you close the report designer. You may have many different templates for different outputs. After creation, templates can be edited or deleted. Once operational, a report template can be used to make reports for which ever records are tagged. Thus, if you tag 100 records, only these 100 records are processed.

The Report Designer Introduced

Report Manager options

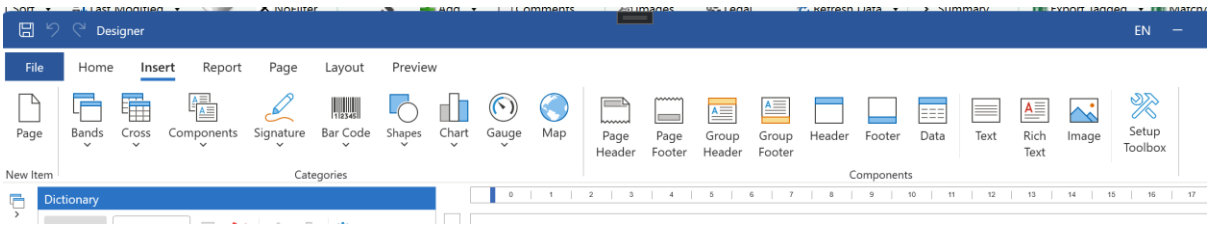
When you open the Report Manager, the options provided are:

Option	Notes
Create	Create a new template with a new name.
Delete	Delete the selected template.
Edit Details	Edit the name and certain properties of a template (but not the design).
Run Report	Run a report.
Edit Template	Edit the template design.
Edit 'Is Shared' status	Reports may be visible/used by all users logged in to the same database.
Export template	Export the report template as an .mrt file.
Import template	Import an .mrt file.
Export functions	Export special functions (snips of code developed for reports).
Import functions	Import special functions.

Menus and toolbars

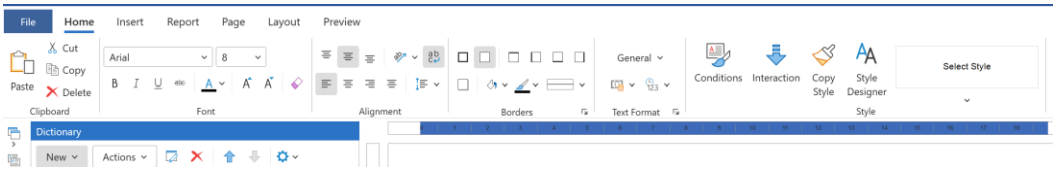
When you create or edit a report template, the designer is opened. This has menus and toolbar options which you can gradually explore. Some will be of more use than others. There is usually more than one way to do the same task. This may be confusing at first but as you learn to use the designer, you can choose the most efficient editing tools.

For example, the toolbar options running down the left side of the application are all available from one of the top menu options, especially the **Insert** menu.



*Many of the **Insert** menu options are also available on the left panel toolbar options.*

You will see that the **Home** menu offers an Office like toolbar to set fonts and font properties of items added to your report.



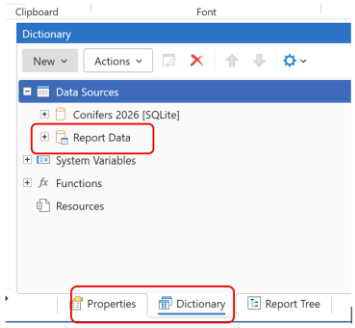
The Home menu has many features common to Office applications.

Dictionary and Properties

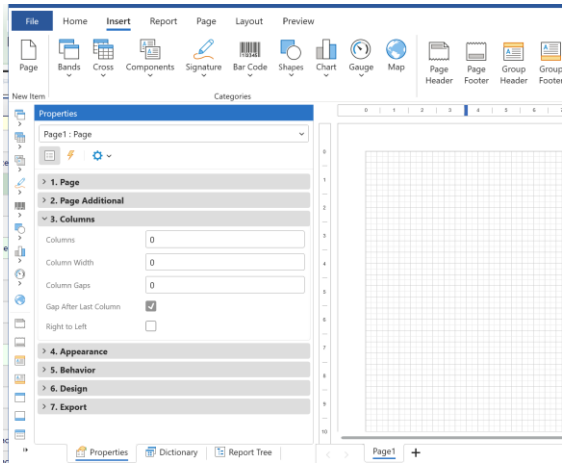
When you create or edit a report template, the report design screen opens. On the lower left side, you can find the options **Properties** and **Dictionary.** These are critical to report design.

The **Dictionary** provides access to the report's available data. Under **Report Data**, several tables may be listed. Above Report Data, you will see a second entry ending (SQLite). This is for more advanced users who can write their own queries against the database. For most users, the option to use is Report Data.

Properties provides access to all settings for each element on your report. The properties available to set will depend on which item is selected on your report. This may be the page itself, a data band, a text box expression, *etc.*



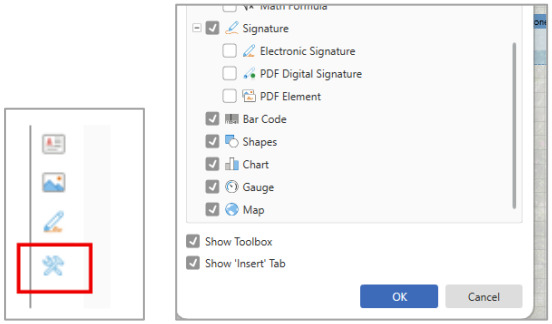
The left panel of Report Designer provides access to the data dictionary and all report properties.



An example showing a blank report with the Page Properties on the left.

Setup Toolbox

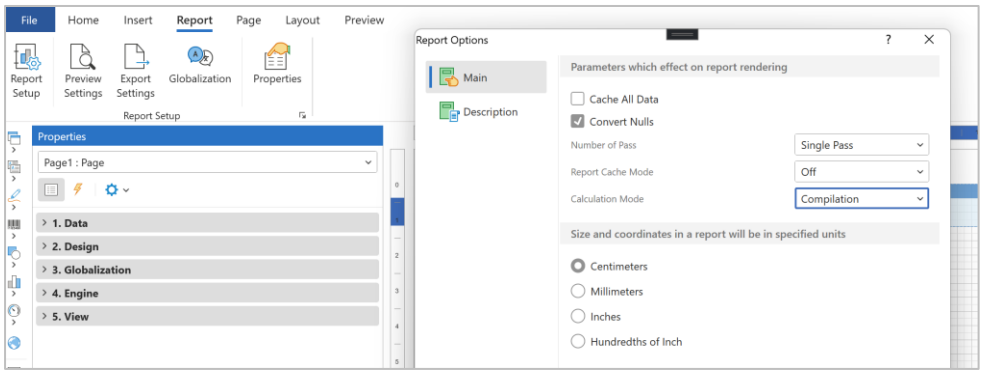
The main menu and left-margin toolbar provide quick access to the options you commonly use. These toolbars can be configured using the **Setup Toolbox** icon which is at the bottom of the toolbar. For example, you can add toolbar options to add a Title band, Barcode formatting, Electronic signatures, *etc*.



Use the Setup Toolbox option to configure the left-margin shortcuts. The right image shows a selection of the available features.

Report dimensions

Using **Report > Report Setup**, you can adjust the units used when calculated report page size and property layout settings. For example, you may prefer to work in Millimetres.



Most report menu options can be left with the default values.

Preparing specimen labels - tutorial

Introduction

This first tutorial section includes many general features about report design. Although the focus is on labels (one of the more complex types of report to design!), the design principles apply to all reports.

Getting started

Different label requirements

This document explains how to create and format a BRAHMS report template to produce labels for herbarium specimens. Re-scaled appropriately, the methods described here could equally be used to produce determination slips, labels for insects/birds, or for garden plants.



Royal Botanic Gardens, Kew
Kew Madagascar Conservation Centre (KMCC)

FABACEAE

Delonix pumila Du Puy, P.B.Phillipson & R.Rabev.

Det. Smith, A. TAN 22 January 2014

Vernacular: Common name test

Locality: Madagascar; Toliara; Toliara II; Soalary; 1,4 Km Est d'Antsirafaly

23° 37' 25" S, 43° 43' 36" E Elevation: 59 m

Description: Arbre de 1,5 m de haut et de 8 cm de diamètre. tronc brun claire, lisse. Fleur blanche avec pétale centrale jaune. Filet rouge.

Habitat: Plateau calcaire.

Coll. Alan Johnson **OLG 170**

with Smith, R; Erikson, GL

Date: 17 December 2013 Dups: K, MO, P, SNGF, TAN

Any updates to determinations, please email myname.institution.org

K000952913

Royal Botanic Gardens, Kew
Kew Madagascar Conservation Centre (KMCC)

CHRYSOBALANACEAE

Grangeria porosa Boivin ex Baill.

Det. Smith, A. FD 20 October 2020

Vernacular: Mangozombo

Locality: Madagascar; Mahajanga; Mampikomy; Antanivaky, Antanimalandy; Bongolava corridor, Antanivaky, Antanimalandy.

16° 08' 57" S, 47° 17' 42" E Elevation: 78 m

Description: Large shrub to small tree, 4 m tall. Flower white.

Habitat: Dry forest.

Coll. Alan Johnson **RNF 3169**

with Smith, R; Erikson, GL

Date: 20 October 2020 Dups: K, TAN

Any updates to determinations, please email myname.institution.org

K001521753

The label discussed here will be broadly similar to these examples.

Creating labels from which table?

Labels can be produced from several BRAHMS tables although. For herbarium labels, it will most likely be the Collection Events or the Specimen table. If you wish to refer to specimen level data (*e.g.* barcode, accession number, type status), you will need to create the label in the Specimen table. Otherwise, you can use Specimens or Collection Events. The example in this document is with the Specimen table.

Tagging specimen records

The example here is for preserved specimens. Thus, go to your main Collections menu and assuming you are working with Preserved Specimens, open the Specimens table. Ensure you have a few tagged records. Bear in mind, only tagged records are used for reports. You can use **Tag > Count tagged** to check how many you have. For creating new labels, it is convenient to have only a few tagged records. This speeds up the testing and preview stages.

Wish to work with plants instead of specimens?

If you want to develop labels for garden plants rather than herbarium specimens, open your Plants table and tag the records there. Everything in this document can be adjusted to refer to data in the plants table rather than the specimen table.

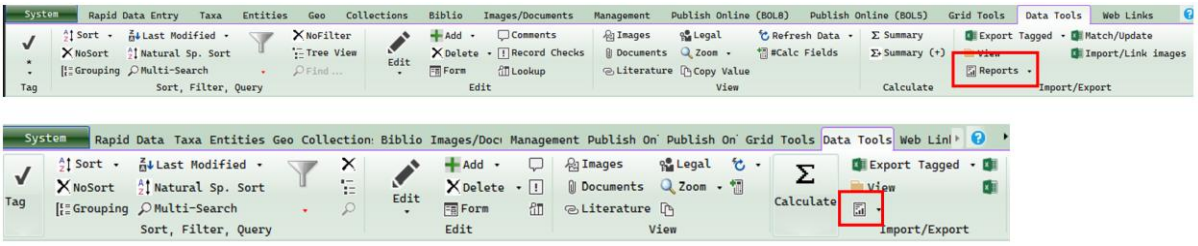
Wish to work in an RDE file rather than the main database?

If you want to create labels from a specimen RDE file rather than the main specimen table, read over the techniques and examples provided in this document – and then you can refer to the section 'Creating labels from RDE files' later in this document.

Creating the report template

Creating a new report template

With your specimen table open, on the Data Tools toolbar, click on **Reports**. Note that if you are working on a small screen or one which does not have the appropriate resolution, your toolbars may be collapsed as shown in the second toolbar below. If collapsed, click on the icon as shown below.



Toolbars may collapse on low resolution/small screens

On the Reports Manager form, select **Create ...** this opens a prompt about additional data.

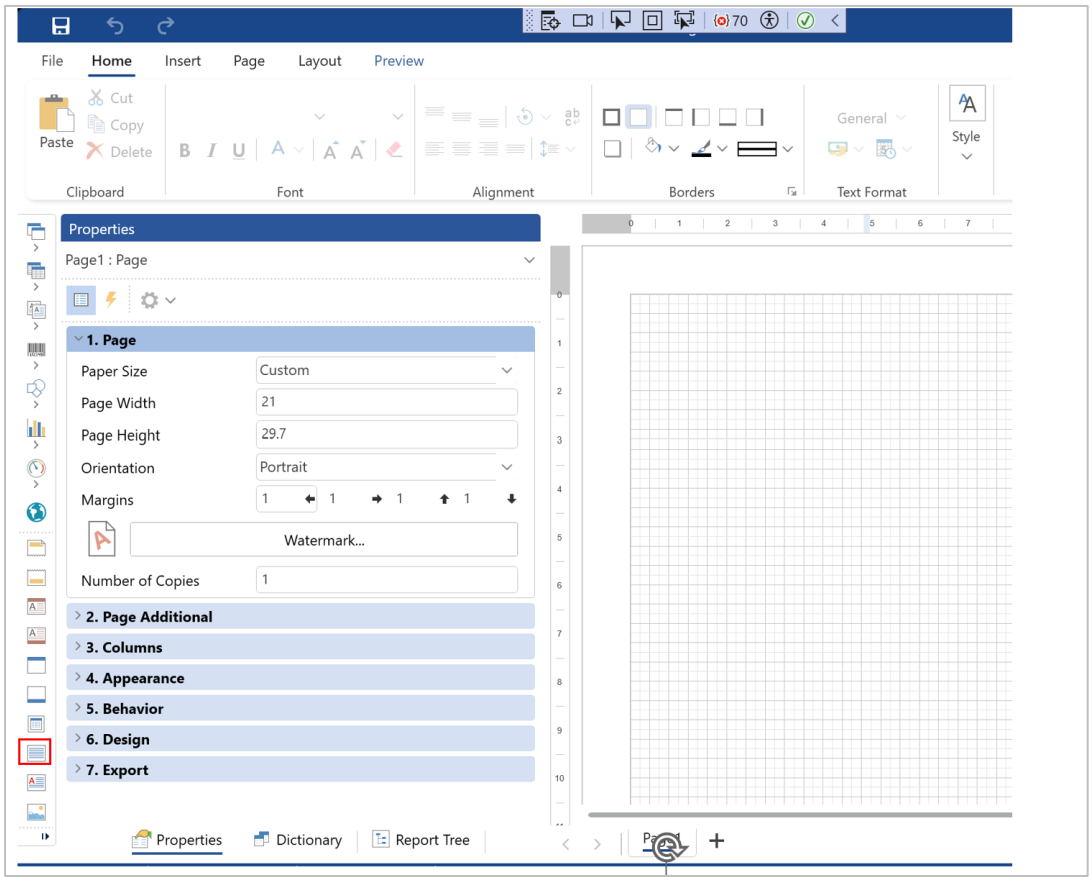
For **Additional Report Data**, in this example, ensure that 'Include parent Collection Event data' is selected. The other data items can be un-ticked. What does this mean? This means that you can access fields (including custom fields) from the Collection Events table that are not available from the specimen table.



When prompted, provide a report name and description. Tick 'Shared' if you want others on a BRAHMS network using the same database to see the reports. Once you Save these basics, the report designer opens.

If the report designer has not been opened before on your PC, you may be prompted to choose Basic, Standard or Professional options in the left window. If you see this prompt, select Professional. This provides you with the maximum number of design tools.

The report designer



The reporter design screen with the left margin Text Box icon in the red box.

Some initial things to observe on the design screen:

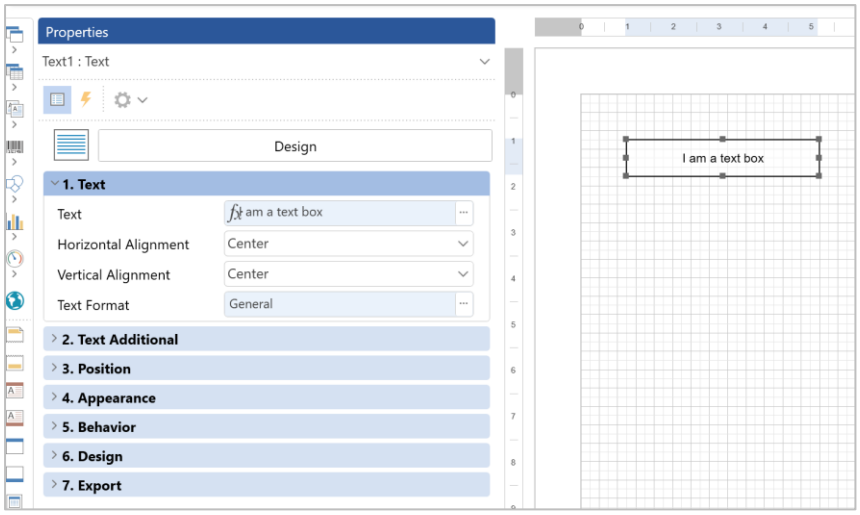
- The menu at the top includes options you will use (Home, Insert, Page, Layout, Preview).
- On the far-left margin, there is a vertical column of icons. These are short-cuts to options also available on the main Insert menu option.
- On the bottom left of the design screen, you can see 3 tabs: Properties, Dictionary and Report Tree. You will be using these, especially Properties and Dictionary as you develop your report template.
- On the right-side is the drag and drop report design area.

Creating the page layout with 2 columns

On the main menu, select **Page > Columns > 2**. You can see, on the **Properties** tab for the page, that you can expand and then further edit the Columns settings. Clearly, if you increase the number of columns, the design area per column becomes narrower.

What are properties?

All the items and elements added to your report template have properties. They define the way each item looks and behaves. Size, colour, position, word wrap and are example properties. You can see all the property options for the currently selected item on the Properties tab. Different components of your report such as a page, a column, a data band, a text box and an image have different types of properties. For example, not all the properties that apply to an image (e.g. stretch and height/width ratio) will apply to a text box.



The Properties tab for a text box with most of the options collapsed.

What is a text box?

Throughout the design process, we refer to using text boxes. A text box is a container – rather like a pptx text box – into which you can add properties and text or design instructions. You can add many instructions and formatting of report lines into a single text box. Or you can add many text boxes with one item per box. In many cases, it is easier to combine items in a single text box. This is discussed and demonstrated below.

What is a report expression?

An expression is the term used to define a report instruction such as {Specimen.FamilyName} to print the family name or {ToUpperCase(Specimen.FamilyName)} to print the family name in upper case. One important point to note here is that expressions that refer to data fields are always enclosed inside { }.

Conditional clauses

Expressions can get more complex and also use conditional clauses such as

{Specimen.DeterminedBy !="" ? "Det. " + Specimen.DeterminedBy : " "}

This will only print the text “Det.” and the DeterminedBy name if a DeterminedBy name is provided. These expressions are best understood by imagining there is an IF at the start. Then, you can easily explain the meaning by following these syntax explanations:

!= ""	means ‘does not equal nothing’.
?	is equivalent to ‘then print’
:	is equivalent to ‘otherwise’

In this conditional clause, the expression means:

IF the value in the field Specimen.DeterminedBy is **NOT BLANK**, **THEN** print the name prefixed by “Det.”, **OTHERWISE**, print nothing. This is a classic ‘ternary conditional expression’.

There is more than one way to add a condition clause – for example you can use the IIF() structure although this is not further discussed here.

Adding the data band

The Data Band is a component of the report required to pull data from the specimen table. All report templates require a data band. It’s the engine in your report. There are several ways to add a data band – the easiest is from the main menu to select **Insert > Bands > Data**. Then click anywhere on the designer

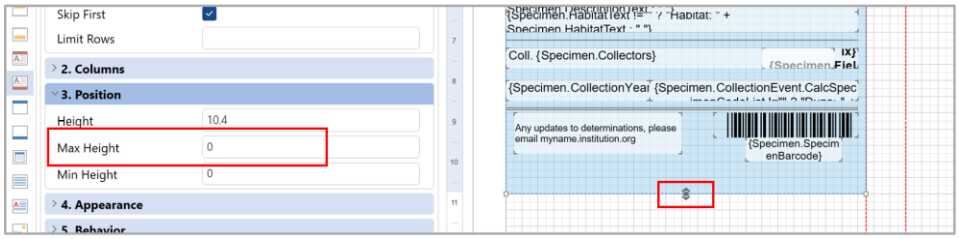
page and then choose **Data Sources > Report Data > Specimen**. This adds an empty specimen data band to the template. You can see in the band heading the text 'Data Source Specimen'.

If you click on the data band, you can then drag the bottom size-handle down to make it larger. Alternatively, you can click on the band, then select **Properties > Position** and edit the **Height**.

Data band height

The final height you use for your data band is important and you may need to experiment with the final setting. It controls how many labels you can print per page. For example, if you are keen to have 6 labels per page (3 per column), you can adjust the band height accordingly. If you were printing smaller plant labels or determination slips, you may be able to print far more on a page, *e.g.* 20 per page.

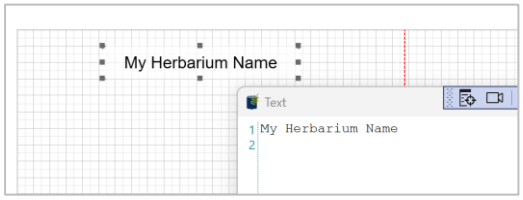
You can drag the band height up/down or use its height property.



To adjust data band height, drag the lower band handle up/down or use the Height property.

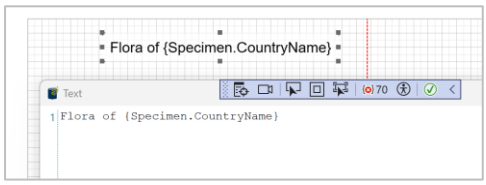
Adding a text heading for the label

At the top, most labels have a text heading such as the name of your herbarium. This may be on 1 or more lines, entirely up to you. This is often a constant text header. For this, first add a **Text Box** using **Insert > Text** and then click anywhere inside the data band. You can also click on the Text icon in the far-left margin to drop a text box onto the data band surface. In either case, a text box edit area is added.



When you add a text box, the content can be edited. If it is closed, double-click the text box to open it. You can add and edit the text you wish to appear. The position and size of the text box can be adjusted using the text box position properties – or by dragging the text box. On the Home menu, you can set the font and other features such as bold on/off and alignment. For example, you may wish central alignment. On the Layout menu, you can select **Align > Center** horizontally. Experiment with these settings.

If you wanted to print "Flora of Country name" in the label header - where country changes per specimen, add to the text box the expression: Flora of {Specimen.CountryName}



Note the text 'Flora of' is outside the {} as it does not refer to a data field.

Adding a horizontal line

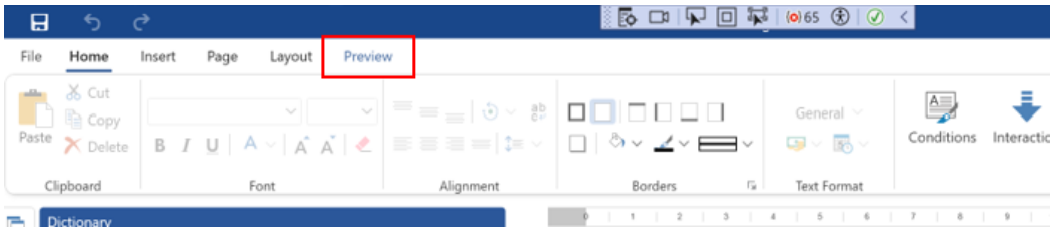
You may wish to add a line below the header text - clearly optional. To add a line:

Insert > Shapes and click on the basic line shape – then click on your label template design area. Drag the line to the approx. width. With the line selected, you can then choose Properties on the left and edit Position (typically editing the Left and Width properties) and also the Colour and Style.

If needed, you can then copy and paste this line to other areas of the report template.

Preview, Print and Save As

To view the label template thus far, select **Preview** on the main menu. If there are any design errors, these will be reported during the preview.



To continue designing, return to the **Home** or **Layout** menus.

When you Preview a report (or use the Run option if not in design mode), you have options to print directly but also, using **Save As**, to save the report to a number of formats including PDF.

Save and close

When you close the designer, your template is auto-saved. There are no external report template files as the entire report is stored as part of your database. Later, you will see it is possible to export the label template to an .mrt file that can be shared with other projects.

A note on using BRAHMS calculated fields

A few fields in your data tables are stored as calculated fields. This means that they need to be updated periodically to be correctly printed. Calculated fields are updated using **Management > Recalculation Scrips**. They can all be updated at the same time. Many projects set this function up to run overnight. The procedure to auto-run the recalculations is described in the BRAHMS guide. Note that the species fullname and HTML equivalent are always updated even when you do not run the recalculation scripts.

Example calculated fields are:

Long/Short dates (collection dates)
Specimen Institute List
Gazetteer Summary

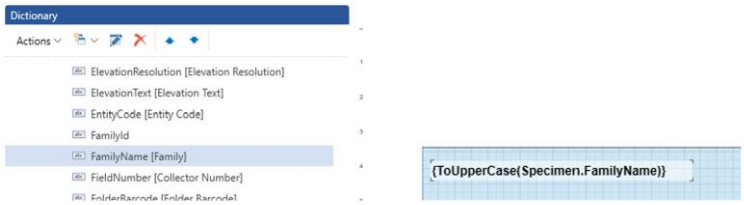
Adding the taxon name and determination details

Adding the Family Name

{Specimen.FamilyName}

There is more than one way to add data fields – here we choose the drag and drop method to add the family name.

On the bottom left tab, choose **Dictionary > Report Data** and then expand Specimen to list all the available data fields. Mouse down until you see FamilyName. Drag that field across to your blue Data Band area. You may want to expand the width of the text box thus created. Its exact position is not important at this stage - but you can drag the box roughly where you want it.



When you add a field, you can see that the field name is represented by {Specimen.FamilyName}. Anything inside { } will be interpreted as a data field. Note that the field name text has to have the correct case, otherwise it won't be recognised. Also note that the table (or view) where the data are coming form is added before the field name and separated by a period.

If you want the family name to be always printed in upper case, you can use the ToUpperCase() function. You can edit the text already in the text box expression to:

{ToUpperCase(Specimen.FamilyName)}

Take care to use the correct case in these expressions. Also note the use of () in addition to {}. If you want the family name to be printed in bold text, set the font property for the family text box using the B option on the Home toolbar.

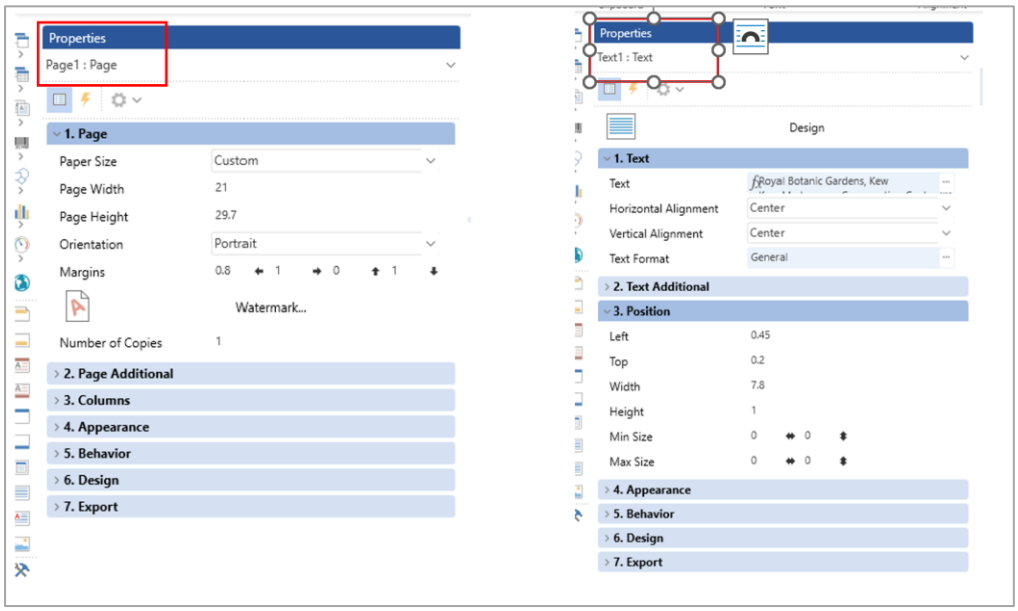
If you wanted to print the text "Family: " before the family name, you can add to your text box:

Family: {ToUpperCase(Specimen.FamilyName)}

At any stage, you can run a Preview

Looking at the family name properties

Each item in your report template has properties. This includes the page itself, the columns, the data band, and all of the individual items added to the report such as text boxes. The properties associated with an item are viewed and edited by selecting the item on the design surface (clicking on it once) – and then checking/editing any of the property items displayed on the left side Properties tab. The properties are organised into groups, for example Position and Behaviour.



The available properties on the left are for the page. Those on the right are for a text box.

You can gradually explore the property options and take advantage of these as you gain experience with report design. Many of the property options are used in this report. Also note that other properties can be edited from the main Home toolbar.



The Home toolbar options offer a range of handy settings.

Adding the species name

{Specimen.CalcHtmlName}

In this example, we are going to use the pre-calculated species full name. This avoids having to build up the name from the various name components (genus + species + infra names) – although this is also possible. Bear in mind, depending on your system settings, the calculated name may include author names or not. In this example, we will use the HTML version of the calculated name. This manages a pre-set name format including italicisation.

As you did above with the family, choose Dictionary > Report Data and then expand Specimen to list all the available fields. Mouse wheel down until you see the field CalcHtmlName. Drag the field across to your blue Data Band area. The exact position and size can be adjusted later. As this field includes HTML markup, you will need to select the text box property Text Additional > Allow HTML Tags.

PINACEAE
Pinus flexilis E. James var. flexilis

PINACEAE
Pinus flexilis E. James var. *flexilis*

If you do not select Allow HTML tags, you'll get the result as shown on the left rather than the correct display as on the right.

Note. Although not discussed further here, you could equally build up the species name using the name elements by adding {Specimen.GenusName} {Specimen.SpeciesName} {Specimen.SpeciesAuthorName} etc. However, to do so, you will need to use conditional formatting – for example to suppress printing "var." if there is no variety name.

At any stage, you can run a Preview

Adding the species name to an RDE report

In v8.7 onwards, the calculated HTML version of the species name will be included. For earlier versions, assuming you want correct italic formatting you can add the following expression to a single text box, editing as appropriate:

```
{RdeCollectionEventRecord.GenusName != "" ?  "<i>"+RdeCollectionEventRecord.GenusName+"</i>" : ""}
{RdeCollectionEventRecord.SpeciesName != "" ?  "<i>"+RdeCollectionEventRecord.SpeciesName+"</i>" : ""}
{RdeCollectionEventRecord.SpeciesAuthorName != "" ?  RdeCollectionEventRecord.SpeciesAuthorName : ""}
{RdeCollectionEventRecord.Subspecies != "" ?  "ssp. " + "<i>"+RdeCollectionEventRecord.Subspecies+"</i>" : ""}
{RdeCollectionEventRecord.SubspeciesAuthorName != "" ?  RdeCollectionEventRecord.SubspeciesAuthorName : ""}
{RdeCollectionEventRecord.Variety != "" ?  "var. " + "<i>"+RdeCollectionEventRecord.Variety+"</i>" : ""}
{RdeCollectionEventRecord.VarietyAuthorName != "" ?  RdeCollectionEventRecord.VarietyAuthorName : ""}
{RdeCollectionEventRecord.Forma != "" ?  "f. " + "<i>"+RdeCollectionEventRecord.Forma+"</i>" : ""}
{RdeCollectionEventRecord.FormaAuthorName != "" ?  RdeCollectionEventRecord.FormaAuthorName : ""}
```

Adding the detby name and date

The next part is a little complex as here, we introduce some new concepts. The expression below combines several fields; it uses conditional formatting; and also uses another function that allows us to combine numeric and text data. It looks all the more complex as all the expressions are joined into a

single paragraph to make it neater. The individual expressions, discussed in turn below, are separated by { }. The complexity in part is because sometimes, data fields are empty. For example, the determination person may not be given. Thus you will not want to see the text “Det.”.

The entire text expression below can be copied to a report text box.

{Specimen.DeterminedBy !="" ? "Det. " + Specimen.DeterminedBy : " "}{Specimen.DeterminationYear > 0 || Specimen.DeterminationStatus != "" ? " (" : ""}{Specimen.DeterminationStatus != "" ? Specimen.DeterminationStatus : ""}{Specimen.DeterminationDay > 0 ? ", " + ToString(Specimen.DeterminationDay)+ " " : "}{Specimen.DeterminationMonth > 0 ? DateSerial(2020, Specimen.DeterminationMonth, 1).ToString("MMMM")+" " : ""}{Specimen.DeterminationYear > 0 ? ToString(Specimen.DeterminationYear) : ""}{Specimen.DeterminationYear > 0 || Specimen.DeterminationStatus != "" ? ")" : ""}

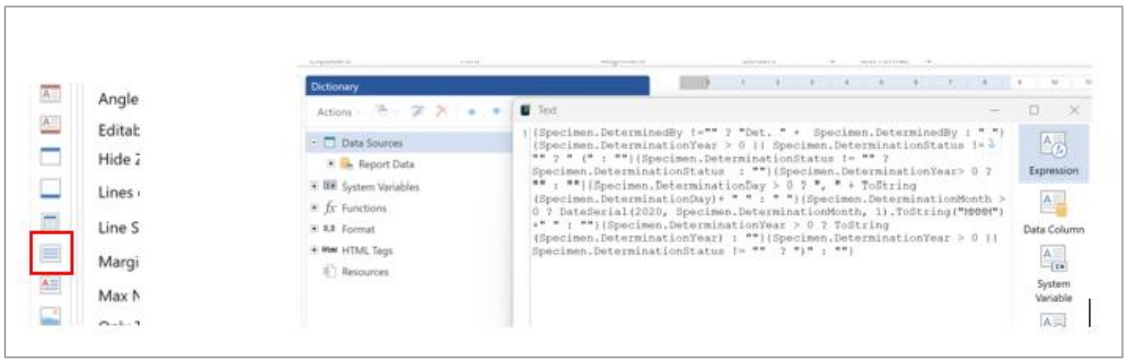
An example of what this will produce is provided below in the red box:

ASTERACEAE

Conyza stricta Willd.

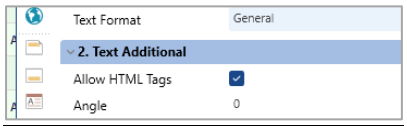
Det. Rakotoarisoa, SE (TAN, 1 April 2014)

To add a blank text box to the report, click on the Text Box icon (left margin) and then click on the report surface. Paste all of the Determination expression text into the new text box.



Use the text box icon to create a new text box and paste in the text as shown above.

Also for this text box, set the property Text Additional > Allow HTML Tags to true by ticking that property.



We can break this complex expression paragraph down into sections as follows:

The first component is:

{Specimen.DeterminedBy !="" ? "Det. " + Specimen.DeterminedBy : " "}

For those with programming interests, you may recognise this form of conditional formatting as a ‘ternary expression’. In this example, you can interpret the text !="" to mean ‘not equal to blank’; the ? to mean ‘then print’; and the : to mean ‘otherwise print’. Thus, if a detby name exists, this will print “Det. “ + the detby name, otherwise it prints nothing.

Next component:

{Specimen.DeterminationYear > 0 || Specimen.DeterminationStatus != "" ? " (" : ""}

This is very similar to the conditional example above except it also includes || which means ‘or’
Thus, if the field DeterminationYear is greater than 0 OR the field DeterminationStatus is not blank, print a single “(”. Otherwise print nothing. The reason for this becomes apparent below.

Next component:

{Specimen.DeterminationStatus != "" ? Specimen.DeterminationStatus : ""}

which will print the field DeterminationStatus if is not blank.

Next component:
{Specimen.DeterminationDay > 0 ? ", " + ToString(Specimen.DeterminationDay)+ " " : " "}

which will print the field DeterminationDay if > 0. When it prints this number, it converts the number to a text string.

Next component:

{Specimen.DeterminationMonth > 0 ? DateSerial(2020, Specimen.DeterminationMonth, 1).ToString("MMMM")+" " : ""}

which will print the field DeterminationMonth if > 0. When it prints this number, it converts the number to a text string and also uses some extra formatting to change the number to a month name).

Next component:

{Specimen.DeterminationYear > 0 ? ToString(Specimen.DeterminationYear) : ""}

which will print the field DeterminationYear if > 0. When it prints this number, it converts the number to a text string.

Next and final component:

{Specimen.DeterminationYear > 0 || Specimen.DeterminationStatus != "" ? ")" : ""}

Meaning, if the DeterminationYear is > 0 OR the DeterminationStatus is not blank, it prints a closing “)”

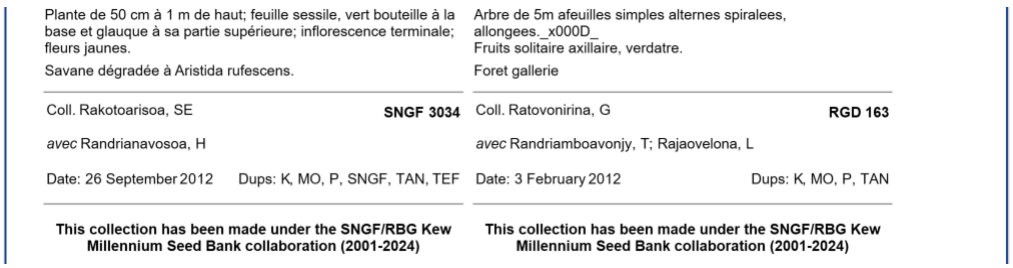
Adding a common name

{Specimen.VernacularName !="" ? "Vernacular: " + Specimen.VernacularName : " "}

You may want to add a common (vernacular) name to the label. Although there may be several common names for a given species, the common name applied will be the name that is stored in the species table field Vernacular Name. This field is visible in your specimen table.

Add a new text box and add the above expression to the box. This will print the name with the text ‘Vernacular: ’ before it. You can edit this text as required.

Positioning fields



Adding all the remaining report details

Adding locality details

{Specimen.CalcGazetteerSummary !="" ? "Locality: " + Specimen.CalcGazetteerSummary : " "}

The locality details could be added using the individual fields for country name, major area, etc. However, it is convenient to use the calculated fields CalcGazetteerSummary.

Add a new text box and add the above expression.

Adding bold font to a text component

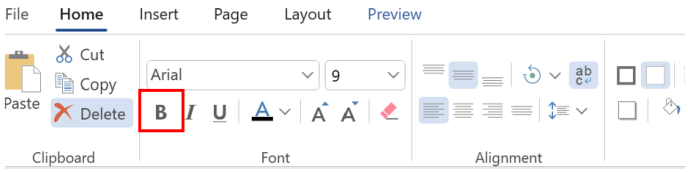
What if I want the text “Locality:” in the above expression to be printed in bold font?

Locality: Madagascar; Mahajanga; Analalava; Analanantsoa; 3,21 km ENE d'Analanantsoa. Sommet de Bekolosy. Près de la chute d'eau.

For this you can add the HTML tags and to surround the text as below:

{Specimen.CalcGazetteerSummary !="" ? "Locality: " + Specimen.CalcGazetteerSummary : " "}

Note: if you want the entire text block to be in bold font, you can simply set the property of the text box to bold. The above example only prints the text “Locality:” in bold. You can use the same method in other text boxes. Make sure the Text Additional > Allow HTML tags property is enabled.



To print the entire text box in bold, set the text box property using the Bold toolbar. Otherwise, for selecting mark-up, use HTML tags as shown above.

Adding the map reference

{Specimen. CalcLatLongDMS!="" ? Specimen. CalcLatLongDMS: " "}

For the map reference, we can use CalcLatLongDMS to print map latitude/longitude data in DMS units. If you wish to use the decimal degree data, you can use the original map fields Latitude and Longitude. Add a new text box and add the expression provided above.

Adding elevation data

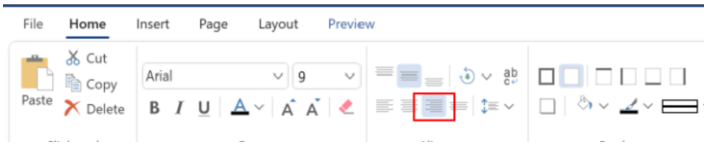
{Specimen.CollectionEvent.Elevation > 0 ? "Elevation: " + Specimen.CollectionEvent.Elevation : ""}
{Specimen.CollectionEvent.ElevationMax > 0 ? " - " + Specimen.CollectionEvent.ElevationMax : ""}
{Specimen.CollectionEvent.Elevation > 0 ? "m" : ""}

Add a new text box and add the expression above. This expression combines elevation and max elevation – using conditional formatting. An example output would be ‘1800-2300 m’.

Locality: Madagascar; Fianarantsoa; Ambalavao; Pic Boby; Andranolava, près du campement 1.

22° 09' 52" S, 46° 54' 16" E Elevation: 2008 m

In the elevation example we are using, this text box is positioned on the right side of the label on the same line as the map reference. The elevation text is right-justified using the text position toolbar provided.



Use the toolbar options to set text box properties such as text justification. In this example, the elevation text is right aligned.

Adding habitat and description text

{Specimen.HabitatText !="" ? "Habitat: " + Specimen.HabitatText : " "}

{Specimen.DescriptionText !="" ? "Description: " + Specimen.DescriptionText : " "}

These texts can be added using the standard conditional formatting. Thus the text “Habitat: ” will only be printed if there is habitat text. The same idea for the description. You can add these two expressions to separate text boxes – or, as explained below, combine them in a single text box.

A note on combining expressions in a single text box

{Specimen.CalcGazetteerSummary !="" ? "Locality: " + Specimen.CalcGazetteerSummary : " "}

{Specimen. CalcLatLongDMS!="" ? Specimen. CalcLatLongDMS: " "}

 {Specimen.HabitatText !="" ? "Habitat: " + Specimen.HabitatText : " "}
 {Specimen.DescriptionText !="" ? "Description: " + Specimen.DescriptionText : " "}

Note that the expressions we are adding to separate text boxes could equally be combined in a single text box, adding lines between them if wanted. Thus, assuming Allow HTML tags is selected on the text box properties, you could use the expression above. In this expression, the HTML tag <br/> is used to add a new line.

 thus also adds a blank line.

Setting the Word Wrap and Can Grow and properties

When you add a text box with an expression, you do not have to worry about setting the height of the text box to accommodate your maximum text length, for example lengthy habitat notes. This is resolved by setting the Text Additional > Word Wrap and the Behaviour > Can Grow properties. These properties should be ticked for text boxes where the text may grow onto more than 1 line.

In this respect, you can tidy up the report design by making all your text boxes the same height using Position > Height. In the report template itself, there is no need to make the text boxes that deep. The text box width however will determine how wide the text is printed on the label – and this can be adjusted as suits – together with text box positions.

Adding collector name(s) and number

Coll. {Specimen.Collectors}: {Specimen.FieldNumber}

{Specimen.AdditionalCollectors !="" ? "with " + Specimen.AdditionalCollectors : ""}

Clearly, there are various ways to add and position the collector name, field number and possibly additional collectors. The example here adds these in a single text box with conditional formatting for additional collectors if they exist.

In this example, the text ‘with’ could be replaced with avec, con, com, etc. Also, to illustrate the use of HTML tags, the text ‘with’ is surrounded by the tags and which will print the word in italic. Note that Allow HTML tags property has to be selected. The

 HTML tags add a blank line.

If you wanted the field number on the far right of the label, on the same line as the main collector name, add it to a separate text box and right-align it on that line.

Including Prefix and Suffix with the collector number

If you want to include prefix and suffix with collector number, use:

{Specimen.Prefix}{Specimen.FieldNumber}{Specimen.Suffix}

This would print e.g. SAN12345b. You could add a space between the items if wanted.

Thus {Specimen.Prefix} {Specimen.FieldNumber} {Specimen.Suffix} will print SAN 12345 b

Adding the collection date

{Specimen.CollectionYear > 0 ? "Date:" : ""} {Specimen.CollectionDay > 0 ? ToString(Specimen.CollectionDay) : ""}
{Specimen.CollectionMonth > 0 ? DateSerial(2020, Specimen.CollectionMonth, 1).ToString("MMMM"): ""}
{Specimen.CollectionYear > 0 ? ToString(Specimen.CollectionYear) : ""}

The collection date can be added in a similar way to the det date as described in detail above. Add a new text box and copy the above expression.

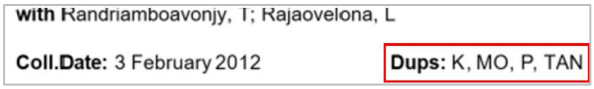
Alternatively, you can use the calculated fields CalcLongCollectionDate or CalcShortCollectionDate. These can be used as long as the Recalculation scripts for #Long/Short dates (Management > Recalculation Scrips) are up to date.

Note, if you wanted to add text such as “Coll Date: “ before the date, refer to the method used above for Locality.

Adding a list of known duplicates

{Specimen.CollectionEvent.CalcSpecimenCodeList !="" ? “Dups: “ +
Specimen.CollectionEvent.CalcSpecimenCodeList : ""}

A list of known specimens can be added using the calculated field CalcSpecimenCodeList. Add this to a standard text box.



You could, as shown in the example here, print this on the same line as the date but aligned right. As with the other label layout decisions, this comes down to personal preference.

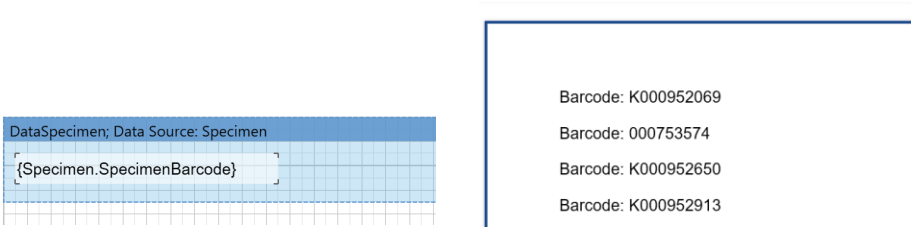
Note that as this is a calculated field stored in Collection Events, you need to make sure that your calculations are up to date. Also note that this field is coming from the collection events table – hence the expression reference is Specimen.CollectionEvent.CalcSpecimenCodeList.

Adding specimen barcodes

{Specimen.SpecimenBarcode}

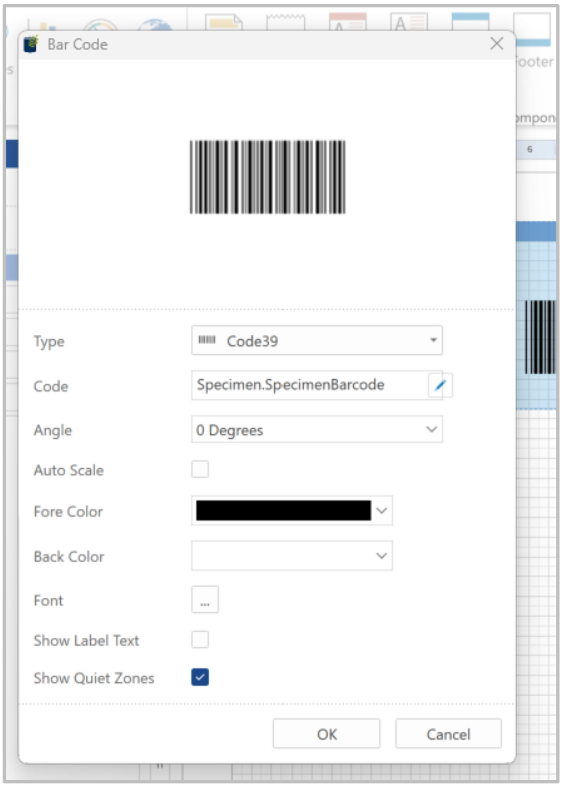
Your specimens may have barcodes and unless you have separate pre-printed barcodes, you can print these directly onto your label as part of the report design. These can subsequently be used for scanning, assuming you have a barcode reader.

You can print the barcode using a standard text box – in the same way you add any other data field. This would then appear as standard text in human readable format.



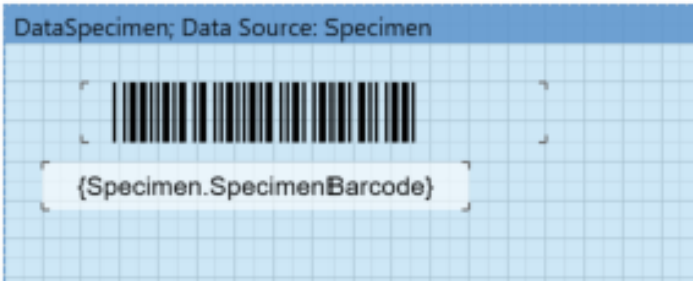
Printing barcodes as standard text.

To print the barcode using a 'barcode font', select Insert > Bar Code and then choose the option you want. In this example, we are selecting Insert > Bar Code > Others > Barcode 39 format on the barcode Type lookup.



When adding a barcode, set the Code field to Specimen.SpecimenBarcode as shown above.

In this example, the option Show Label Text has been disabled. This is because you have more control if you add the readable barcode to a separate text box below the barcode itself. This also provides greater flexibility to re-size the barcode.



Thus, your template will include the barcode entry and, assuming you want to print the barcode in human readable format, a text box positioned below it as shown above. You can resize the barcode itself adjusting the height and width to suit your label – but making sure your scanner can read it using some test print-outs.

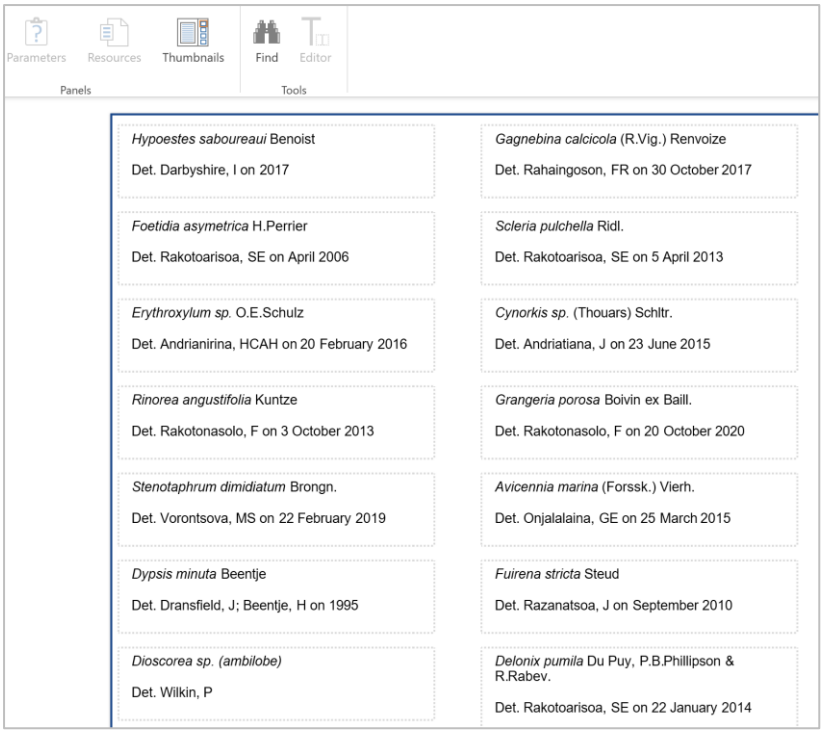
Adding barcodes using accession numbers

{Specimen.SpecimenAccession}

If you wish to use an accession number to print your barcodes, you can easily do this using the procedures discussed in the barcode section above - but replace the field SpecimenBarcode with SpecimenAccession. To use the accession number in this way, make sure that your accession numbers are unique.

Determination slips – a single text box example

A sample list of determination slips



The label design discussed here can easily be adjusted to created determination slips.

A single text box expression

In this example, the det slip report instructions are added to a single text box:

```
{Specimen.CalcHtmlName}<br/><br/>
{Specimen.DeterminedBy !="" ? "Det. " +  Specimen.DeterminedBy : " "}
{Specimen.DeterminationYear > 0 ? " on " : " "}
{Specimen.DeterminationDay > 0 ? ToString(Specimen.DeterminationDay) : " "}
{Specimen.DeterminationMonth > 0 ? DateSerial(2020, Specimen.DeterminationMonth, 1).ToString("MMMM"): ""}
{Specimen.DeterminationYear > 0 ? ToString(Specimen.DeterminationYear) : " "}
```

You can copy the above text into a single text box and try it. Remember to set the Allow HTML tags property.

Notes. The expression is in a single text box to illustrate how this can simplify report design. Allow HTML tags is enabled for the text box. A dotted rectangle shape is included for convenience but can be removed.
The band height is clearly much reduced compared to the main label.
The expressions include standard conditional clauses. Thus, the text " on " is only printed if a year is supplied.

Creating labels from RDE files

Introduction

The vast majority of techniques provided in this document also apply to RDE files. Hence, if you understand how to make a label from the main specimen table, adapting this for RDE will be very easy.

The RDE data band

As the source of the data is different, the data band and the field expressions will need to be adapted for RDE. The data band will change from Specimen to RdeCollectionEventRecord.

Example field name changes

The field names used in RDE are almost identical to those used in the main database. Thus, you can use the specimen table examples provided in the above document – but change the table prefix. Thus:

To print the family name (in upper case):

{ToUpperCase(RdeCollectionEventRecord.FamilyName)}

To print the collection date with a text month name:

{RdeCollectionEventRecord.CollectionYear > 0 ? "Date:" : ""}{RdeCollectionEventRecord.CollectionDay > 0 ? ToString(RdeCollectionEventRecord.CollectionDay) : ""}
{RdeCollectionEventRecord.CollectionMonth > 0 ? DateSerial(2020, RdeCollectionEventRecord.CollectionMonth, 1).ToString("MMMM"): ""}
{RdeCollectionEventRecord.CollectionYear > 0 ? ToString(RdeCollectionEventRecord.CollectionYear) : ""}

For printing the species name, refer to the report section 'Adding the species name' where details of printing from RDE are provided.

Other fields can be adapted by changing the table reference exactly as in the above examples.

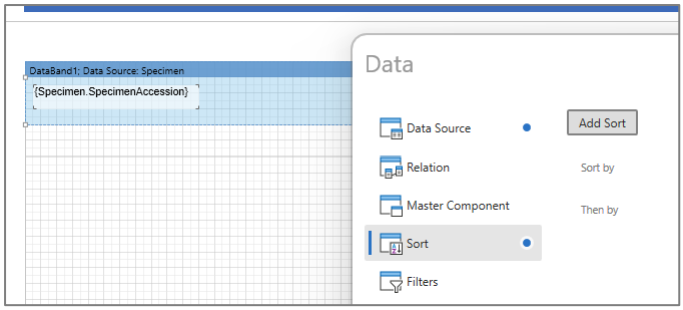
Sorting reports

Introduction

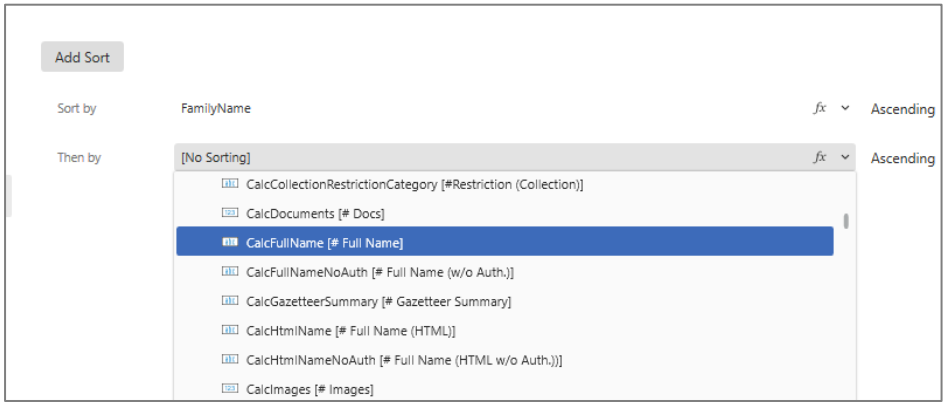
Rather than having to remember to sort your data grid each time you make a report, you can build the sort command(s) into your report so that it sorts automatically. Reports are sorted using a tool which sorts the data band.

The Sort tool

Double-click on your Data Band and choose the **Sort** option.



Here you can add one or more fields to sort on, choosing one or more fields from the drop-down as prompted. Double-click on a field to select it. Optionally add multiple sort fields.

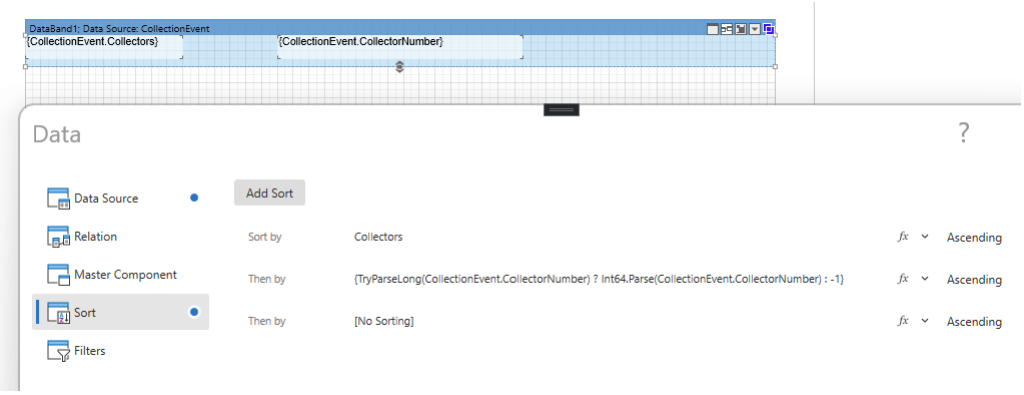


Sorting by Family Name then by the # Full Name field.

Sorting alphanumeric fields numerically in reports

Alphanumeric fields do not sort well when you try to simply sort as numbers. You end up with something like 1, 10, 9 rather than 1, 9, 10. You can add a fx function to a data band that will sort such fields correctly.

It is possible to sort alphanumeric fields numerically – assuming those fields include numeric data. An example is given here for Collection Event table field CollectionNumber and the Specimen table field SpecimenAccession. Such sorts can be built in your report as discussed above – but by adding a species fx function. To add an fx function, follow the procedure above to add a sort command – but rather than choosing a field, dbl-click on fx to add an expression. Example expressions are provided below.



In this example, the report is sorted by collector name + collector number. The number field is sorted using the fx expression:

{TryParseLong(CollectionEvent.CollectorNumber) ? Int64.Parse(CollectionEvent.CollectorNumber) : -1}

To sort on the specimen table Accession field, use:

{TryParseLong(Specimen.SpecimenAccession) ? Int64.Parse(Specimen.SpecimenAccession) : -1}

Designing a label for plant tags – tutorial

Introduction

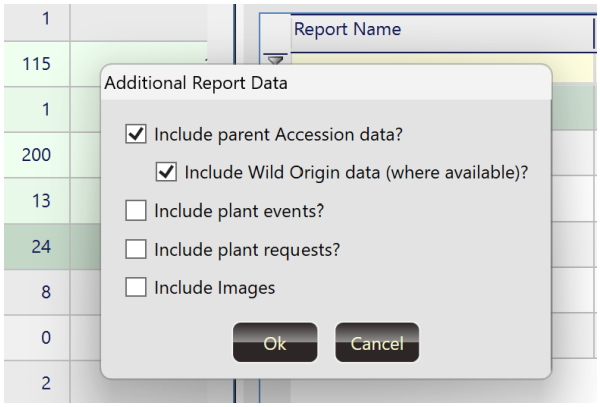
The example here provides some tips on how to create a 3 x 1.5 inch label tag for plants. Clearly, you can adjust the label dimensions and precise content to suit. This example here is based on the barcoded plant ID tags used by the Marie Selby Botanical Gardens in Sarasota, Florida for labelling their living collections. The labels are produced for all tagged records in the main plants table in BRAHMS.



The challenge is to create a label width 3 x 1.5 inches and to include some fields describing the wild origin.

Additional Report Data

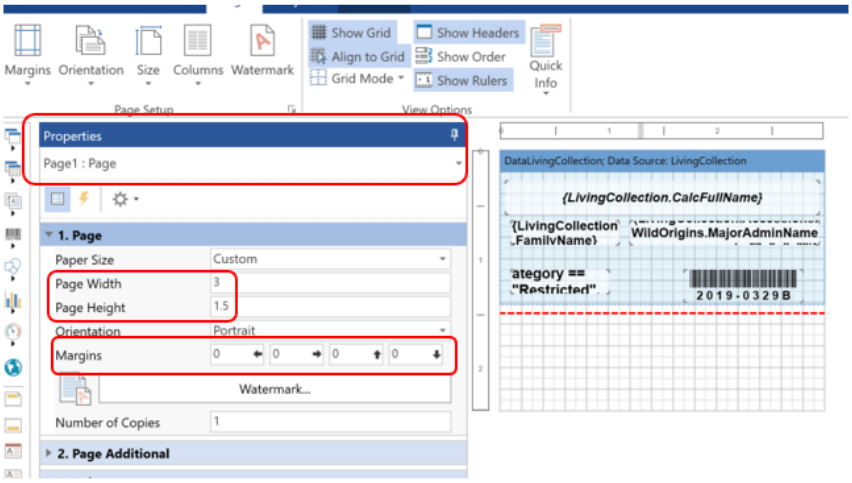
In your Living collections plant table, after tagging the plant records to print labels for, choose Reports on the main toolbar.



When prompted, select the options on the *Additional Report Data* form as above. This will provide you to access to fields that may not be in your current field view and/or may be in the related accession and collection events tables.

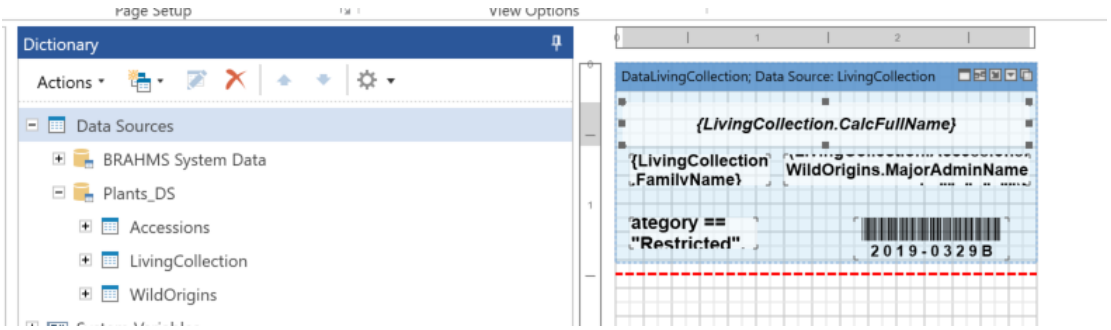
Page dimensions and setup

To set the report dimension units, use the main **Report** menu **Report Setup** option.



Using the **Page** menu settings, you can set the page size (= label size) taking care with Margins. If the default margin settings are not edited, especially on rather small labels, you may end up with a very limited design surface.

Adding the data and expressions



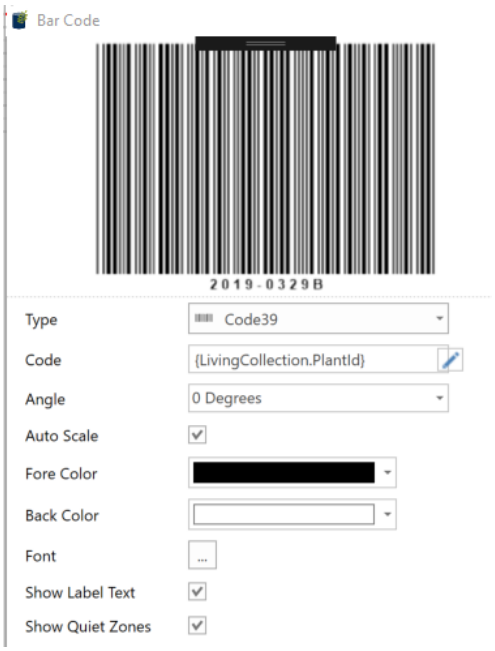
In this report, the Data Band is created using the LivingCollection data source. Following examples in earlier reports, you need to create a data band by dragging the LivingCollections data source header onto your report surface or using **Insert > Data**.

The field expressions used in this report are as follows:

{LivingCollection.CalcFullName}
{LivingCollection.FamilyName}
{LivingCollection.Accessions.WildOrigins.CountryName}
{IIF(LivingCollection.Accessions.WildOrigins.MajorAdminName != "", ": ",
"")}{LivingCollection.Accessions.WildOrigins.MajorAdminName}
{IIF(LivingCollection.MaterialCategory == "Restricted", "Restricted Distribution", "")}

Note that some of these expressions are using the IIF() function for conditional formatting. Also note that some fields are being pulled in from 'WildOrigins' (= CollectionEvents).

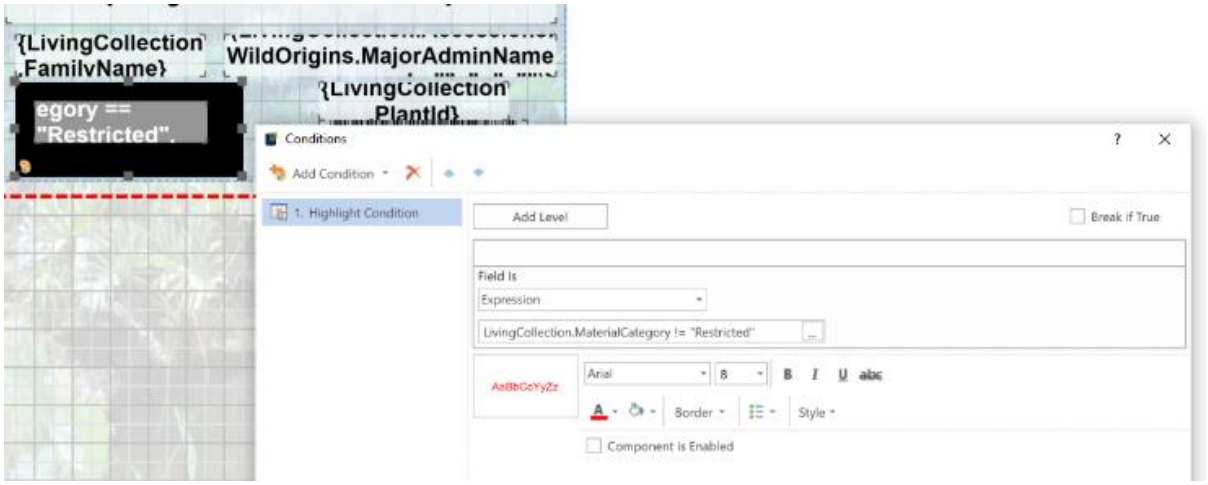
Formatting the barcode



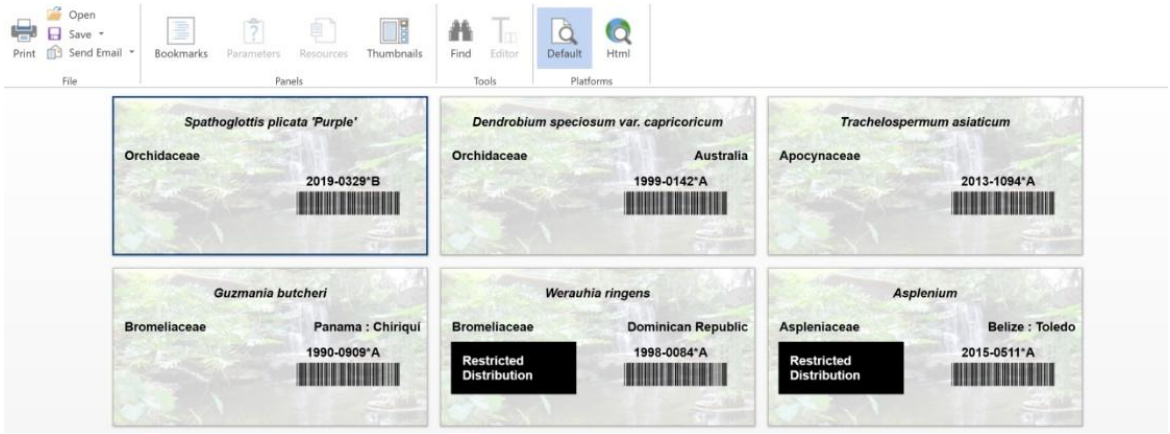
For the barcode, note that the Code entry is set to the field name to use and that the Label text is shown. However, if you want more control over the positioning and font of the Plant ID, do not tick **Show Label Text**. Rather, add 'LivingCollection.PlantId' as a separate expression on the report.

Example of adding a conditional shape

If you want to print a box to highlight text such as ‘Restricted Distribution’, one way to do this is as follows: Add an image which in this case is a filled blank rectangle. Then set a Condition in this image as shown below. The text box expression for MaterialCategory as cited above will then be set to a white font colour.



Adding a condition to control when the image is enabled.



Conditional printing of restricted material text. Note the Plant ID here is printed above the barcode.

Another issue to keep an eye on is the Data Band *New Page Before* property. If you have trouble with your labels aligning on the printer, tick this option.

Preparing a basic taxa list - tutorial

Introduction

The best way to learn about report templates is to go ahead and create one. This example here starts by creating a simple species list and then proceeds to extend this with a few additional reporting items.

Creating the template

You can print reports directly from any table in BRAHMS and from RDE files. This example introduces some standard features, takes minutes to prepare and you can then use the same template to create reports for any group of tagged species. This example refers to the conifer demo database but you can replace this with any data you have in BRAHMS.

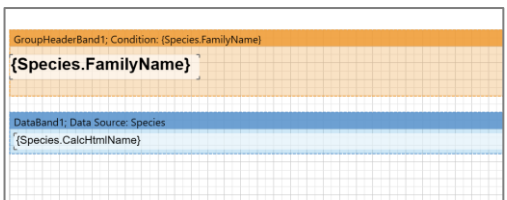
- Open the species table using **Taxa > Species.** Clear all tags. Apply a filter to show accepted names only (add 'acc' to the Taxon Status grid filter row). Tag all records using **Tag > Tag All**. NB. Reports always work with tagged records.
- Select **Reports > Create**. For this report, you can leave all of the 'Additional Report Data' options blank. Provide a report name and description as prompted. This now opens up the report designer. If you see a prompt to choose the report mode as Standard or Professional, choose 'Professional'. This would only be asked the first time you use the reporter.
- On the main **Insert** menu, select **Data** (Selecting **Bands > Data** is the same). Click on the design surface and as prompted, choose Species as your report data option to add a data band for species data. Using the icon at the bottom of this blue coloured band, drag the band slightly deeper to create some workspace.
- Now on the main **Insert** menu select **Text** and click somewhere in the blue data band area. On the Add Text dialogue, select **Data Column**, expand Species and locate and choose the field CalcHtmlName. This adds the expression {Species.CalcHtmlName} to the text box. Note the { } indicating it is a data field rather than literal text.
- Drag the text box size wider. You can adjust the Position and Size of the text box more accurately using the text box **Properties** by editing the values under **Position**. Consider setting the Top and Left to 0.1 and the width to 15.
- On the Properties, select **Text Additional** and select the option **Allow HTML Tags**.

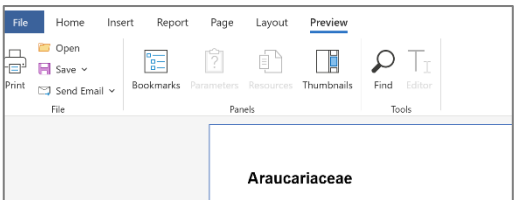
At this point you can preview your report using the main menu **Preview** option.

- To reduce spacing between the listed names, you can gradually reduce the height of the data band. To do this, either drag the bottom of the band up or set the band property **Position > Height**.
- To **Auto-sort** the names A-Z, double-click on the top of the data band and select **Sort**. Select the species field CalcFullName or CalcHtmlName by double-clicking on the field name. Preview your report at any time to check progress.

The next step is to add the family name. Rather than print the name for each record, in this report, we will add the family name only once per family using a Group Header band.

- Select **Insert > Group Header** and click anywhere on the design surface. Form the species field list, choose FamilyName. This controls the grouping by family – but you still need to add what to print in this band. To do this, add a Text box and choose Familyname which will add {Species.FamilyName} to the text box.
- Adjust the position of the text box by editing the Position properties. Using the Home menu options, you can also increase the font size and optionally set this text box to Bold font. Finally, drag the Group Header band above the Data Band. Preview your report.





Example template and output from this simple species list report.

Adding some further report features

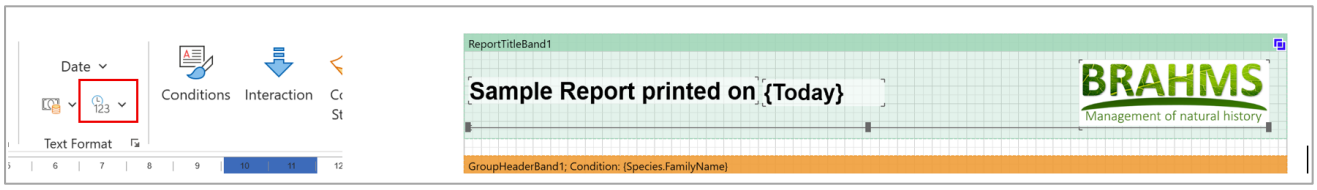
Let's add a few more details to the above report.

Open the species table. You can optionally clear all tags and tag a different group of taxa. For this report, we suggest use accepted names. Open the above report template by selecting **Reports > Edit Template**.

Select **Insert > Bands > Report Title**. Click on the design surface. A report title band is added and will auto-move to the top of the layout. Any text or images added to the title band will be printed once at the start of your report. You can drag this band a bit deeper to create some editing space.

In this example the text "Sample Report printed on: " is added. Select **Insert > Text** and click in the title band area to drop the text box. Into this box, add text to appear in the title band. To add the reporting date, select **Dictionary > System Variables** and drag the **Today** variable onto the title band. This adds a new text box which simply includes {Today}. To set the format of the date, click on this text box then select the required format using the Date format dropdown. Adjust the positions and font of these items using their position properties.

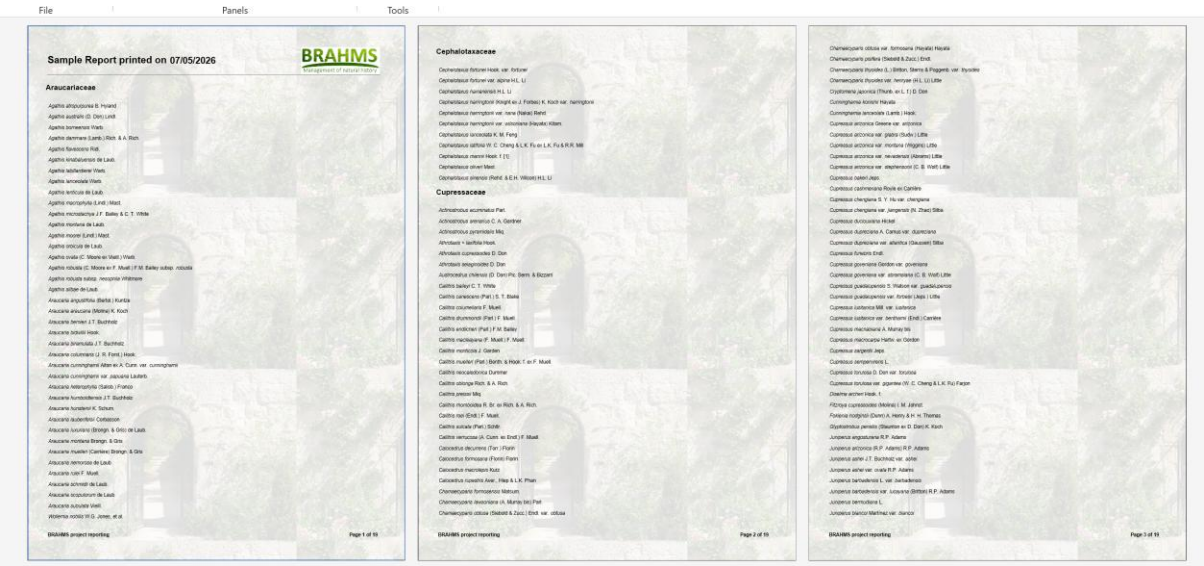
You may wish to add a logo to the title. Select **Insert > Image** and click in the title band. Choose an image. Drag the image box to roughly the correct shape and size. You will then want to click on the image and then select Properties (in the left window) and under Image Additional, tick the **Aspect Ratio** and the **Stretch** tick boxes.



Left shows how to select date format. Right show sample title band. Note that a horizonal line has also been added to the Title band.

You may want to add a footer to your pages. Easily done using **Insert > Footer**. This adds a new band which will appear at the bottom of your page. Add and format text, images, lines as you wish. You could add page numbering by dragging the System Variable PageNofM which gives page number / page total.

You could add a watermark to the report and fade this appropriately. Select **Page > Watermark**. Select a watermark image and choose **More Options**. Here, select the options **Aspect Ratio**, **Image Tiling** and set the **Transparency** to e.g. 80%. **Preview** your report.



Example output thus far.

Adding species descriptive text to the above report

As a final addition to the above report template, based on data in the demo Conifer database, you can add an example of descriptive text.

With your species table open, select **Reports** and for your current report, select **Edit Details.** Here, using the **Option T/F Flags**, select 'Include Descriptive texts for taxa'. Close this and then select **Edit Template**. On the **Insert** menu, select **Data**, click on the design surface and choose 'Species Texts' to add and define a new data band data source.

Next, on the I**nsert** menu, select **Text** and add a text box to your new data band. Using the Data Column selector, choose the field Species Texts > TaxonText. Position and resize this text box to left = 0.1 and width to broadly fit your report page width. Under properties, tick the **Text Additional Text Options** > **Word Wrap** option. Under **Behaviour,** tick **Can Grow**.

Now, double click on the new data band header (the dark blue section) and here set the values as follow:

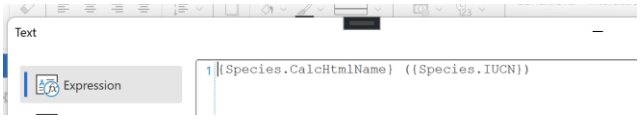
Relation to Species
Master Component to DataBand1 (which is your species data band)
Filters > Add Filter Column = TextTitle Equal to 'Conserve'



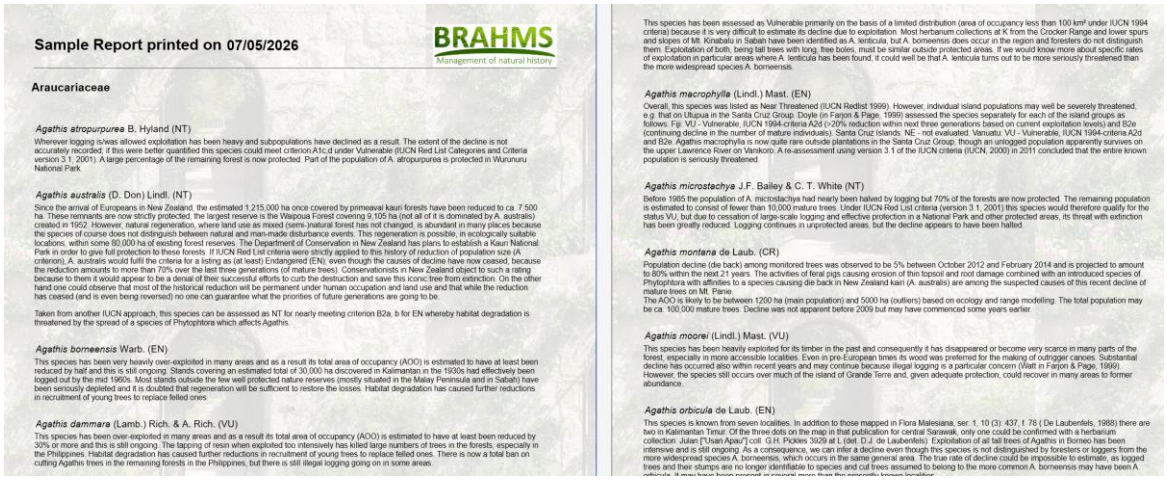
Filter settings that restrict the descriptive text to entries with TextTitle = 'Conserve'

Finally, if you wanted to print the IUCN Redlist status after the species name, you could do the following:

Double click on the text box that prints the Species.CalcHtmlName. and, after the species name expression, add: {Species.CalcHtmlName} ({Species.IUCN}).



Note that for the IUCN data field, the normal parentheses are outside the braces and thus, will be printed as normal text.



Sample Report printed on 07/05/2026

BRAHMS
Management of natural history

Araucariaceae

Agathis atropurpurea B. Hyland (NT)

Wherever logging is/was allowed exploitation has been heavy and subpopulations have declined as a result. The extent of the decline is not accurately recorded; if this were better quantified this species could meet criterion A1c,d under Vulnerable (IUCN Red List Categories and Criteria version 3.1, 2001). A large percentage of the remaining forest is now protected. Part of the population of A. atropurpurea is protected in Wurunuru National Park.

Agathis australis (D. Don) Lindl. (NT)

Since the arrival of Europeans in New Zealand, the estimated 1,215,000 ha once covered by primeaval kauri forests have been reduced to ca. 7,500 ha. These remnants are now strictly protected; the largest reserve is the Waipoua Forest covering 9,105 ha (not all of it is dominated by A. australis) created in 1952. However, natural regeneration, where land use as mixed (semi-)natural forest has not changed, is abundant in many places because the species of course does not distinguish between natural and man-made disturbance events. This regeneration is possible, in ecologically suitable locations, within some 80,000 ha of existing forest reserves. The Department of Conservation in New Zealand has plans to establish a Kauri National Park in order to give full protection to these forests. If IUCN Red List criteria were strictly applied to this history of reduction of population size (A criterion), A. australis would fulfil the criteria for a listing as (at least) Endangered (EN), even though the causes of decline have now ceased, because the reduction amounts to more than 70% over the last three generations (of mature trees). Conservationists in New Zealand object to such a rating because to them it would appear to be a denial of their successful efforts to curb the destruction and save this iconic tree from extinction. On the other hand one could observe that most of the historical reduction will be permanent under human occupation and land use and that while the reduction has ceased (and is even being reversed) no one can guarantee what the priorities of future generations are going to be.

Taken from another IUCN approach, this species can be assessed as NT for nearly meeting criterion B2a, b for EN whereby habitat degradation is threatened by the spread of a species of Phytophtora which affects Agathis.

Agathis borneensis Warb. (EN)

This species has been very heavily over-exploited in many areas and as a result its total area of occupancy (AOO) is estimated to have at least been reduced by half and this is still ongoing. Stands covering an estimated total of 30,000 ha discovered in Kalimantan in the 1930s had effectively been logged out by the mid 1960s. Most stands outside the few well protected nature reserves (mostly situated in the Malay Peninsula and in Sabah) have been seriously depleted and it is doubted that regeneration will be sufficient to restore the losses. Habitat degradation has caused further reductions in recruitment of young trees to replace felled ones.

Agathis dammara (Lamb.) Rich. & A. Rich. (VU)

This species has been over-exploited in many areas and as a result its total area of occupancy (AOO) is estimated to have at least been reduced by 30% or more and this is still ongoing. The tapping of resin when exploited too intensively has killed large numbers of trees in the forests, especially in the Philippines. Habitat degradation has caused further reductions in recruitment of young trees to replace felled ones. There is now a total ban on cutting Agathis trees in the remaining forests in the Philippines, but there is still illegal logging going on in some areas.

This species has been assessed as Vulnerable primarily on the basis of a limited distribution (area of occupancy less than 100 km² under IUCN 1994 criteria) because it is very difficult to estimate its decline due to exploitation. Most herbarium collections at K from the Crocker Range and lower spurs and slopes of Mt. Kinabalu in Sabah have been identified as A. lenticula, but A. borneensis does occur in the region and foresters do not distinguish them. Exploitation of both, being tall trees with long, free boles, must be similar outside protected areas. If we would know more about specific rates of exploitation in particular areas where A. lenticula has been found, it could well be that A. lenticula turns out to be more seriously threatened than the more widespread species A. borneensis.

Agathis macrophylla (Lindl.) Mast. (EN)

Overall, this species was listed as Near Threatened (IUCN Redlist 1999). However, individual island populations may well be severely threatened, e.g. that on Utupua in the Santa Cruz Group. Doyle (in Farjon & Page, 1999) assessed the species separately for each of the island groups as follows. Fiji: VU - Vulnerable, IUCN 1994-criteria A2d (>20% reduction within next three generations based on current exploitation levels) and B2e (continuing decline in the number of mature individuals). Santa Cruz Islands: NE - not evaluated. Vanuatu: VU - Vulnerable, IUCN 1994-criteria A2d and B2e. Agathis macrophylla is now quite rare outside plantations in the Santa Cruz Group, though an unlogged population apparently survives on the upper Lawrence River on Vanikoro. A re-assessment using version 3.1 of the IUCN criteria (IUCN, 2000) in 2011 concluded that the entire known population is seriously threatened.

Agathis microstachya J.F. Bailey & C. T. White (NT)

Before 1985 the population of A. microstachya had nearly been halved by logging but 70% of the forests are now protected. The remaining population is estimated to consist of fewer than 10,000 mature trees. Under IUCN Red List criteria (version 3.1, 2001) this species would therefore qualify for the status VU, but due to cessation of large-scale logging and effective protection in a National Park and other protected areas, its threat with extinction has been greatly reduced. Logging continues in unprotected areas, but the decline appears to have been halted.

Agathis montana de Laub. (CR)

Population decline (de back) among monitored trees was observed to be 5% between October 2012 and February 2014 and is projected to amount to 80% within the next 21 years. The activities of feral pigs causing erosion of thin topsoil and root damage combined with an introduced species of Phytophtora with affinities to a species causing die back in New Zealand kairi (A. australis) are among the suspected causes of this recent decline of mature trees on Mt. Panie.
The AOO is likely to be between 1200 ha (main population) and 5000 ha (outliers) based on ecology and range modelling. The total population may be ca. 100,000 mature trees. Decline was not apparent before 2009 but may have commenced some years earlier.

Agathis moorei (Lindl.) Mast. (VU)

This species has been heavily exploited for its timber in the past and consequently it has disappeared or become very scarce in many parts of the forest, especially in more accessible localities. Even in pre-European times its wood was preferred for the making of outrigger canoes. Substantial decline has occurred also within recent years and may continue because illegal logging is a particular concern (Watt in Farjon & Page, 1999). However, the species still occurs over much of the island of Grande Terre and, given adequate protection, could recover in many areas to former abundance.

Agathis orbicula de Laub. (EN)

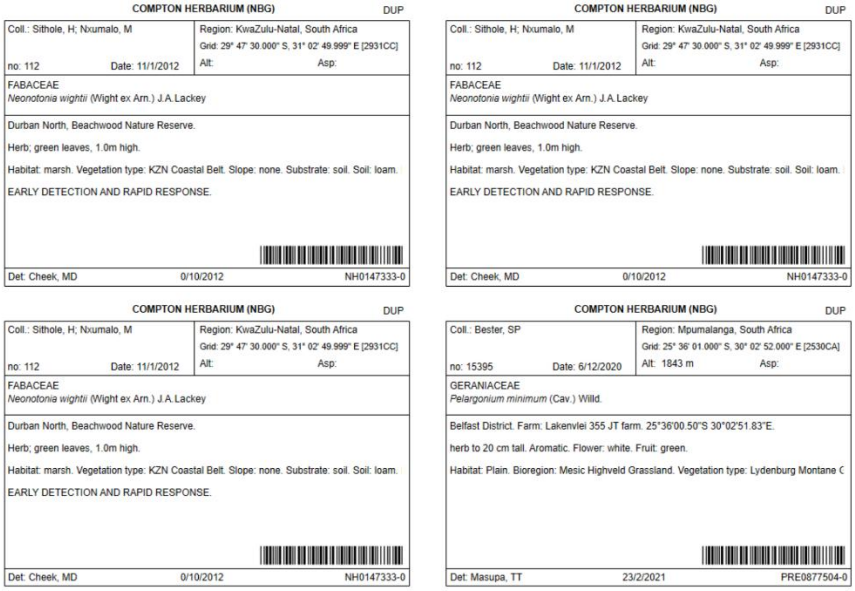
This species is known from seven localities. In addition to those mapped in Flora Malesiana, ser. 1, 10 (3): 437, f. 78 (De Laubenfels, 1988) there are two in Kalimantan Timur. Of the three dots on the map in that publication for central Sarawak, only one could be confirmed with a herbarium collection: Julan ["Usan Apau"] coll. G.H. Pickles 3929 at L (det. D.J. de Laubenfels). Exploitation of all tall trees of Agathis in Borneo has been intensive and is still ongoing. As a consequence, we can infer a decline even though this species is not distinguished by foresters or loggers from the more widespread species A. borneensis, which occurs in the same general area. The true rate of decline could be impossible to estimate, as logged trees and their stumps are no longer identifiable to species and cut trees assumed to belong to the more common A. borneensis may have been A. orbicula. It may have been present in several more than the presently known localities.

Final output example for the above report template

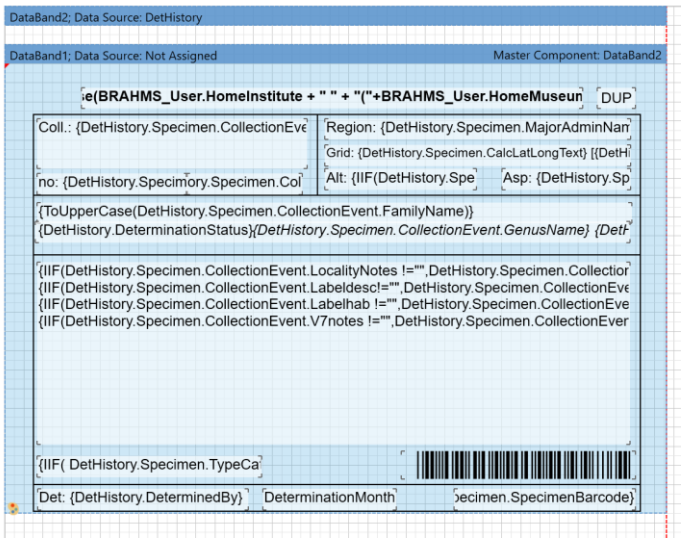
Controlling report output using a numeric count field

Using the report designer, you can control how many labels (or other categories of report) are printed per record. For example, you may want to print 3 herbarium labels for one record but only 1 of another.

The print counts can be controlled by using any numeric field available in your database, as long as that field is included in the report data. As it happens, the Collection Events table has a standard field for this which is named 'Labelcount' – but you could equally use another numeric field including a custom field.



In the above example provided by SANBI, South Africa, the record with field number 112 has been printed 3 times and that with field number 15395 has been printed once.



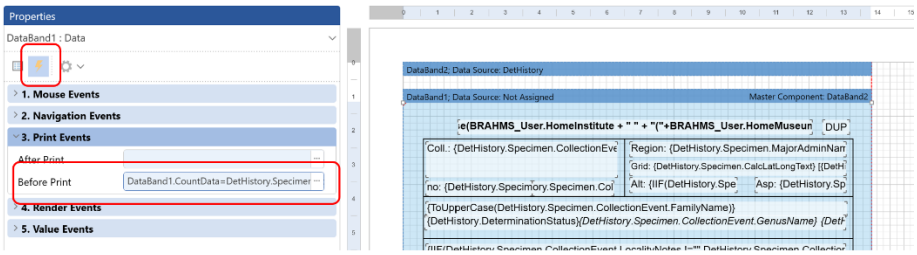
Overall label design view

The above design screen shows the overall layout of the printed sample above. The actual label content is not important here. The features that are required to produce multiple labels per record are as follows:

1. A second data band (DataBand2) is added as is assigned the correct Data Source. In this example. 'DetHistory'.
2. The first data band (DataBand1), which includes the actual label design expressions, has no Data Source assigned. However, this first data band is assigned a 'Master Component' which is

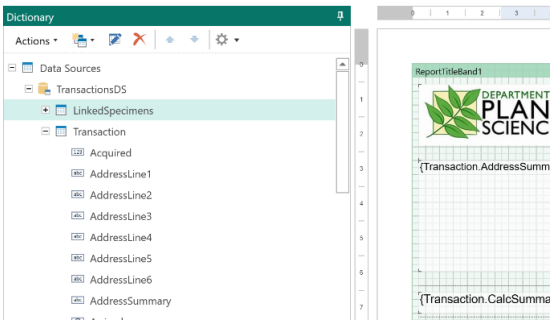
DataBand2. This is assigned by double-clicking on the DataBand1 header and choosing the option Master Component.

3. In the 'Before Print' event of DataBand1, add the text '*DataBand1.CountData=DetHistory.Specimen.CollectionEvent.LabelTotal'* where LabelCount is the field control the print number. In this example, the labelcount is coming from the table CollectionEvent – but in a hierarchy from DetHistory and Specimens. The Before Print event is found by clicking on the DataBand1 header, selecting Properties and then selecting the Event Properties icon as shown below:

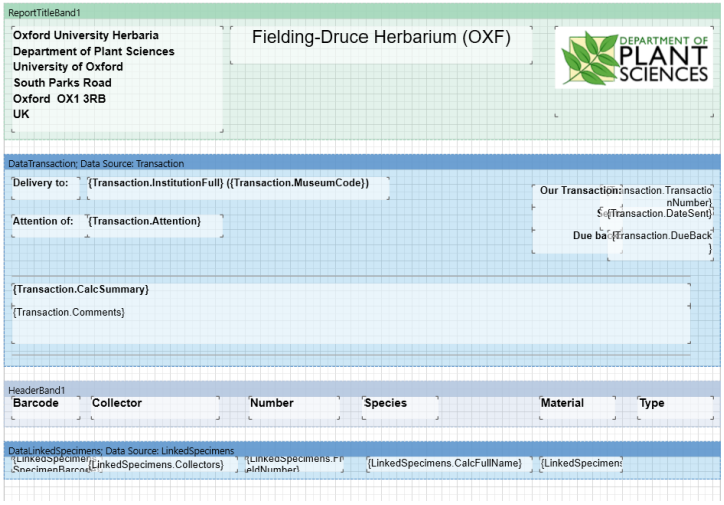


Preparing a transaction list

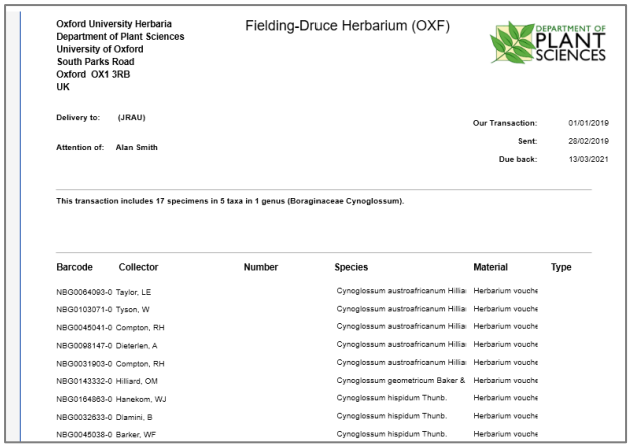
This example shows in summary how to produce a transaction packing list for loans, exchanges and similar. Transaction reports use the same techniques are the previous examples. One difference is that they refer to two separate data sources – the transaction record itself and the linked specimens. This requires the addition of two data bands.



The data dictionary has entries for the transaction record itself as well as the linked specimens.



Template used to create basic packing list


Oxford University Herbaria
Department of Plant Sciences
University of Oxford
South Parks Road
Oxford OX1 3RB
UK

Fielding-Druce Herbarium (OXF)

DEPARTMENT OF PLANT SCIENCES

Delivery to: (JRAU)

Attention of: Alan Smith

Our Transaction: 01/01/2019
Sent: 28/02/2019
Due back: 13/03/2021

This transaction includes 17 specimens in 5 taxa in 1 genus (Boraginaceae Cynoglossum).

Barcode	Collector	Number	Species	Material	Type
NBG0064093-0	Taylor, LE		Cynoglossum austroafricanum Hilliа	Herbarium vouche	
NBG0103071-0	Tyson, W		Cynoglossum austroafricanum Hilliа	Herbarium vouche	
NBG0045041-0	Compton, RH		Cynoglossum austroafricanum Hilliа	Herbarium vouche	
NBG0098147-0	Dieterlen, A		Cynoglossum austroafricanum Hilliа	Herbarium vouche	
NBG0031903-0	Compton, RH		Cynoglossum austroafricanum Hilliа	Herbarium vouche	
NBG0143332-0	Hilliard, OM		Cynoglossum geometricum Baker &	Herbarium vouche	
NBG0164863-0	Hanekom, WJ		Cynoglossum hispidum Thunb.	Herbarium vouche	
NBG0032633-0	Dlamini, B		Cynoglossum hispidum Thunb.	Herbarium vouche	
NBG0045038-0	Barker, WF		Cynoglossum hispidum Thunb.	Herbarium vouche	

Output from the above template

Creating reports using Master Detail

Introduction

There are often times when you need to report using Parent-Child relationships between tables. This is where one table has 1:n (many) child records, one obvious example being the Genus -> Species relationship. Other examples would be:

- Collection Events -> Specimens -> Determinations
- Living Accessions -> Plants -> Plant Events/Requests

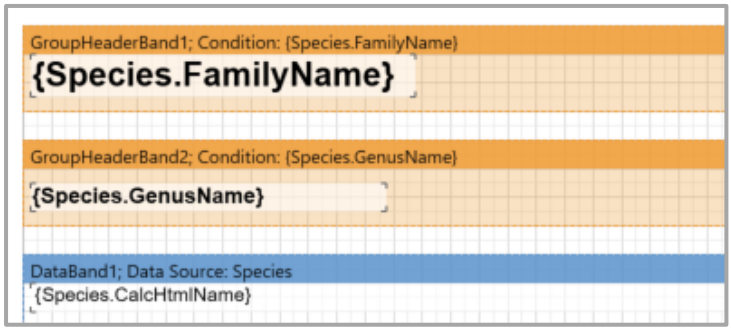
Another example of a report that offers multiple tables is with Seed Accessions:



Seed Accessions have several related tables - data from these can be incorporated into your reports.

When to use Group Headers

Where the data are provided in a single table, you can use report grouping. For example, the species table, as provided to the reporter, includes the family, genus and species names. Using the reporter Group Header options, you could easily print the family and genus names once only as in the following example:





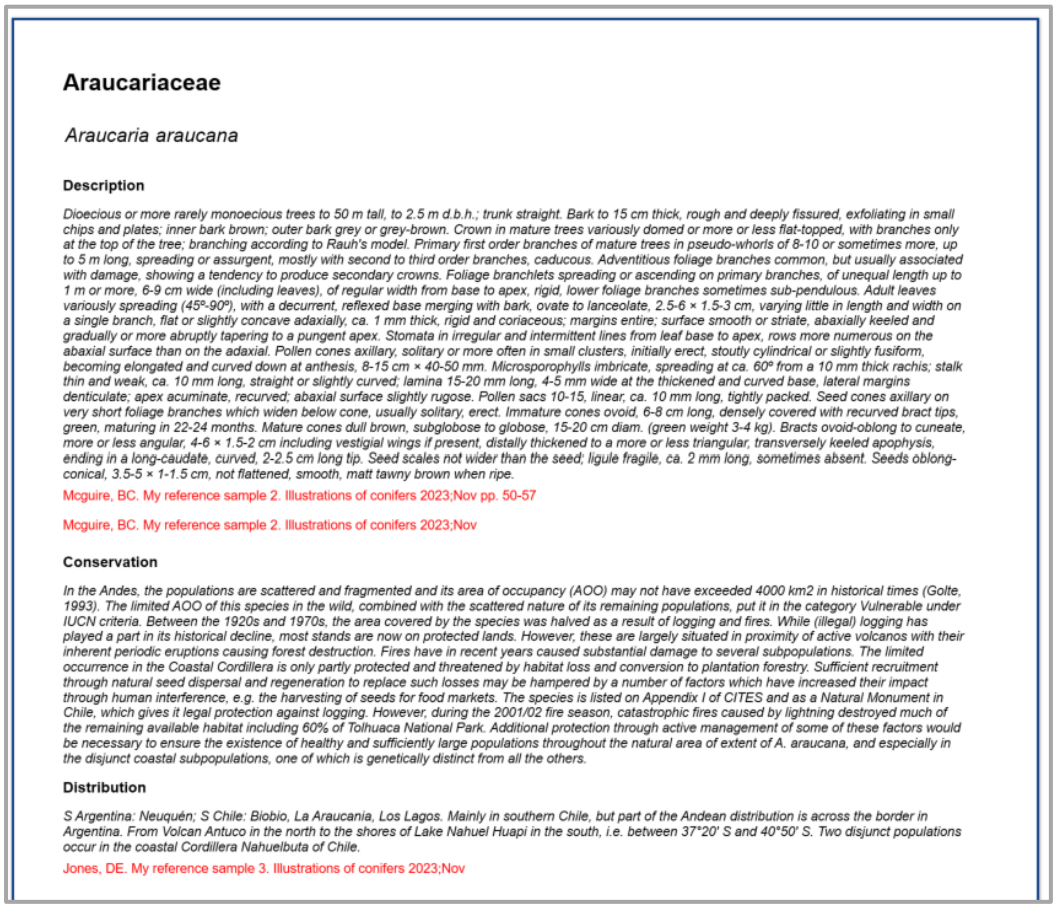
Group Headers can easily be used to group data. The group data bands can include multiple fields as required. In this example, only the family and genus names themselves are added.

Data in separate tables

However, where the data are supplied to the reporter in separate, related tables, you can use the Master Detail options to better control your output. As an example, you have species with 1:n text descriptions per species and each description may have 1:n references. Using these data, you may want a report that includes Species -> Text Descriptions -> Literature references. And perhaps, to group the report by family. Some species may have no text descriptions and not all your text descriptions may have literature references.

Report – example output

The following report example explains how to create your report using the reporter *Master Detail* facilities with species names, species text and species text references. Bear in mind, the same procedure can be used for any parent-child tables where those tables are available in the report dictionary options.



Araucariaceae

Araucaria araucana

Description

Dioecious or more rarely monoecious trees to 50 m tall, to 2.5 m d.b.h.; trunk straight. Bark to 15 cm thick, rough and deeply fissured, exfoliating in small chips and plates; inner bark brown; outer bark grey or grey-brown. Crown in mature trees variously domed or more or less flat-topped, with branches only at the top of the tree; branching according to Rauh's model. Primary first order branches of mature trees in pseudo-whorls of 8-10 or sometimes more, up to 5 m long, spreading or assurgent, mostly with second to third order branches, caducous. Adventitious foliage branches common, but usually associated with damage, showing a tendency to produce secondary crowns. Foliage branchlets spreading or ascending on primary branches, of unequal length up to 1 m or more, 6-9 cm wide (including leaves), of regular width from base to apex, rigid, lower foliage branches sometimes sub-pendulous. Adult leaves variously spreading (45º-90º), with a decurrent, reflexed base merging with bark, ovate to lanceolate, 2.5-6 × 1.5-3 cm, varying little in length and width on a single branch, flat or slightly concave adaxially, ca. 1 mm thick, rigid and coriaceous; margins entire; surface smooth or striate, abaxially keeled and gradually or more abruptly tapering to a pungent apex. Stomata in irregular and intermittent lines from leaf base to apex, rows more numerous on the abaxial surface than on the adaxial. Pollen cones axillary, solitary or more often in small clusters, initially erect, stoutly cylindrical or slightly fusiform, becoming elongated and curved down at anthesis, 8-15 cm × 40-50 mm. Microsporophylls imbricate, spreading at ca. 60º from a 10 mm thick rachis; stalk thin and weak, ca. 10 mm long, straight or slightly curved; lamina 15-20 mm long, 4-5 mm wide at the thickened and curved base, lateral margins denticulate; apex acuminate, recurved; abaxial surface slightly rugose. Pollen sacs 10-15, linear, ca. 10 mm long, tightly packed. Seed cones axillary on very short foliage branches which widen below cone, usually solitary, erect. Immature cones ovoid, 6-8 cm long, densely covered with recurved bract tips, green, maturing in 22-24 months. Mature cones dull brown, subglobose to globose, 15-20 cm diam. (green weight 3-4 kg). Bracts ovoid-oblong to cuneate, more or less angular, 4-6 × 1.5-2 cm including vestigial wings if present, distally thickened to a more or less triangular, transversely keeled apophysis, ending in a long-caudate, curved, 2-2.5 cm long tip. Seed scales not wider than the seed; ligule fragile, ca. 2 mm long, sometimes absent. Seeds oblong-conical, 3.5-5 × 1-1.5 cm, not flattened, smooth, matt tawny brown when ripe.

Mcguire, BC. My reference sample 2. Illustrations of conifers 2023;Nov pp. 50-57

Mcguire, BC. My reference sample 2. Illustrations of conifers 2023;Nov

Conservation

In the Andes, the populations are scattered and fragmented and its area of occupancy (AOO) may not have exceeded 4000 km2 in historical times (Golte, 1993). The limited AOO of this species in the wild, combined with the scattered nature of its remaining populations, put it in the category Vulnerable under IUCN criteria. Between the 1920s and 1970s, the area covered by the species was halved as a result of logging and fires. While (illegal) logging has played a part in its historical decline, most stands are now on protected lands. However, these are largely situated in proximity of active volcanos with their inherent periodic eruptions causing forest destruction. Fires have in recent years caused substantial damage to several subpopulations. The limited occurrence in the Coastal Cordillera is only partly protected and threatened by habitat loss and conversion to plantation forestry. Sufficient recruitment through natural seed dispersal and regeneration to replace such losses may be hampered by a number of factors which have increased their impact through human interference, e.g. the harvesting of seeds for food markets. The species is listed on Appendix I of CITES and as a Natural Monument in Chile, which gives it legal protection against logging. However, during the 2001/02 fire season, catastrophic fires caused by lightning destroyed much of the remaining available habitat including 60% of Tolhuaca National Park. Additional protection through active management of some of these factors would be necessary to ensure the existence of healthy and sufficiently large populations throughout the natural area of extent of A. araucana, and especially in the disjunct coastal subpopulations, one of which is genetically distinct from all the others.

Distribution

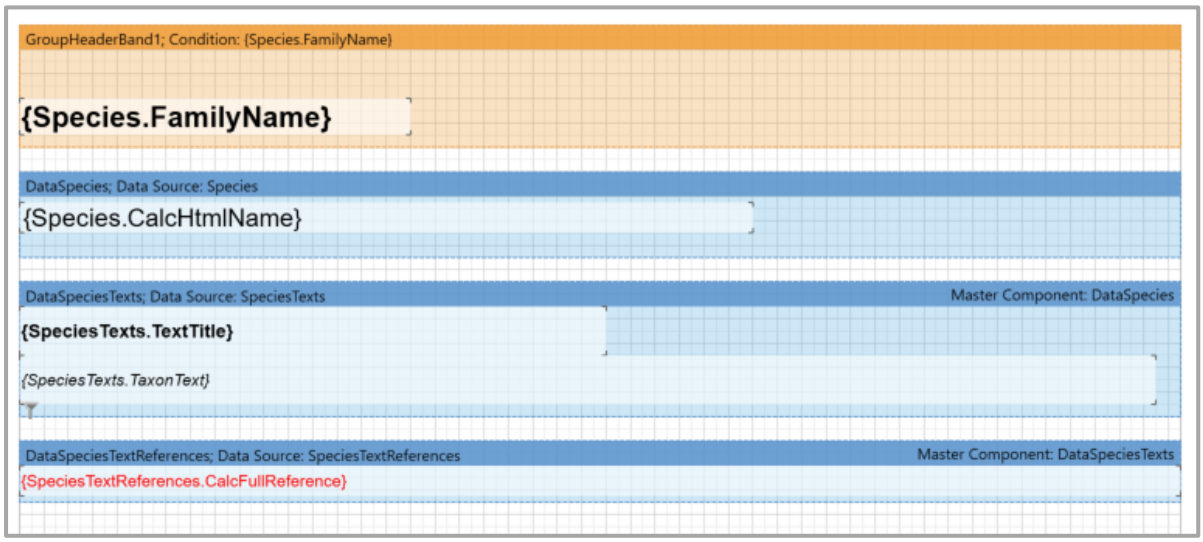
S Argentina: Neuquén; S Chile: Biobio, La Araucania, Los Lagos. Mainly in southern Chile, but part of the Andean distribution is across the border in Argentina. From Volcan Antuco in the north to the shores of Lake Nahuel Huapi in the south, i.e. between 37°20' S and 40°50' S. Two disjunct populations occur in the coastal Cordillera Nahuelbuta of Chile.

Jones, DE. My reference sample 3. Illustrations of conifers 2023;Nov

In this report sample, three categories of text are printed per species. One text description has 2 references, another has none.

Designing your report template

Overall design layout



The above screen shows the report template design. The layout is explained in the following sections.

Family name

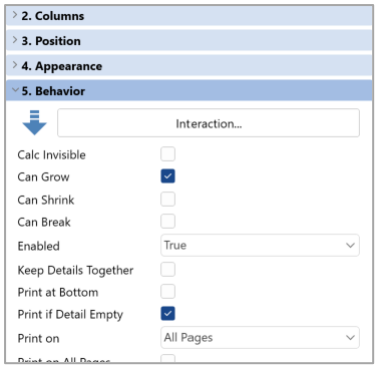
The report starts with a Group Header Band. This band is not related to the Master Detail component of this report but is added as an extra here. Group Header bands are a useful way to group your data by one or more fields. In this example, the family name will be printed once only. The 'condition' of this group header band is the family name. As the family name is available in the species table, the condition is Species.FamilyName. Note that the content of the band must also be added in a text box and in this case, the content prints the family name. The height of the band and the position of the text box within it are set to provide the report spacing.

Species name

Next in this example comes the species name. This is a standard data band with Data Source set to Species. The band includes a single text box to print the species name using the calculated HTML field. The species band itself has no Master Detail setting. Note the text box property *Text Additional > Allow HTML text* for the field CalcHtmlName is set to true.

Print if detail empty

This is an **important property** to set if you want to print a parent record when any child records are missing. For example, print the species record even if it has no text references. This property can be found in the Behaviour properties of the relevant data band. In some cases, you may want to exclude records that have no data for the related child table – in which case do not select this option. Note: this setting needs to be edited for any data band that has child records.



Select 'Print if detail empty' to ensure a record is printed when there are no child records.

Species text band

A second data band is now added to print the species descriptive texts. This band includes two text boxes: TextTitle and TaxonText. These have been kept in separate text boxes to provide an easier way to control their fonts.

By **double-clicking** on the new data band header, it becomes possible to add three important settings:

Master Component

The first step is to select Master Component and to choose the correct parent table.



In this example, you would choose the DataSpecies data element.

Relation

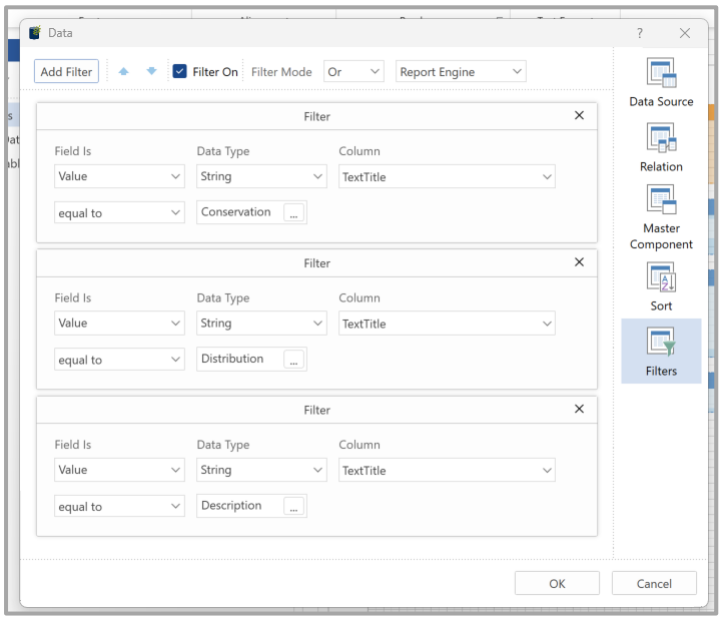
The next step is to set a relation between the text descriptions and the species table. By **double-clicking** on the band header again (assuming it is closed), select Relation and choose the parent species table, here DataSpecies.



A relation is set between this data band and the species table.

Optional Filters

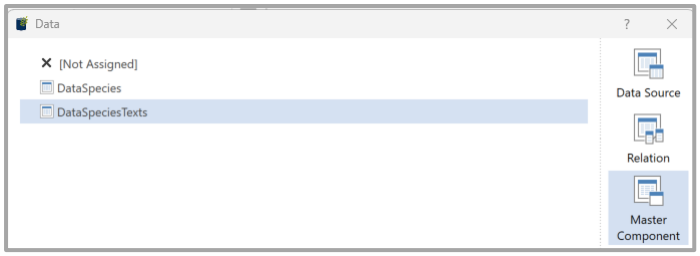
The next optional step is to set any required filters. By **double-clicking** on the band header again (assuming it is closed), select Filter and add any filter expressions as shown below. Note that the option **Filter on** is selected and that **Filter mode** is set to 'Or' rather than 'And'.



In the above filter example, the 'or' filters are added to print text descriptions for three TextTitle values. The idea is to restrict the text categories to 3 selected values.

References data band

A third data band is added to print the references. In this database, these literature references are linked to the taxa descriptions themselves. This band includes a single text box to print the CalcFullReference. Bear in mind that you could include any references fields you wish – and format as required for your report output. As with the above example, the data band properties can be set for the Master Component , Relation and any optional Filters. No filters are used for this band.



In this example, the Master Component is set to DataSpeciesTexts



The relation is set to SpeciesTexts.