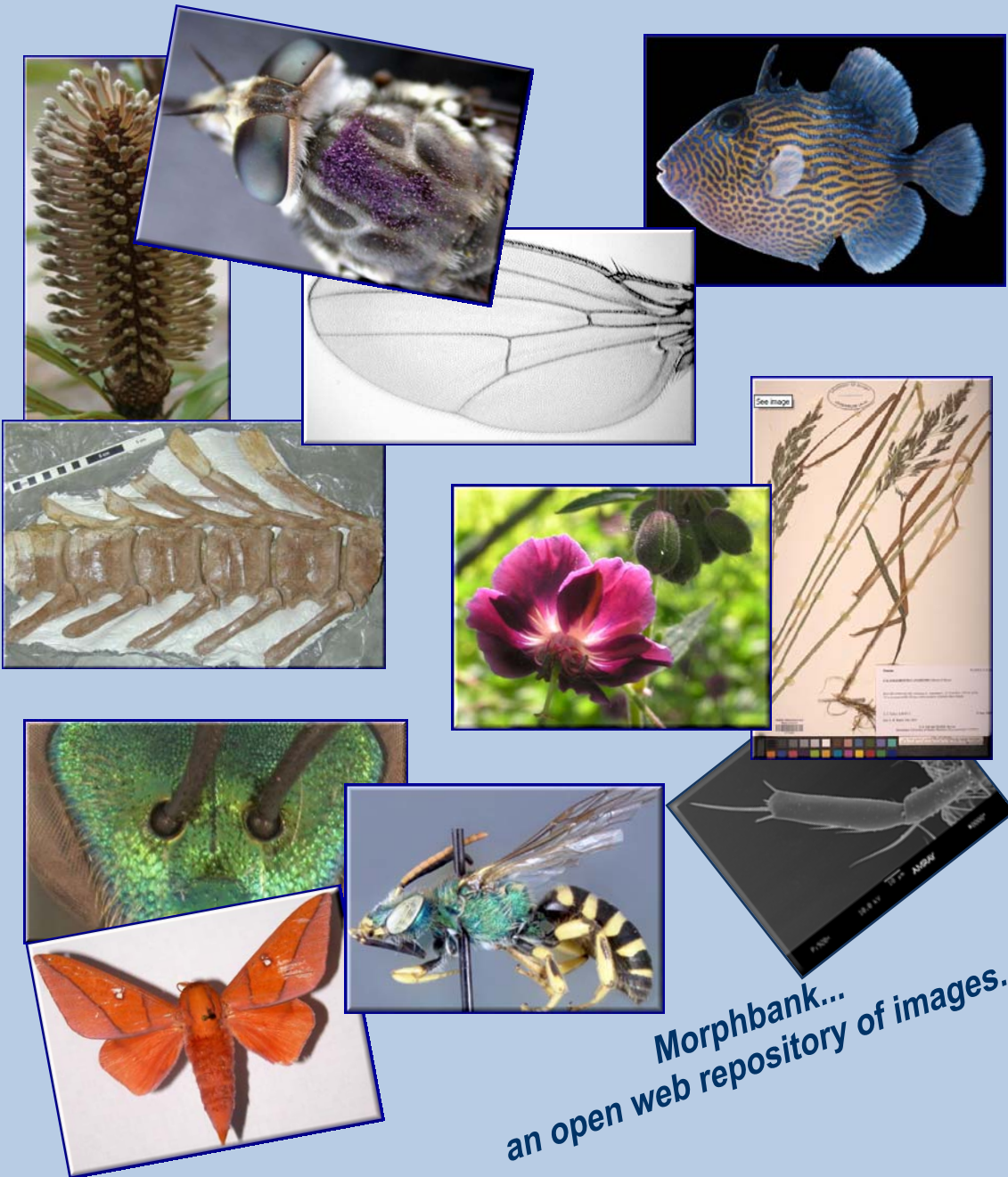


Morphbank Data Entry Workbook User Manual v 3



Morphbank...
an open web repository of images.



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Last Updated 10/10/2010

Morphbank offers a service using this prepared data entry workbook. Submitters fill out and deliver the Excel workbook to Morphbank.

The workbook consists of eight worksheets named after objects in Morphbank: Image Collection, Images, MyView, Specimen, SpecimenTaxonData, Locality, External Links and Supporting Data. When a cell in each of the active columns is selected, a short description of the expected data is given. This guide provides a more detailed description for each of the columns (i.e. Morphbank fields) and how they should be populated. Please do not change the order of the sheets.

Morphbank uses many [Darwin Core \(dwc\)](#) standard fields. Morphbank fields that map to dwc are indicated in this manual using the dwc abbreviation.

Morphbank is an [Encyclopedia of Life \(eol\)](#) image provider. By default, once images become public in Morphbank, they are harvested for display at [eol](#). A Morphbank Contributor opts out of this default if their images are already in eol or are not suitable for eol.

There are at least 4 different ways to upload data and images to Morphbank. Use this workbook if the data to upload fits the provided fields and the images and specimens do not already have unique identifiers. If your data is already in a database or If the images and specimens have (or can be assigned) unique identifiers, please use the [xml upload option](#) or the [custom workbook](#). If 50 images or less are to be uploaded, the web option is probably the most efficient.

Data Preparation:

Before populating the workbook, please note the following preparation details to simplify the process.

HINT: First, upload several images to Morphbank via the website. From this experience, a Morphbank user finds it much easier to complete the workbook because of familiarity with Morphbank fields and objects (Image, View, Locality, and Specimen).

Only release data into Morphbank that is appropriate for world-wide release. For example, if an image of an endangered specimen includes notes about its specific locality, mask that information before uploading the image to Morphbank. Avoid precise locality details (e.g. enter the collection county as opposed to exact latitude / longitude coordinates) for these types of specimens. In these



circumstances, users enter text in the **Information Withheld** column of the **Locality** sheet to tell users how to obtain the withheld data if needed.

Before entering data into the workbook, please gather the following information...

- A Morphbank Account – Please acquire a Morphbank username and password prior to submitting the workbook (via the login screen at www.morphbank.net > **Tools** > **Login** > **Request user account** or by contacting Morphbank at mbadmin@scs.fsu.edu). If the user does not have an account before submitting the workbook, one will be generated at that time.
- General information about your image collection including: the Morphbank contributor (person with authority to release the images to the public), release date, Morphbank group to which the images should be attributed and a project link (if one exists) to which the images are related.
- Locality details including: continent/ocean, country, locality description (region, province, county and place), and latitude/longitude data if available.
- Information about the specimen and the parties involved in the collection of it including: basis-of-record, sex, developmental stage, form, preparation type, number of individuals collected or observed, type status, family, collector's name, date collected, locality.
- Taxonomic name data for the specimens needs to be checked in the Morphbank database and names not in the Morphbank system will need to be added via the web, this spreadsheet or a name upload sheet if many names need adding. (Contact mbadmin@scs.fsu.edu).
 - Use NameQuery to check taxon names extant in the database: <http://www.morphbank.net/Help/nameMatch/>
- Information about the view of the specimen in an image including: specimen part, view angle, imaging technique, preparation technique, developmental stage, sex, form, and name of the highest taxon to which this view is applicable.
- Images in the collection and information pertaining to them including: specimen description, view name, copyright contact, photographer and image file name to be uploaded. The images sent to Morphbank must be one of the following image types:
 1. Bitmap [.bmp]
 2. Joint photographic experts group [.jpeg, jpg]
 3. Tag information file format [.tiff]



--tiff images are best saved as RGB color and NOT indexed color, or CMYK color mode, or grayscale.

--tiff images generated from a Philips SEM system need to be modified to appear correctly in Morphbank. See warning note below.

Photoshop (psd) images should be flattened and saved as one of the image file types above.

WARNING: Philips SEM users

Image Display Problem:

Philips SEM machines utilize non-square shaped pixels so when the images are outside of Philips software they are distorted slightly.

To Fix:

The images need to be resized from 1424X968 to 1424X1064 for high resolution images and 712X484 to 712X532 for standard resolution. Philips has a small conversion program called XL-Stretch or images can be resized manually with image manipulation software such as Photoshop.

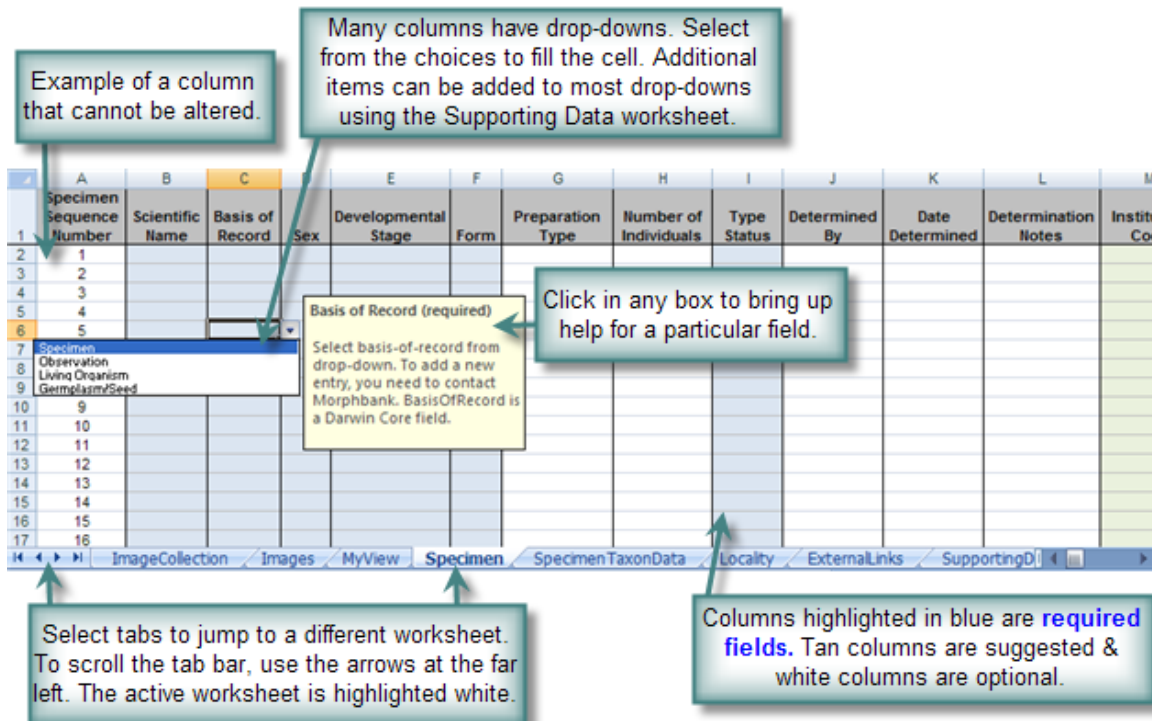
Note:

We suggest all applicable data fields be completed. This improves the reliability and accuracy of data searches within the Morphbank database.

Additionally, great care should be taken to make sure all entries are as complete and precise as possible. Inaccurate workbook pages require corrections, which will mean delays in importing the data to the database. Numerous inaccuracies in the submitted workbook may result in its return to the submitter for review and correction.

Data Entry Strategies:

- **Organization folder-** It is helpful to place all the images that will be uploaded to Morphbank together in a folder on your machine. The organization of the images in this folder influences the order of the image data input into the Excel spreadsheet. Having these images organized efficiently beforehand (e.g. images relating to the same taxon or the same body structure, etc.) simplifies data entry.



Example of a column that cannot be altered.

Many columns have drop-downs. Select from the choices to fill the cell. Additional items can be added to most drop-downs using the Supporting Data worksheet.

Basis of Record (required)
Select basis-of-record from drop-down. To add a new entry, you need to contact Morphbank. BasisOfRecord is a Darwin Core field.

Click in any box to bring up help for a particular field.

Select tabs to jump to a different worksheet. To scroll the tab bar, use the arrows at the far left. The active worksheet is highlighted white.

Columns highlighted in blue are **required fields**. Tan columns are suggested & white columns are optional.

	A	B	C		E	F	G	H	I	J	K	L	M
	Specimen Sequence Number	Scientific Name	Basis of Record	Sex	Developmental Stage	Form	Preparation Type	Number of Individuals	Type Status	Determined By	Date Determined	Determination Notes	Institution Code
1													
2	1												
3	2												
4	3												
5	4												
6	5												
7													
8													
9													
10	9												
11	10												
12	11												
13	12												
14	13												
15	14												
16	15												
17	16												

Figure 1 Anatomy of a Workbook Page

- **Order of data entry** - Once taxon names are checked and all other data is located and ready for entry, open the Excel file and click on the *Excel spreadsheet* tab that corresponds to the area of the workbook you would like to propagate (see Fig 1). The preferred order for entering data into the Morphbank workbook is *ImageCollection*, *Locality*, *SpecimenTaxonData*, *Specimen*, *MyView*, *Images*, *ExternalLinks* and the *Supporting Data* page as needed.
- **Entering image collection data** - Select the *ImageCollection* tab first to enter general information about the collection of images.



- **Entering locality data** - After entering *ImageCollection* data, proceed to the *Locality* tab and fill in all applicable fields. These fields are linked to fields in other tabs so you will only have to enter unique *Locality* data once. Make sure any data for *Locality coordinates* are in the degrees decimalized format given in the examples in the *Locality* section of this manual. There are many online resources for translating degrees to decimal. One example is <http://www.jeeep.com/details/coord/>.
- **Entering specimen taxon data** - After entering the *Locality* data enter all taxon names associated with the specimens and images to be uploaded. Each distinct taxon name only needs to be entered once. If names at rank higher than genus need adding to Morphbank, there are options other than the spreadsheet. Names at rank of Suborder or lower can be added via the web interface. In the event names of rank higher than suborder need adding, contact mbadmin@scs.fsu.edu
- **Entering specimen data** - After entering the *Specimen Taxon Data*, proceed to the *Specimen* tab. As in *Locality*, fields in this worksheet are linked to drop-down menus in other tabs. Drop-down menus are provided for many of the specimen fields. **If an option you would like to input is not provided in the drop-down menu, proceed to *Supporting Data* tab and modify the contents of the category as necessary.**
 - Notice that *Locality* is a field here; this field links to the data entered in the *Locality* worksheet. Choose the locality that suits the particular specimen you are working with (this is the reason why you filled in the locality data first). If you have a lot of different taxa (which you may), this tab is eventually going to have a great deal of data associated with it!
- **Entering view data** - Next visit the *MyView* tab. This worksheet is split into two parts. In the top part users can choose a view from a drop-down list of existing views in Morphbank. Check to see that the views needed are listed. If the views currently in the spreadsheet are not suitable, add new views using the second part (bottom half) of this worksheet.
- **Entering image data** - Next proceed to the *Images* worksheet. This is the heart of the whole process, and quite possibly may be the place you spend the most time. Under *Specimen Description*, choose from the drop-down menu the specimen descriptor of the images you are going to input. This links to the data in the *Specimen* worksheet, and that is why the *Specimen* data is populated first. *Magnification*, *Copyright Information* and *Image File Name* all have to be manually entered. *MyView Name*, is a drop-down field, and is linked to the *MyView* worksheet. Make sure that the views needed in the drop-down list. If view data was entered in



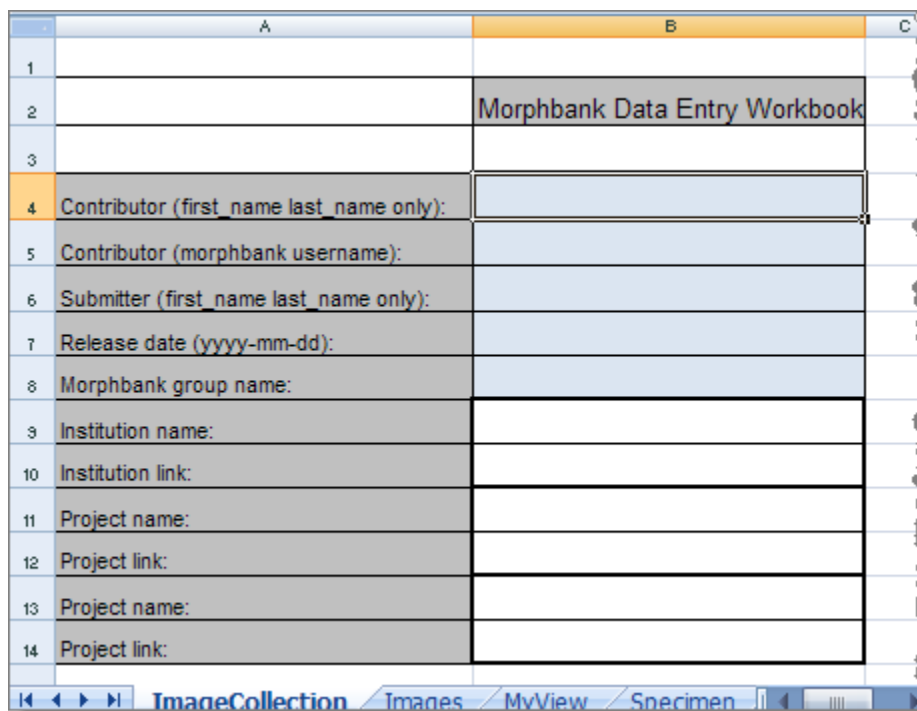
the previous step and it is not on the list, a mistake was made on the *MyView Worksheet*. A final suggestion for this tab is in regards to the *Image File Name*; if data entered here is incorrect, it is impossible for Morphbank to link the metadata (specimen, locality, etc.) with an image. The image filename given in the spreadsheet must match EXACTLY with the image filename you upload to Morphbank (to the website, to the ftp site or via CD/DVD). For best practice, the filename of the image must NOT contain spaces. The filename may contain underscores. If both uppercase and lowercase letters are used in a given filename, these must be the same in the spreadsheet.

- **Entering link data** - This is the final step in the population of the Morphbank workbook. This worksheet is optional and is for those users who want to cite more links to the entered data (Specimen, Image, Locality or View). Note that the *ImageCollection* worksheet has 3 possible URLs (1 institution link and 2 project links) that are associated with all images and specimens in the workbook if the fields are used.

Note: If changes are made to the location information you must manually update the changes to the specimen and image information. If changes are made to the MyView sheet, the My View choices on the Image worksheet have to be reselected from the drop-down. Changes made in one area of the workbook are not automatically reflected in other areas in the workbook.

Image Collection:

The *ImageCollection* worksheet allows you to provide general information about your collection of images. Fill out this worksheet first.



	A	B	C
1			
2		Morphbank Data Entry Workbook	
3			
4	Contributor (first_name last_name only):		
5	Contributor (morphbank username):		
6	Submitter (first_name last_name only):		
7	Release date (yyyy-mm-dd):		
8	Morphbank group name:		
9	Institution name:		
10	Institution link:		
11	Project name:		
12	Project link:		
13	Project name:		
14	Project link:		

Figure 2 Image Collection Worksheet

Contributor (Full Name) (required)

Enter the first name and last name only of the contributor of the images. In Morphbank the contributor is a person with a Morphbank account who possesses the authority to release the images to the public. Obtain an account at www.morphbank.net (click Tools > Login > Request new account)

Contributor (Username) (required)

The contributor must be a Morphbank account holder. Once the account is set up, the user has a Morphbank **Username** and password.

Submitter (Full Name) (required)

Enter the first name and last name only of the person who prepared this workbook and submitted it to Morphbank for upload. A Submitter must be a Morphbank user. The Submitter may or may not be the same as the Contributor. Obtain an account at www.morphbank.net (click Tools > Login > Request new account)

**Release Date (required) (yyyy-mm-dd)**

Enter the release date for the images if the images are not for immediate release to the public. The release date can be at most, five years from the date of inclusion of the images in Morphbank. If you have different sets of images with different release dates, please create a separate Excel file for each image set.

Group (required)

Enter the Morphbank Group name to which the images should be attributed. If the images are not for immediate release, they can still be viewed and modified by the members of this Morphbank Group. If you are Group Coordinator of this group, you can add any Morphbank user to this group. Contact Morphbank at mbadmin@scs.fsu.edu if you need a new Morphbank group. If you have different sets of images you want to associate with other Morphbank groups, create a separate Excel file for each image set.

Institution Name

Provide an institution name (if applicable) for an institution associated with the data in the workbook. This field provides the label for an external link given in the next field.

Institution Link

Provide a link in **http://** format to the above named institution. This link to the institution will be added as an external link to all the image and specimen records created as a result of the provided data for upload.

Project Name

Provide a project name (if applicable) associated with the data in the workbook. This field provides the label for an external link given in the next field.

Project Link

Provide a link in **http://** format to the above named project. This link will be added as an external link to all the image and specimen records created as a result of the provided data for upload.

Project Name

Provide a second project name (if applicable/desired) associated with the data in the workbook. This field provides the label for an external link given in the next field.

Project Link

Provide a link in **http://** format to the second project named above. This link will be added as an external link to all the image and specimen records created as a result of the provided data for upload.

Images:

The *Images* worksheet should be the last worksheet filled out. This is the heart of the data entry process and may take the most time. The Images worksheet records information about the images in the collection. This worksheet has five columns (B – F) to populate and 2 new optional columns (G, H). The explanation of how to populate them is given below.

	A	B	C	D	E	F	
	Image Sequence Number	Specimen Description	My View Name	Magnification	Copyright Info	Image file name	
244	243						
245	244						
246	245						
247	246						
248	247						
249	248						
250	249						
251	250						
252							

Fill out this Image worksheet last. If more rows are needed, see the Addition Notes section of this manual. If more than 300 rows are needed, divide the upload into another workbook.

Figure 3 Images Worksheet

Image Sequence Number

A number that corresponds to the order of input made in the Images worksheet. This column is auto-generated. Do not change it.

Specimen Description (required)

Choose a specimen description from the drop-down list, which is auto-generated from the *Specimen* worksheet. If necessary, go to the *Specimen* worksheet to add new specimen entries. If there is more than one image for a given specimen, we recommend that you enter these images sequentially so they can easily be linked to the same specimen record. However, this is not strictly necessary, as long as you link all of the images to the correct specimen record. Note that the *Specimen Description* drop-down list only contains an abbreviated description of each specimen. If you have similar entries in the *Specimen* worksheet, make sure that you link each image to the right specimen entry. The easiest way to do this is to make sure that the first



number in the *Specimen Description*, the *specimen sequence number* in the *Specimen* worksheet, is correct.

My View Name (required)

Select the *View* describing the image from the drop-down list. The content of the drop-down list is taken from the *View* worksheet. The pre-specified views in the *View* worksheet are those contained in the Morphbank system when the workbook was last updated by the Morphbank group. One workbook features views pertinent to Animalia, the other has Plantae views. If you need to add one or more new views to describe your images, simply add rows to the bottom half of the *View* worksheet. Your new view will be available to all users of Morphbank after your data have been uploaded to the system. When choosing a view name from the drop-down list, please note that the list is sorted alphabetically on specimen part, so match this first before looking at the other data defining the view. If the view data was entered in the previous step and it is not on the list, a mistake was made on the *View* worksheet. Care needs to be taken to ensure any new *View* options are properly linked to the *Images* tab.

If you would like help to create a custom version of the workbook with a given set of views, contact mbadmin@scs.fsu.edu.

Magnification

Enter a positive decimal number that corresponds to the magnification of the image. The magnification is calculated by dividing the size of an object as it appears on the image (when the image is rendered at normal or native size [100 %]) by the actual size of the object. Example: if the leg of the specimen is 0.5 mm long and on the image it appears to be 20 mm long, the magnification is $20/0.5 = 40$. If possible, specify the magnification for all images, particularly if you do not have a scale bar in them. This is a numeric field, no text characters, (Example: 20 is permitted, not 20x).

Copyright Info (required)

Enter the name(s) of the person(s)/organization who owns the copyright of the image or who could give a user of the Morphbank system information about the image copyright. Include the person's Morphbank username and/or email if possible. This information makes it easier for anyone interested in contacting someone regarding copyright.

Example: Janice Doe jdoe@scs.fsu.edu

Image File Name (required)

Enter the exact name of the image file corresponding to this entry in the worksheet. If data entered here is incorrect, it will be impossible for Morphbank to link the metadata (specimen, locality, etc.) with an image. The



format should be *image_name.image_type*. Image type can be jpeg, gif, tif, bmp, etc. The specified file names must exactly match the file names for the images delivered with the Excel workbook. Do not leave blanks in the image file name, use_underscores to name the images with more intuitive names. Please put all images in the same folder.

Note that if the images are .tiff, it is best if the colorspace is RGB and not CMYK or grayscale.

Photographer

(Column G) Free text field to enter the name/s of any photographer/s. Please separate multiple names by commas. This is a new field in v 3 of Morphbank.

eol (set = to 1 or 0)

(Column H) Morphbank is an [eol](#) collaborator and by default, images in Morphbank are harvested for display at eol. **Note well:** images only go to eol *after* they become public in Morphbank. Sometimes, a Contributor's images may already be at eol, or a given set of images may not be suitable for eol. In this case, enter a 0 (zero) in this field. Enter 1 for images to go to eol as soon as they are public.

Note: This worksheet has 250 initialized rows for data. If more rows are needed, see the Additional Notes section of this manual for instruction on inserting additional rows. If more than 300 rows are needed, split the data set into a separate workbook.

MyView:

The *MyView* worksheet has 10 columns and consists of two parts. In the first section the submitter can choose an existing Morphbank view from the drop-down list (located in the first column, *MyView Name*), the rest of the columns will be automatically populated based on the previous choice. *Do not change them*. If the needed view is not provided in the *MyView Name* list, proceed to the second part of this sheet and create the needed views by populating each of the column cells (C – J, required).

HINT: Choosing or creating views with this worksheet creates a drop-down of views for use in the Image worksheet, My View column.

View Sequence Number	My View Name	Specimen Part	View Angle	Imaging Technique	Imaging Preparation Technique	Developmental Stage	Sex	Form	View Applicable to Taxon
1									
2	1-1-2 valvulae, apex/Latr								
3	2-/Abdomen/Lateral/Auto-								
4	3-/Abdomen/Dorsal/Auto-								
5	4-/Abdomen/Ventral/Auto-								
6	5-/Abdomen/Lateral/Auto-								
29	6-/Abdomen/Ventral/Auto-								
30	7-/Abdomen/Dorsolateral I								
31	8-/Abdomen/Dorsolateral I								
32									
33	My ViewName[Auto generated, do not change this field!]	Specimen Part	View Angle	Imaging Technique	Imaging Preparation Technique	Developmental Stage	Sex	Form	View Applicable to Taxon
34	264--/-----								
35	265--/-----								
36	266--/-----								
37	267--/-----								
38	268--/-----								
39	269--/-----								
40	270--/-----								

From the top half of the worksheet, choose from existing Morphbank Views using column B only.

Use the bottom half of the worksheet, Columns C - J (**required**), to create any needed views not found in the top half of the worksheet. Select the desired *Specimen Part*, *View Angle*, etc. from the drop-down lists to create a new view. Use the *Supporting Data* sheet to add needed items to a particular drop-down list. Column J is a text field.

Figure 4 MyView Worksheet Columns A-J

View sequence number

A number that corresponds to the order of input made in the *MyView* worksheet. This column is auto-generated. Do not change it.

**My View Name (required)**

Column B in the top-half of this worksheet has a drop-down with existing views in Morphbank. Select the desired view from Column B and *do not* alter columns C – J (on the top half of the worksheet).

If views needed are not there, create new views *on the bottom half of the workbook* using columns C – J (as described next).

Specimen Part (required)

Enter/choose from the drop-down list the name of the specimen part presented by the view (i.e. what specimen part is featured in the image). If the specimen part is not in the drop-down list you can add it through the *Supporting Data* worksheet by adding a new entry to the Specimen Part column there.

View Angle (required)

Enter/choose from the drop-down list a description of the view angle that corresponds to the view. View Angle is from the viewpoint of the camera with respect to the object being imaged. You can add new values to the drop-down list by adding a new entry to the *View Angle* column in the *Supporting Data* worksheet.

Imaging Technique (required)

Enter/choose from the drop-down list the imaging technique used for this view. If the imaging technique used is not in the list you can add the value by adding a new entry to the *Imaging Technique* column in the *Supporting Data* worksheet.

Preparation Technique (required)

Enter/choose from the drop-down list the imaging preparation technique used for the view. This field captures data about the preparation done to the specimen (if any) in order capture the image(s). If the image preparation technique used is not in the list you can add the value by adding a new entry to the *Imaging Preparation Technique* column in the *Supporting Data* worksheet.

Developmental Stage (required) (dw=lifeStage)

Enter/choose from the drop-down list the developmental stage of the specimen presented in the view. The stage you select should be the same as the stage entered in the *Specimen worksheet* for the specimens in the images to which you plan to apply this view. Example: If you enter “adult” as the developmental stage for the view, you cannot apply this view to an image of a “larva”, if you need to apply a similar view to a larva, you need to create a new view entry.



Sex (required) (dwc)

Choose one option from the drop-down list. The option you choose may or may not be one you entered in the Sex column in the *Specimen* worksheet for the specimens in the images to which you plan to apply this view. For example, if a Specimen is a hermaphrodite, a given image of that specimen may show the male or female part of the organism.

Form (required)

Choose one option from the drop-down list. The option you choose should be the same as the one you enter in the *Form* column in the *Specimen* worksheet for the specimens in the images to which you plan to apply this view. Examples: queen, worker, exposed. You may choose *indeterminate* if the view does not apply to a specific morphological form, in which case you can apply the view to images of specimens of any morphological form.

View Applicable to Taxon (required)

Enter the name of the highest taxon to which this view is applicable. It is possible for a view to be applicable outside of the user's immediate taxon of interest. For example, the view name of *lateral habitus*, when photographing a wasp, is relevant for Insecta but it can also be applied to Arthropoda, Hexapoda, and perhaps Animalia. The user should decide **the highest possible applicable taxon** in which they have confidence that the terminology for that view is relevant. In this case, lateral habitus may be useful as a view name through Hexapoda, but may not necessarily apply to images of the side view of all animals. This information is required.

Note: This worksheet has 30 rows for existing views to be chosen and 200 more for new views to be created. If more rows are needed, see the Additional Notes section of this manual for instructions on inserting additional rows.

Be sure not to use the same view twice by only applying a “slight change”. If almost the same view is needed (even if only one field is different), create a separate view. On the Image sheet, never change the existing view which was chosen for some other image. The result will affect the upload by omitting some of the images that will now appear with invalid views.



SpecimenTaxonData:

All taxonomic names used in this upload need to be entered in this sheet. [Check the database](#) for names before filling in the **SpecimenTaxonData** worksheet.

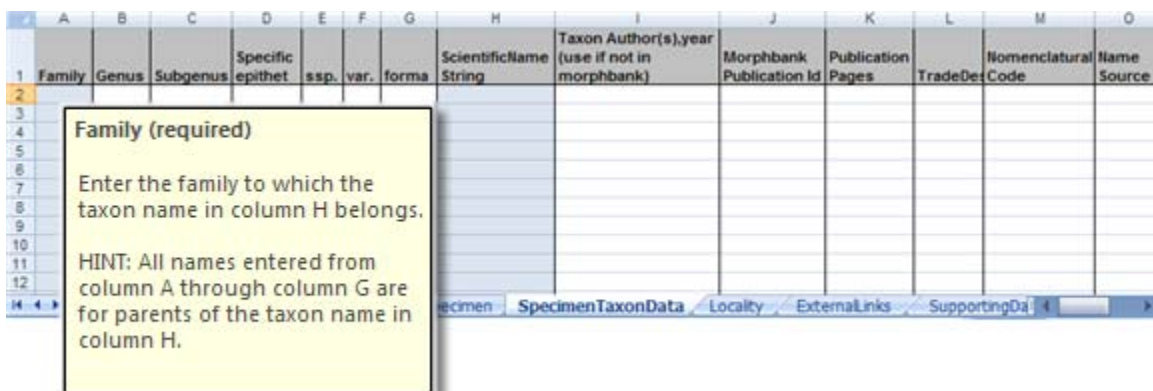
To check just a few names, login to the website at <http://www.morphbank.net> > header menu > tools > submit > taxon name. This opens Taxon Search. Enter the taxon name and click to search, and if not found, be sure to check if the parent is in Morphbank or not.

If more than 20 or so names need checking, use the Name Query feature instead. Login to Morphbank and go to > help > namequery. With this search feature, copy and paste in a list of names to be searched. The output is divided into: names found / names not found, and is available for download in csv format. Use this information to construct a list of names to fill out this worksheet.

1. If a taxon name is a) already in Morphbank **and** b) only in Morphbank one time, then
 - The only columns necessary to fill in for that name are Family (column A) and Scientific Name String (column H) which is the taxon name exactly as it appears in Morphbank (without the author/year).
 - Note the Family column helps to resolve parentage in cases where a genus name exists in more than one Kingdom.
2. If a taxon name *is not* in Morphbank, check the parents of that taxon name to see if the higher rank names are in the database.
 - For example, if the species taxon name desired is not in Morphbank, but the Genus is, the worksheet needs only one line of data to add that name (see examples).
 - If the Genus and species are not in Morphbank, then one row of the worksheet adds the Genus, the next row, the child (species), and so on.
3. Parentage for a new taxon name to be added to Morphbank is given in columns A – G.

To add large numbers of names, at the rank of Genus or lower, the *SpecimenTaxonData* sheet is efficient. Ideally, the *SpecimenTaxonData* worksheet needs to be completed after the *ImageCollection* and *Locality* worksheets. **This worksheet can also be used on its own for the purpose of only adding names to Morphbank.**

To add 30 names or less at the rank **suborder** or lower, it may be more efficient to use the Morphbank web-interface to add the needed taxon names. If names need to be added above the **suborder** rank, contact mdadmin@scs.fsu.edu

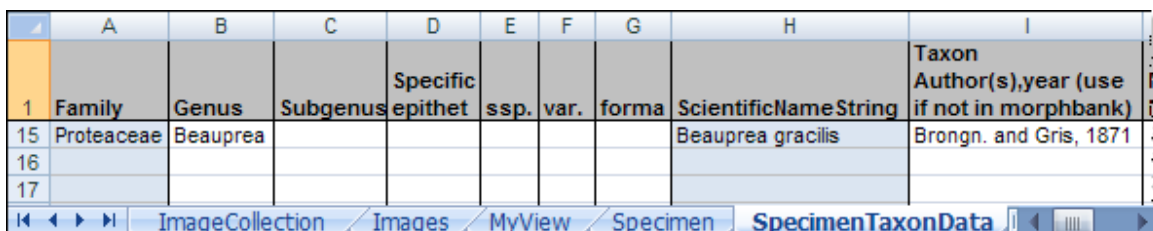


	A	B	C	D	E	F	G	H	I	J	K	L	M	O
	Family	Genus	Subgenus	Specific epithet	ssp.	var.	forma	ScientificNameString	Taxon Author(s),year (use if not in morphbank)	Morphbank Publication Id	Publication Pages	TradeDes	Nomenclatural Code	Name Source
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

Figure S Specimen Taxon Data Worksheet Columns A-O

Parentage must be indicated at each rank where the child is new to Morphbank. The parents must already be in Morphbank. When adding a child to parents already in Morphbank, one row (entry) for that name is sufficient. Columns A – G indicate parentage for the Scientific Name given in column H.

Example 1: *Beauprea gracilis* is not in Morphbank, the genus *Beauprea* is in Morphbank. To add the child ***gracilis*** to the Genus *Beauprea*, fill out the Excel Spreadsheet as follows:



	A	B	C	D	E	F	G	H	I
	Family	Genus	Subgenus	Specific epithet	ssp.	var.	forma	ScientificNameString	Taxon Author(s),year (use if not in morphbank)
1									
15	Proteaceae	Beauprea						Beauprea gracilis	Brongn. and Gris, 1871
16									
17									

Columns A - G are parents of child in Column H. In this example, the species ***Beauprea gracilis*** Brongn. and Gris, 1871 is added to Morphbank. The parents, *Beauprea* and *Proteaceae* are already in Morphbank.

Figure S1 Specimen Taxon Data – Add a child

Family (required)

Enter the Family name here as it appears in the database.

Genus, Subgenus, Specific epithet, ssp., var., forma (required if)...

Use these columns when needed to indicate parent of taxon name in column H. If the taxon rank of name in column H is a **subspecies** then (at least) columns A, B, and D (Family, Genus and Specific epithet) are filled out as parents of name in column H.

**Scientific Name String** (required)

Enter the scientific name here as it is to appear in the database.

Taxon Author, Year (optional)

Enter this information (if known) as it is to appear in the database. No need to add it at all if taxon name is already in Morphbank as desired. The software finds the only possible match via the string of text in column H (ScientificNameString). *If the author/year is entered for a name existing in Morphbank, it too, must match exactly as it appears in Morphbank or the name with author/year goes into the database again.*

Morphbank Publication Id (optional)

In Morphbank, log-in > select group > submit > publication. Enter the publication data (if known) for the taxon name, click submit, note the publication id and enter it in the spreadsheet. Note for any given taxon name, the journal it was published in may already be in Morphbank. Check the Publications in Morphbank *before filling out the worksheet*. If it's already there, note the id and enter it in the workbook.

Publication Pages (optional)

If known, enter the page number/s where the name appears in the publication.

Names may be added to Morphbank without complete publication data.

Trade Designation Names (optional)

For cultivar purposes, use this field to enter a cultivar's Trade Name.

Nomenclatural Code (required **only** if a cultivar name is added).

If known, enter the *nomenclatural code* the taxon name follows such as: ICBN, ICZN, ICNCP or other appropriate code. **If name to be added is a cultivar, this field must read ICNCP.**

Name Source (optional)

If taxon name data is gathered from another taxonomic name server database, enter that information here such as: TROPICOS, IPNI, uBio, World Spider Catalog, etc.

Note well for **Morphbank Publication Id** – If using this field, it greatly assists the workflow if one adds all the needed publications to Morphbank before filling out the worksheet.

Names may be added to Morphbank without complete publication data.

Fields lettered I – O are optional with one exception. If adding a cultivar name, column M (Nomenclatural Code) must read: **ICNCP**.

Example 2: adding typical names in kingdom Animalia.

	A	B	C	D	E	F	G	H
1	Family	Genus	Subgenus	Specific epithet	ssp.	var.	forma	ScientificNameString
2	Vespidae							NewGenus
3	Vespidae	NewGenus						NewGenus (Subgenus)
4	Vespidae	NewGenus	(Subgenus)					NewGenus (Subgenus) speciesepithet
5	Vespidae	NewGenus						NewGenus newspeciesepithet
6	Vespidae	NewGenus		newspeciesepithet				NewGenus newspeciesepithet subspecies
7	Vespidae							AnotherGenus
8	Vespidae	AnotherGenus						AnotherGenus speciesepithet
9	Vespidae	AnotherGenus						AnotherGenus sp 12345
10	Vespidae	AnotherGenus						AnotherGenus sp. beta
11	Gasteruptiidae	Gasteruption						Gasteruption sp. 1
12	Ichneumonidae	Gelis						Gelis sp A
13	Ichneumonidae	Gelis		sp A				Gelis sp A subspecies

	I	J	K	L	M	N	O
1	Taxon	Morphbank	Publication		Nomenclatural	No	
2	Author(s),year (use	Publication	Pages	Tra	Code	m	Name Source
3	if not in morphbank)	Id				en	
2	Name, 1989	133076	223		ICZN		uBio
3							World Spider Catalog
4							Species2000
5							
6							
7							
8							
9							
10	Jones, 2009						
11		225408					
12							
13							

Examples to show how to add names at various ranks

- 2, 7, - genus
- 3 - subgenus
- 4, 5, 8, - species
- 6, 13 - subspecies
- 9, 10, 11, 12 - sp names

Figure S2 Sample Animalia - Specimen Taxon Data

In the screen shot above, a user wants to add a genus under the Vespidae family. A search of Morphbank reveals this genus name is not in the database. By placing Vespidae in the Family column, **NewGenus** in column H is added to Morphbank as a child of Vespidae.

Next, a subgenus is added under the NewGenus. Note that in order for the software to understand the name is a subgenus, it must be in parentheses. In row 4, the species is added.

A different species is added in row 5, same genus. And in row 6 the first subspecies is added. Note that the specific epithet of the species is placed in column D (specific epithet). Columns A, B and D here with **Vespidae NewGenus newspeciesepithet** indicate the parent of the new subspecies name in column H.

Rows 9 – 13 show how to add sp names (temporary names).

Example 3: adding typical names in the kingdom Plantae.

	A	B	C	D	E	F	G	H
	Family	Genus	Subgenus	Specific epithet	ssp.	var.	forma	ScientificNameString
1	Malvaceae	NewGenus						NewGenus
2	Malvaceae	NewGenus	(Subgenus)					NewGenus (Subgenus)
3	Malvaceae	Hibiscus						NewGenus (Subgenus) speciesepithet
4	Malvaceae	Hibiscus		newepithet				Hibiscus newepithet
5	Malvaceae	Hibiscus		newepithet	ssp. subspecies			Hibiscus newepithet ssp. subspecies
6	Malvaceae	Hibiscus		newepithet	ssp. subspecies	var. iota		Hibiscus newepithet ssp. subspecies var. iota
7	Malvaceae	Hibiscus		newepithet				Hibiscus newepithet ssp. subspecies var. iota f. delta
8	Malvaceae	Hibiscus		newepithet				Hibiscus newepithet newsubspecies
9	Malvaceae	Hibiscus						Hibiscus sp alpha
10	Malvaceae	Hibiscus						Hibiscus sp. leon1
11	Onagraceae	Circaea						Circaea 'Cultivar'
12	Rosaceae	Spiraea		betulifolia				Spiraea betulifolia 'Cultivar'
13	Poaceae	Aira						Aira aff elegans
14	Poaceae	Panicum						Panicum cf alatum
15	Poaceae	Heteropogon						Heteropogon near contortus
16	Poaceae	Dichanthelium						Dichanthelium ? boscii
17	Poaceae	Echinochloa		elliptica				Echinochloa elliptica near gamma
18	Poaceae	Echinochloa		elliptica				Echinochloa elliptica aff delta
19	Malvaceae	X Genus						X Genus
20	Malvaceae	Hibiscus						X Genus species
21	Malvaceae	Hibiscus						Hibiscus x species
22	Malvaceae	Hibiscus						Hibiscus speciesa x speciesb
23	Malvaceae	Hibiscus						Hibiscus speciesa x Hibiscus speciesb
24	Malvaceae	Hibiscus						Hibiscus striatus sensu lato

See below for more about each row.

	I	J	K	L	M	N	O
	Taxon	Morphbank	Publication	TradeDesig	Nomenclatural	No	
	Author(s), year (use if not in morphbank)	Id	Pages		Code	m	Name Source
1	Name, 1989	133076	223		ICBN		uBio
2							World Spider Catalog
3							Species2000
4							GRIN
5							
6							
7							
8							
9							
10							Tropicos
11					ICNCP		IPNI
12					ICNCP		
13	Jones, 2009	225408					
14							

Figure S3 Sample Plantae - Specimen Taxon Data – Add children

Figure S3 gives examples for how to add various types of names at various ranks. The rows have been highlighted for clarity.

In row 2, a NewGenus is added under the family Malvaceae. Row 3 shows a new Subgenus added under the NewGenus. Notice the (Subgenus) must be in parentheses.



A new species is added in row 4 under the (Subgenus). Note for these rows how the columns A, B, and C are the parents of the children in column H.

In rows 5 – 8, a new species, subspecies, variety and form are added. The rank indicators must be **ssp.**, **var.**, **f.** *if you wish to nest* them as they are here in order for them to insert correctly. Again, note how the parentage is indicated (parsed) in columns A – F for rows 5 – 8.

Subspecies can be added without indicators, as in row 9, but no lower rank names can be added under it.

Temporary names using **sp** or **sp.** may be added as shown in rows 10 and 11.

Adding cultivar names is illustrated in rows 12 and 13. **ICNCP** *must* appear in column M for these names to insert as cultivars.

Rows 14 – 19 show how names are added that have rank qualifiers. In these examples, the rank qualifier prefixes are **aff**, **cf**, **near**, and **?**. Notice they have no dots after them. In row 24, a rank qualifier suffix, **sensu lato** appears.

Hybrid names are shown in rows 20 – 24.

Specimen:

The Specimen worksheet is associated with the Specimen table in the Morphbank database. The data entered here should provide information about the specimen and the parties involved in the collection of it. This worksheet has 24 columns. Below is an explanation of how to populate each one of them.

Specimen Sequence Number - do not alter

	A	B	C	D	E	F	G	H	I	J	K	L	M
	Specimen Sequence Number	Scientific Name	Basis of Record	Sex	Developmental Stage	Form	Preparation Type	Number of Individuals	Type Status	Determined By	Date Determined	Determination Notes	Institution Code
1													
2	1	Stenocarpus	Specimen										
3	2												
4	3												

	N	O	P	Q	R	S	T	U	V	W	X
	Collection Code	Catalog Number	Previous Catalog Number	Related Catalog Item	Relationship Type	Collection Number	Collector(s) Name	Date Collected	Locality	Notes	Specimen Description [Autogenerated -- do not change!]
											1--Stenocarpus///
											2--////
											3--////
											4--////

Figure 5 Specimen Worksheet Columns A - X

Specimen Sequence Number

This column is auto-generated. It is a number that corresponds to the order of input made in the Specimen worksheet. Do not change it. This number will be used to make a relation in the workbook between the data for a given specimen and the images associated with that specimen.

Scientific Name (required)

Choose the taxon name for your specimen from the drop-down. The taxon names in this drop-down come from the SpecimenTaxonData worksheet.

Basis of Record (required) (dwc)

Choose one of the options from the drop-down list. Current choices are: *Observation*, *Living Organism*, *Specimen*, *Germplasm/Seed*. If additional options are needed, please contact Morphbank at mbadmin@scs.fsu.edu. The list of options is based on the [Darwin Core standard](#)

Sex (required) (dwc)

Choose one of the options from the drop-down list. The list contains a set of terms based on community consensus: Male, Female, Hermaphrodite, Indeterminate (if the specimen was examined but the sex could not be determined), Unknown (if the specimen was not examined for its sex or if the sex is not applicable to a particular specimen), Transitional (if the specimen is



between sexes, like sequential hermaphrodites). If additional options are needed, please contact Morphbank at mbadmin@scs.fsu.edu. The list of options is based on the [Darwin Core standard](#)

Developmental Stage (required) (dwc=lifeStage)

Enter/choose from the drop-down list the developmental stage of the specimen. If the stage that you need to specify is not on the list you can update the list by making a new entry in the *Developmental Stage* column in the *Supporting Data* worksheet. After that, the new stage will appear at the end of the drop-down list for *Developmental Stage*.

Form (required)

Enter/choose a description of the morphotype of the specimen. Examples: queen, worker, exposed. Use “Indeterminate” if you do not wish to apply a specific morphotype designation to the specimen. If your specimen is of a morphotype that is not part of the drop-down list, you can update the list by making a new entry in the *Form* column in the *Supporting Data* worksheet. After that, the new form will appear at the end of the drop-down list. Information about the *Supporting Data* worksheet is provided at the end of this manual.

Preparation Type (dwc=preparations)

Enter the type of specimen preparation, if applicable. This is the preparation of the whole specimen, before incorporation into the collection. (Examples include “Pressed and Dried” and “70% ethanol”).

Number of Individuals (dwc=individualCount)

Enter the number of individuals that were collected / observed. This is the number of individuals in the lot or container representing the specimen record.

Type Status (required) (dwc=typeStatus)

From the drop-down list, choose the type status of the specimen. If the Type Status you need to specify is not on the list you can update the list by making a new entry in the Type Status column in the *Supporting Data* worksheet. After that, the new type status should appear at the end of the list. The type status indicates the kind of nomenclatural type that a specimen represents. The type status should refer to the name given to the specimen in the next few columns. The Morphbank system can store any number of determinations and type designations for a specimen; contact Morphbank at mbadmin@scs.fsu.edu if some of your specimens require more than a single type designation or determination.

Determined By (dwc=identifiedBy)

Enter the name(s) of person(s) who determined the taxonomic category of the specimen. Add the names separated by a comma.

**Date Determined** (dwc=dateIdentified)

Enter the date when the specimen was determined. Use the format: yyyy-mm-dd. If the day is unknown enter yyyy-mm-00, or if the month is unknown enter yyyy-00-00. (Make sure the date is current or a past date.)

Determination Notes (dwc=identificationRemarks)

Enter any notes related to the determination of the specimen.

Institution Code (suggested) (dwc=institutionCode)

Enter the code for the institution to which the collection belongs.

Collection Code (suggested) (dwc=collectionCode)

Enter a unique alphanumeric value which identifies the collection to which the specimen belongs. Make sure that all codes used in this column are also given on the Image Collection worksheet together with the full name and address of the collections.

Catalog Number (suggested) (dwc=catalogNumber)

Enter a unique alphanumeric value which identifies the specimen record within the collection. It is recommended that this value provides a key by which the actual specimen can be identified. If a biological specimen (individual organism) is represented by several collection items, for instance representing various types of preparation, this value should identify the individual collection item.

Previous Catalog Number (dwc=otherCatalogNumbers)

Enter a previous catalogue number if the specimen was earlier identified by another catalog number in the current catalog or at/in another institution/catalog. A fully qualified catalog number is preceded by Institution Code and Collection Code with a space separating each sub element. Referencing a previous catalog number does not imply that a record for the referenced item is or is not present in the corresponding catalog, or even that the referenced catalog still exists. (This category pertains mainly to museums or personal collections.)

Related Catalog Item

Enter a fully qualified identifier of a related catalog item (a reference to another specimen). A fully qualified identifier consists of Institution Code, Collection Code and Catalog Number, with a space separating each of the three sub elements.

Relationship Type

Enter a string (named value) that specifies the relationship between the specimen and the related catalog item. Example of possible values include: "parasite of", "epiphyte on", "progeny of" etc.

**Collection Number** (suggested) (dwc=recordNumber)

Enter an identifying number (a string) which was applied to the specimen at the time of collection/observation by the collector. This number links different parts/preparations of a single specimen and field notes with the specimen.

Collector's Name (suggested) (dwc=recordedBy)

If known, enter the name(s) of the collector(s) responsible for collection of the specimen or taking the observation. Separate each collector's name with a comma. (Example: John Smith, Jane Doe).

Date Collected

Enter the date when the specimen was collected. The date format should be yyyy-mm-dd. If the day is unknown enter yyyy-mm-00 or if the month is unknown enter yyyy-00-00.

Locality (required)

Enter the locality from which the specimen was collected. This column is a drop-down list that comes from data entered in the Locality worksheet. Each item in the drop-down list contains the locality sequence number followed by the locality description. To populate this column, first enter the data in the Locality worksheet and then choose the appropriate option from the drop-down list. **If the locality is Unknown, create a locality on the Locality worksheet where ContinentOcean, Country and Locality Description all read: Unknown.**

Notes (dwc=occurrenceRemarks)

A free text field to enter additional notes related to the specimen record. (Specimen notes might include voucher label information (i.e. DNA, anatomical, etc.) about a specimen or other information such as the duration of the collection/trapping sessions noting a range of dates the process took place.)

Specimen Description

This column is auto generated. Do not change it. It provides the drop-down list in the Image worksheet and so it makes the link between images and associated specimens. The field is a concatenation of specimen sequence number / genus /species /sex /date collected /locality.

Note: This worksheet has 250 initialized rows for data. If more rows are needed, see the Additional Notes section of this manual for instructions on inserting additional rows.

Locality:

After completing the *Image Collection* worksheet proceed to the *Locality* tab. These fields are linked to fields in other tabs so you will only have to enter unique locality data once. Make sure data for locality coordinates are in the decimal form given in the examples for *Latitude* and *Longitude* in this section. The *Locality* worksheet should contain detailed information about the localities where the specimens were collected. The information entered in this worksheet provides the drop-down list in the *Specimen* worksheet. Explanation of how to populate each of its 14 columns is provided below.

Locality Sequence Number cannot be altered

	A	B	C	D	E	F
	Locality sequence number	Continent Ocean	Country	Locality Description	Latitude	Longitude
1						
2	1					
3	2					
4	3					
5	4					
6	5					
7	6					
8	7					
9	8					
10	9					
11	10					
12	11					
13	12					

ContinentOcean (required)
 Select continent/ocean from the drop-down list. If a ContinentOcean value needed is missing, contact Morphbank.

 HINT: use UNKNOWN or Not Applicable as needed, for specimens w/o locality data.

ImageCollection Images MyView Specimen SpecimenTaxon

Figure 6 Locality Worksheet Columns A-F

Locality sequence number

A number that corresponds to the order of input made in the Locality worksheet. This column is auto-generated. Do not change it.

Continent Ocean (required)

Choose the continent or ocean where the specimen was collected from the drop-down list. If you need to enter a continent/ocean not provided in the list you can make a new entry in the ContinentOcean column in the Supporting Data worksheet. After this, the new entry should appear at the end of the list.

Country (required)

Choose one country /political unit from where the specimen was collected. The drop-down list contains names of currently recognized countries. If you need to add new entries to this list, please contact Morphbank at



mbadmin@scs.fsu.edu. For old specimens, we recommend that the original country of collection, if applicable, is added to the *Locality Description* column and that the *Country* column is used to provide the current political unit for the locality, if this is possible to determine.

Locality Description (required)

Enter the name of the Region/Province/County/Place and displacement from this name (if applicable) from which the specimen was collected. Examples: "FL Tallahassee, Apalachicola National Forest", "FL St George Island". The locality description should correspond to label data where possible.

Latitude (dwc=decimalLatitude)

Enter the latitude of the locality in degrees decimal format, for example, 40.446195, -79.948862. Note that (+) is understood. Convert minutes and seconds to a decimal part, if applicable. The number entered should be between 0.0000 and 90.0000. Conversion websites exist that convert degrees to decimal. (One example site is <http://www.jeeep.com/details/coord/>).

Longitude (dwc=decimalLongitude)

Enter the longitude of the locality in degrees decimal format, for example, 40.446195, -79.948862. Note that (+) is understood. Convert minutes and seconds to a decimal part, if applicable. The number entered should be between 0.0000 and 180.0000. Conversion websites exist that convert degrees to decimal. (One such site is <http://www.jeeep.com/details/coord/>).

	G	H	I	J	K	L	M
	Coordinate Precision	Minimum Elevation	Maximum Elevation	Minimum Depth	Maximum Depth	Locality Name [Auto generated--Do not change!]	Information Withheld
1						1--/	
2						2--/	
3						3--/	
4						4--/	
5						5--/	
6							

Figure 7 Locality Worksheet Columns G-M

Coordinate Precision (dwc=coordinatePrecision)

Enter an estimate of how tightly the longitude and latitude of the collecting locality was specified. Express the precision as a distance, in meters, that corresponds to a radius around the latitude-longitude coordinates. Leave the field blank if the precision is unknown, cannot be established or is not applicable.

Minimum Elevation (dwc=minimumElevationInMeters)

Enter the minimum elevation of the locality in meters above (positive) or below (negative) sea level.

**Maximum Elevation** (dwc=maximumElevationInMeters)

Enter the maximum elevation of the locality in meters above (positive) or below (negative) sea level.

Minimum Depth (dwc=minimumDepthInMeters)

Enter the minimum depth of the locality in meters below the surface of the water where the collection was made. All material collected for this specimen record should be at least this deep. Use positive number for below the surface and negative for above.

Maximum Depth (dwc=maximumDepthInMeters)

Enter the maximum depth of the locality in meters below the surface of the water where the collection was made. All material collected for this specimen record should be at most this deep. Use positive number for below the surface and negative for above.

Locality Name

This column is auto generated. Do not change it. The content of it is a concatenation of locality sequence number and locality description. This column is made for easy look up of localities in the Specimen worksheet.

Information Withheld (dwc=informationWithheld)

This column needs to be populated only when locality data is withheld. You may provide a reason for withholding information (example: endangered species) and a contact person who has the authority to release this information to a given group of users.

Note: This worksheet has 250 initialized rows for data. If more rows are needed, see the Additional Notes section of this manual for instructions on inserting additional rows.

External Links:

The *External links* worksheet is optional and populated last. Use this option to link the deposited images to any external link like other databases, NCBI accession numbers, location maps etc. Links may be associated with any Morphbank table, so they can appear in the *SpecimenRecord*, *ImageRecord*, *LocationRecord* or *ViewRecord* tables. This worksheet has 6 columns.

	A	B	C	D	E	F
	ObjectType	Type Description for External Link	Type of External Link	Label for External Link	External Link	Notes
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Figure 8 External Links

Object Type (required only if this sheet is used)

Choose from the drop-down list the *Object Type* for which you want to create a link. The choices are: *Specimen*, *View*, *Image* and *Locality*. **Note well:** if the same institution and/or project link is to be added to all the Specimens and Images, this is done easily with the first worksheet, *Image Collection*. This External Links worksheet allows unique links to specific objects.

Type Description for External Link (required only if this sheet is used)

Choose from the drop-down list the *Type Description for External Link*. The choices in this column will change to match the *Object type* selected. For example: If an *Object Type* of *Specimen*, *View* or *Locality* is selected, the *Type Description* choices will contain the description field from that associated worksheet (*Specimen*-will contain the description field from the *Specimen Worksheet*, *View*-will contain the description field from the *View Worksheet* etc.) .If an *Object Type* of *Image* is selected, the *Type Description* choice will be the *image_file name*.



Type of External Link (required only if this sheet is used)

Choose the *Type of External Link* from the drop-down list. The choices are *Google map* for *Locality* object and *GenBank* for *Specimen* object. For adding new types of external links like University collections, refer to the *Supporting Data worksheet* and add the desired entry.

Label for External Link (required only if this sheet is used)

Type a short descriptive label. The label is the name of the link that appears on the Morphbank page. Appropriate labels would include the name of the institution that the link is going back to or the name of the gene region that is linking to an accession number. Examples: Google Map, CO1, AMNH.

External Link (required only if this sheet is used)

Provide the exact name of the external link (URL). The accuracy of the provided data will be crucial for a proper linking from/to Morphbank. Users are responsible for maintaining their own links i.e. replacing, updating, or correcting outdated, incorrect or otherwise broken links. This can be done through the Morphbank web interface (Edit/External Links) after the images are uploaded to Morphbank.

External Link Notes (optional)

This is a free text entry to further describe the usage of the link. An example would be to make a comment about an institution that is being linked to.

NOTE: Be sure to have an object created before adding an external link. If any changes are made to the spread sheet, it is necessary to re-choose the description to which the external link is associated with.

Supporting Data:

The *Supporting Data* worksheet provides the data for the dropdown lists that can be updated: *Specimen Part*, *View Angle*, *Preparation Technique*, *Imaging Technique*, *Continent Ocean*, *Developmental Stage*, *Form*, *Type Status* and *Type of External Link*. Each of the columns can be updated by just entering the desired value in the first empty cell of that column.

	A	B	C	D
1	Specimen Part	View Angle	Preparation Technique	Imaging Technique
2	1-2 valvulae, apex	Anterior	Air dried, gold coated	Auto-Montage
3	Abdominal sternum 8	Anterodorsal	Cleaned in absolute ethanol	Reflected light, macrophotography
4	Abdominal terga 3-4	Anteroventral	Cleaned in absolute ethanol, air dried, mounted in Euparal	Reflected light, scan
5	Antenna	Dorsal	Cleaned in ammonia, air dried, gold coated	SEM
6	Antennae	Dorsolateral from left	Cleaned in ammonia, mounted in Euparal	Transmitted light, brightfield
7	Apex of ovipositor	Lateral	Cleaned in KOH, mounted in Euparal	
8	Body	Lateral from left	No preparation	
9	Cercus	Lateral from right	UNKNOWN	
10	Cercus and abdominal tergum 9	Left anterior, right posterior		
11	Foreleg	Left dorsal		
12	Forelegs	Left dorsal, right ventral		
13	Forewings	Left posterior, right anterior		
14	Gula	Left ventral, right dorsal		
15	Hamuli	Posterior		
16	Head	Posterodorsal		
17	Herbarium specimen	Posteroventral		
18	Hind femur	Right dorsal, left ventral		
19	Hind leg	Ventral		
20	Hind legs			

Figure 9 Supporting Data Worksheet Columns A-D

	D	E	F	G	H	I
1	Imaging Technique	Continent Ocean	Developmental Stage	Form	Type Status	Type of External Link
2	Auto-Montage	UNKNOWN	Adult	Indeterminate	Holotype	GoogleMap
3	Reflected light, macrophotography	AFRICA	Larva	Parthenogenetic	Paratype	GenBank
4	Reflected light, scan	ANTARCTICA	Final instar larva		Neotype	
5	SEM	ASIA			Lectotype	
6	Transmitted light, brightfield	EUROPE			Paralectotype	
7		NORTH AMERICA			Syntype	
8		OCEANIA			Nontype	
9		SOUTH AMERICA				
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

Figure 10 Supporting Data Worksheet Columns D-H

In this worksheet, only a limited number of extra entries can be made in any particular column because some extra cells have been *preformatted* to be included in the resulting drop-down. For *Specimen Part* there are 100 initialized cells for extra entries, for all other columns there are 20 cells for extra entries. **If you need to add more than the pre-formatted number of extra cells**, it is necessary to update the drop-down definitions so new values show up as drop-down selection options on the appropriate worksheet. (Please feel free to contact

mbadmin@scs.fsu.edu for help). To make newly entered items in any Supporting Data column visible in a given drop-down list you need to follow this procedure:

Making Supporting Data accessible – Example 1 (Excel 2003)

- From the top menu choose Insert>Name>Define (Fig. 11-14).

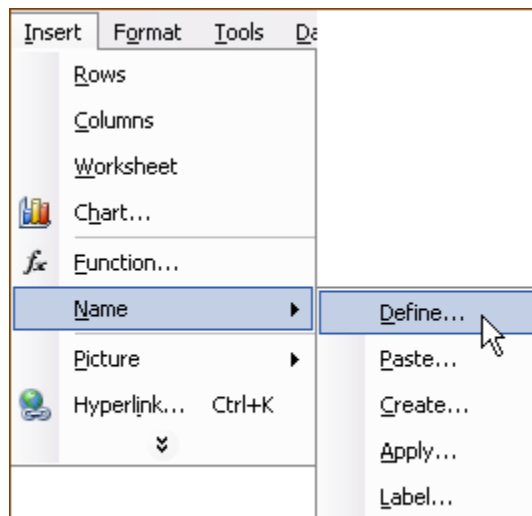


Figure 11 Adding extra cells

- In the *Define Name* window, select the column name from the worksheet where the extra data was/will be entered. If new rows are needed for *Specimen Part*, select that name from the list. (Fig. 12).
- At the bottom of the *Define Name* window there is a field called *Refers to*: There will be a string of characters that look something like: =SupportingData!\$A:\$2:\$A\$101.

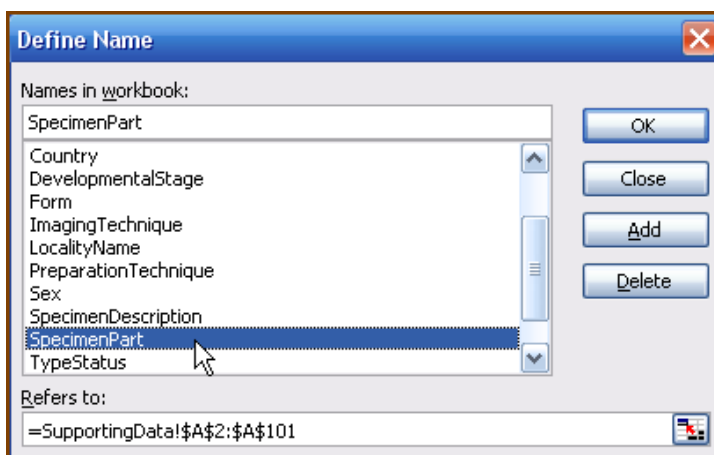


Figure 12 Define Name

This indicates that the *Specimen Part* data is associated with column A row 2 through row 101 of the *Supporting Data* worksheet.

- Alter the last number in this string to reflect the value of the last row that is needed for the extra data. For example, if 10 extra entries are needed for the *Supporting Data* column
Before altering the string: =SupportingData!\$A:\$2:\$A\$101
After altering the string: =SupportingData!\$A:\$2:\$A\$111 (Fig. 13).
Once the number string has been changed to reflect the newly generated rows, select the OK button and close.

- Ten more specimen parts may now be added to the list.

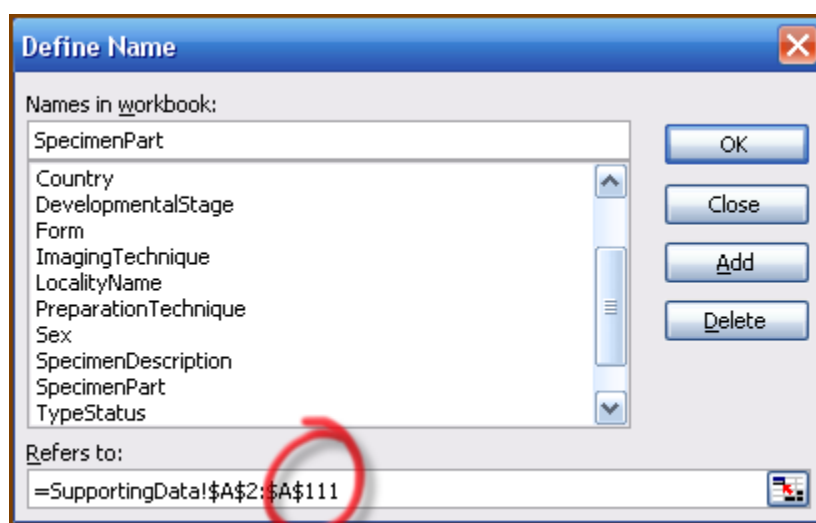


Figure 13 Alter Number String to Reflect New Rows



Hint (Excel 2007)

The same task of updating the drop-down definitions is done by going to Formulas, (Defined Names Section), Name Manager. Click to open Name Manager reveals:

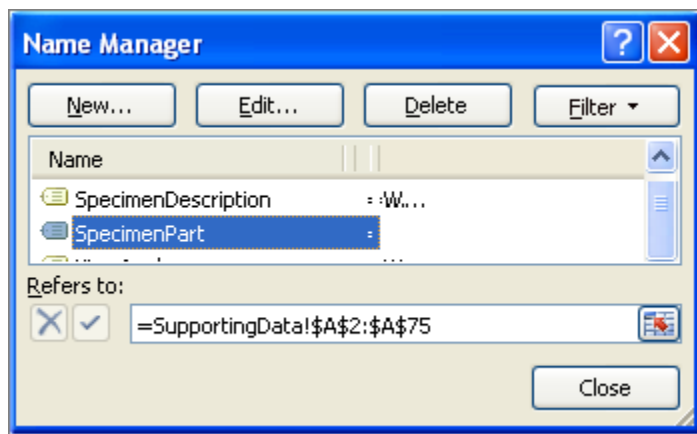


Figure 14 Name Manager (Excel 2007)

Change the column number in the **Refers to** field (see above) or click the Edit button and update the column number there. The result is the same.

Additional Notes:

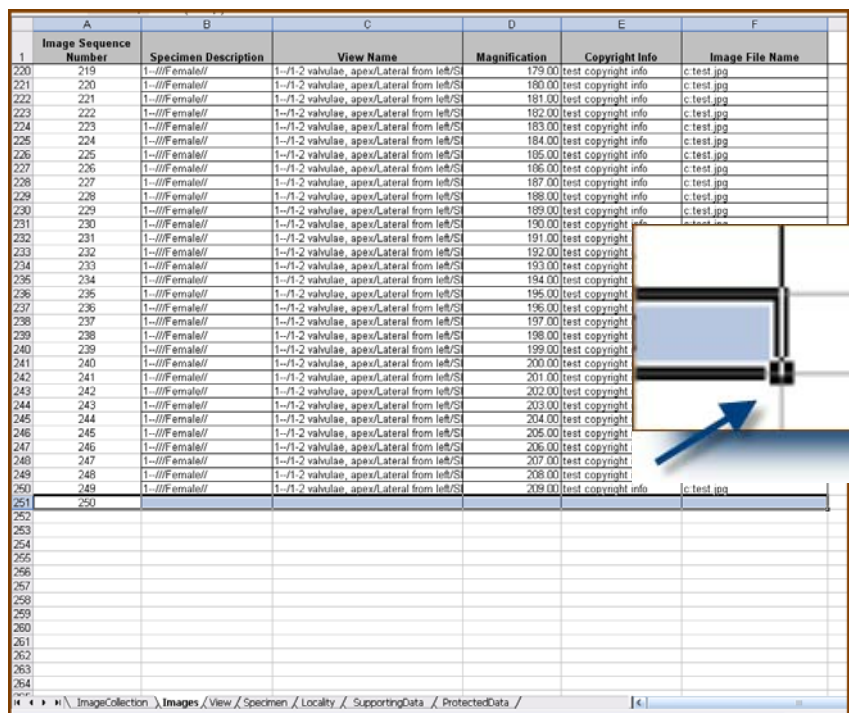
Inserting new rows into the worksheets

The *Specimen*, *Locality* and *Image* worksheets have 250 initialized rows while *MyView* has 30 rows to be populated from a drop-down list and 200 rows for creating new views. If you need to add more entries for auto generated columns, columns that reference columns from other sheets and display drop-down list, follow this procedure:

Images Worksheet: If more than 250 images are to be entered, the user will need to add more initialized rows to the images worksheet. Add the new rows, using row 250 as shown, *before* putting any data in row 250.

To Add new rows:

- Select all of the cells in the last auto generated row (last row that can contain data) by clicking on the cell in column “A” of the last initialized row and dragging to column “F” of that row. The row will now be highlighted. (Fig. 15)



	A	B	C	D	E	F
1	Image Sequence Number	Specimen Description	View Name	Magnification	Copyright Info	Image File Name
220	219	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	179.00	test copyright info	c-test.jpg
221	220	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	180.00	test copyright info	c-test.jpg
222	221	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	181.00	test copyright info	c-test.jpg
223	222	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	182.00	test copyright info	c-test.jpg
224	223	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	183.00	test copyright info	c-test.jpg
225	224	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	184.00	test copyright info	c-test.jpg
226	225	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	185.00	test copyright info	c-test.jpg
227	226	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	186.00	test copyright info	c-test.jpg
228	227	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	187.00	test copyright info	c-test.jpg
229	228	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	188.00	test copyright info	c-test.jpg
230	229	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	189.00	test copyright info	c-test.jpg
231	230	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	190.00	test copyright	c-test.jpg
232	231	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	191.00	test copyright	c-test.jpg
233	232	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	192.00	test copyright	c-test.jpg
234	233	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	193.00	test copyright	c-test.jpg
235	234	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	194.00	test copyright	c-test.jpg
236	235	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	195.00	test copyright	c-test.jpg
237	236	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	196.00	test copyright	c-test.jpg
238	237	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	197.00	test copyright	c-test.jpg
239	238	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	198.00	test copyright	c-test.jpg
240	239	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	199.00	test copyright	c-test.jpg
241	240	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	200.00	test copyright	c-test.jpg
242	241	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	201.00	test copyright	c-test.jpg
243	242	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	202.00	test copyright	c-test.jpg
244	243	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	203.00	test copyright	c-test.jpg
245	244	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	204.00	test copyright	c-test.jpg
246	245	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	205.00	test copyright	c-test.jpg
247	246	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	206.00	test copyright	c-test.jpg
248	247	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	207.00	test copyright	c-test.jpg
249	248	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	208.00	test copyright	c-test.jpg
250	249	1-III Female//	1-1-2 valvulae, apex/Lateral from left/S	209.00	test copyright info	c-test.jpg
251	250					
252						
253						
254						
255						
256						
257						
258						
259						
260						
261						
262						
263						
264						

Figure 15 Highlight the Last Row of Cells

- Move the mouse to the right lower corner of that last cell of the row you just selected (where the dot is). The cursor will be shaped like a Plus “+” sign.

- Click on the dot and drag the cursor down the number of rows you wish to add.
- Select Copy Cells option from the drop-down menu (Fig. 16).

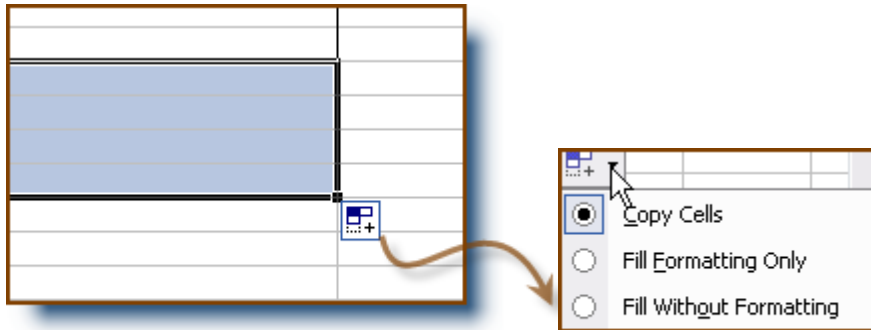


Figure 14 Click on indicated symbol to reveal drop-down list

- If there was information in the last auto generated row, that information has been copied to the new rows. You can write over the information or remove it using “clear contents.” To remove data, select and drag over all the rows and columns with the unwanted information to highlight them (**Do not highlight and delete column A, Image Sequence Number**) and then right click (or apple click) and select “clear contents” from the pop-up menu. *Clear contents* removes data, but not the underlying formatting that creates drop-downs.

247	246	1-////	1-////	1-////	1-////	1-////
248	247	1-////	1-////	1-////	1-////	1-////
249	248	1-////	1-////	1-////	1-////	1-////
250	249	1-////	1-////	1-////	1-////	1-////
251	250					
252	251					
253	252					
254	253					
255	254					
256						
257						
258						
259						

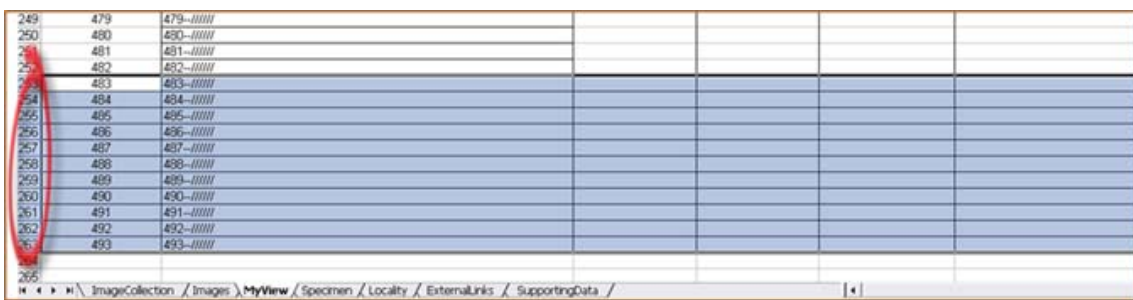
Figure 15 Newly Generated Rows 251-255

Specimen, Locality and MyView Worksheets

If adding more than 250 specimens or localities or more than 200 extra views, the user will need to insert more initialized rows to the appropriate worksheet. The process will include adding new rows **and then making sure the new information in those rows is accessible by the other worksheets.**

Add new rows:

Follow the instructions above for adding new rows to the images worksheet to add new rows to the MyView worksheet. The results will look something like fig. 17. **It is important now to make any new rows appear in their respective drop-downs.**



249	479	479-11111				
250	480	480-11111				
251	481	481-11111				
252	482	482-11111				
253	483	483-11111				
254	484	484-11111				
255	485	485-11111				
256	486	486-11111				
257	487	487-11111				
258	488	488-11111				
259	489	489-11111				
260	490	490-11111				
261	491	491-11111				
262	492	492-11111				
263	493	493-11111				

Figure 16 Ten New Rows Added to the MyView Worksheet (Only Columns F-J Showing)

Making Extra Rows accessible – Example 2 (Excel 2003)

The drop-down menus on other worksheets use the information in the *auto-generated column (last column)* on the *Specimen (Specimen Description)*, *Locality (Locality Name)* or *MyView (View Name)* worksheets to supply information to other worksheet drop-down lists. **It is necessary to make any newly generated rows accessible so the values show up as drop-down selection options on the appropriate worksheet.**

In this example, new rows were added to the *MyView* worksheet. **See section above titled Additional Notes to learn how to add additional rows.** To make these new Views appear in the drop-down list of Column C in the *Image* worksheet, follow these steps.

- From the top menu choose Insert>Name>Define (Fig.18).

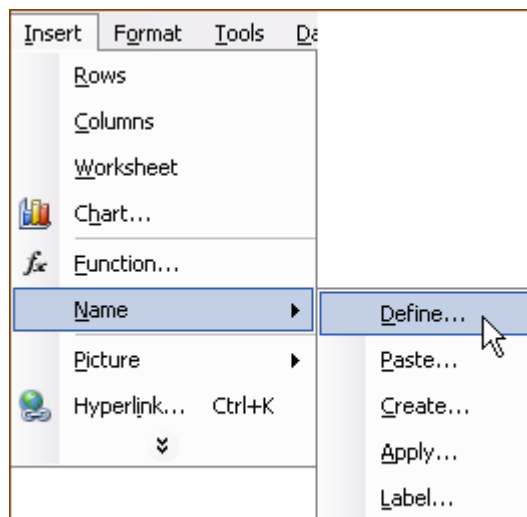


Figure 18 Top of Page Menu Insert>Name>Define

- In the *Define Name* window, select the auto-generated column name from the worksheet where the new rows were generated. If new rows were added to the *Specimen worksheet* select *SpecimenDescription*. If new rows were added to the *Locality worksheet* select *LocalityName*. If new rows were added to the *MyView worksheet* select *ViewName* (Fig 19).

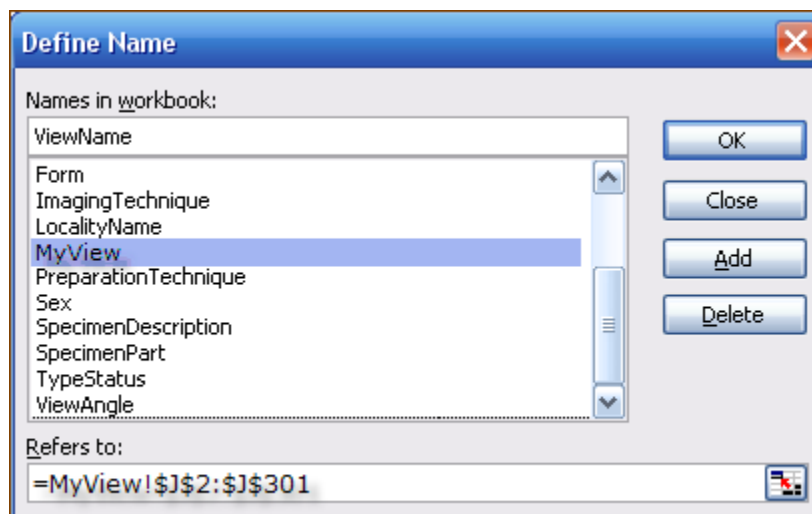


Figure 19 Define Name Menu

- At the bottom of the *Define Name* window there is a field called *Refers to:*. There will be a string of characters that look something like: `=View!$2:$J$301`. This indicates that the name *ViewName* is associated with column J row 2 through column J row 301 of the *MyView* worksheet. Alter the last number in this string to reflect the value of the last row that was added. For example, if you added 10 new rows the string would look like: `=View!$2:$J$311` (Fig. 20).
- Once the number string has been changed to reflect the newly generated rows, select the OK button and close.

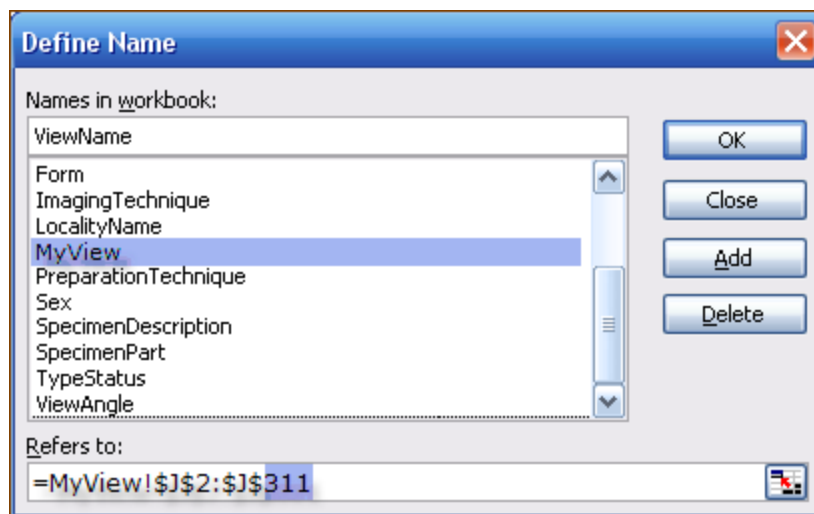


Figure 17 Definition Changed to Reflect the 10 New Rows

Hint (Excel 2007) In Excel 2007, the same task of updating the drop-down definitions is done by going to Formulas, (Defined Names Section), Name Manager. Click to open Name Manager reveals:

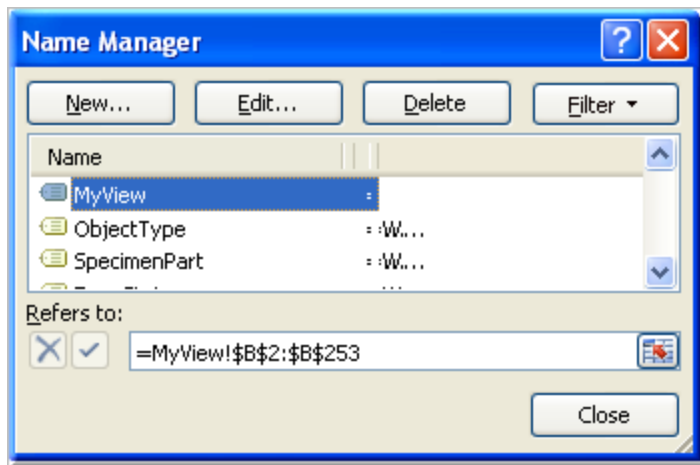


Figure 21 Definition Changed to Reflect the 10 New Rows

Change the column number in the **Refers** to field (see above) or click the Edit button and update the column number there. The result is the same.



How to Save and Deliver the Files:

For each image set with different release dates create separate folders. Name each folder as desired, for example: ImageCollection1, ImageCollection2, etc. Inside each folder, place the excel sheet named mb3_yourfilename.xls and all associated images. Be sure to have the correct image file names as they appear in mb3_yourfilename.xls. You can deliver your data to Morphbank three ways:

1. Save all image collection files on a CD and send to Morphbank by land mail. (See contacts section of this manual, next). Make sure to keep a backup copy for yourself and send with proper postage and protection. Please include a business phone number and contact information so you can be contacted by Morphbank.
2. Provide the name of your directory/repository from where we can directly download mb3_yourfilename.xls and the corresponding images. You should also set a time slot of when we can do the file transfer. Be aware that during this time slot your data will be publicly accessible.
3. Morphbank provides an ftp upload service as an alternative to mailing CDs/DVDs. Registered Morphbank users may email mbadmin@scs.fsu.edu for an ftp upload username, password, and server hostname. Although you should be familiar with ftp, only minimal experience is necessary to use this service. The Morphbank server may be accessed by using *secure shell terminal, command line or any graphic ftp program*.

Once a Morphbank administrator has sent account information, users may begin uploading. Be sure to use **ftp (file transfer protocol), or sftp** as instructed by someone from mbadmin@scs.fsu.edu. There is no limit on the number of files uploaded at one time. Once the images are on the server, notify mbadmin@scs.fsu.edu of the completion; include a message requesting that the account remain open if needed. If the account is not requested to remain open, Morphbank will delete the files off the server once they have been received and the account password changed.

This service may be used once or many times depending on the users specific needs.

4. Morphbank is currently working on designing a web interface for users to upload their data and images directly from these forms. When this option is online – data is uploaded first to a test server and any errors reported. Once the data enters correctly, it is uploaded to the production server.



Note: If errors are found within your Excel workbook they will be commented and the workbook will be returned for corrections. Please include a business hours phone number so one of the Morphbank team can contact you.

Contact Information:

Questions or Comments

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