Morphbank Data Entry Workbook User Manual

Morphbank...
an open web repository of images.

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Morphbank offers a service called delivered uploading that uses this prepared data entry workbook. Submitters can enter and then deliver to Morphbank, the workbook populated with information.

The Data entry workbook is an Excel file which consists of seven worksheets titled: Image Collection, Images, MyView, Specimen, Locality, External Links and Supporting Data. Their names are correlated with the names used in the Morphbank Database. When a cell in each of the active columns is selected, a short description of the expected data is given. This guide will provide a more detailed description for each of the columns and how they should be populated.

Data Preparation:

Before beginning the process of entering data into the workbook there are preparation details that will facilitate this process.

Users should only release data into Morphbank that is appropriate for world-wide release. For example, if an image of an endangered or protected specimen includes annotations as to its specific locality, that information should be masked before sending the image to Morphbank. When propagating the locality section of that specimen, care should be taken to avoid precise locality details (i.e. enter the collection county as opposed to the exact area within that county where the specimen was collected. In these circumstances, users can enter contact information in the **Information Withheld** column of the **Locality** sheet for other users to obtain the withheld data if needed.

Before entering data into the workbook, the user will need to have available the following information.

- It is preferred that a valid Morphbank username and password is acquired prior to submitting the workbook (obtained through the login screen (upload) at www.morphbank.net or by contacting the Morphbank admin. group 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 collection of images to include the contributor (person with authority to release image), release date, Morphbank user group to which the images should be attributed and a project link (if one exists) to which the images are related.

- Locality details to include continent/ocean, country, and locality description (region, province, county and place).

- Information about the specimen and the parties involved in the collection of it to include basis of record, sex, developmental stage, form, preparation type, number of individuals collected or observed, type status, family, collector's name, date collected, locality.

- *Check taxon names* to be used with the taxon names in Morphbank. If names are missing, they must be added to Morphbank before this version (2.2) of the spreadsheet can be used. Taxon names can be added via the morphbank.net web interface **or** with the newest spreadsheet (v 2.5.5).

- Information about the view of the specimen to include specimen part, view angle, imaging technique, preparation technique, developmental stage, sex, form, name of the highest taxon to which this view is applicable.

- Images in the collection and information pertaining to them to include specimen description, view name, 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

        --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:

The above listed information is only the minimum needed to successfully submit data into the Morphbank data entry workbook. It is with great emphasis that we suggest all applicable data fields be completed. This will improve 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 will influence the order of the image data input into the excel spreadsheet. Having these images efficiently organized before entry (e.g. images relating to the same taxon or the same body structure, etc.) will reduce frustration and mistakes during data input.

Example of Morphbank supplied information columns that can not be altered.

Examples of drop-down list elements- Column E shows a drop-down list. Columns B,C,D show lists after a selection is made.

Clicking on a column will bring up worksheet tips like this one.

Select morphological form from the drop-down list; use "Indeterminate" if morphological form is not applicable. You can add an item to the drop-down list in the Supporting Data sheet.

Select these tabs to advance to the desired workbook page. To scroll the tab bar, use the arrows to the left. The *active* worksheet will be highlighted in white.

Scroll bars advance the rows/ columns on large worksheets

Figure 1 Anatomy of a Workbook Page

- **Order of data entry-**Once all the 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 data entry workbook is *Image Collection, Locality, Specimen, MyView, Images, External Links* and visit the *Supporting Data page* as needed.

- **Entering image collection data-**Select the *Image Collection* tab first to enter general information about the collection of images.

- **Entering locality data-**After entering the *Image Collection* data, proceed to the *Locality tab* and accurately fill in all the applicable fields. These fields are linked to fields in other tabs so you will only have to enter unique *Locality* data once. Taking the time to do this accurately here will reduce errors and conflicts later on. Make sure data for *Locality coordinates* are in the decimal form given in the examples in the *Locality* section of this manual. Note: Make sure there are no duplicated data in the cells that make up the *Locality* sheet. If this occurs, the search functionality of each of the fields is compromised. There are many online resources for translating degrees to decimal. One example is:
http://www.jeeep.com/details/coord/

- **Entering specimen data-**After entering the *Locality* data, proceed to the *Specimen* tab. Fill in, to the maximum degree of accuracy, the fields found here. As in *Locality*, fields are linked to other tabs. Drop-down menus are provided for many of the 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 *Locality* tab. 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 likely will have), this tab is eventually going to have a great deal of data associated with it!

- **Entering view data-** Next visit the My*View* tab. This worksheet is split into two parts. In the first part users can choose a view from a drop-down list made from existing views in Morphbank. Check to see that the views needed are listed. If the views currently in the spreadsheet are not suitable for current needs, they can be added using the second part 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 dropdown 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. My*View Name*, however, is a drop-down field, and is linked to the *MyView* worksheet. Make sure that the views needed are a part of this list. If the view data was entered in the previous step and it is not on the list, a mistake was made on the *MyView Worksheet*. Care needs to be taken to ensure any new *View* options are properly linked to the *Image* tab. A final suggestion for this tab is in regards to the *Image File Name*; if data entered here is incorrect, it will be impossible for Morphbank to link the metadata (specimen, locality, etc.) with an image. Be sure what you enter here is accurate. In other words, the filename of the image must NOT contain spaces. The filename may_contain_underscores. 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). 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 data entry workbook. This section of the workbook is for those users who want to cite specific links to the entered data (Specimen, Image, Locality or View) instead of a blanket link to all objects.

Note: If changes are made to the location information you must manually update the changes to the specimen and image information. Changes made in one area of the workbook are not automatically reflected in other areas in the workbook.

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Image Collection:

The *Image Collection* worksheet allows you to provide general information about your collection of images. It should be the first tab selected in the data entry process.

	A	B
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:	

ImageCollection / Images / MyView / Specimen / Locality /

Figure 2 Image Collection Worksheet

Contributor (first_name last_name only)

Enter first_name and last_name of the contributor of the images. In Morphbank the contributor is the person who possesses the authority to release the images.

Contributor (Morphbank username used to log in)

The contributor must be a Morphbank user; if not, a username and password can be obtained online at www.morphbank.net (click on "click to login") or by contacting the Morphbank admin. group at mbadmin@scs.fsu.edu.

Submitter (first_name last_name only)

Enter the first name and last name of the person who prepared the data in Excel format and submitted it to Morphbank for upload.

Release Date

Enter the release date for the images if the images are not for immediate release to the public. The release date can be maximally 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. If you leave this field empty, we will assume that the images are for immediate release. The date must be entered in the form yyyy-mm-dd.

Group

Enter the Morphbank user group to which the images should be attributed. If the images are not for immediate release, they can still be viewed and modified by the group of users to which you say they belong. By default, the images will belong to your private group, which only includes yourself unless you decide to add other users to it. Any other user group must be registered with the Morphbank admin. group; contact the admin group if you need to register a new user group mbadmin@scs.fsu.edu. If you have different sets of images you want to share with other user 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.

Institution Link

Provide a link (if applicable/desired) to the above named institution.This link to the institution will be added as an external link **to all the 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.

Project Link

Provide a link (if applicable) to the above named. This link will be added as an external link to all the 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.

Project Link

Provide a link (if applicable) to the second project named above. This link will be added as an external link to all the records created as a result of the provided data for upload.

Images:

The *Images* worksheet should be the last worksheet populated. 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 six columns. The explanation of how to populate them is given below.

	Image Sequence Number	Specimen Description	My View Name	Magnification	Copyright Info	Image File Name
1						
2	1		ViewName[Auto generated, do not change this field!]			
3	2					
4	3					
5	4					
6	5					
7	6					
8	7					
9	8					
10	9					
11	10					
12	11					
13	12					
14	13					
15	14					
16	15					
17	16					
18	17					
19	18					
20	19					
21	20					
22	21					
23	22					

Image Collection \ **Images** / MyView / Specimen / Locality / ExternalLinks / SupportingData /

There are sufficient numbers to add up to 250 specimens. To add more, see the Addition Notes section of this manual. *Specimen* data should be entered before *image* data is entered.

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

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 after each other

so that 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

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 your version of the upload tool was last updated by the Morphbank group. If you need to add one or more new views to describe your images, simply add rows to 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.

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. Please make sure you specify the magnification for all images, particularly if you do not have a scale bar in them.

Copyright Info

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. We strongly recommend that each entry in this column is followed either by a Morphbank username or an email address in parentheses. If a Morphbank username is given, the contact info will be updated with the Morphbank user entry. If a simple email address is given, then the information will not be updated. An outdated email address does not invalidate the Copyright but it does make it more difficult for a potential Morphbank web visitor to obtain the appropriate permissions to use the image for non-academic purposes.

Examples:

Just Name:	John Doe
Name and Morphbank issued user:	John Doe (johndoe)
Name and standard email address:	John Doe (jdoe@scs.fsu.edu)

Image File Name

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. Be sure what you enter here is accurate. The format should be *image_name.image_type.* Image type can be jpeg, gif, tif, 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: 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.

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.

Figure 4 MyView Worksheet Columns A-F

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

Is the first column in the MyView worksheet This column is automatically generated. Do not change it. It provides the drop-down list for view name in the *Image* worksheet. The content is a concatenation of *View sequence number and the Supporting Data worksheet.*

Specimen Part

Enter/choose from the drop-down list the name of the specimen part presented by the view. 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

Enter/choose from the drop-down list a description of the view angle that corresponds to the view. 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

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

Enter/choose from the drop-down list the imaging preparation technique used for the view. 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

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

Choose one option from the drop-down list. The option you choose should be the same as the 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. You may also choose unknown if the view is applicable to both sexes, in which case you can apply the view to images of specimens of any sex.

Form

Choose one option from the drop-down list. The option you choose should be the same as the one you entered in the *Form* column in the *Specimen* worksheet for the specimens in the images to which you plan to apply this view. 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

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". 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. If almost the same view is needed (even if only one field is different), create a separate view.

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 26 columns. Below is an explanation how to populate each one of them.

Specimen Sequence Number can not be altered

Figure 5 Specimen Worksheet Columns A-K

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.

Basis of Record

Choose one of the options from the drop-down list. Choices are: *Observation, Living Organism, Specimen, Germplasm/Seed.* The list of options is based on the Darwin Core standard http://darwincore.calacademy.org/. If additional options are needed, please contact the Morphbank admin group mbadmin@scs.fsu.edu.

Sex

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). The list of options is based on the Darwin Core standard http://darwincore.calacademy.org/. If additional options are needed, please contact the Morphbank admin group mbadmin@scs.fsu.edu.

Developmental Stage

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

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

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

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

Enter/choose from the drop-down list 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 the Morphbank admin group if some of your specimens require more than a single type designation or determination mbadmin@scs.fsu.edu.

Family

Enter the family name of the organism. This field is mandatory.

Genus

Enter the genus name of the organism. If there is a subgenus you also need to enter use the common format: *Genus (Subgenus)*. Leave the field blank if the genus of the specimen is unknown.

Species

Enter the specific epithet of the organism. If there is a sub-specific epithet use the format: *species subspecies*. Leave the field blank if the species is unknown.

	L	M	N	O	P	Q	R	S
1	Determined By	Date Determined	Determination Notes	Institution Code	Collection Code	Catalog Number	Previous Catalog Number	Related Catalog Item
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								

ImageCollection / Images / MyView \ **Specimen** / Locality / ExternalLinks / SupportingData /

Figure 6 Specimen Worksheet Columns L-S

Determined By

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

Date Determined

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

Enter any notes related to the determination of the specimen.

Institution Code

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

Collection Code

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

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

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.

	T	U	V	W	X	Y	Z
1	Relationship Type	Collection Number	Collector(s) Name	Date Collected	Locality	Notes	Specimen Description [Autogenerated -- do not change!]
2							1--///Hermaphrodite//
3							2--/////
4							3--/////
5							4--/////
6							5--/////
7							6--/////
8							7--/////
9							8--/////
10							9--/////
11							10--/////
12							11--/////
13							12--/////
14							13--/////
15							14--/////
16							15--/////

ImageCollection / Images / MyView \ Specimen / Locality / ExternalLinks / SupportingData /

Figure 7 Specimen Worksheet Columns T-Z

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

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

Collector's Name

Locality:

After entering the *Image Collection* data proceed to the *Locality* tab and accurately fill in all the fields. These fields are linked to fields in other tabs so you will only have to enter unique locality data once. Taking the time to do this accurately here will reduce errors and conflicts later on. 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.

Figure 8 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
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
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 the Morphbank admin

group 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

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 if possible.

Latitude

Enter the latitude of the locality. Use the decimal format followed by the letter N (for north) or S (for south). Convert minutes and seconds to a decimal part, if applicable. The number entered should be between 0.0000 and 90.0000. There are conversion websites available that convert degrees to decimal. (One such site is http://www.jeeep.com/details/coord/).

Longitude

Enter the longitude of the locality. Use the decimal format followed by the letter W (for west) or E (for east). Convert minutes and seconds to a decimal part, if applicable. The number entered should be between 0.0000 and 180.0000. There are conversion websites available that convert degrees to decimal. (One such site is http://www.jeeep.com/details/coord/).

Figure 9 Locality Worksheet Columns G-M

Coordinate Precision

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, can not be established or is not applicable.

Minimum Elevation

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

Maximum Elevation

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

Minimum Depth

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

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 work sheet.

Information Withheld

This column needs to be populated only when locality data is withheld. You need to 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 should be populated last.   Use this option to link the deposited images to any external link and link any site back to Morphbank. Links may include 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 5 columns which are described below.

Figure 10 External Links

Object Type

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*.

Type Description for External Link

Choose from the drop-down list the T*ype 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

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

Type in a short descriptive label. This field is required. The label will be the name of the link that appears on the Morphbank record 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. Make sure the label is brief.

External Link

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 there 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:

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, ContinentOcean, 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			

ImageCollection / Images / MyView / Specimen / Locality / ExternalLinks \ **SupportingData** /

Figure 11 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						

ImageCollection / Images / MyView / Specimen / Locality / ExternalLinks \ **SupportingData** /

Figure 12 Supporting Data Worksheet Columns D-H

Only a limited number of extra entries can be made in the worksheet without any changes. 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 make the newly entered data accessible so the values show up as drop-down selection options

on the appropriate worksheet (Please feel free to contact for help in this process). To make them accessible you need to follow this procedure:

Make accessible

- From the top menu choose Insert>Name>Define (Fig. 13).
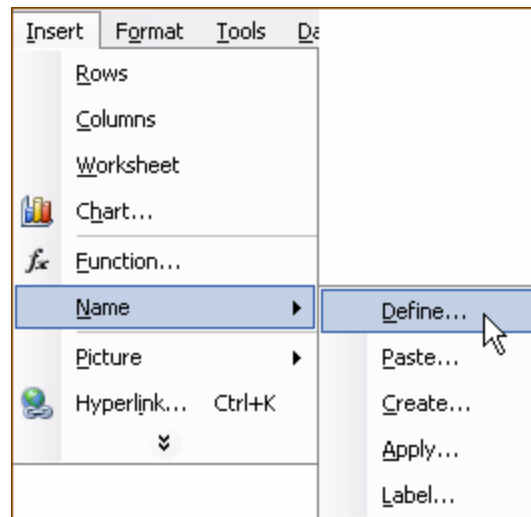
Figure 13 Adding extra cells

- 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. 14) .

- 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.
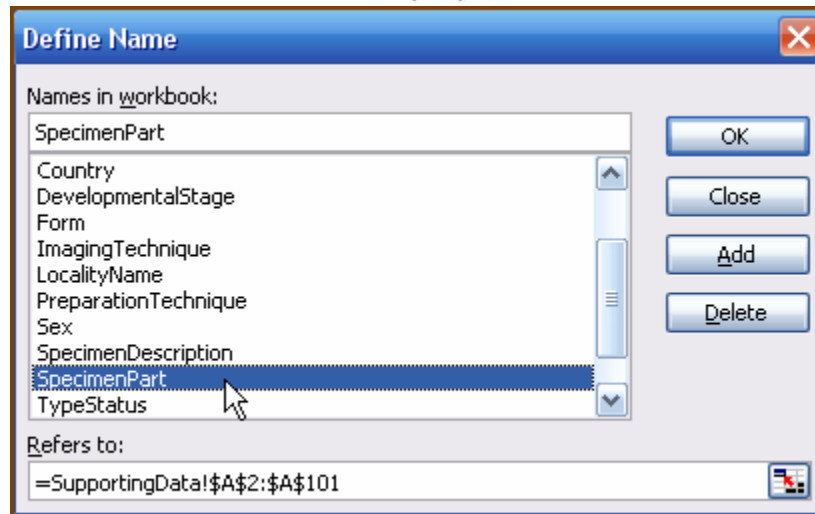
Figure 14 Define Name

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. 15).
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.
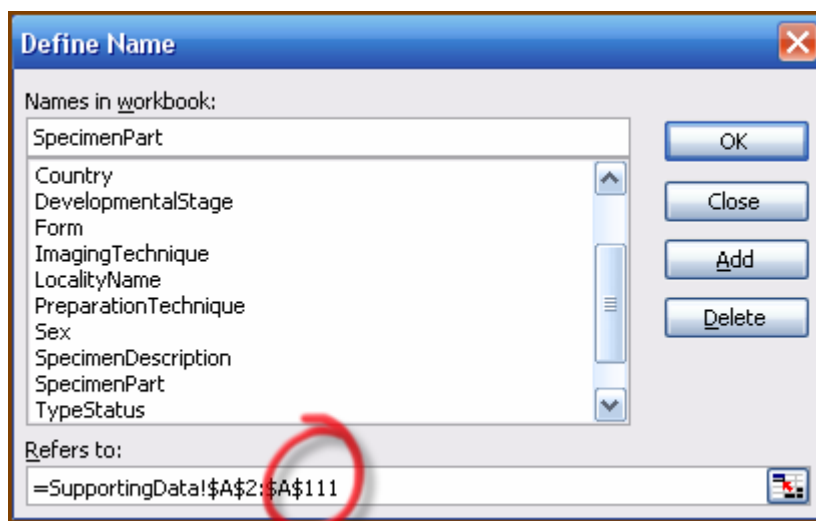
Figure 15 Alter Number String to Reflect New Rows

How to Save and Deliver the Files:

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

1. Save all image collection files on a CD and send to Morphbank admin team by land mail. (See contacts section of this manual.) 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 Admin if there is a problem.

2. Provide the name of your directory/repository from where we can directly download mBdet.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 a secure ftp upload service as an alternative to mailing CDs/DVDs. Registered Morphbank users may email mbadmin@scs.fsu.edu for an ftp upload password, username and address. 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)**, not **sftp (simple file transfer protocol which is a mail transfer protocol for email messages)** as the transfer protocol. 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.

    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 if needed.

Additional Notes:
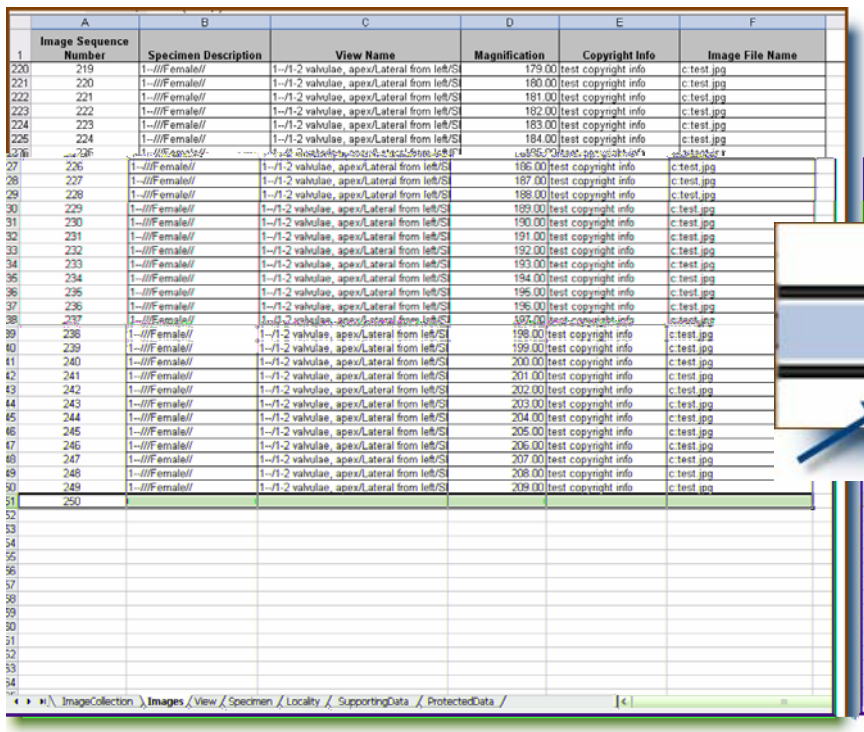
Inserting new rows into the worksheets:

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 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. 16)

Figure 16 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.

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- 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. 17).
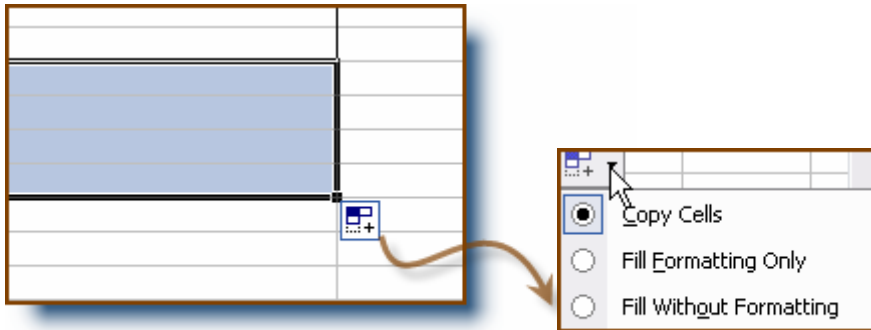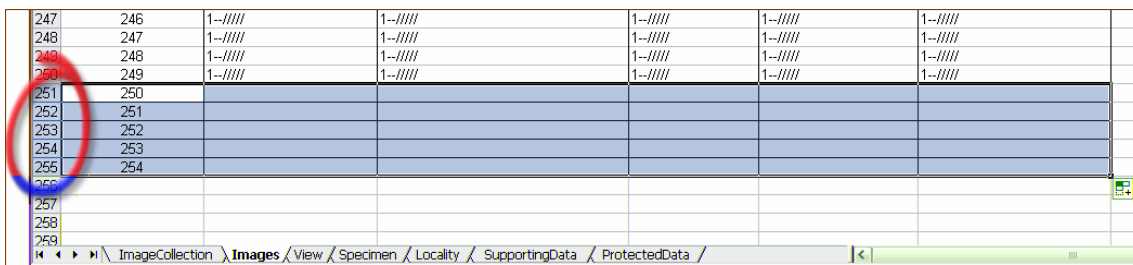

Figure 17 Click on indicated symbol to reveal drop-down list

- 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 delete it. To delete, 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 select "delete" on the keyboard.

Figure 18 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. The results will look something like fig. 19. **It is important now to make the new row accessible.**
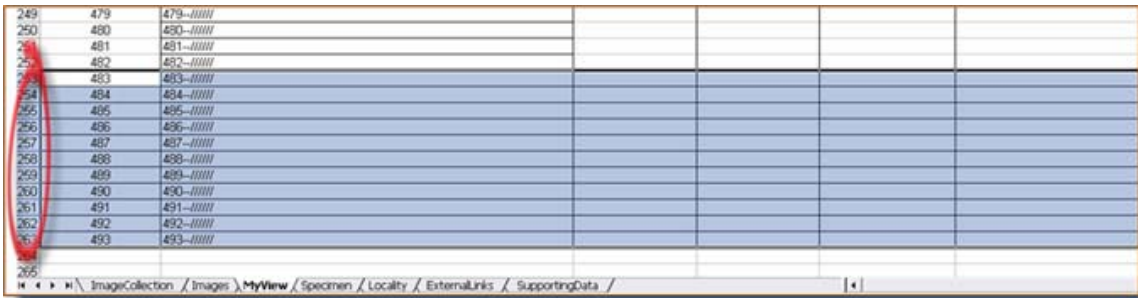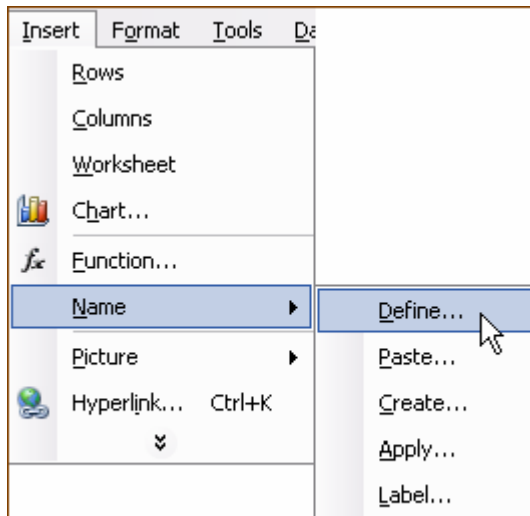
Figure 19 Ten New Rows Added to the MyView Worksheet (Only Columns F-J Showing)

Make accessible:

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 My*View (View Name)* worksheets to supply information to other worksheet drop-down lists. It is necessary to make the newly generated rows accessible so the values show up as drop-down selection options on the appropriate worksheet.

Figure 20 Top of Page Menu Insert>Name>Define

- From the top menu choose Insert>Name>Define (Fig.20).

- In the *Define Name* window, select the auto-generated column name from the worksheet where the new rows where 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 21)
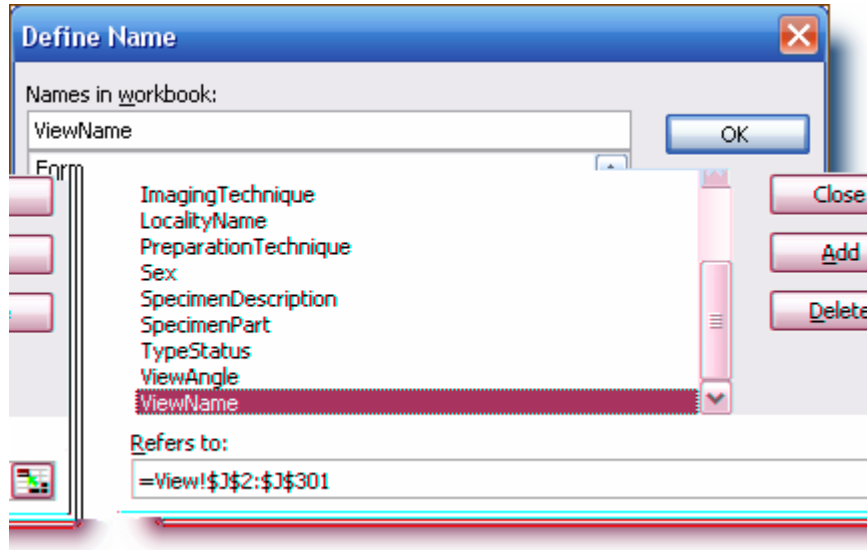.

Figure 21 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. 22).

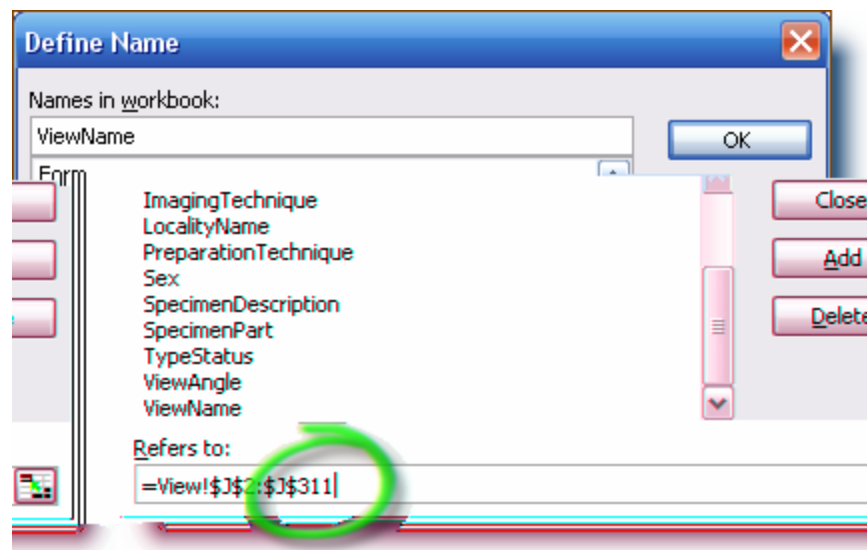- Once the number string has been changed to reflect the newly generated rows, select the OK button and close.

Figure 22 The Definition Changed to Reflect the 10 New Rows

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