

MorphBank 2.5 User Manual



**MorphBank...an
open web repository
of biological images**



This manual includes general information about MorphBank and detailed directions for using and populating the MorphBank online database. Changes to the website made after December 9, 2006 will not be reflected in this document.

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Introducing MorphBank

MorphBank is an open web repository of images serving the biological research community. It is currently being used to document and annotate specimens in natural history collections, to voucher DNA sequence data, and to share research results in disciplines such as taxonomy, morphometrics, comparative anatomy, and phylogenetics. MorphBank can serve as a virtual reference collection of named organisms or a resource for comparative morphological study; new use cases are continuously added. Each image in the database is associated with fully searchable text information, and images can be downloaded in several different formats.

MorphBank is open to any biologist interested in storing and sharing digital images of organisms. A major advantage of MorphBank is that images and data associated with them are maintained in a system based on open standards and free software, facilitating the development of tools for image uploading, retrieval, annotation, and related tasks. The MorphBank team is currently working on a range of such tools. The MorphBank team is also working together with other developers on connecting their software to the MorphBank system.

MorphBank was established in 1998 by a Swedish-Spanish-American consortium of systematic entomologists and is currently housed at the School of Computational Sciences (SCS) at Florida State University and mirrors at other institutions around the world will soon be available. The images are currently stored on two separate systems on the FSU campus, each a 1 TB RAID with tape backup and the other with a 5 TB RAID with backup. Software used in the current MorphBank system includes PHP, ImageMagick, MySQL, Apache, Java, and Javascript.

The MorphBank team at FSU is working together with others under the auspices of TDWG to develop a metadata standard for biological images. We're also teaming up with other image database projects in developing the interoperability of web repositories of biological images.



Advantages of Becoming a MorphBank Member

- MorphBank is a secure data and image repository.
- MorphBank offers access to cutting edge research.
- MorphBank provides instant collaborations with other researchers in the same field.
- MorphBank membership is restricted to research professionals.
- MorphBank provides globally available images and data that can be easily searched and discovered.
- MorphBank is associated with the Tree of Life project (TOL).
- MorphBank provides increased exposure for active members seeking grant funding.
- MorphBank is a well funded program with a full staff of professional support personnel.
- MorphBank is a real-time database where updates to data can be seen instantly while new features are continuously being added.



System Requirements

MorphBank currently uses ports 80/8080. To view the database, client systems must be able to connect to these ports.

Windows® Operating System

- **Computer:** PC with at least a Pentium-class or equivalent processor.
 - Microsoft® Windows® XP, or NT 4.0
 - Minimum of 128 MB (RAM) memory minimum (512 or higher recommended).
 - Minimum of 70 MB of available hard disk space. The actual amount of disk space required is dependent upon how your machine is configured to store temporary internet files.
 - Recommend a high speed internet connection.
- **Monitor:** SVGA color monitor; minimum 1024x768x600 screen resolution or higher recommended; minimum of 256 colors
- **Printer:** Not required
- **Additional Software**
 - **Web Browser:** Microsoft Internet Explorer (MSIE), version 6 or higher or Mozilla Firefox™ version 1.06 or higher
 - **Settings:** MorphBank employs the use of pop-up screens to display various data screens. Pop-ups and cookies must be enabled for this site. Also, Java™ and Javascript™ must be enabled in order to gain full functionality. The newest versions of this software can be downloaded at <http://java.com/> and <http://javascript.com/>
 - **Adobe® Reader®:** Version 7.0 or higher. The Reader can be downloaded at <http://www.adobe.com/>.
 - **Media Player:** Windows(r)

Macintosh® OS X Operating System

- **Computer:** an Apple® Macintosh or compatible capable of running Macintosh OS X operating system 10.2 or newer
 - Mac OS X 10.2 or newer
 - Memory: Minimum required by the operating system
 - Hard Disk with 40-50 MB available disk space.
 - Recommend a high speed internet connection



- **Monitor:** SV-GA capable 13" or larger, Macintosh compatible Screen
Resolution: 1024x768 or higher recommended; minimum 256 color depth recommended.
- **Printer:** Not required
- **Additional Software**
 - **Web Browser:** Safari® (OS X Default), or a Mac OS X compatible version of Netscape® Navigator or Communicator, Mozilla Firefox™, or Microsoft® Internet Explorer (MSIE). A web browser is needed to access MorphBank.
 - **Adobe® Reader®:** Version 7.0 or higher. The Reader can be downloaded at <http://www.adobe.com/>
 - **Settings:** MorphBank employs the use of pop-up screens to display various data screens. Pop-ups and cookies must be enabled for this site. Also, Java™ and Javascript™ must be enabled in order to gain full functionality. The newest versions of this software can be downloaded at <http://java.com/> and <http://javascript.com/>
 - **Mac Media Player** version 10.0



How to Submit Data to MorphBank

There are several ways in which a user or a group of users can upload images to MorphBank:

1. **Using the existing web interface**-Images are uploaded separately along with their associated text information by filling out a web form. This requires a username and password.
2. **Automatic uploading from an image**-In the fall of 2006, MorphBank will offer a convenient uploading of images from a platform-independent client developed in Java. We're also working together with several development teams in designing project-specific clients that can help research teams to upload images to MorphBank as part of their normal workflow.
3. **Delivered uploading** -MorphBank offers a service called delivered uploading. We provide an already prepared Excel Data Entry Workbook and the corresponding User's Manual. The submitters can deliver to MorphBank a CD or DVD containing images and an Excel Data Entry Workbook populated with information.

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 file 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 two ways:

Save all image collection files on a CD or DVD (make certain the CD is finalized so MorphBank can retrieve the images from the disk [read/write accessible]). Label the outside of the disk with contributor name (person authorized to release images) and project. Send to the MorphBank admin team by land mail (See the address below). Make sure to keep a backup copy for yourself and send with proper postage and protection.



Land Mail Address for delivered uploading

MorphBank Admin. Group
C/O Karolina Maneva-Jakimoska
Mail Code 4120
Florida State University
Tallahassee, FL 32306-4120

- 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 through any graphic ftp program, terminal or the command line.

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. The ftp upload password will no longer be valid.

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

Note: 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 “add locality” screen 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.



MorphBank Copyright Policy

MorphBank is an open web repository of images serving the biological research community. MorphBank is designated as a Fair Use Web Site. The objective of MorphBank is not to reward the labor of authors, but to promote the Progress of Science. The images in MorphBank that are not password protected can be used for private, education, research or other non-commercial purposes for free, provided that the source and the copyright holder are cited. Any commercial use requires consent from the copyright holder. The images in MorphBank that are password protected are considered "work in-progress" and are not released to the public. These images may not be used without specific written authorization from the copyright holder. Contributors to MorphBank agree to these terms.



Users and Their Privileges

User Login: MorphBank users who wish to access, add and modify data will be required to login into the system with a valid username and password issued by MorphBank. To obtain a username and password contact the MorphBank admin. group at mbadmin@scs.fsu.edu. Once logged into the system, groups to which they are members will appear. Without login, only information that can be browsed or searched by the casual user (specimen, image, or view data) can be seen.

-  **Privilege TSN:** Members are assigned a Privilege TSN at the time their account is created. This Privilege TSN is the highest Taxonomic Name for which they have expertise and is primarily used in identifying groups that the member may belong to.
-  **Primary TSN:** Members are assigned a Primary TSN at the time their account is created. This identifies the specific area of expertise for which the user is considered an expert.
-  **Secondary TSN:** Members are assigned a Secondary TSN at the time their account is created. This TSN identifies the area in which the user has an alternate area of expert knowledge.
-  **Groups:** Groups are comprised of users of the MorphBank system that share a common interest in a specific taxonomic area. Members in groups have access to data owned by the group. Prior to the data release date, only group members are allowed to view and comment on it. A MorphBank user may belong to more than one group but membership in a group is limited to the user's privilege TSN. No one may be assigned to a group that has a Privilege TSN outside that specified for the group. For instance, someone with a Privilege TSN of Hymenoptera may not belong to a group in the Plant Kingdom. Only MorphBank administrators and group coordinators have access to the group module that manages group membership.

Note: Group members may appoint a trusted person to submit data on their behalf. That person will obtain a MorphBank account under their own name and become a user. Users entering data are listed as the “Submitter” on various MorphBank records. If entering data on behalf of another MorphBank member, the “Submitter” will choose



the Contributor's name from the appropriate drop-down list in the submission process.

Roles: users will be assigned one of many roles within groups. Users may have different roles in different groups but may only have one role in each group for which they are members.

- **Guest** has read only access. No login is required for this user role. A guest user is only allowed to view information that has passed the release date. This applies to biological data only. The casual user cannot browse group or user information and may not make any data entries or annotations.
- **Scientist** has the authorization to add/modify/delete Specimen, Image, View, and Locality as well as annotate released images within their taxon or images not released and owned by the group they belong to.
- **Lead Scientist** has the same privileges as scientist but on all objects owned by the group. A lead scientist can also be a coordinator or group manager and therefore manage users and their permissions in a group. For now, a lead scientist sends a request to the MorphBank Team for creation of a group.
- **Coordinator** has the same privileges as Lead Scientist and each group may only have one Coordinator. In order to be assigned a Group Coordinator, you must have lead scientist privileges for that group or have been assigned by the MorphBank administration. A coordinator can add and remove members from the group, change a user's role, as well as request spin-off groups to be developed with assigned coordinators. The coordinator can appoint another lead scientist in the group as a coordinator. Coordinators have access to the group module and members who fall in the taxonomic range assigned to the group.
- **Administrator:** There are very few individuals given Administrator privileges. An Administrator has complete access to all data and in addition can add/modify and/delete news, base or master tables. Only someone with administrative privileges can add new users and create groups for which there is no associated taxon. Those with administrative privileges have all rights in all groups and are responsible for managing the entire MorphBank system.



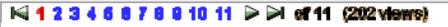
-  **Submit:** Access to input and modify data to the MorphBank database will be controlled by login access in accordance with the security module. Users who have at least the role of scientists can add images, views, taxonomic names, localities, and specimens. Those with roles of at least a scientist can modify their own data while group coordinators and lead scientists may modify data owned by any member of their assigned group. Users with this privilege must state which group to which they are assigned before making such modifications. **Note: see reference to appointing a [Submitter](#) above.**

-  **Browse:** All users may browse images and data that has been released, but only users with authorization through login will have the options to select images, specimens and views for update and annotation.

-  **Collections:** Login and group selection is required for all users who wish to make, edit, or annotate a personal collection or view, edit or annotate collections from other members of the same group.

Guide to Graphic Buttons

	Select this button to show associated list of images.
	Show information about this item.
	Mail this object link to an email address.
	Selecting this button will display the taxonomic hierarchy tree.
	Add a new object.
	Delete this object.
	Select this object.
	Examples of various instructional buttons, that when selected, will perform the function displayed on the button.

	<p>Select to show the next taxonomic level.</p>
	<p>Show alphabetically all taxonomic names stored in MorphBank.</p>
	<p>Select edit to alter data. This option is only available to those authorized users through login permissions.</p>
	<p>Select item to annotate. This option is only available to authorized users through login permissions.</p>
	<p>This icon is found next to fields where it is desirable/mandatory to select an entry from a list to insure accuracy. Click this icon to redirect to the appropriate list.</p>
	<p>Page scroll bar. Arrow pointing left "advance to first page", first arrow pointing right "advance one page", second arrow pointing right "advance to last page", or select any number to advance to that page.</p>
	<p>Select for on-screen instruction</p>

	When this symbol is located next to the description of a user input text box, it signifies that the input information is required to proceed.
	Used in “browse” to expand or contract taxon hierarchy lists
	Used in “collections” and “browse-collections”-- Meaning: “make a copy of this collection”. This option is only available to those authorized through login permissions.
	Click on to delete a collection in the “collection manager”. Must register by clicking on “update” button to make permanent.



MorphBank Terms and Definitions

ABCD	Stands for Access to Biological Collection Data. A naming schema to be used by MorphBank in future versions.
Administrator	There are very few individuals given administrator privileges. An administrator has complete access to all data and in addition can add/modify and/delete news, base or master tables. Only someone with administrative privileges can add new users and create groups for which there is no associated taxon. Those with administrative privileges have all rights in all groups and are responsible for managing the entire MorphBank system.
Angle	In Views section, the location of the camera with respect to the specimen for photographing
Basis of record	At the time of collection, the specimen was categorized as an observation, a living organization, a specimen, a germ plasm/seed
Browse	Traverse the database tree by taxon hierarchy, alphabetical taxon name, view, specimen or locality.
Collection name	Name given to a collection by the collection's creator
Collections	Groups of specimen images assembled from the MorphBank database by MorphBank members for the purpose of manipulating, viewing, or storing for future use.
Collector name	Person(s) who collected the specimen that is referenced in MorphBank.
Contributor	Person having the authority to release the images for publication into MorphBank.
Coordinator	Associated with roles within a group, a coordinator has



	<p>the same privileges as Lead Scientist and each group may only have one Coordinator. In order to be assigned a Group Coordinator, you must have lead scientist privileges for that group or have been assigned by the MorphBank administration. A coordinator can add and remove members from the group, change a user's role, as well as request spin-off groups to be developed with assigned coordinators. The coordinator can appoint another lead scientist in the group as a coordinator. Coordinators have access to the group module and members who fall in the taxonomic range assigned to the group.</p>
Date collected	The date the specimen was collected
Delivered uploading	MorphBank offers a service called delivered uploading. We provide an already prepared Excel Data Entry Workbook and the corresponding user's manual. The contributors can deliver to MorphBank a CD or DVD containing images and an Excel Data Entry Workbook populated with information.
Determination	The taxonomic category of the specimen
Developmental stage	Growth phase of specimen
Download	The user receives data from a remote computer.
External links	References the ability of the MorphBank database to store URL website links associated MorphBank objects.
Fair Use Web Site	The images in MorphBank that are not password protected can be used for private, education, research or other non-commercial purposes for free, provided that the source and the copyright holder are cited.
Form	As it pertains to a specimen's stage of existence. Examples would be adult, pupa, juvenile, etc.
ftp, smtp	File Transfer Protocol (used for transferring files over the internet), Simple Mail Transfer Protocol (used for transferring email from one server to another)
Group id, User id, Specimen id, View id, Locality id, Image id, Publication id,	MorphBank-issued unique identifying numbers



Annotation id	
Groups	Groups are comprised of users of the MorphBank system that share a common interest in a specific taxonomic area.
Guest	user role that has read only access privilege in the group where they have the “Guest” role.
GUI	“Pronounced gooie” -stands for globally unique identifier (or graphical user interface).
GUID	“Pronounced goo id” – stands for globally unique identifier.
Imaging	Technique used to capture photo of specimen such as auto montage, transmitted light; bright field, etc.
ITIS	Integrated Taxonomic Information System-database maintained by the US Department of Agriculture and used by MorphBank as the main taxonomic name server.
Jpg (jpeg), .tif (tiff)	Joint Photographic Experts Group (pronounced jay-peg) tagged image file format--MorphBank accepted file formats for images.
Lead Scientist	Same privileges as scientist but on all objects owned by the group to which the user belongs. A lead scientist can also be a coordinator or group manager and therefore manage users and their permissions in a group. For now, a lead scientist sends a request to the MorphBank Team for creation of a group.
Locality	Detailed information about where a specimen was collected or observed.
Login	Enter in a MorphBank issued user id and password for the purpose of adding /modifying or viewing restricted data.
LSID	Life Science Identifiers -- the GUID widely used identification scheme for the Life Science domain.
Modified Darwin Core Standard	A naming standard currently used by MorphBank.



MorphBank	Open web repository of images serving the biological research community.
NCBI accession numbers	National Center Biotechnology Information
Object	Referring to an image, specimen, locality, collection, annotation, etc.
Primary TSN	MorphBank issued taxonomic serial number identifies the specific area of expertise for which the user is considered an expert.
Privilege TSN	MorphBank-issued taxonomic serial number representing the highest Taxonomic Name for which a MorphBank member has expertise. It is primarily used in identifying which groups for which they may have membership.
Published	Referring to MorphBank related objects such as an image, specimen, locality, collection, etc. When an object is released for worldwide viewing.
Roles	Categories of users within Morphbank groups such as guest, scientist, lead scientist, coordinator, and administrator. Roles are used to determined privileges that a user has within a MorphBank group.
Scientist	User role that has the authorization to add/modify/delete Specimen, Image, View, and Locality as well as annotate released images within their taxon or images not released and owned by the group they belong to.
Search	Find specific data through queries using keywords or id numbers
Secondary TSN	MorphBank-issued taxonomic serial number representing the area in which the user has an alternate area of expert knowledge.
Sex	Gender of specimen
Sort	Arrange or order groups of information with a common interest into a sequence.
Specimen part	Pertains to a view that contains a portion of a specimen



Stage	Developmental growth phase of a specimen
Submit	Upload data to a remote computer. (E.g. clicking the “submit” button on the Add Image screen will upload the image to the MorphBank database.
Submitter	Person entering the data into MorphBank (may be the same person as the contributor).
Tab or comma-delimited text files	ASCII data files where the fields are separated by a tab or comma character. Used for upload of data into MorphBank.
Taxon	Scientific name of the specimen
Tools	Button in MorphBank directing the user to, browse, search, submit, edit, collections and annotations
TSN	Taxonomic Serial Number. The ID number of a specific taxon in the ITIS database.
TWiki	A structured Wiki site. One is currently used by MorphBank developers to gather information about future version requirements.
Type Status	A code indicating a particular kind of specimen. MorphBank uses nomenclatural types as defined by ICBN and ICZN.
Upload	The user sends data to a remote computer.
View	A view specifies the criteria (the type of taxa, view angle, preparation technique, etc.) under which a photograph was taken.
Wiki	a type of website that allows users to add, remove, or otherwise edit and change all content very quickly and easily, sometimes without the need for registration (defined from http://en.wikipedia.org/wiki/Main_Page)

Screen Use Tips

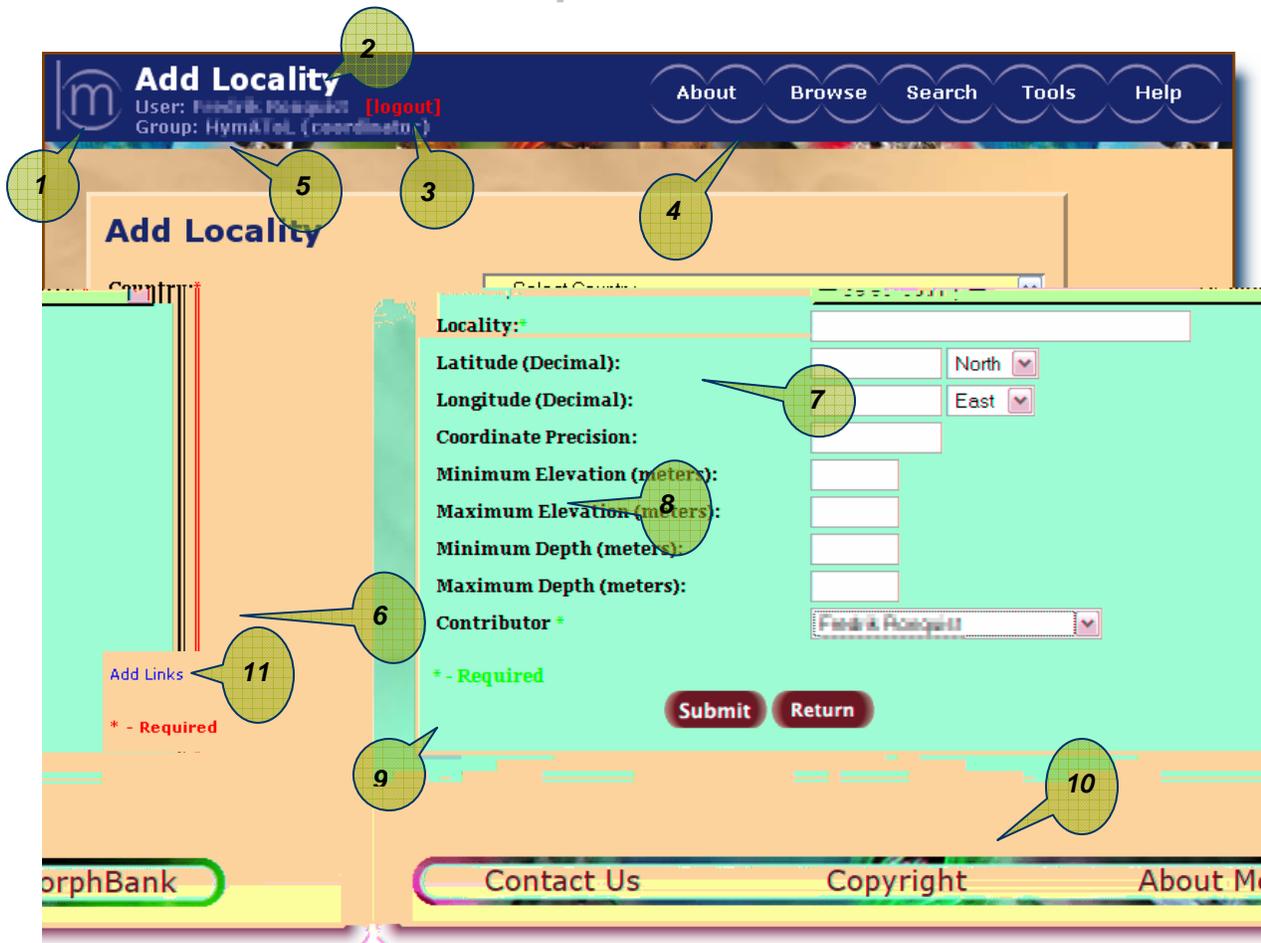


Figure 1 Anatomy of a MorphBank Page

Tag descriptions for Figure 1

- Tag 1 -Click on logo to return to the homepage at any time.
- Tag 2 -Page Name.
- Tag 3 -Click to logout. (Only visible after login).
- Tag 4 -Banner with selectable drop-down lists that will advance/return the user to other areas within MorphBank.
- Tag 5 -Username and group to which the user logged-in with (Only visible after login).
- Tag 6 - "*" fields are required
- Tag 7 -Select to reveal drop-down list.
- Tag 8 -Entry boxes for user to input appropriate data.
- Tag 9 -Click on buttons to perform various tasks in MorphBank ("see guide to graphic buttons" section in this manual).
- Tag 10-Redirect to the corresponding area within MorphBank.
- Tag 11-Click on blue text to access the referenced subject.

Guide Use Tips

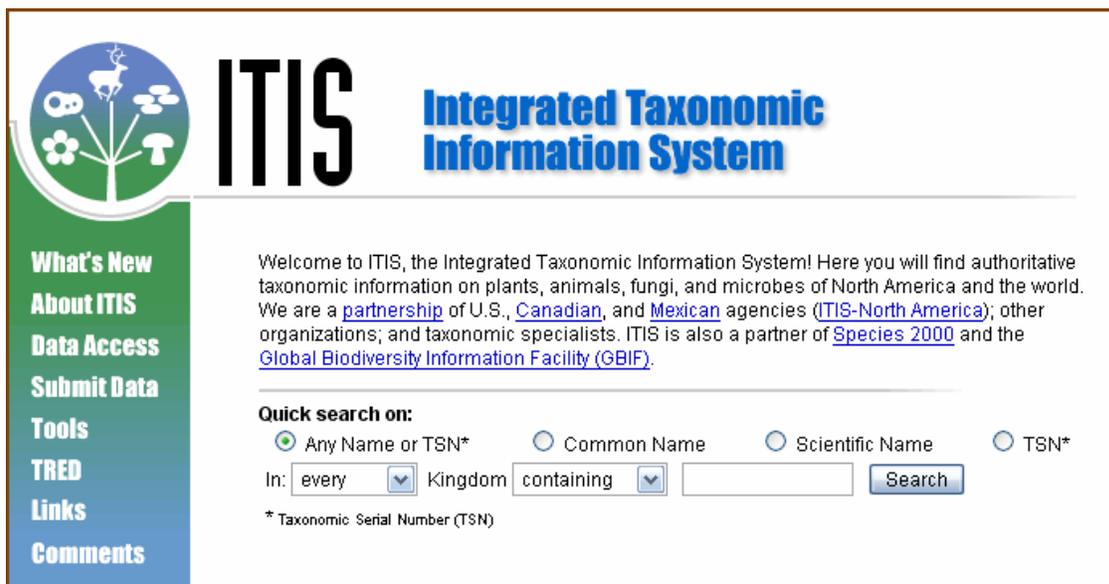
To find a specific topic in this guide use the:

- **Table of contents** to find a chapter or area of interest
- **Figure guide** to find an illustrated guide to an area of interest
- **Figure captions:** All references to figures shown in blue type are linked back to the actual figure (hold CTRL and click on figure reference). For example: sample manual text -- "...as seen in [fig. 3](#)" can hyperlink to figure 3 by holding CTRL and clicking on the blue text. This feature may not be available in PDF document.
- **Chapter tabs** on the PDF screen (hyperlink directly to that chapter)
- **Search** feature in PDF reader to search for a word(s) in the document.
- **Browser keyboard shortcuts** to find a keyword (i.e. Internet Explorer, Mozilla Firefox use CTRL-F) and type in keyword. These vary according to the machine and browser being used.

Integrated Taxonomic Information System (ITIS)

The [Integrated Taxonomic Information System \(ITIS\)](#) database maintained by the United States Department of Agriculture (USDA). ITIS was selected as the taxonomic name server for MorphBank in 2004 because it represented the most complete comprehensive taxonomic name service available at the time. Also, the entire database could be downloaded locally making access to the data quick and efficient.

ITIS is a consistent service. It has a high level of stability and a rigid review system. Since ITIS is maintained by the USDA, the probability that the service will be persistent for several years is high. Taxonomic names are entered into the system and panel of experts periodically review the names for quality assurance.



The screenshot shows the ITIS website interface. On the left is a green sidebar with navigation links: What's New, About ITIS, Data Access, Submit Data, Tools, TRED, Links, and Comments. The main content area features the ITIS logo and the text: "Welcome to ITIS, the Integrated Taxonomic Information System! Here you will find authoritative taxonomic information on plants, animals, fungi, and microbes of North America and the world. We are a [partnership](#) of U.S., [Canadian](#), and [Mexican](#) agencies ([ITIS-North America](#)); other organizations; and taxonomic specialists. ITIS is also a partner of [Species 2000](#) and the [Global Biodiversity Information Facility \(GBIF\)](#)." Below this is a search section titled "Quick search on:" with radio buttons for "Any Name or TSN*" (selected), "Common Name", "Scientific Name", and "TSN*". The search form includes a dropdown menu for "In:" set to "every", a dropdown for "Kingdom" set to "containing", an empty search input field, and a "Search" button. A footnote states: "* Taxonomic Serial Number (TSN)".

The MorphBank development team recognized early in the development of the system, the need for a Taxonomic Name Server that would supply the scientific names needed in determination of species. However, there were none available that contained all of the recognized names. ITIS was chosen because it 1. contained the most complete set, 2. had a formal method for adding new names and 3. because the system is supported by the USDA ensuring the longevity of the system. Because the addition of new names does take some time, the MorphBank team established a method to add temporary names and update them whenever they are added by the USDA. This allows scientist to add specimens whose scientific determination has not been added to ITIS.



Add New Taxonomic Serial Number

Adding a new taxonomic name to the temporary ITIS table maintained in MorphBank is a serious undertaking and should only be done by qualified research biologists who are experts in that particular portion of the taxonomic tree. Scientists who add new taxon names agree to also submit the new names to the United States Department of Agriculture, Integrated Taxonomic Information System Office for inclusion into the ITIS database. ([http://www.itis.usda.gov/.](http://www.itis.usda.gov/))

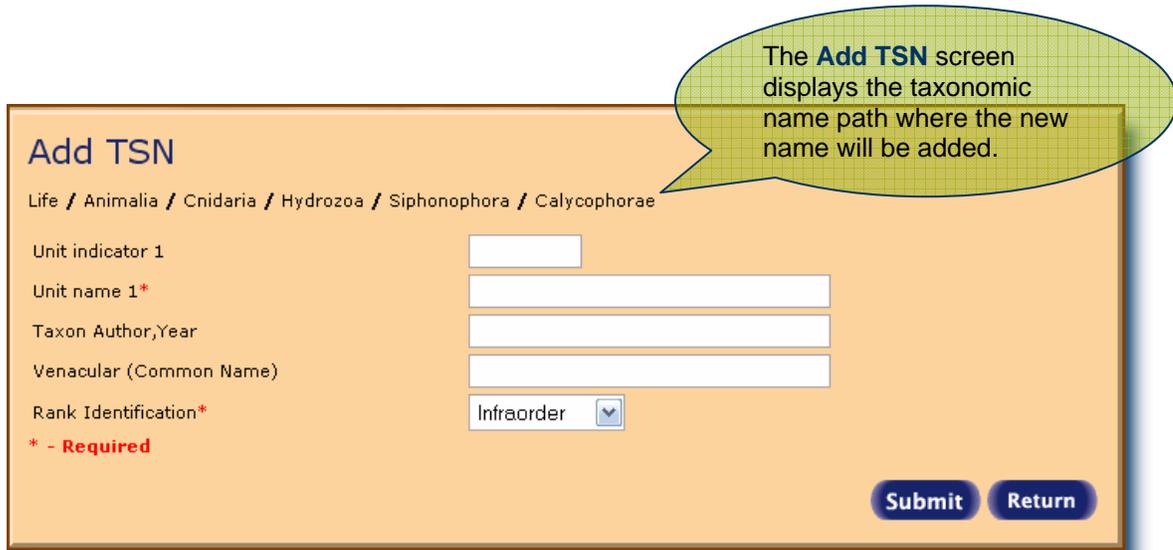
What is the affect of adding temporary taxonomic names? The names are made available to scientists to use for adding specimens, establishment of user and group privileges, and determination annotations. **Temporary Taxonomic Serial Numbers (TSNs)** can be identified because they have a number greater than 999,000,000. If the name is eventually added by the USDA to the ITIS table, MorphBank replaces the temporary TSN with the valid ITIS TSNs.

Who can add temporary taxonomic names? To add a new taxonomic name at a particular place in the tree the user must have a privilege TSN that includes that taxonomic level. For example, if the privilege TSN is 152741 (Order of Hymenoptera), users have the privilege to add temporary TSNs to all wasps, bees, ants, and saw flies.

At what level can new taxonomic names be added? New taxonomic names can only be added at the **family level** or below at this time. The system is designed to only allow names to be added at one level at a time and only to a level that is appropriate. For example, if adding a new name starting at the family level, you can only add **family, superfamily, infraorder,** or **suborder**. All subordinate taxonomic names, if needed, also need to be added.

When can temporary taxonomic names be added? The **Add New Taxon Name button** is visible on screen for any authorized MorphBank user during anytime the user is searching for a taxonomic name and they have reached at least the family level.

CAUTION: The MorphBank system does not check the accuracy of the information entered by the scientist. New names must be added with great care. The temporary taxonomic names can only be deleted by MorphBank administrators.



The **Add TSN** screen displays the taxonomic name path where the new name will be added.

Adding a New Taxonomic Name

Adding a new taxonomic name on the MorphBank database (The data items and definitions were taken directly from the ITIS database.):

-  **Unit Indicator 1:** This is only applicable to the kingdom Plantae. This is an indicator of a plant hybrid at the generic level.
-  **Unit Name 1:** For monomials this will be the only name field entered. or binomials/polynomials, this field will be used for the first part of the name. The names in this position require the initial letter to be capitalized. This is a singular or first part of a scientifically accepted label for an occurrence of Taxonomic Units.
-  **Venacular:** This is the common name associated with the unit name.
-  **Rank Identification:** A drop down lists that allows the user to select the appropriate rank to which the new name belongs. Examples: (family, suborder, suprafamily, genus, species, etc).

After completion of the form, click  to add the temporary TSN. Information about the most current taxonomic names and instructions on how to submit the data for new names can be found on the ITIS web site <http://www.itis.usda.gov/>.



Information Linking

Internal -- The **Show** feature was created to provide easy, direct access via Uniform Resource Locators (URLs) to reference data objects in MorphBank that may be used by other data repositories. Example: scientists may cite the MorphBank web site and display images and data in journal, conference, and workshop research papers. A person outside of MorphBank may then use that referenced URL as a direct link back to the data or image located in the MorphBank database.

External-- MorphBank has the ability to store external URLs with each object in the database (**external linking**). This can be done either at the time the object was created or added later during an edit session. Example: Users may add an image to the database and point to a museum web site where the original specimen is located. The museum URL is added as an external link to the image record.

MorphBank Show

MorphBank is a large complex relational database with an intricate matrix of inter-related tables. Easily finding and showing information in MorphBank is a necessity.

Early in the requirements phase of the MorphBank project, scientists expressed a desire to cite the MorphBank web site and display images and data in journal, conference, and workshop research papers. Other researchers expressed a desire to reference data in MorphBank using external URL addresses. Rather than performing complex queries each time the data is requested, MorphBank developers came up with a more efficient method to display this data.

Every MorphBank object, that can be referenced externally, is identified by a unique integer string (up to 18 digits) and other pertinent information. Collectively the information listed below is cataloged in the MorphBank baseObject table:

- MorphBank Identifier
- Object type (which table the record is in)
- User Id (Id of the user who created the object).

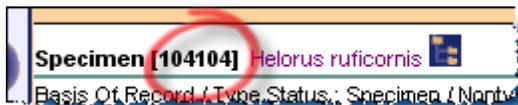
- Group Id (references the group that owns the object)
- Date the object was created.
- Date the object was last modified
- Date the object will be published
- Description of the object
- Person who submitted the object (if different from the owner).

Since each MorphBank object can be uniquely identified by its id number alone; the MorphBank developers have created a simple method to reference any MorphBank object through this unique number. This method is called **Show**.

What does the MorhBank Show URL look like?

<http://morphbank.net/Show/index.php?id=32031> is an example of what a **Show** referenced image object looks like in MorphBank version 2.5

Where are object ids found within MorphBank? Use the **Browse** and **Search**



features of MorphBank to find the objects. The ids are listed next to each object.

Which MorphBank objects have this feature? As of the writing of this manual, **Specimen, Image, View, Locality, Annotation, Collection, User, Group, Publication,** and **News** have the **Show** capability. Some of the objects such as **Publication** currently do not have any data.

The data in these objects is quite different. How does MorphBank know how to show the data? Each MorphBank object that can be displayed using the **Show** function has its own unique display module. MorphBank reads the id number, looks up the type of object in the **baseObject** table, and calls the appropriate module.

What MorphBank objects can be seen? If a user is not logged-in, only objects that have been released can be seen through **Show**. Users of MorphBank who wish to share their data in MorphBank through **Show** should ensure that the data has been released. Users who are logged into MorphBank can view any released object, objects they own, or objects owned by the group they are logged-in with.

Where can the Show feature be accessed within MorphBank? **Show** can be accessed through the results of a **Browse** or **Search** by clicking on the **Information** button  , or on one of the thumbnail images in the results list. Also, selecting the **Object id** where it is listed in blue type i.e. in **Annotation Manager** or on another **Show** screen. Lastly, by selecting the **Annotation Id** in the **Annotation Manager** the **Single Show Annotation Record** is displayed which links to the **Single Show-Related Annotations** page. **Show** information is displayed on a popup screen.

Example: Single Show

In this example, the single show popup was accessed by clicking on the thumbnail image of 92748.

Image Record: [92748] [Hibiscus laevis](#)

Contributor: [Austin Mast](#)
 Submitter: [Debbie Paul](#)
 Submitted date: 07-19-2006
 Published date: 07-15-2006

Access #: 44355
 Magnification: 0
 Dimension (px): 3000x3630
 Resolution (PPI): 0
 Submitted as: TIFF

View id: [77407](#)
 Specimen part: [77359] - Plant body
 Angle: [77360] - Herbarium Specimen
 Technique: [27] - Reflected light, macrophotography
 Preparation: [77344] - No preparation

Download: [tiff \(31.34 Mb\)](#)
[jpeg \(5.16 Mb\)](#)

Specimen
 Specimen id: [92401](#)
 Basis of record: [5] - Specimen
 Sex: [79416] - Undetermined
 Form: [77362] - Undetermined
 Stage: [79192] - Undetermined
 Collector: Loran C. Anderson
 Date collected: 07-17-2001

Locality
 Locality id: [83129](#)
 Continent ocean: [NA] - NORTH AMERICA
 Country: [US] - UNITED STATES
 Locality: Florida; Liberty County; in open slough-like clearing in hardwoods on bluffs overlooking Apalachicola River at Esteroanuga on James "Pot" Shuler property, NW of C-333, ca. 1.5 mi W of Rte 12, 9 air mi SSW of Bristol.
 Latitude:
 Longitude:
 Elevation (m):

Determination
 Class: [Magnoliopsida](#)
 Order: [Malvales](#)
 Family: [Malvaceae](#)
 Genus: [Hibiscus](#)
 Species: [Hibiscus laevis](#)

Determination annotations

Title: Determination 1	Date: 08-10-2006
Taxon: Pterygota	User: Johan Lijebliad
Title: Determination	Date: 08-10-2006
Taxon: Hibiscus laevis	User: Johan Lijebliad

External links
 Genbank:
[genbank1](#)
[genbank2](#)
 Databases:
[FSU Herbarium](#)

Other Annotations

Figure 2 Example of Single Show (Image Record)

Tag Descriptions for Figure 2

Tag 1-Double clicking on any of the areas in blue type will lead the user to additional information.

Tag 2 -Information about the locality of the image. Clicking on the **Locality ID** will access the **Single Show** of the **Locality Record** displayed in a popup screen...

Locality Record: [83129]

Contributor: Austin Mast	Locality: Florida; Liberty; in open slough-like clearing in hardwoods on bluffs overlooking Apalachicola River at Estifanulga on James "Pat" Sluder property, NW of C-333, ca. 1.5 mi W of Sta 12, 9 air mi SSW of Bristol.
Submitter: Debbie Paul	Continent: NORTH AMERICA
Date Submitted: 07-11-2006	Country: UNITED STATES
Last Modified: 07-11-2006	Latitude:
Publish Date: 07-15-2006	Longitude:
	Precision:
	Elevation (m):
	Depth (m):

Tag 3 – Information associated with the view of this image. By clicking on **View 77407** the single show of the **view record** will display in a popup screen. As in other show screens, clicking on the blue highlighted type will display additional information. See [Figure 3](#)

Tag 4-List of published determination annotations associated with this image. Clicking on the information button **i** will access the annotation. Unpublished determination annotations will not be listed.

Tag 5 –Scrollable list of external links associated with this image. Clicking on the blue highlighted type will hyperlink to the appropriate external link.

View Record: [77407] Plant body/ Herbarium Specimen/ Undetermined

Applicable to **Plantae**

Contributor: Debbie Paul
 Submitter: Debbie Paul
 Date Submitted: 03-09-2006
 Last Modified: 03-09-2006
 Publish Date: 03-09-2006

Specimen Part: Plant body
 View Angle: Herbarium Specimen
 Sex: Undetermined
 Form: Undetermined
 Stage: Undetermined
 Technique: Reflected light macrophotography
 Preparation: No preparation

View Applicable to: **Plantae**

Example Image: [77407]
 Images for view: 490

Sample image record for this view

Camera will bring up list of images for view.

Figure 3 Single Show View Record

Tag 6 –Information pertaining to the specimen associated with this image. Click on the **Specimen Id** to access the **Single show** of the **Specimen**. The **Specimen Show** will present the user with details about the specimen as well

as inform about associated **collections** or published **determination annotations** associated with the specimen. Included at the bottom of the **Specimen Single Show** is an image list of associated images for this specimen. The total number of images is listed and can be viewed through **browse-specimens** by clicking on the camera icon. Double clicking on a thumbnail image in this area will bring up the **Single Show** for the image. [Figure 4.](#)

Specimen Record: [92401] *Hibiscus laevis*

Contributor: Austin Mast
Submitter: Debbie Paul
Date Submitted: 07-19-2006
Last Modified: 07-19-2006
Publish Date: 07-19-2006

Specimen Id: 92401
Basis of Record: Specimen
Sex: Undetermined
Form: Undetermined
Stage: Undetermined

Collection
Collector: Loran C. Anderson
Institution: Florida State University
Collection Code: FSU
Catalog: 009003823
Collection Num: 19932
Date Collected: 2001-07-17 00:00:00

Locality
Locality Id: [03129]
 Florida; Liberty; in open slough-like clearing in hardwoods on bluffs overlooking Apalachicola
Locality: River at Esthlanuga on James "Pat" Shuler property NW of C-333, ca. 1.5 mi W of Rte 12, 9 av mi SW of Bristol.
Continent: NORTH AMERICA
Country: UNITED STATES
Latitude:
Longitude:
Precision:
Elevation (m):
Depth (m):

Determination
Class: Magnoliopsida
Order: Malvales
Family: Malvaceae
Genus: *Hibiscus*
Species: *Hibiscus laevis*

Determination Annotations

External links

Other Annotations

Additional Images for specimen: 92401
 Showing 5 of 5 Images

list of images associated with this specimen

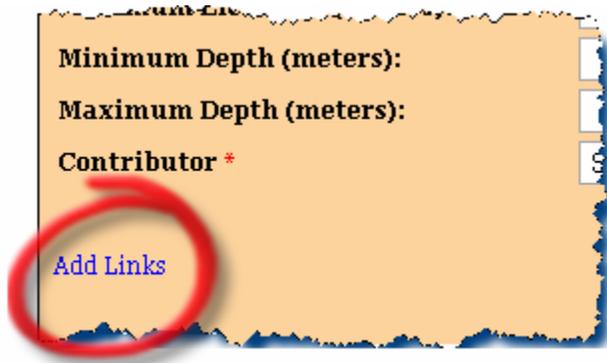
Figure 4 Single Show for Specimen Record

Tag 7-left click on image to bring up the FSI viewer by Neptune Labs. For complete information on this process refer to the [FSI Viewer](#) section of this manual.



For images already deposited in MorphBank the label and link information will need to be associated with the actual MorphBank record id. This id is unique to each record and is located at the top of each MorphBank record

Supplying external links for images during the submitting process



Click on the blue highlighted text, **Add Links**, from the **Submit Locality Specimen, View, or Image** page. This will bring up the external links submit form as seen below.

External Links			
Type *	Label *	Url *	Description
--- Select Link Type ---			

* - Required

- Type: Select from the drop-down list the appropriate link type. Selections might include , **Institution, GenBank, Publications, Google Maps** or **Other**
- Label: Type in a short, descriptive label. This label is the name of the link that will appear 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.
- URL: Enter or cut and paste the URL where the link is located.
- Description: Free text entry about the link. Example: comment about the institution that is being linked to.

To add more than one link, click on the plus sign.
The minus sign will remove any link not needed.



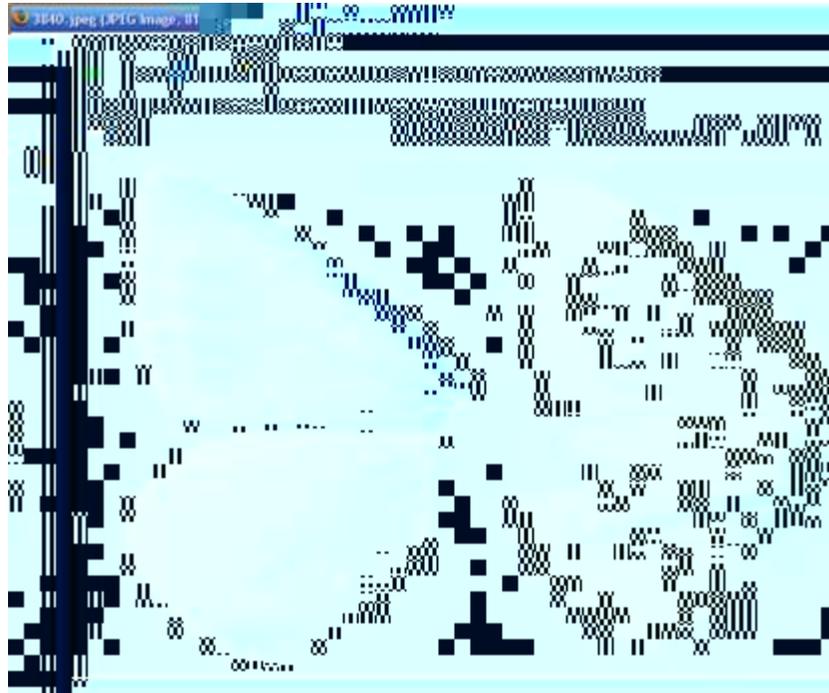
Image Record: [92748] Hibiscus laevis

<p>Contributor: Austin Mast</p> <p>Submitter: Debbie Paul</p> <p>Submitted date: 07-19-2006</p> <p>Published date: 07-15-2006</p> <hr/> <p>Access #: 44355</p> <p>Magnification: 0</p> <p>Dimension (px): 3000x3630</p> <p>Resolution (PPI): 0</p> <p>Submitted as: TIFF</p> <hr/> <p>View id: 77407</p> <p>Specimen part: [77359] - Plant body</p> <p>Angle: [77360] - Herbarium Specimen</p> <p>Technique: [27] - Reflected light, macrophotography</p> <p>Preparation: [77344] - No preparation</p> <hr/> <p>Download: tif (31.34 MB) jpeg (5.16 MB)</p>									
<p>Specimen</p> <p>Specimen id: 92401</p> <p>Basis of record: [5] - Specimen</p> <p>Sex: [79416] - Undetermined</p> <p>Form: [77362] - Undetermined</p> <p>Stage: [79192] - Undetermined</p> <p>Collector: Loran C. Anderson</p> <p>Date collected: 07-17-2001</p>	<p>Locality</p> <p>Locality Id: 03129</p> <p>Continent ocean: [NA] - NORTH AMERICA</p> <p>Country: [US] - UNITED STATES</p> <p>Locality: Florida; liberty County; in open slough-like clearing in hardwoods on bluffs overlooking Apalachicola River at Estlinburg on James "Pat" Shuler property, NW of C-333, ca. 1.5 mi W of Rte 12, 9 air mi SSW of Bristol.</p> <p>Latitude:</p> <p>Longitude:</p> <p>Elevation (m):</p>								
<p>Determination</p> <p>Class: Magnoliopsida</p> <p>Order: Malvales</p> <p>Family: Malvaceae</p> <p>Genus: Hibiscus</p> <p>Species: Hibiscus laevis</p>	<p>Determination annotations</p> <table border="1"> <tr> <td>Title: Determination 1</td> <td>Date: 08-10-2006</td> </tr> <tr> <td>Taxon: Pterygota</td> <td>User: Johan Liljeblad</td> </tr> <tr> <td>Title: Determination</td> <td>Date: 08-10-2006</td> </tr> <tr> <td>Taxon: Hibiscus laevis</td> <td>User: Johan Liljeblad</td> </tr> </table>	Title: Determination 1	Date: 08-10-2006	Taxon: Pterygota	User: Johan Liljeblad	Title: Determination	Date: 08-10-2006	Taxon: Hibiscus laevis	User: Johan Liljeblad
Title: Determination 1	Date: 08-10-2006								
Taxon: Pterygota	User: Johan Liljeblad								
Title: Determination	Date: 08-10-2006								
Taxon: Hibiscus laevis	User: Johan Liljeblad								
<p>External links</p> <p>Genbank:</p> <p>genbank1</p> <p>genbank2</p> <p>Databases:</p> <p>FSU Herbarium</p> <p>http://herb.fsu.edu/</p>	<p>Other Annotations</p>								

Example of scrollable list of external links displayed on single show record

Linking from an external source to MorphBank:

The MorphBank Id for each record is unique, thus linking to a specimen record or image record only requires the base URL which is <http://morphbank.net/Show/?id=> plus the MorphBank Id which is variable depending on the record being linked. An entire link to one specific specimen record may look like this: <http://morphbank.net/Show/?id=64122>.



The source and copyright holder must be cited when images are used from MorphBank. To satisfy this requirement, it is highly encouraged and beneficial to link images back to the MorphBank record that contains this information. For example: Assuming the above image has been linked to a website, this image should be linked back to the MorphBank record.

<http://morphbank.net/Show/?id=65847>.

Image Record: [65847] <i>Polyommatus (Agrodiaetus) surakovi</i>	
<p>Contributor: Martin Wiemers</p> <p>Submitter: Martin Wiemers</p> <p>Submitted date: 05-01-2004</p> <p>Published date: 05-01-2004</p> <hr/> <p>Access #: 3840</p> <p>Magnification: NULL</p> <p>Dimension (px): 810x540</p> <p>Resolution (PPI): 600</p> <p>Submitted as: TIFF</p> <hr/> <p>View id: 63977</p> <p>Specimen part: [93] - Wings</p> <p>Angle: [41] - Left dorsal, right ventral</p> <p>Technique: [28] - Reflected light, scan</p> <p>Preparation: [77344] - No preparation</p> <hr/> <p>Download: tiff (1.25 MB)</p> <p>jpeg (96.04 KB)</p>	
<p>Specimen</p> <p>Specimen id: 64122</p> <p>Basis of record: [S] - Specimen</p> <p>Sex: [98] - Male</p> <p>Form: [104] - Indeterminate</p> <p>Stage: [95] - Adult</p> <p>Collector: Martin Wiemers</p>	<p>Locality</p> <p>Locality Id: 64044</p> <p>Continent ocean: [AS] - ASIA</p> <p>Country: [AM] - ARMENIA</p> <p>Locality: Gnyshik village (1800-2200 m) Transcaucasia</p> <p>Latitude:</p>



Linking back to the MorphBank record provides a valuable increase in available information associated with the image to include data about the **locality, collector, specimen, contributor**, etc. This increases the value of the image to a webpage. For those interested in using images deposited on MorphBank for online keys and websites, please contact MorphBank admin mbadmin@scs.fsu.edu for options and suggestions.

Image sizing:

The same image is found on MorphBank in multiple sizes that may be useful for linking. These sizes are a thumbnail (95X70), medium jpg (400X300) and the original large jpeg. These smaller sizes may be found by changing the path name. If <http://morphbank.net/images/jpeg/0/0/0/0/0/0/0/0/3/8/3840.jpeg> is the full size jpeg image then <http://morphbank.net/images/thumbs/0/0/0/0/0/0/0/0/3/8/3840.jpg> is the small thumbnail and <http://morphbank.net/images/jpg/0/0/0/0/0/0/0/0/3/8/3840.jpg> is the medium sized image.

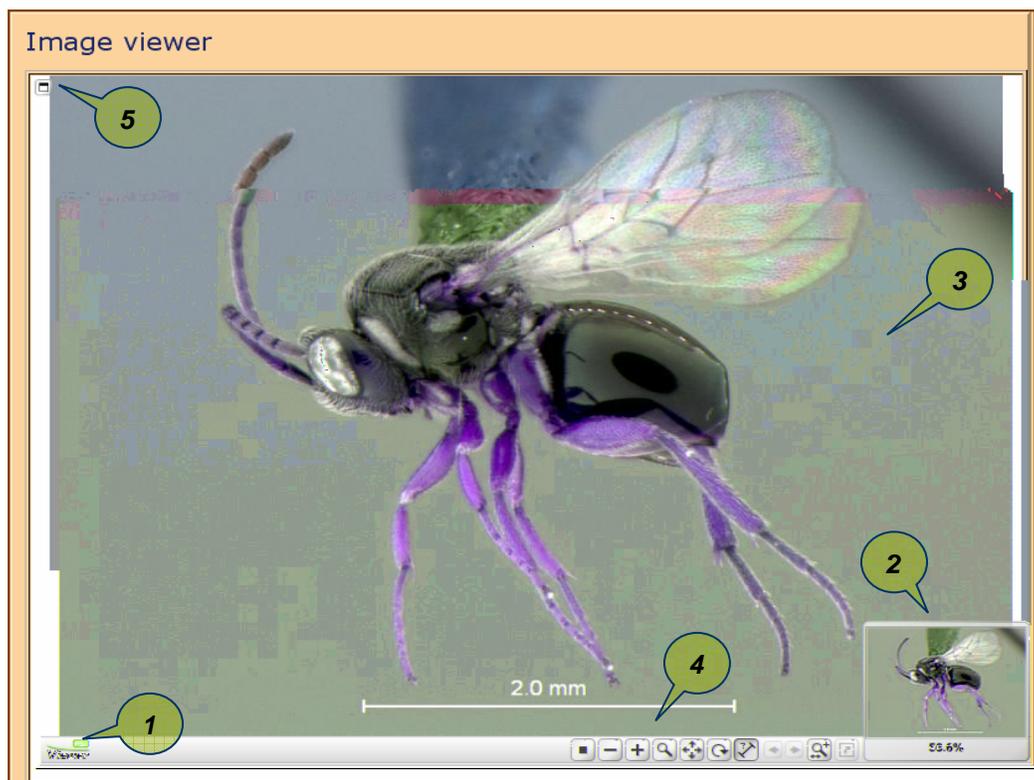
Note:

MorphBank is an Entrez LinkOut (<http://www.ncbi.nlm.nih.gov/entrez/linkout/>) **provider for the Nucleotide** (<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Nucleotide>) **and Taxonomy** (<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Taxonomy>) **databases. MorphBank will provide NCBI with the accession numbers and ids that are sent for the purpose of linking GenBank back to images of voucher specimens on MorphBank. MorphBank also provides links for NCBI taxonomy using images deposited in MorphBank. These links are updated periodically. If only GenBank accession numbers and MorphBank ids are involved, then the full URL does not need to be provided, but only the accession number. Data for external links may also be accepted in tab delimited or comma delimited text files**

FSI Viewer

MorphBank uses FSI (Flash based Single Source Image) Viewer by Neptune Labs (<http://www.fsi-viewer.com/>) as a vehicle to display and manipulate the stored images. As stated by Neptune Labs, *the FSI Viewer is a web based viewer for high resolution images. It enables internet users to magnify image sections or view objects from different viewing angles or in different states, requiring low bandwidth only. This makes presentations more appealing. FSI Viewer is based on Macromedia Flash™ Plug-in client-side and accesses image data provided by single source imaging servers. These servers provide scaled and compressed image data on-demand based on high resolution source images.*

In MorphBank the viewer can be accessed most places the **Single Show** ([Single Show](#)) screen of the object is available by clicking on the **Show** image. **Show** can be accessed through the results of a **Browse** or **Search** by clicking on the **Information** button , or on one of the thumbnail images in the results list. Also by selecting the **Object id** where it is listed in blue type i.e. in **Annotation Manager** or on another **Show** screen. Lastly, by selecting the **Annotation Id** in the **Annotation Manager** the **Single Show Annotation Record** is displayed which links to the **Single Show-Related Annotations** page. The viewer is also available by clicking on an image in a **Collection**.



Tag Descriptions for Figure 5 (FSI Viewer located above)

Tag 1-Click to display viewer information and a link to the FSI Viewer website (<http://www.fsi-viewer.com/>). By clicking on the **Read more** button then selecting the **.Customer Care** section on the website, the user can obtain detailed instructional information on the use of the viewer to include tutorials.



Tag 2-This window displays the image that is presently seen on the viewer screen. When only a portion of the original image is currently being viewed, that area is displayed in a red rectangle. The display region can be changed on this small screen by dragging the rectangle or clicking on the desired part of the screen

Tag 3-The body of the screen where the selected image is viewed and manipulated.

Tag 4-Menu bar

-  Return to initial view
-  Zoom out to decrease magnification
-  Zoom in to increase magnification
-  Mouse activated menu item. Use to enlarge segments with the mouse. Click on the image and drag to highlight the desired area to enlarge..or click on the image, without marking the segment to enlarge the entire image. The current image segment will then be enlarged in steps. To zoom out in steps, hold down the CTRL-key and click on the image.
-  Mouse activated menu item. Use to move the viewable image in the body of the screen. Click to drag the image. CTRL-key and left click will reset the image.
-  Mouse activated menu item. Use to rotate the image on the screen Use CTRL to reset the tilt.
-  Mouse activated menu item. Use it to measure areas of the image. Click and drag on the area to be measured.



History buttons. Click on the left arrow to revert to previous or the right arrow to again advance the historical settings.



Magnifying glass. Click to access the magnifying glass. Drag to observe a magnified image through the glass. Click on the button again to hide the magnifying glass.



Hot spot. Click to show or hide hot spots. This feature is not currently available.

Tag 5-Show or hide the user interface. Click this icon if a full page image void of all menu items is desired.

Guide to Browse, Search, Login, Submit, Collections, Data Edit and Annotations

To find a specific topic in this guide use the:

-  **Table of contents** to find a chapter or area of interest
-  **Figure guide** to find an illustrated guide to an area of interest
-  **Figure captions** All references to figures shown in blue type are linked back to the actual figure (hold CTRL and click on figure reference). For example: sample manual text -- "...as seen in [fig. 3](#)" can hyperlink to figure 3 by holding CTRL and clicking on the blue text. This feature may not be available in PDF document.
-  **Chapter tabs** on the PDF screen (hyperlink directly to that chapter)
-  **Search** feature in PDF reader to search for a word(s) in the document.
-  **Browser keyboard shortcuts** to find a keyword (i.e. Internet Explorer, Mozilla Firefox use control-F) and type in keyword. These vary according to the machine and browser being used.

Getting Started

Enter the MorphBank website at <http://morphbank.net>



Figure 6 Opening Screen to morphbank.net

From the opening screen users can select:



 **Login**-direct access to the login screen.

 **About** - find more detailed information about the history of MorphBank and view current news.

 **Browse** - traverse the database tree by images, taxon hierarchy, alphabetical taxon name, view, specimen, locality,

collections or annotations. Users have varied tools to access within browse based on user privileges assigned through login.

 **Search** - find specific data through the use of a simple search or search images by keywords or ids. Users have varied tools to access within search based on user privileges assigned through login.

 **Tools**- login; browse; search; access, add and modify data; access, add and modify collections, and access, add and modify annotations. Users will be required to login into the system with a valid username and password. Once logged-into the system, authorized modules will appear. Without login, only some information that can be browsed or searched will be available.

 **Help** - access this user manual, the UML database schema, table descriptions, delivered uploading documents and user account application.

Browse

Select **Browse** when there is a need to scan a hierarchical tree or list. **Browse** is directly accessible through the **opening screen** or from the **Browse** area on any MorphBank page header.

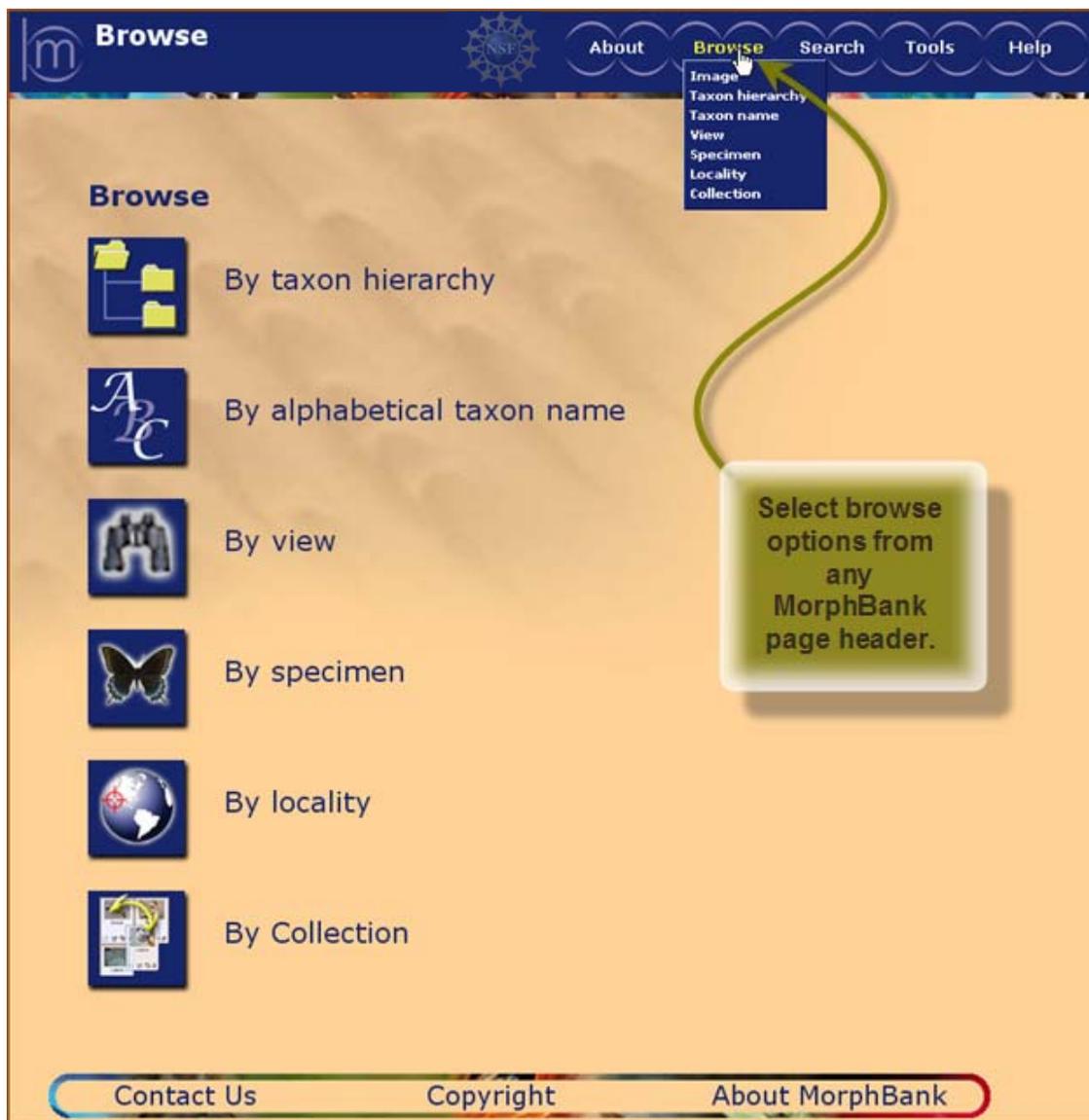


Figure 7 Browse



The **Browse** option does not require login, however, logged-in users have varied tools accessible within **Browse** based on user privileges (e.g. **Collections**, **Edit**, **Annotate**). (Figure 7) The browse options include:

- **Images** (The user has the capability to view a sortable list of all images in the MorphBank database. The list of images can be restricted by use of **keyword** or **id** searches. If the user is logged-in, other options such as edit, annotate, and collections might be available.)
- **Taxon hierarchy** (The user has the option of viewing all kingdoms from the top level of the taxonomic hierarchy or users can traverse the taxon hierarchy using only major categories.)
- **Alphabetical taxon name** (By choosing **all letters** a list of all taxonomic names associated with specimens and images within the database is available. By selecting **One Letter** a list of names is displayed that begins with only the letter selected.)
- **View** (The user is presented with the choice of searching for views based on a **keyword** or a sortable list of all the registered views within the database)
- **Specimen** (The user is presented with the choice of searching for specimens based on a **keyword** or a sortable list of all the specimens currently located on the MorphBank database.)
- **Locality** (The user is presented with the choice of searching for localities based on a **keyword** or a sortable list of all the available localities within the database.)
- **Collections** (The user is presented with the choice of searching for existing collections based on a **keyword** or a sortable list of all the available collections within the database.)

Browse-Images



Figure 8 Browse-Images

By selecting the **Browse- Images** option, the user will be presented with a list of all images registered in the MorphBank database.



Browse Using Keywords

A general or specialized keyword search can be used in **Browse-Images** to reduce the display list down to a more desirable list of images.

- **General keyword search**
A general keyword search performs a search based on a username, taxonomic name, catalog number, form, sex, developmental stage, type status, imaging technique, imaging preparation technique, part, or image identifier, locality, continent/ocean, country.
- **Specialized keyword search**
Use this search when the browse is desired on a specific group of images.

Taxon name performs a search based on the taxonomic name or the taxonomic serial number (tsn) of the specimen.

Specimen performs a search based on the categories of specimen id, sex, form, basis of record, type status, collector name, institution code, collection code, catalog number and taxonomic name.

View performs a search based on the view id, imaging technique, imaging preparation technique, part, angle, developmental stage, sex or form.

Locality performs a search based on the image's locality id, locality, continent/ocean or country.

To display a list of images based on a keyword(s) search, type the keyword(s) in the box(es) separated by a space and select **Search**. For example, to browse for all images pertaining to *Gelsemium sempervirens* (taxonomic name), plant body (part) reflected light (imaging technique); perform a specialized keyword search by typing in **Gelsemium sempervirens** in the **Taxon Name** keyword box and **plant body reflected light** in the **View** keyword box and select **Search** (Figure 9).

Screen Use Tips:

Separate more than one keyword with a space. **Search** is not case sensitive. Proper spelling will assure the best search however, typing a partial word, will result in a corresponding search containing those letters. (e.g. if searching for taxon braconidae, typing the letters "braco", or "conidae" will result in a list of braconidae data, but entering "idae" would return a list that contained more than just braconidae data. Therefore, the more complete the search word(s) is, the more accurate the search results will be.)

The **reset** button will revert back to the keyword(s) that produced the list of images currently on the screen.

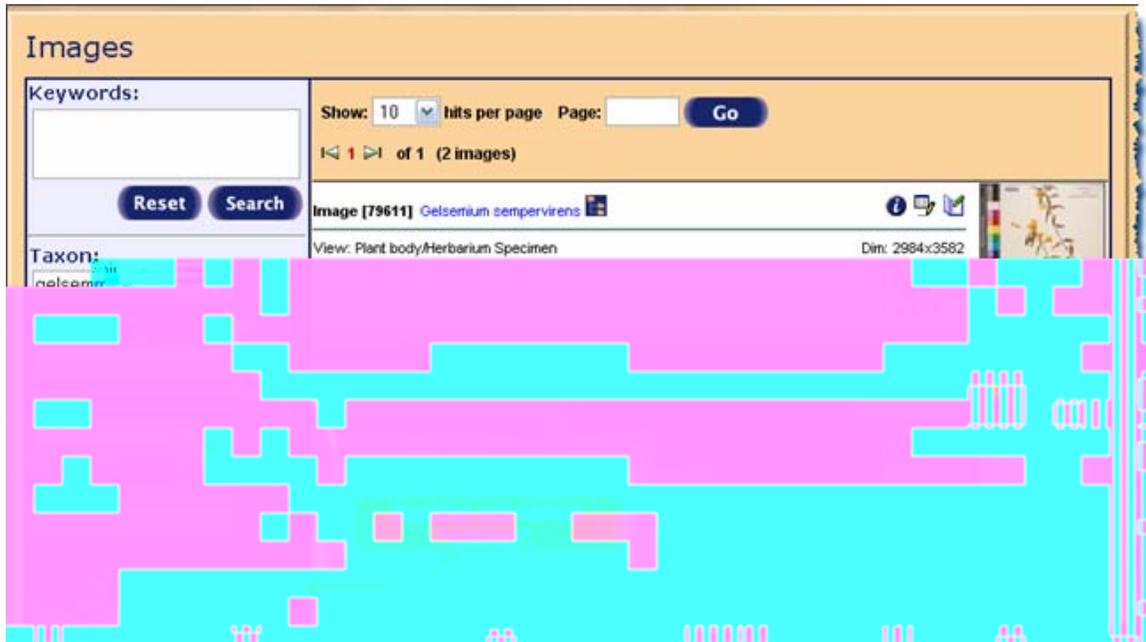


Figure 9 Browse-Images-Keywords

Browse Using Ids

A specialized id search can be used in **Browse-Images** to reduce the display list down to a more desirable list of images.



If the id is known, type it in the keyword box and select **Search**. To maintain accuracy, however, the desired id number(s) will need to be selected from a list by clicking on the ✓ icon as highlighted in the illustration.

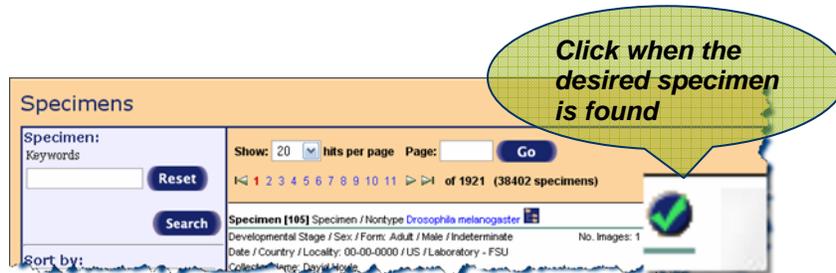
Taxon id –To insure accuracy, taxonomic identifiers need to be selected ✓ from the taxonomic names selection screen. Traverse through the levels  until the appropriate scientific name is found. Then click the select icon , it will automatically direct the user back to the **Browse-Images** screen and the appropriate name will be filled in.

Scientific Name	Taxon Author	Common Name	Usage	Reason (ITIS)	Taxon Type	Go to Next Level	Select
Acanthocephala		spiny-headed worms	valid		Phylum		Select ✓
Annelida		annelids	valid		Phylum		Select ✓
Arthropoda		arthropods	valid		Phylum		Select ✓
Brachiopoda		bivalve coelomates	valid		Phylum		Select ✓
Chaetognatha		arrow worms	valid		Phylum		Select ✓
Chordata		chordates	valid		Phylum		Select ✓
Cnidaria	Hatschek, 1888	cnidarians	valid		Phylum		Select ✓
Ctenophora	Eschscholtz, 1829	comb jellies	valid		Phylum		Select ✓

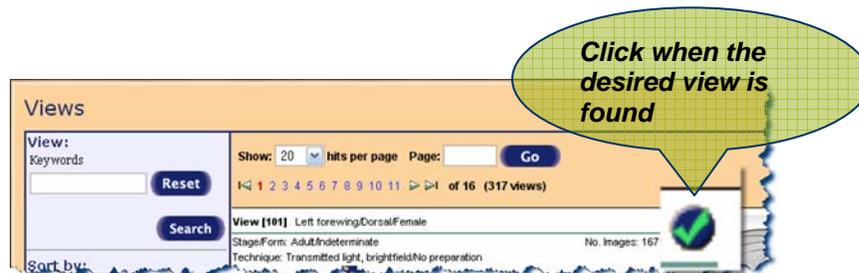
If a new taxon name needs to be added select the **Add New Taxon** button that is visible from the family level. The **Add TSN** screen will popup. (This option is only available for authorized users.) For complete instructions on this process see the [ITIS, Add New Taxon](#) section of this manual.

Note: Great care must be taken when adding new taxon names to the local copy of the database. New names must be accurate and accepted in the biological community. <http://www.itis.usda.gov/>.

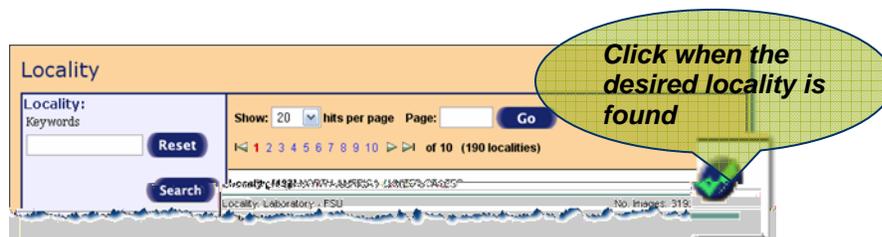
Specimen id- To insure accuracy, specimen identifiers need to be selected ✓ from the specimen screen. Traverse through the list. Sort the list if needed (see [browse-specimen, sort](#) for instructions unique to this process). When the desired specimen is found, click on the  icon and the screen will redirect back to the **Browse-Images** page and the appropriate specimen identifier will be filled in.



View id- To insure accuracy, view identifiers need to be selected ✓ from the views screen. Traverse through the list. Sort the list if needed (see [browse-views, sort](#) for instructions unique to this process). When the desired view is found, click on the ✓ icon and the screen will redirect back to the **Browse-Images** page and the appropriate view identifier will be filled in.



Locality id- To insure accuracy, locality identifiers need to be selected ✓ from the locality screen. Traverse through the list. Sort the list if needed (see [browse-locality, sort](#) for instructions unique to this process). When the desired specimen is found, click on the ✓ icon and the screen will redirect back to the **Browse-Images** page and the appropriate locality identifier will be filled in.



Sort the Results

To sort the list of images, select the **Sort By** criteria from the drop down list(s). The more criteria selected, (up to 3 levels) the more refined the browse will be (Figure 11). The resulting page will display the images list with the initial **Sort By** option grouped together first, followed by groups of any of the other sort criteria that was selected.

Sort criteria options for **Browse-Images** include:

- Image id: unique MorphBank-issued id for a collection
- Taxon id: unique MorphBank-issued identifier for a taxon name
- Taxon name: scientific name associated with the specimen and/or images
- Specimen part: pertains to a view that contains a portion of a specimen
- Angle: location of the camera with respect to the specimen for photographing
- Sex: of the specimen
- Stage: developmental growth phase of specimen
- Form: specimens may
- Have a form of parthenogenetic, indeterminate, , unknown, etc.
- Imaging: technique used to capture photo such as auto-montage, transmitted light; bright field, etc.
- Imaging Preparation Technique: Technique used on the specimen before photographing such as gold coated or pressed and dried, etc.

Use the **New Search** button to clear the **search** and **Sort By** boxes of all criteria.

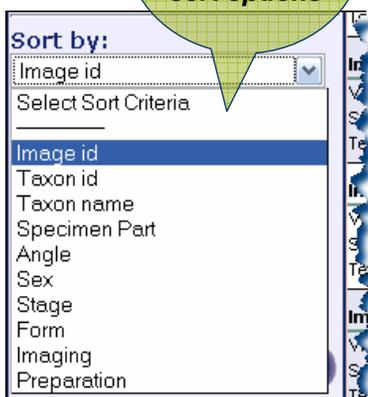


Figure 10 Browse-Image-Sort Options



Figure 11 Browse-Image-Sort



Adding Images to a Collection

Logged-in users have the option of adding a group of images to a **collection**. (If not logged-in, this section does not appear onscreen.) A collection is a group of specimen images that are assembled from the MorphBank database by MorphBank members for the purpose of viewing and/or manipulating (e.g. rearranging the order, editing, and/or annotating, etc.) and storing the images for future use.

Note: In upcoming versions a collection will include images and other objects such as: annotations, groups, localities, publications, specimens, users or views.

- Collections must have at least one image/object. Deleting the last image will leave an empty collection. Do not delete it.
- Collections have an order based the owner's criteria. The initial order will correspond to the order the objects were initially selected.
- Collections are identified by a unique internal id.
- Collections are published (viewable to the world) when released by the creator (default 6 months if not otherwise notified).

Once the desired group of images are collected and listed on the screen, the images can be tagged for inclusion in a **collection**. Select the desired images for a collection by clicking on the check box to the left of the image id on each image to be included. (Figure 12)

Note: There are no restrictions as to the number of objects in a collection. However, due to speed considerations, the user should exercise caution not to exceed 100 high resolution images per collection.

If all the images listed on the screen are desired in the collection, select the **Check All** button. To undo all the checked boxes at one time click on the **UnCheck** button.

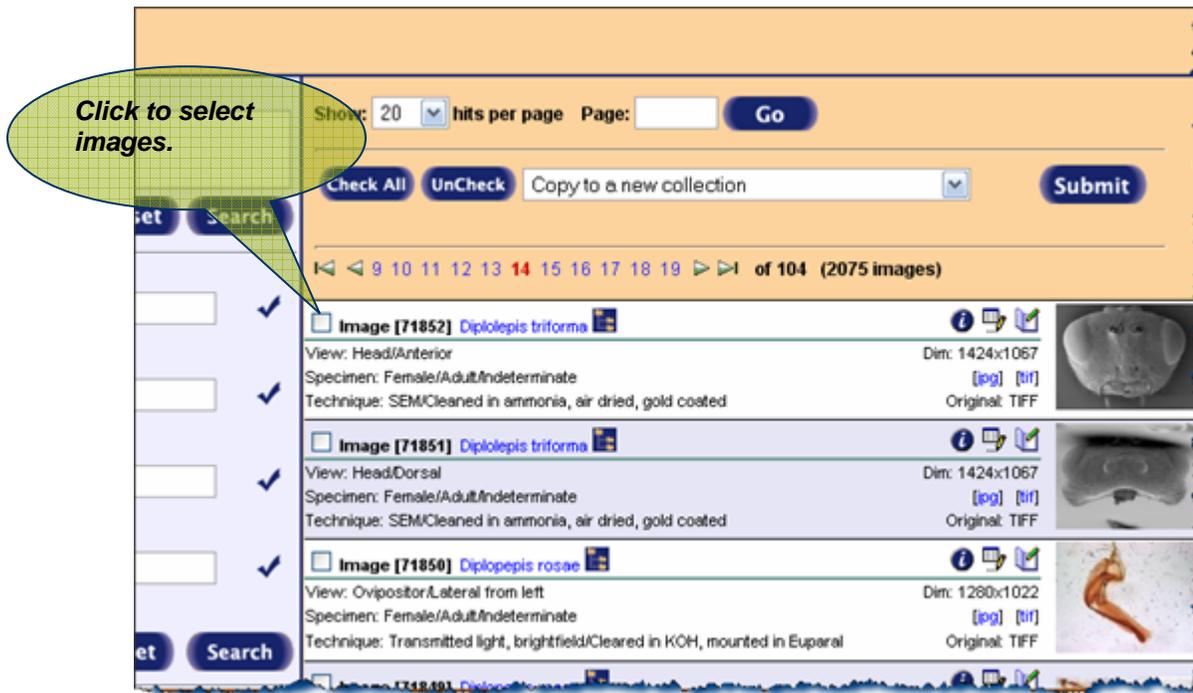


Figure 12 Check Boxes for Inclusion in Collection

From the drop down list, choose the desired operation followed by **Submit**. The **Collection Manager** will display a confirmation message before performing the operation.

Collections can be viewed, edited and annotated. See the [Collections](#) section of this manual for detailed instructions and permission guidelines for using these features.

Screen Use Tips:

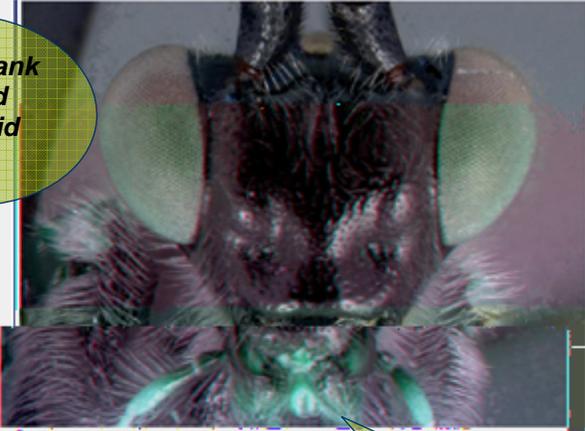
The number of hits displayed on each page can be designated and a user can advance to a specific page number by listing that page and selecting the go **Go** button (Figure 8, Figure 12). Keep in mind that the quantity of information requested to display per page will affect the speed at which that screen loads (i.e. requesting 100 records per page will take longer to load than the screen that has only 10 records to load.)

Selecting the information icon will display detailed information about that object (as in Figure 13). Selecting the tree of life symbol will list the taxonomic hierarchy of the

Taxon name (Figure 14). Other options such as annotate and edit will be available only for those authorized through login permissions.

Example: Single Show-Image Record Page

This is an example of an image record page displayed from the information  icon. MorphBank Single Show is an efficient way to display large amounts of information. For complete documentation on single show refer to [MorphBank Show](#) in the **Information Linking** section of this manual.

Image Record: [76408] Alabagrus albispina 	
<p>Contributor: Michael Sharkey </p> <p>Submitter: Michael Sharkey </p> <p>Submitted date: 07-20-2004</p> <p>Published date: 07-20-2004</p> <hr/> <p>Access #: 5565</p> <p>Magnification: NULL</p> <p>Dimension (px): 1351x1019</p> <p>Resolution (PPI): 72</p> <p>Submitted as: TIFF</p> <hr/> <p>View id: 75513</p> <p>specimen part: [58] - Head 1</p> <p>Angle: [35] - Anterior</p> <p>Technique: [25] - Auto-Montage</p> <p>Preparation: [72348] - No preparation</p> <hr/> <p>Download: tiff (3.95 MB)</p> <p>jpeg (182.76 KB)</p>	
<p>Specimen</p> <p>Specimen id: 75543</p> <p>Basis of record: [S] - Specimen</p> <p>Sex: [97] - Female</p> <p>Form: [104] - Indeterminate</p> <p>Stage: [95] - Adult</p> <p>Collector: Michael Sharkey</p> <p>Date collected: 00-00-0000</p>	<p>Locality</p> <p>Locality Id: 75542</p> <p>Continent ocean: [00] - UNKNOWN</p> <p>Country: [00] - UNKNOWN</p> <p>Locality:</p> <p>Latitude:</p> <p>Longitude:</p> <p>Elevation (m):</p>
<p>Determination</p> <p>Class: Insecta </p> <p>Order: Hymenoptera </p> <p>Family: Braconidae </p> <p>Genus: Alabagrus </p> <p>Species: Alabagrus albispina </p>	<p>Determination annotations</p>
<p>External links</p>	<p>Other Annotations</p>

MorphBank issued image id

Click to initiate FSI Viewer

blue font is selectable to reveal additional information

Figure 13 Example of Image Record

Example: Taxon Hierarchy Page

This is an example of an image record page displayed from the taxon hierarchy  icon.

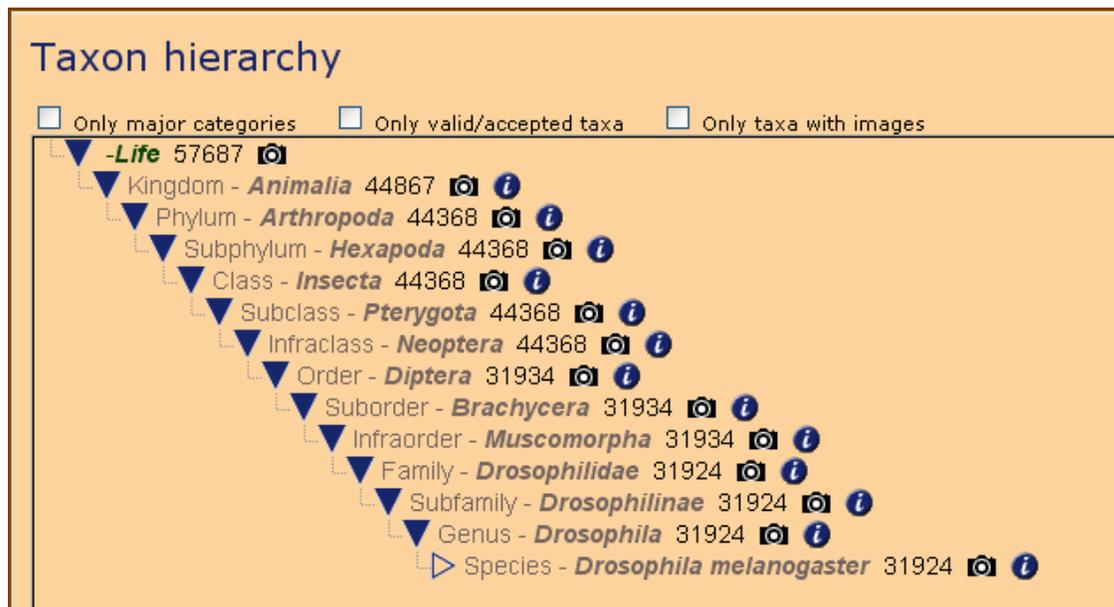
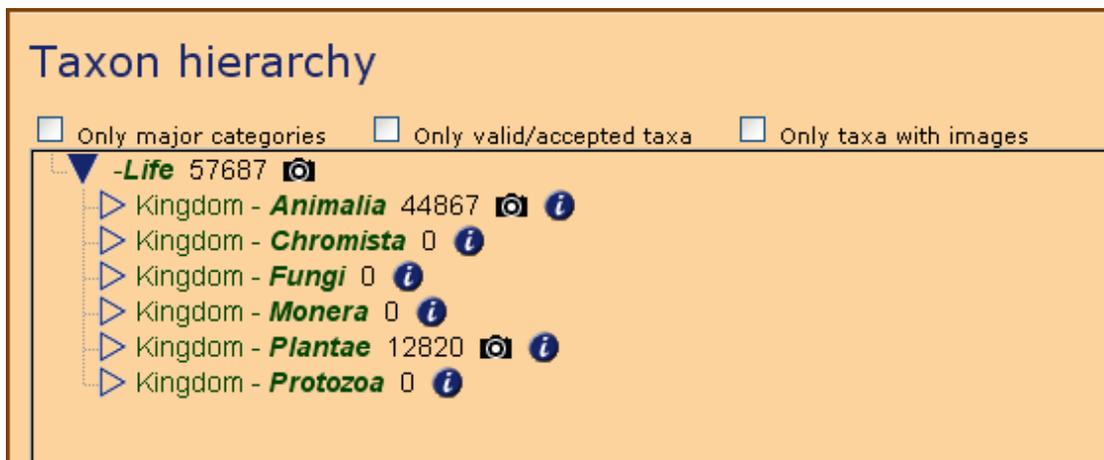


Figure 14 Example of Taxon Hierarchy

Browse -Taxon Hierarchy

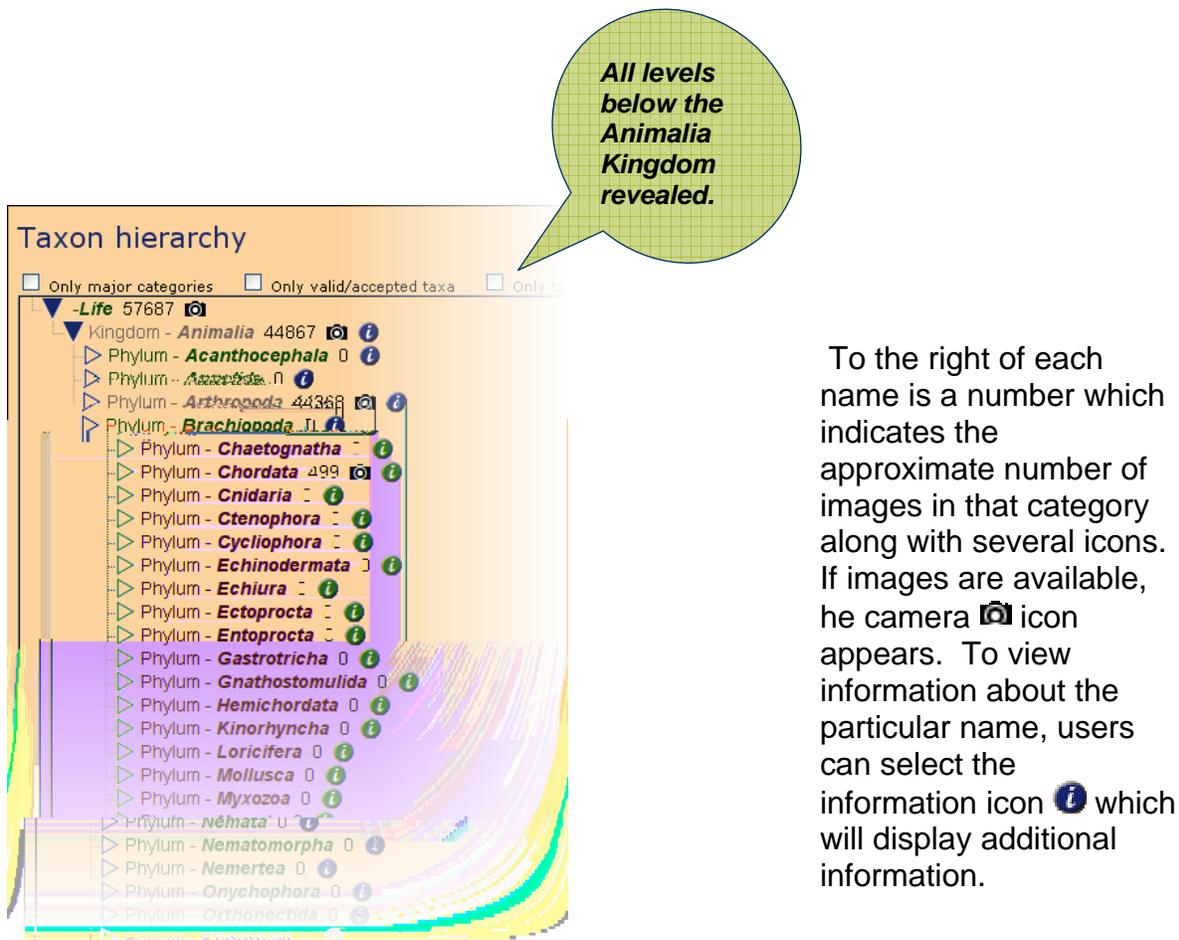


The screenshot shows a web interface titled "Taxon hierarchy". At the top, there are three checkboxes: "Only major categories", "Only valid/accepted taxa", and "Only taxa with images", all of which are currently unchecked. Below the checkboxes is a tree view of taxonomic levels. The root level is "-Life" with a count of 57687 and an image icon. It branches into six kingdoms: "Animalia" (44867), "Chromista" (0), "Fungi" (0), "Monera" (0), "Plantae" (12820), and "Protozoa" (0). Each kingdom entry includes a right-pointing triangle icon, a count, and an information icon (i). The "Animalia" and "Plantae" entries also include a camera icon, indicating they have images.

Figure 15 Browse-Taxon Hierarchy

In this option, users are placed at the top level of the taxonomic hierarchy to view all Kingdoms (Figure 15). By default the user will browse the taxon hierarchy through all available categories containing all available taxa. By selecting **Only Major Categories** the user will have the option to browse using only major hierarchy categories (kingdom, phylum, class, order, family, genus, and species). The **Only valid/accepted taxa** option will limit the browse to taxa that are ITIS accepted. By selecting the **Only taxa with images**, the resulting list will contain only the categories that are currently populated with images.

By left-clicking on the name of the Kingdom, the tree is expanded to reveal all levels below that Kingdom (Figure 16).



All levels below the Animalia Kingdom revealed.

Taxon hierarchy

Only major categories Only valid/accepted taxa Only taxa with images

- Kingdom - **Animalia** 44867  
- Phylum - **Acanthocephala** 0 
- Phylum - **Ascomycota** 0 
- Phylum - **Arthropoda** 44368  
- Phylum - **Brachiopoda** 11 
- Phylum - **Chaetognatha** 0 
- Phylum - **Chordata** 499  
- Phylum - **Cnidaria** 0 
- Phylum - **Ctenophora** 0 
- Phylum - **Cycliophora** 0 
- Phylum - **Echinodermata** 0 
- Phylum - **Echiura** 0 
- Phylum - **Ectoprocta** 0 
- Phylum - **Entoprocta** 0 
- Phylum - **Gastrotricha** 0 
- Phylum - **Gnathostomulida** 0 
- Phylum - **Hemichordata** 0 
- Phylum - **Kinorhyncha** 0 
- Phylum - **Loricifera** 0 
- Phylum - **Mollusca** 0 
- Phylum - **Myxozoa** 0 
- Phylum - **Nemata** 0 
- Phylum - **Nematomorpha** 0 
- Phylum - **Nemertea** 0 
- Phylum - **Onychophora** 0 
- Phylum - **Orthopectida** 0 

To the right of each name is a number which indicates the approximate number of images in that category along with several icons. If images are available, the camera  icon appears. To view information about the particular name, users can select the information icon  which will display additional information.

Figure 16 Browse-Taxon Hierarchy Showing Levels

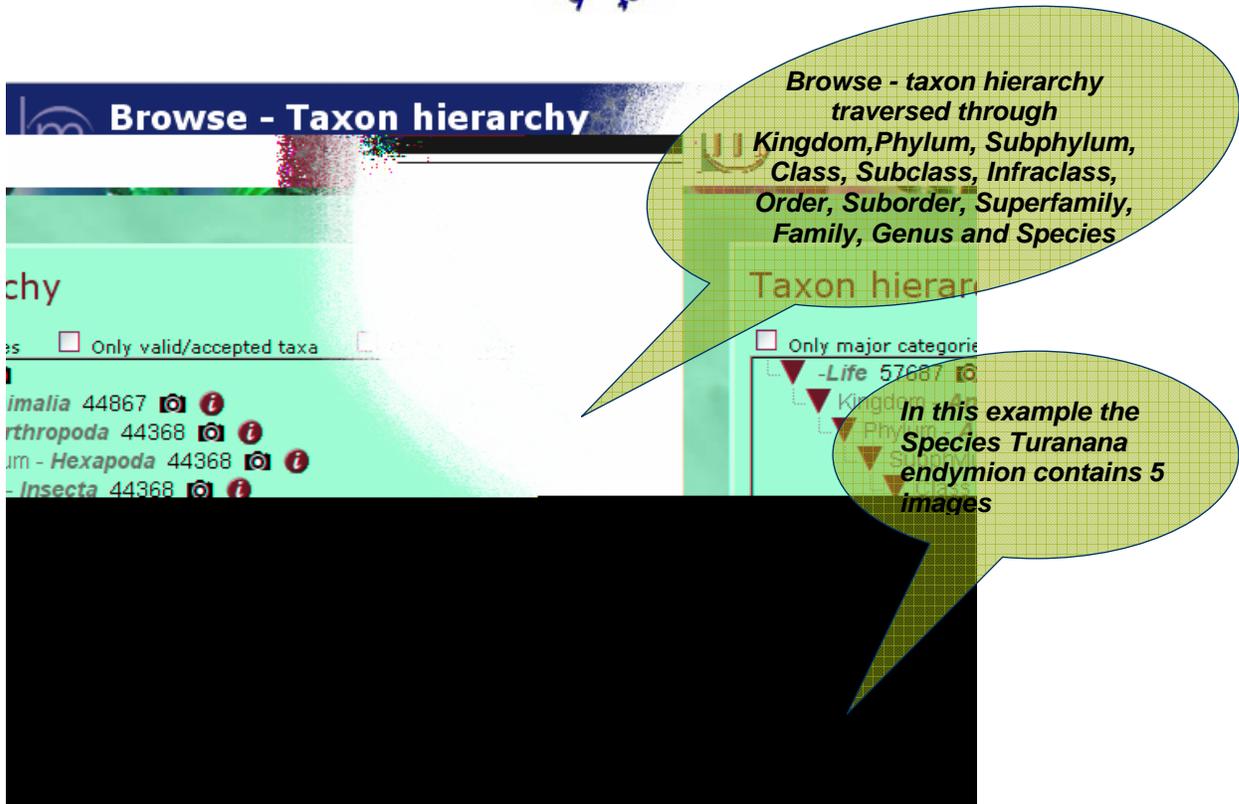


Figure 17 Browse-Taxon Hierarchy Showing Levels

Continuing to left-click on subsequent scientific names will expose progressively lower levels of the hierarchy tree (Figure 17). Each level will contain the same screen options as listed above.

Selecting the downward arrow ▼ on the *Taxon Hierarchy* screen advances the tree to the next taxon level. The open, right facing arrow ► signifies that the tree can be expanded further by selecting the desired scientific name.



If the downward arrow ▼ that has lower hierarchy levels exposed is selected, the list is collapsed to that arrow which becomes a right facing arrow ► (Figure 18). Click the arrow again to return to the previous state.

Figure 18 Taxon Hierarchy All Levels Collapsed



Note: The number of images shown beside the taxon names may not be the actual count. Image counts are updated periodically. Values that remain constant over several hours can be assumed to be accurate. Images just submitted may take time to publish so image(s) may not be immediately viewable but may be listed in the count.

Example: Browse-Images Page

Displays list of images when camera  icon is selected from **Browse-Taxon Hierarchy** page ([Figure 15](#)).

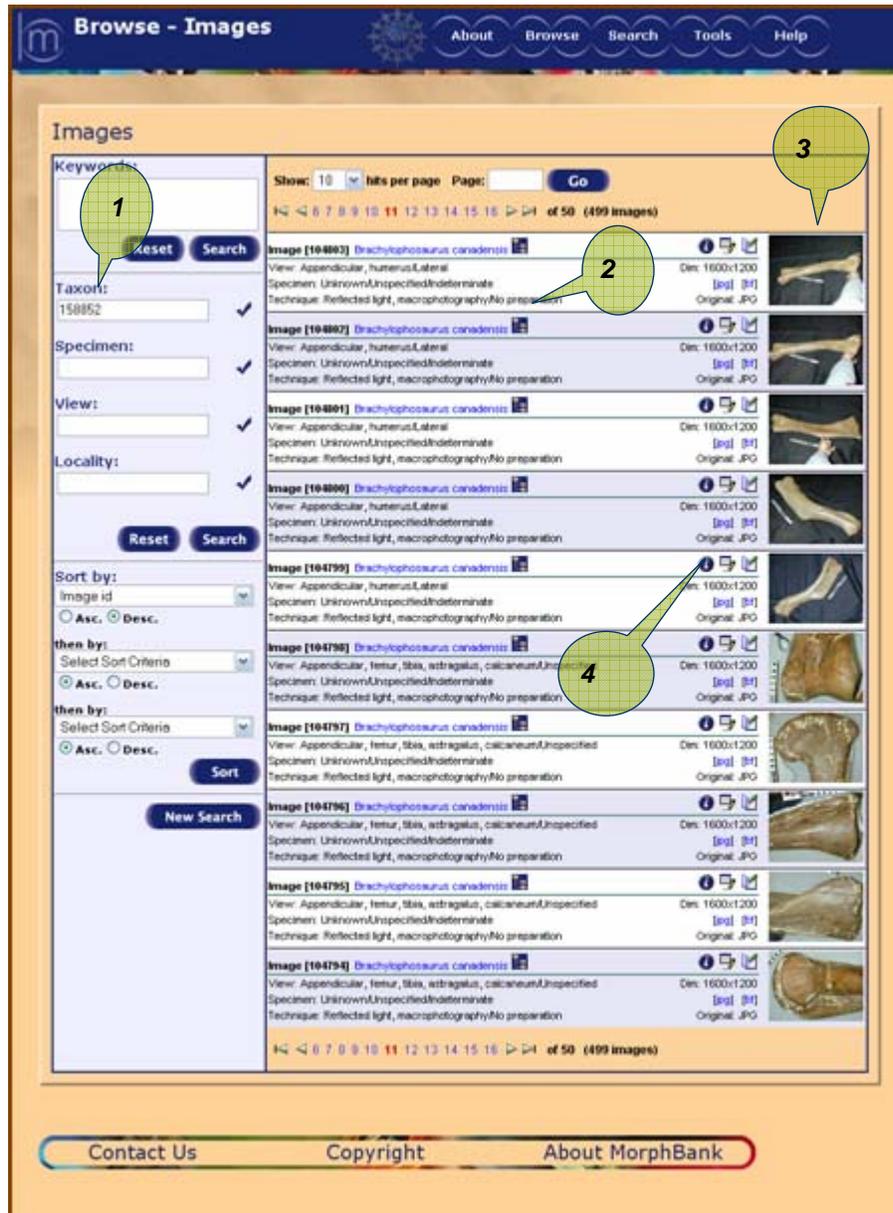


Figure 19 Example of Browse-Images

Tag descriptions for [Figure 19](#)

Tag 1 -Taxonomic serial number

Tag 2 -Select to advance to hierarchy tree or to the alphabetical list of all taxonomic names in MorphBank

Tag 3 -The list of images for the species

Tag 4 -Annotation, edit and information icons

Screen Use Tips:



Use the check boxes (located left of the image id) to select images to add to a collection.

The number of hits displayed on each page can be designated and a user can advance to a specific page number by listing that page and selecting the go  button). Keep in mind that the quantity of information requested to display per page will affect the speed at which that screen loads (i.e. requesting 100 records per page will take longer to load than the screen that has only 10 records to load.)

Selecting the information icon  will display detailed information about the specimen. Other options such as annotate  and edit  will be available only for those authorized through login permissions. Any thumbnail image can be reproduced in its original format by selecting the **[jpg] or [tif]** option (images with other formats will list that option). Selecting the tree of life symbol  will list the taxonomic hierarchy of the Taxon name.

Example: ITIS Report

Displayed from Information  Icon, **Browse -Taxon Hierarchy** page (Figure 15).

This taxonomic classification page is provided by the [Integrated Taxonomic Information System \(ITIS\)](#) database maintained by the United States Department of Agriculture (USDA). ITIS was selected as the taxonomic name server for MorphBank in 2004 because it represented the most complete comprehensive taxonomic name service available at the time. Also, the entire database could be downloaded locally making access to the data quick and efficient.

ITIS is a consistent service. It has a high level of stability and a rigid review system. Since ITIS is maintained by the USDA, the probability that the service will be persistent for several years is high. Taxonomic names are entered into the system and panel of experts periodically review the names for quality assurance.

When a taxonomic Id has a value greater than [999000000] it is considered a temporary id. Temporary Ids are assigned to taxon names that have not been officially entered into the ITIS database.

ITIS Report

[Home](#) [About Data](#) [Data Access](#) [Submit Data](#) [Tools](#) [Comment](#)

[Go to Print Version](#)

Celastrina argiolus
Taxonomic Serial No.: 188523

Taxonomy and Nomenclature

Kingdom:	Animalia
Taxonomic Rank:	Species
Synonym(s):	
Common Name(s):	azur printanier [French] spring azure [English]

Taxonomic Status:
Current Standing: valid

Data Quality Indicators:
Record Credibility Rating: unverified

Taxonomic Hierarchy

Kingdom	Animalia -- Animal, animals, animaux
Phylum	Arthropoda -- arthropodes, arthropods, Artrópode
Subphylum	Hexapoda -- hexapods
Class	Insecta -- hexapoda, insectes, insects, insecto
Subclass	Pterygota -- insects ailés, winged insects
Infraclass	Neoptera -- modern, wing-folding insects
Order	Lepidoptera -- Borboleta, butterflies, Mariposa, moths, papillons, papillons de nuit
Superfamily	Papilionoidea -- butterflies, papillons
Family	Lycaenidae -- blues, coppers, gossamer-winged butterflies, hairstreaks, harvesters
Subfamily	Polyommatalinae
Tribe	Polyommatalini
Genus	Celastrina Tutt, 1906
Species	<i>Celastrina argiolus</i> -- azur printanier, spring azure

Direct Children:

Subspecies	Celastrina argiolus argiolus
Subspecies	Celastrina argiolus psuedargiolus (Boisduval and Leconte) -- jenny lind, spring azure

References

Expert(s):

Figure 20 Sample ITIS Report-Partial Page

Example: Single Show-Image Record

Displayed from the information  icon, **Browse Images** page (Figure 19). This page displays Information unique to this image. MorphBank Single Show is an efficient way to display large amounts of information. For complete documentation on single show refer to [MorphBank Show](#) in the **Information Linking** section of this manual.

Image Record: [102143] <i>Ampulex compressa</i> 	
<p>Contributor: Katja Seltmann </p> <p>Submitter:</p> <p>Submitted date: 08-02-2006</p> <p>Published date: 07-31-2006</p> <hr/> <p>Access #: 53077</p> <p>Magnification: NULL</p> <p>Dimension (px): 3984x4599</p> <p>Resolution (PPI):</p> <p>Submitted as: TIFF</p> <hr/> <p>View id: 79922</p> <p>Specimen part: [94] - Whole body</p> <p>Angle: [38] - Dorsal</p> <p>Technique: [25] - Auto-Montage</p> <p>Preparation: [77344] - No preparation</p> <hr/> <p>Download: tiff (52.43 MB)</p> <p>jpeg (3.76 MB)</p>	
<p>Specimen</p> <p>Specimen id: 102101</p> <p>Basis of record: [S] - Specimen</p> <p>Sex: [97] - Female</p> <p>Form: [104] - Indeterminate</p> <p>Stage: [95] - Adult</p> <p>Collector: Reinhard</p> <p>Date collected: 04-00-1994</p>	<p>Locality</p> <p>Locality Id: 102049</p> <p>Continent ocean: [AS] - ASIA</p> <p>Country: [LK] - SRI LANKA</p> <p>Locality: Koggala</p> <p>Latitude:</p> <p>Longitude:</p> <p>Elevation (m):</p>
<p>Determination</p> <p>Class: Insecta </p> <p>Order: Hymenoptera </p> <p>Family: Sphecidae </p> <p>Genus: Ampulex </p> <p>Species: Ampulex compressa </p>	<p>Determination annotations</p>
<p>External links</p>	<p>Other Annotations</p>

Figure 21 Example of Image Record

Browse - Taxon Names

Figure 22 Browse-Taxon Names –Using “One Letter” Option (G)

In this option, users can avoid possible spelling or name recollection difficulties by using the **Browse - Taxon Names** option. All taxonomic names are listed in alphabetic order. The default screen will list all alphabetized taxon names starting with the letter **A** and finishing with **Z**. To start the list with another letter,

select it from the letter strip above the list. For example, select **P** to start the list with the letter **P** and end with **O**.

Another option, by **one letter**, is available for those who would like to see only those taxon names listed that begin with one selected letter at a time (Figure 22).



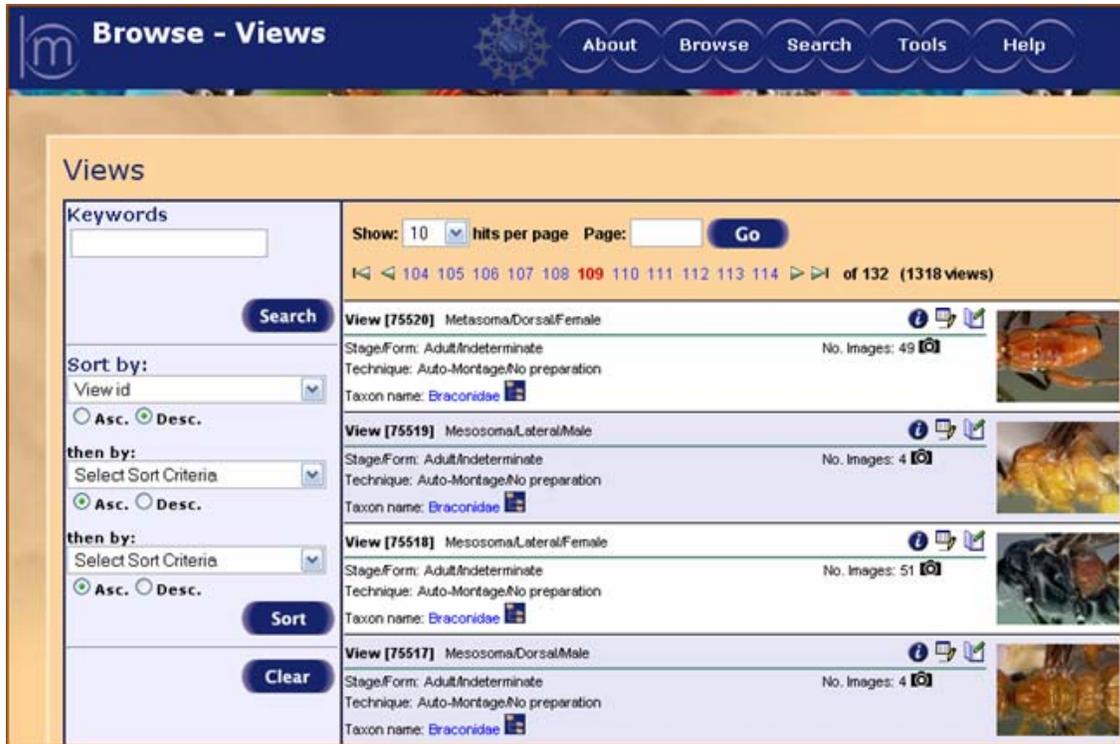
For example, if the user selects the **one letter** option, and selects the letter **G** from the letter selection strip, only a list of taxon names beginning with **G** will result. Users may select the camera  beside a taxonomic name to display a

list of associated images ([Figure 19](#)). Selecting the tree of life symbol  will list the taxonomic hierarchy of the Taxon name ([Figure 15](#), [Figure 16](#), [Figure 17](#)).

Notes:

- ***This taxonomic classification is based on the [Integrated Taxonomic Information System \(ITIS\)](#) database maintained by the United States Department of Agriculture.***
- ***When a taxonomic Id has a value greater than [999000000] it is considered a temporary id. Temporary Ids are assigned to taxon names that have not been officially entered into the ITIS database.***
- ***The number of images shown beside the taxon names may not be the actual count. Image counts are updated periodically. Values that remain constant over several hours can be assumed to be accurate. Images just submitted may take time to publish so image(s) may not be immediately viewable but may be listed in the count.***

Browse –Views



The screenshot shows the 'Browse - Views' interface. At the top, there is a navigation bar with 'About', 'Browse', 'Search', 'Tools', and 'Help' buttons. Below this, the 'Views' section is displayed. On the left, there is a 'Keywords' search box and a 'Sort by' section with options for 'View id', 'Asc.', and 'Desc.'. The main content area shows a list of views with the following details:

View ID	Criteria	Stage/Form	Technique	Taxon name	No. Images
[75520]	Metasoma/Dorsal/Female	Adult/Indeterminate	Auto-Montage/No preparation	Bracoridae	49
[75519]	Mesosoma/Lateral/Male	Adult/Indeterminate	Auto-Montage/No preparation	Bracoridae	4
[75518]	Mesosoma/Lateral/Female	Adult/Indeterminate	Auto-Montage/No preparation	Bracoridae	51
[75517]	Mesosoma/Dorsal/Male	Adult/Indeterminate	Auto-Montage/No preparation	Bracoridae	4

Figure 23 Browse-Views

A view specifies the criteria (the type of taxa, view angle, preparation technique, etc.) under which a photograph was taken. By selecting the **View** option, the user is presented with a list of all the registered views within the database (Figure 23).

Browse by Keywords

Use **Keywords** to display a list of views based on imaging technique, imaging preparation technique, part, angle, developmental stage, sex and/or form. To display a list of views based on a keyword(s) search, type the keyword(s) in the box and select **Search**. For example, to browse for all views pertaining to the dorsal side of a body (part) and gold coated (imaging preparation technique), type keywords **body dorsal gold coated** and select **Search** (Figure 24).

Screen Use Tips:

Separate more than one keyword with a space. **Search** is not case sensitive. Proper spelling will assure the best search however, typing a partial word, will result in a corresponding search containing those letters. (e.g. if searching for taxon braconidae, typing the letters “braco”, or “conidae” will result in a list of braconidae data, but entering “idae” would return a list that contained more than just braconidae data. Therefore, the more complete the search word(s) is, the more accurate the search results will be.)



Figure 24 Browse-Views: Keywords

Sort the Results

To sort the list of views, select the **Sort By** criteria from the drop down list(s). The more criteria selected, (up to 3 levels) the more refined the browse will be (Figure 25, Figure 26). The resulting page will display the view list with the initial **Sort By** option grouped together first, followed by groups of any of the other sort criteria that was selected.

Sort criteria options for **Browse-Views** include:

-  View id: Unique MorphBank-issued identifier for a view
-  Specimen part: pertains to a view that contains a portion of a specimen

- Angle: location of the camera with respect to the specimen for photographing
- Sex : present for specimens when known or applicable
- Stage: developmental growth phase of specimen
- Form: specimens may have a form of parthenogenetic, indeterminate, unknown, etc.
- Imaging: technique used to capture photo such as auto-montage, transmitted light; bright field, etc.
- Imaging Preparation Technique: technique used to prepare the specimen for photographing such as dissected, air dried and gold coated etc.
- Taxon: scientific name of the specimen
- Number of images: pertaining to one specimen

Use the **Clear** button to clear the **Search** and **Sort By** boxes of all criteria.

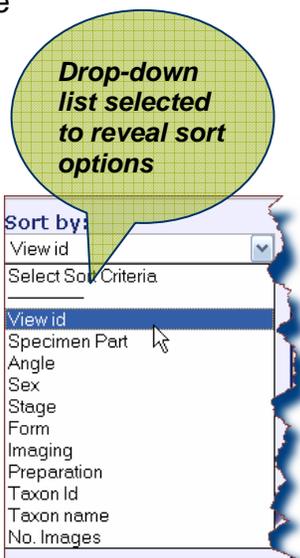


Figure 25 Browse-View-Sort Options

Figure 26 Browse-View-Sort

Screen Use Tips:

The number of hits displayed on each page can be designated and a user can advance to a specific page number by listing that page and selecting the go  button (Figure 23, Figure 24). Keep in mind that the quantity of information requested to display per page will affect the speed at which that screen loads (i.e. requesting 100 records per page will take longer to load than the screen that has only 10 records to load.)

Selecting the camera  will display all images associated with that view regardless of their taxonomic value (Figure 27) or selecting the information icon  will display detailed information about that view. Selecting the tree of life symbol  will list the taxonomic hierarchy of the Taxon name. Other options such as annotate  and edit  will be available only for those authorized through login permissions.

Example: Browse-Images Page

Displays list of images when camera  icon is selected from Browse-Views page (Figure 23).

Images

Keywords: Show: 10 hits per page Page: Go

1 2 3 4 5 of 5 (49 images)

3

Reset Search

Taxon: ✓

Specimen: ✓

View: 75520 ✓

Locality: ✓

Reset Search

Sort by: Image id

Asc Desc

then by: Select Sort Criteria

Asc Desc

then by: Select Sort Criteria

Asc Desc

Sort

New Search

1

2

Image [77260]	<i>Abbagrus yezari</i>	View: MetatonaCorral Specimen: Female/Adult/Indeterminate Technique: Auto-Montage/No preparation	Den: 1313c999 Original: TFF	
Image [77240]	<i>Abbagrus scoti</i>	View: MetatonaCorral Specimen: Female/Adult/Indeterminate Technique: Auto-Montage/No preparation	Den: 1349b1015 Original: TFF	
Image [77224]	<i>Abbagrus wilsoni</i>	View: MetatonaCorral Specimen: Female/Adult/Indeterminate Technique: Auto-Montage/No preparation	Den: 1351c1019 Original: TFF	
Image [77267]	<i>Abbagrus werneri</i>	View: MetatonaCorral Specimen: Female/Adult/Indeterminate Technique: Auto-Montage/No preparation	Den: 1351c1009 Original: TFF	
Image [77190]	<i>Abbagrus werneri</i>	View: MetatonaCorral Specimen: Female/Adult/Indeterminate Technique: Auto-Montage/No preparation	Den: 1351c1019 Original: TFF	
Image [77173]	<i>Abbagrus wachupa</i>	View: MetatonaCorral Specimen: Female/Adult/Indeterminate Technique: Auto-Montage/No preparation	Den: 1351c1019 Original: TFF	
Image [77157]	<i>Abbagrus woto</i>	View: MetatonaCorral Specimen: Female/Adult/Indeterminate Technique: Auto-Montage/No preparation	Den: 1351c1019 Original: TFF	
Image [77140]	<i>Abbagrus vericolor</i>	View: MetatonaCorral Specimen: Female/Adult/Indeterminate Technique: Auto-Montage/No preparation	Den: 1349b1019 Original: TFF	
Image [77123]	<i>Abbagrus ucha</i>	View: MetatonaCorral Specimen: Female/Adult/Indeterminate Technique: Auto-Montage/No preparation	Den: 1351c1019 Original: TFF	
Image [77106]	<i>Abbagrus tripartitus</i>	View: MetatonaCorral Specimen: Female/Adult/Indeterminate Technique: Auto-Montage/No preparation	Den: 1351c1019 Original: TFF	

1 2 3 4 5 of 5 (49 images)

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Tag descriptions for Figure 27

Tag 1 -List of images associated with the view 75520

Tag 2 -Select to advance to hierarchy tree

Tag 3 - MorphBank-issued unique identifier number for the view.

Figure 27 Example of Browse – Images

Example: Thumbnail image enlarged

When selecting *[jpg]* or *[tif]* from an images page such as [Figure 27](#), any thumbnail image can be reproduced in its original format (images with other formats will list that option).

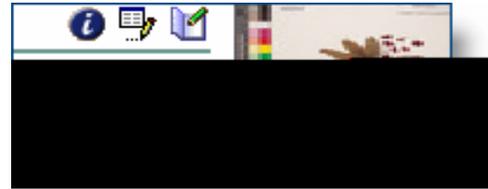


Image Thumbnail
From [Figure 28](#)



Figure 28 Example of Thumbnail Image When [JPG] or [TIF] Selected

Example: Single Show-View Record Page

Displayed from the information  Icon, **Browse-Views** page ([Figure 23](#)).

MorphBank issued view id

View Record: [75515] Head/ Lateral/ Female
Applicable to [Braconidae](#) 

Contributor: Fredrik Ronquist 
Submitter: Fredrik Ronquist 
Date Submitted: 11-30-2005
Last Modified: 11-30-2005
Publish Date: 11-30-2005

Specimen Part: Head
View Angle: Lateral
Sex: Female
Form: Indeterminate
Stage: Adult
Technique: Auto-Montage
Preparation: No preparation
View Applicable to: Braconidae 

Example Image: [\[76536\]](#)

Images for view: 54 

Click to initiate FSI Viewer

Figure 29 Example of View Record

MorphBank Single Show is an efficient way to display large amounts of information. For complete documentation on single show refer to [MorphBank Show](#) in the **Information Linking** section of this manual.

Browse-Specimens



Browse - Specimens

About Browse Search Tools Help

Specimens

Keywords:

Sort by: Specimen Id Asc. Desc.

then by: Select Sort Criteria Asc. Desc.

then by: Select Sort Criteria Asc. Desc.

Show: 10 hits per page Page:

of 4376 (43758 specimens)

Specimen [72248] <i>Syngaster colombianus</i>	No. Images: 1	
Specimen [72259] <i>Syngaster colombianus</i>	No. Images: 1	
Specimen [72258] <i>Syngaster colombianus</i>	No. Images: 1	
Specimen [72257] <i>Aylax hypocoel</i>	No. Images: 1	
Specimen [72256] <i>Aylax hypocoel</i>	No. Images: 1	
Specimen [72255] <i>Aylax hypocoel</i>	No. Images: 1	
Specimen [72254] <i>Aylax hypocoel</i>	No. Images: 1	
Specimen [72253] <i>Aylax hypocoel</i>	No. Images: 1	
Specimen [72252] <i>Aylax hypocoel</i>	No. Images: 1	
Specimen [72251] <i>Aylax hypocoel</i>	No. Images: 1	

of 4376 (43758 specimens)

Contact Us Copyright About MorphBank

Figure 30 Browse-Specimens

By selecting the **Browse-Specimens** option, the user will be presented with a list of all specimens registered in the MorphBank database.

Browse by Keywords

Use **Keywords** to display a list of specimens based on sex, form, basis of record, type status, collector name, institution code, collection code, catalog number, and/or taxonomic names. To display a list of specimens based on a keyword(s) search, type the keyword(s) in the box and select **Search**. For example, to browse for all specimens pertaining to the male (sex), *Aricia* (taxonomic name); type in **male Aricia** and select **Search** (Figure 31).

Screen Use Tips:

Separate more than one keyword with a space. **Search** is not case sensitive. Proper spelling will assure the best search however, typing a partial word, will result in a corresponding search containing those letters. (e.g. if searching for taxon braconidae, typing the letters “braco”, or “conidae” will result in a list of braconidae data, but entering “idae” would return a list that contained more than just braconidae data. Therefore, the more complete the search word(s) is, the more accurate the search results will be.)



Figure 31 Browse-Specimens-Keywords

Sort the results

To sort the list of specimens, select the **Sort By** criteria from the drop down list(s). The more criteria selected, (up to 3 levels) the more refined the browse will be (Figure 32). The resulting page will display the specimen list with the

initial **Sort By** option grouped together first, followed by groups of any of the other sort criteria that was selected.

Sort criteria options for browse-specimen include:

- Specimen id: Unique MorphBank-issued identifier for a specimen
- Basis of record: at the time of collection, the specimen was categorized as an observation, a living organization, a specimen, a germ plasm/seed
- Sex: present for specimens when known or applicable
- Form: Morphotype of the specimen. Specimens may have a form of parthenogenetic, indeterminate, unknown, etc.
- Developmental stage: developmental growth phase of specimen
- Type status: specimen that is universally accepted as being a clear example of its species
- Collector name: records are grouped by person who collected the specimen
- Date: when the specimen was collected
- Number of images: pertaining to one specimen
- Country: where the specimen was collected

Use the **clear** button to clear the **Search** and **Sort By** boxes of all criteria.



The image shows a screenshot of the MorphBank interface. On the right, there is a search form with a 'Keywords' input field, a 'Search' button, and three 'Sort by' sections. Each 'Sort by' section has a dropdown menu for 'Specimen Id' and radio buttons for 'Asc.' and 'Desc.'. Below the 'Sort by' sections are 'Sort' and 'Clear' buttons. On the left, a 'Sort by:' dropdown menu is open, showing a list of sort criteria: Specimen Id, Basis Of Record, Sex, Form, Developmental Stage, Type Status, Collector Name, Date, No. Images, and Country. A callout bubble points to this dropdown menu with the text 'Drop-down list selected to reveal sort options'.

Figure 32 Specimens Sort Option

Screen Use Tips:

The number of hits displayed on each page can be designated and a user can advance to a specific page number by listing that page and selecting the go  button ([Figure 30](#)). Keep in mind that the quantity of information requested to display per page will affect the speed at which that screen loads (i.e. requesting 100 records per page will take longer to load than the screen that has only 10 records to load.)

Selecting the camera  will display all images associated with that view regardless of their taxonomic value ([Figure 31](#)) or selecting the information icon  will display detailed information about that view. Selecting the tree of life symbol  will list the taxonomic hierarchy of the Taxon name. Other options such as annotate  and edit  will be available only for those authorized through login permissions.

Example: Browse-Images Page

Displays list of images when camera  icon is selected from **Browse-Specimens** page (Figure 30).



Figure 33 Example of Browse-Images

Tag descriptions for Figure 33

Tag 1 -Select to advance to hierarchy tree or to the alphabetical list of all taxonomic names in MorphBank

Tag 2 -The image associated with the specimen 79541

Tag 3 -MorphBank-issued Specimen identifier

Screen Use Tips:



Use the check boxes (located left of the image id) to select images to add to a collection.

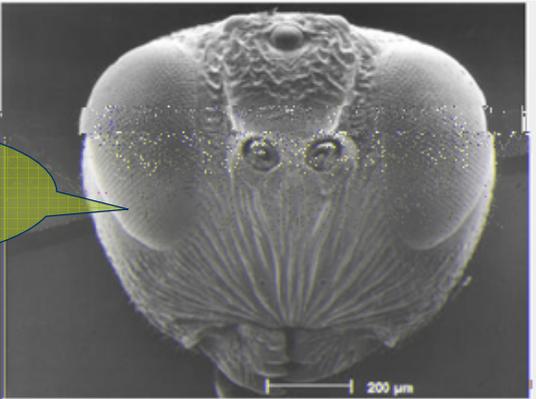
The number of hits displayed on each page can be designated and a user can advance to a specific page number by listing that page and selecting the go  button). Keep in mind that the quantity of information requested to display per page will affect the speed at which that screen loads (i.e. requesting 100 records per page will take longer to load than the screen that has only 10 records to load.)

Selecting the information icon  will display detailed information about the specimen (Figure 34). Other options such as annotate  and edit  will be available only for those authorized through login permissions. Any thumbnail image can be reproduced in its original format by selecting the **[jpg] or [tif]** option (images with other formats will list that option). Selecting the tree of life symbol  will list the taxonomic hierarchy of the Taxon name.

Example: “Single Show”-Specimen Record Page

Displayed from the information  Icon, **Browse-Specimens** page (Figure 30). This page displays Information unique to this specimen. MorphBank Single Show is an efficient way to display large amounts of information. For complete documentation on single show refer to [MorphBank Show](#) in the **Information Linking** section of this manual.

Image Record: [72297] Synergus colombianus 

<p>Contributor: Jose Luis Nieves-Aldrey </p> <p>Submitter: Jose Luis Nieves-Aldrey </p> <p>Submitted date: 04-15-2005</p> <p>Published date: 04-15-2005</p> <hr/> <p>Access #: 3888F</p> <p>Magnification: FULL</p> <p>Dimension (px): 1962x1468</p> <p>Resolution (PPI): 300</p> <p>Submitted as: TIFF</p> <hr/> <p>View id: 67649</p> <p>Specimen part: [56] - Head</p> <p>Angle: [95] - Anterior</p> <p>Technique: [89] - SEM</p> <p>Preparation: [31] - Cleaned in ammonia, air dried, gold coated</p> <hr/> <p>Download: tiff (2.79 MB) jpeg (401.48 KB)</p>	
<p>Locality</p> <p>Locality Id: 67788</p> <p>Continent ocean: [SA] - SOUTH AMERICA</p> <p>Country: [CO] - COLOMBIA</p> <p>Locality: Iguaque</p> <p>Latitude:</p> <p>Longitude:</p> <p>Elevation (m):</p>	<p>Specimen</p> <p>Specimen id: 72297</p> <p>Basis of record: [S] - Female</p> <p>Sex: [97] - Female</p> <p>Form: [104] - Indeterminate</p> <p>Stage: [95] - Adult</p> <p>Collector: J.L. Nieves-Aldrey</p> <p>Date collected: 00-00-0000</p>
<p>Determination annotations</p>	<p>Determination</p> <p>Class: Insecta </p> <p>Order: Hymenoptera </p> <p>Family: Cynipidae </p> <p>Genus: Synergus </p> <p>Species: Synergus colombianus </p>
<p>Other Annotations</p>	<p>External links</p>

Click to initiate FSI Viewer

Click to reveal Locality Single Show

Blue font is selectable to reveal additional information

Figure 34 Example of Specimen Record

Browse-Locality

The screenshot displays the 'Browse - Locality' page on the MorphBank website. At the top, there is a navigation bar with 'About', 'Browse', 'Search', 'Tools', and 'Help' links. The main content area is titled 'Locality' and features a search interface on the left with a 'Keywords' field, a 'Search' button, and sorting options. The right side shows a list of localities, each with a unique ID, name, location, coordinates, elevation, and image count. The list is paginated, showing 'of 450 (4504 localities)'.

Locality ID	Location	Coordinates (Latitude/Longitude)	Elevation (m)	No. Images
[110564]	SOUTH AMERICA / CHILE			4
[110563]	NORTH AMERICA / DOMINICA	15.523 / -61.416	0	1
[110562]	NORTH AMERICA / UNITED STATES	0 / 0	0	0
[110374]	NORTH AMERICA / UNITED STATES	0 / 0	0	7
[110353]	OCEANIA / AUSTRALIA	0 / 0	0	15
[110345]	OCEANIA / AUSTRALIA	0 / 0	0	5
[110322]	ASIA / UNITED ARAB EMIRATES	25.10 / 56.07	0	5
[110313]	ASIA / ARMENIA	0 / 0	0	5
[110299]	AFRICA / ALGERIA	0 / 0	0	6
[110289]	AFRICA / SOUTH AFRICA	0 / 0	0	0

Figure 35 Browse Locality

A locality includes detailed information about where a specimen was collected. By selecting the **Browse Locality** option, the user will be presented with a list of all localities registered on the MorphBank database.

Browse by Keywords

Use **keywords** field to display a list of localities based on its locality field, continent/ocean and/or country. To display a list of localities based on a keyword(s) search, type the keyword(s) in the box and select **Search**. For example, to browse for all localities pertaining to the Europe (continent) Spain (country) and Madrid (locality); type in **Europe Spain Madrid** and select **Search** (Figure 39).

Screen Use Tips:

Separate more than one keyword with a space. **Search** is not case sensitive.

Proper spelling will assure the best search however, typing a partial word, will result in a corresponding search containing those letters. (e.g. if searching for taxon braconidae, typing the letters *braco*, or *conidae* will result in a list of braconidae data, but entering *idae* would return a list that contained more than just braconidae data. Therefore, the more complete the search word(s) is, the more accurate the search results will be.)

Quote marks placed around a word or string of words will result in output that matches the search exactly. For example, typing in "South America" with quotes will return only South America results whereas typing *South America* without quotes may produce results for north America, South America, etc.



Figure 36 Browse: Locality-Keywords

Sort the results

To sort the list of localities, select the **Sort By** criteria from the drop down list(s). The more criteria selected, (up to 3 levels) the more refined the browse will be (Figure 37). The resulting page will display the locality list with the initial **Sort By** option grouped together first, followed by groups of any of the other sort criteria that was selected.

Sort criteria options include:

-  Location id: Unique MorphBank-issued identifier for a locality
-  Continent ocean: name of continent or ocean where the specimen was collected
-  Country: name of the country where the specimen was collected
-  Locality: detailed description of where the specimen was collected
-  Number of images: pertaining to one specimen

Use the **Clear** button to clear the boxes of all criteria.

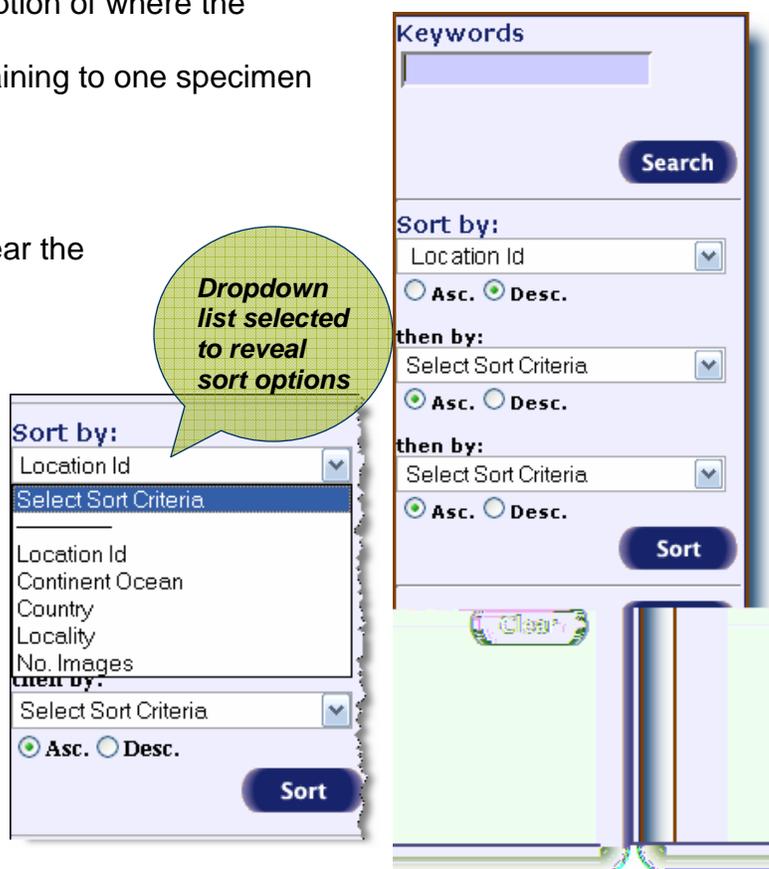


Figure 37 Locality Sort Options

Screen Use Tips:

The number of hits displayed on each page can be designated and a user can advance to a specific page number by listing that page and selecting the  go button (Figure 35). Keep in mind that the quantity of information requested to display per page will affect the speed at which that screen loads (i.e. requesting 100 records per page will take longer to load than the screen that has only 10 records to load.)

Selecting the camera  will display all images associated with that view regardless of their taxonomic value (Figure 38) or selecting the information icon  will display detailed information about that locality. Other options such as annotate  and edit  will be available only for those authorized through login permissions.

Example: Browse-Images Page

Displays list of images when camera  icon is selected from **Browse-Locality** page (Figure 35).

Figure 38 Example of Browse-Images

Tag descriptions for Figure 38

Tag 1 -Select to advance to hierarchy tree or to the alphabetical list of all taxonomic names in MorphBank

Tag 2 -The image associated with the specimen. Left click image to display Single Show

Tag 3 -Locality number

Tag 4-Selection check mark. For instruction on the details of this feature look in the [Search Images by Keywords](#) section in **Search** Chapter.

Screen Use Tips:



Use the check boxes (located left of the image id) to select images to add to a collection.

The number of hits displayed on each page can be designated and a user can advance to a specific page number by listing that page and selecting the go  button). Keep in mind that the quantity of information requested to display per page will affect the speed at which that screen loads (i.e. requesting 100 records per page will take longer to load than the screen that has only 10 records to load.)

Selecting the information icon  will display detailed information about the specimen ([Figure 39](#)). Other options such as annotate  and edit  will be available only for those authorized through login permissions. Any thumbnail image can be reproduced in its original format by selecting the [\[jpg\]](#) or [\[tif\]](#) option (images with other formats will list that option). Selecting the tree of life symbol  will list the taxonomic hierarchy of the Taxon name.

Example: Single Show-Locality Record Page

Displayed from the information  icon, **Browse-Locality** page ([Figure 35](#)) This page displays Information unique to this locality record. MorphBank Single Show is an efficient way to display large amounts of information. For complete documentation on single show refer to [MorphBank Show](#) in the **Information Linking** section of this manual.

Locality Record: [110564]	
Contributor: Matt Buffington 	Locality: Nothophagus forest
Submitter:	Continent: SOUTH AMERICA
Date Submitted: 11-17-2006	Country: CHILE
Last Modified: 11-17-2006	Latitude: 0
Publish Date: 11-17-2006	Longitude: 0
	Precision: 0
	Elevation (m): 0 - 0
	Depth (m): 0 - 0

Figure 39 Example of Location Record

Browse-Collections



Figure 40 Browse-Collections

A collection is a group of specimen images that are assembled from the MorphBank database by MorphBank members for the purpose of manipulating (e.g. rearranging the order, editing, and/or annotating, etc.) and storing the images for future use. By selecting the **Browse- Collections** option, the user will



be presented with a list of all published (released by the creator) collections that are registered in the MorphBank database.

Note: In upcoming versions a collection will include images and other items such as: annotations, groups, localities, publications, specimens, users or views.

Browse by Keywords

Use **keywords** to display a list of collections based on collection name, username and/or group name. To display a list of collections based on a keyword(s) search, type the keyword(s) in the box and select **Search**. For example, to browse for all collections pertaining to HymAtol (group name), Liljeblad (username); type in **HymAtol Liljeblad** and select **Search** (Figure 41).

Screen Use Tips:

Separate more than one keyword with a space. **Search** is not case sensitive.

Proper spelling will assure the best search however, typing a partial word, will result in a corresponding search containing those letters. (e.g. if searching for taxon braconidae, typing the letters “braco”, or “conidae” will result in a list of braconidae data, but entering “idae” would return a list that contained more than just braconidae data. Therefore, the more complete the search word(s) is, the more accurate the search results will be.)

Quote marks placed around a word or string of words will result in output that matches the search exactly. For example, typing in “*South America*” with quotes will return only South America results whereas typing *South America* without quotes may produce results for north America, South America, etc.

The **Reset** button will revert back to the keyword(s) that produced the list of specimens currently on the screen.



Figure 41 Browse:Collections-keywords

Sort the list of collections

To sort the list of collections, select the **Sort By** criteria from the drop down list(s). The more criteria selected, (up to 3 levels) the more refined the browse will be (Figure 42). The resulting page will display the collection list with the initial **Sort By** option grouped together first, followed by groups of any of the other sort criteria that was selected.

Sort criteria options for Browse-Collections include:

- Collection id: Unique MorphBank-issued identifier for a collection.
- Username: Name of the person who created the collection.
- Group name: Name of the group to which the collection creator belongs.
- Publication: The external publication that references a MorphBank collection.
- Collection name: The name given to the collection by the collection's creator.
- Number of images: pertaining to one collection

Use the **clear** button to clear the **Search** and **Sort By** boxes of all criteria.

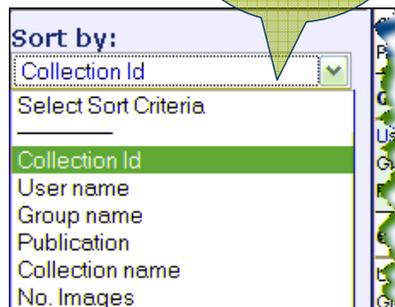


Figure 42 Collection Sort Option

Screen Use Tips:

The number of hits displayed on each page can be designated and a user can advance to a specific page number by listing that page and selecting the go  button ([Figure 40](#)). Keep in mind that the quantity of information requested to display per page will affect the speed at which that screen loads (i.e. requesting 100 records per page will take longer to load than the screen that has only 10 records to load.)

Selecting the camera  will display all images associated with that view regardless of their taxonomic value or selecting the information icon  will display detailed information about that view. Selecting the tree of life symbol  will list the taxonomic hierarchy of the Taxon name. Other options such as *make a copy of this collection*  and edit  will be available only for those authorized through login permission.

Search

The Search option in MorphBank is designed for users who desire a fast and efficient method of information discovery (Figure 43). Search does not require user login, however, logged-in users have varied tools accessible within Search based on user privileges (e.g. **collections**, **edit**, **annotate**).

To search, users either enter a keyword to scan a predefined set of fields in the **Simple Search** option or **Search Images by Keywords/Ids** when a more refined search is desired.

Search - Simple

About Browse Search Tools Help

Simple Search

Search

Note - The Simple Search function queries the following fields:
Taxon, Sex, Developmental Stage, Form, Type Status, Specimen Part, View Angle, Imaging Technique, Image Id, and Contributor.

Search images by Keywords/Ids

Taxon: ✓

Specimen: ✓

View: ✓

Locality: ✓

Search

Contact Us Copyright About MorphBank

Figure 43 Search

Simple Search

Simple Search

Note - The Simple Search function queries the following fields:
Taxon, Sex, Developmental Stage, Form, Type Status, Specimen Part, View Angle, Imaging Technique, Image Id, and Contributor.

With this option, the user enters a keyword(s).

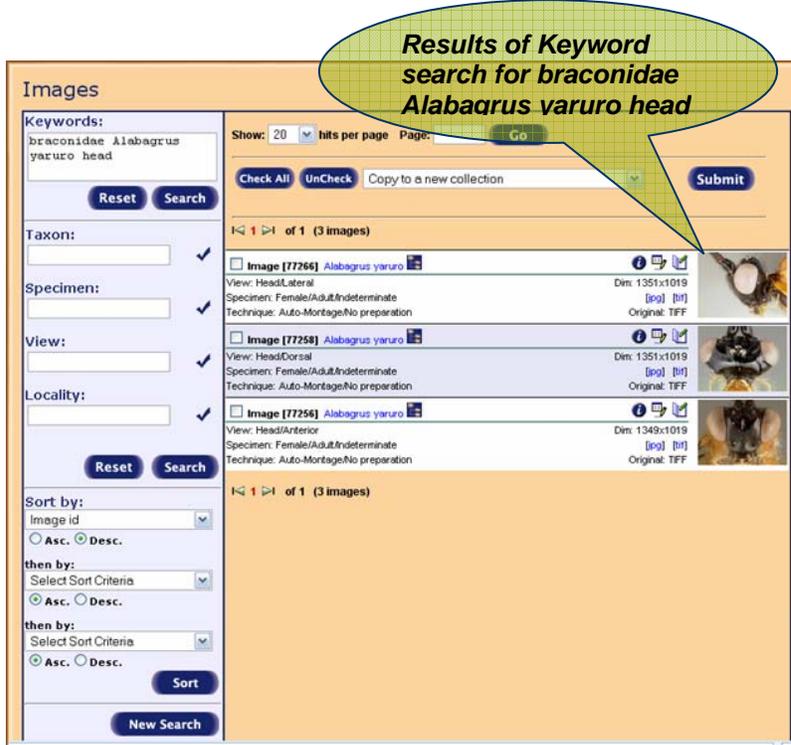
When is selected, a search of the Taxon, Sex, Developmental Stage, Form, Type Status, Specimen Part, View Angle, Imaging Technique, Image Id, and Contributor fields are performed.

Screen Use Tips:

Separate more than one keyword with a space. Search is not case sensitive.

Proper spelling will assure the best search however, typing a partial word, will result in a corresponding search containing those letters. (e.g. if searching for taxon braconidae, typing the letters “braco”, or “conidae” will result in a list of braconidae data, but entering “idae” would return a list that contained more than just braconidae data. Therefore, the more complete the search word(s) is, the more accurate the search results will be.)

Quote marks placed around a word or string of words will result in output that matches the search exactly. For example, typing in “*South America*” with quotes will return only South America results whereas typing *South America* without quotes may produce results for north America, South America, etc.

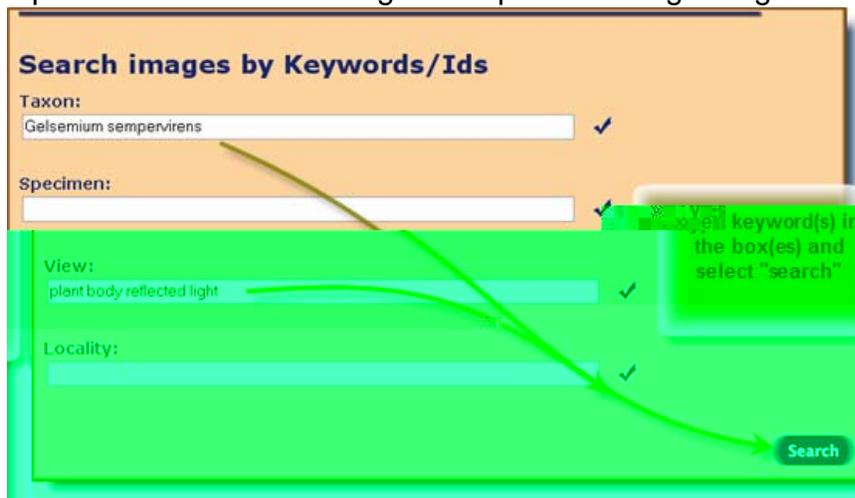


The detailed instructions for working with the resulting list of images can be found at [Browse/Images](#).

Figure 44 Simple Search Results

Search Images by Keywords/Ids

By selecting the **Search Images by Keywords/Ids** option, the user will be presented with a resulting list of qualified images registered in the MorphBank database.



Use this option when searching is desired on a specific group of images.

Figure 45 Search Images by Keywords/Ids



- **Taxon name** performs a search based on the taxonomic name or taxonomic serial number of the specimen.
- **Specimen** performs a search based on the categories of specimen id, sex, form, basis of record, type status, collector name, institution code, collection code, catalog number and taxonomic name.
- **View** performs a search based on the view id, imaging technique, imaging preparation technique, part, angle, developmental stage, sex or form.
- **Locality** performs a search based on the image's locality id, locality, continent/ocean or country.

Search by Keywords

To display a list of images based on a keyword(s) search, type the keyword(s) in the box(es) and select **Search**. For example; to search for all images pertaining to *Gelsemium sempervirens* (taxonomic name), plant body (part) reflected light (imaging technique); perform a specialized keyword search by typing in ***gelsemium sempervirens*** in the **taxon name** keyword box and **plant body reflected light** in the **view** keyword box and select **Search** (Figure 45).

Screen Use Tips:

Separate more than one keyword with a space. Search is not case sensitive.

Proper spelling will assure the best search however, typing a partial word, will result in a corresponding search containing those letters. (e.g. if searching for taxon braconidae, typing the letters "braco", or "conidae" will result in a list of braconidae data, but entering "idae" would return a list that contained more than just braconidae data. Therefore, the more complete the search word(s) is, the more accurate the search results will be.)

Quote marks placed around a word or string of words will result in output that matches the search exactly. For example, typing in "*South America*" with quotes will return only South America results whereas typing *South America* without quotes may produce results for north America, South America, etc.

All matches to the search will appear as a list of associated data and image thumbnails. The detailed instructions for working with the resulting list of images can be found at [Browse/Images](#).

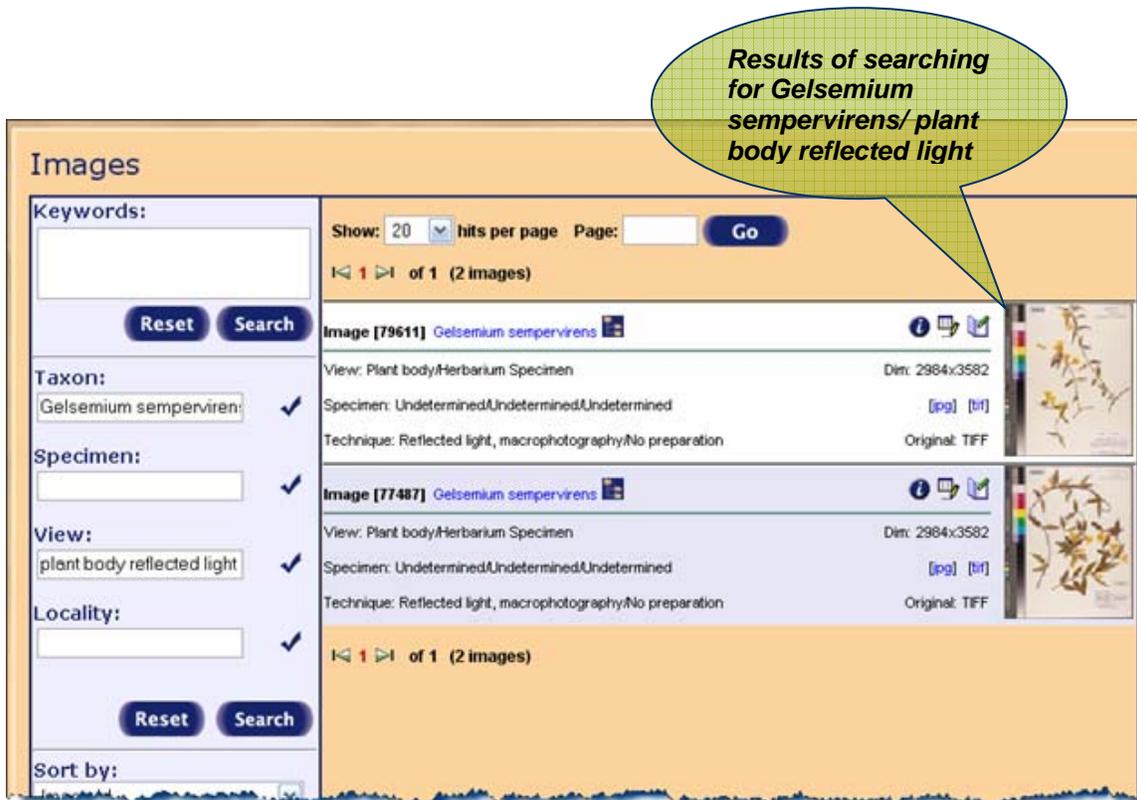
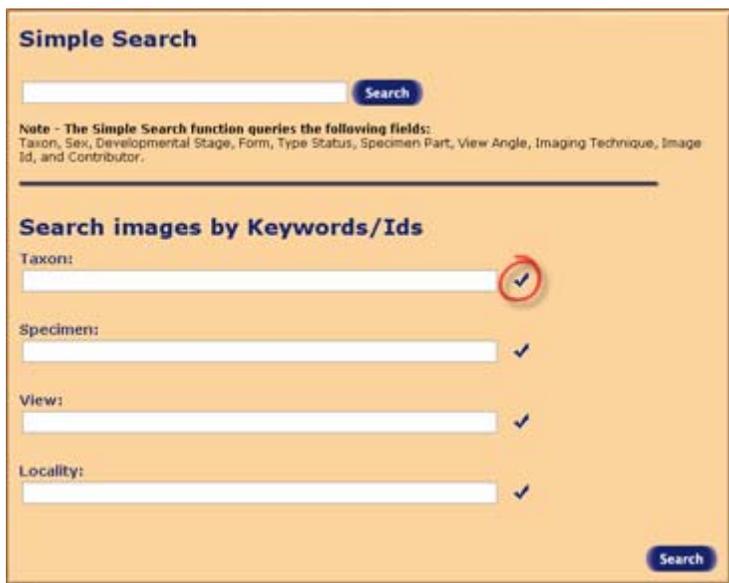


Figure 46 Results of Images-Keywords Search

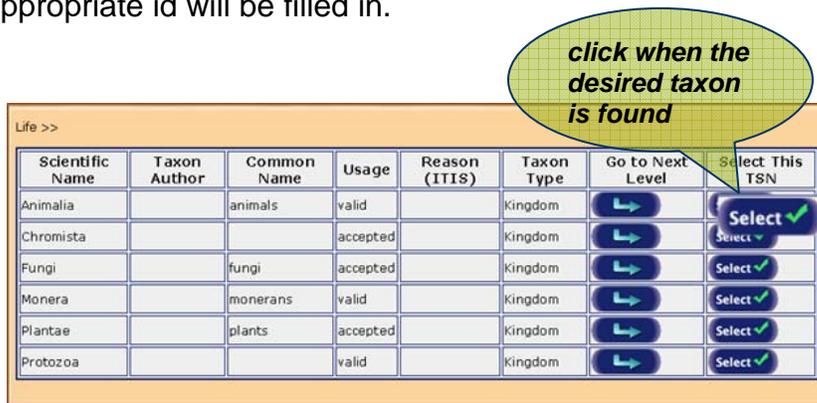
Search by Ids

A specialized id search can be used to reduce the display list to a more desirable group of images.



To search by **ids** users can enter the id in the appropriate box or left click on the ✓. To maintain accuracy, the desired id number(s) should be selected from a list by clicking on the ✓ icon.

Taxon id –To insure accuracy, taxonomic identifiers need to be selected ✓ from the taxonomic names selection screen. Traverse through the levels  until the appropriate scientific name is found. Then click the select icon , it will automatically direct the user back to the **Browse-Images** screen and the appropriate id will be filled in.



If a new taxon name needs to be added select the **add new taxon** button that is visible from the

family level. The **add TSN** screen will popup. (This option is only available for authorized users.) For complete instructions on this process see the [ITIS, Add New Taxon](#) section of this manual.

Note: Great care must be taken when adding new taxon names to the local copy of the database. New names must be accurate and accepted in the biological community. <http://www.itis.usda.gov/>.

Specimen id- To insure accuracy, specimen identifiers need to be selected ✓ from the

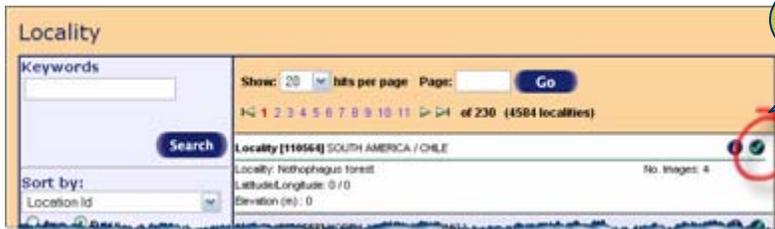


specimen screen. Traverse through the list. Sort the list if needed (see [browse-specimen, sort](#) for instructions unique to this process). When the desired specimen is found, click on the  icon and the screen will redirect back to the **browse-images** page and the appropriate specimen id will be filled in. The detailed instructions for working with the resulting list of images can be found at [Browse/Images](#).

View id- To insure accuracy, view identifiers need to be selected ✓ from the views screen. Traverse through the list. Sort the list if needed (see [browse-views, sort](#) for instructions unique to this process). When the desired view is found, click on the  icon and the screen will redirect back to the **browse-images** page and the appropriate view id will be filled in. The detailed instructions for working with the resulting list of images can be found at [Browse/Images](#).



Locality id- To insure accuracy, locality identifiers need to be selected ✓ from the locality screen. Traverse through the list. Sort the list if needed (see [browse-locality, sort](#) for instructions unique to this process). When the desired specimen is found, click on the  icon and the screen will redirect back to the **browse-images** page and the appropriate locality id will be filled in. The detailed instructions for working with the resulting list of images can be found at [Browse/Images](#).





Submit

Before submitting data into MorphBank, users must have available each of the following:

- Valid MorphBank username and password (obtained through the login screen or by contacting the MorphBank admin. group at mbadmin@scs.fsu.edu).
- Have available information about the locality where the specimen was collected to include the place/country/province/region and the contributor's name.
- Information about the specimen and the parties involved in the collection of it to include basis of record, sex, form, developmental stage, type status, determination, collector(s) name, date collected, locality and the contributor's name.
- Information about the view of the specimen to include imaging technique, preparation technique, specimen part, sex, form, developmental stage, view angle, highest taxon to which this view is applicable and the contributor's name.
- Image file to be uploaded (bitmap [.bmp], joint photographic experts group [.jpeg, .jpg], tag information file format [.tiff]), Specimen i to which the image belongs, its MorphBank View and the contributor's name.

Note: The fields with * next to them are required, however, It is with great emphasis that we suggest all applicable data fields be completed. This will improve the reliability and accuracy of data searches. The above listed information is only the minimum needed to successfully submit data into MorphBank.

Login

When **Submit** is selected, if not already logged-in, the user will be required to enter a valid MorphBank-issued username and password. Every user that submits information to MorphBank must log into the system first.

MorphBank Login

User Name:

Password:

[Request a MorphBank User Account](#)

Forgot your username/password? [Click here](#)

Note: Cookies must be turned on to continue

[Contact Us](#) [Copyright](#) [About MorphBank](#)

Figure 47 Login

Login: Username and Password

Request a MorphBank [User Account](#)

Forgot your username/password? [Click here](#)

To obtain the username and password select the **User Account** link (Figure 47) to access a MorphBank user account application or contact

the MorphBank admin. group at mbadmin@scs.fsu.edu.

MorphBank application About Browse Search Tools Help

New User information

First Name*

Middle Initial

Last Name*

Suffix

Requested User Name*

E-Mail*

Phone number*

Institute of affiliation*

Street1

Street2

City

State

Country

Zip Code

Privilege Taxon* ✓

Primary Taxon* ✓

Secondary Taxon ✓

Your Resume/CV* Browse...

Subscribe to the MorphBank mailing list

Note: Your resume/CV will be used for verification of your expertise

* - Required

Submit Cancel

Contact Us Copyright About MorphBank

Figure 48 User Account Application



New users need to apply for a username and password by completing the **New User Information** form (Figure 48). All fields preceded by an * are required fields.

Instructions for MorphBank Application:

Name: Enter your legal name the way that you wish it to appear in MorphBank. Your name and personal information will be considered confidential and not released to the public.

Username and Password: You can request a username and password. If there is a duplicate already in the system, a suitable name /password similar to the one requested will be generated and emailed to the address on this form.

Email Address: There are times when users of MorphBank may wish to contact you or send you MorphBank data. Enter the email where you wish to receive such correspondence.

Phone Number: Phone numbers will not be entered into the database. This will be used to contact you in case there are questions about the application.

Institute or Affiliation: Enter the university, museum, or other institute to which you are associated.

Address: Enter the complete mailing address where you wish to receive hard copy correspondence from MorphBank. The state and country are selected from drop-down lists.

Privilege, Primary, Secondary Taxon: To insure accuracy, taxonomic names need to be selected ✓ from the **Taxonomic Selection Screen**. Traverse through the levels  until the appropriate scientific name is found. Then click the select icon , it will automatically direct the user back to the add specimen screen and the appropriate name will be filled in. (Figure 49)

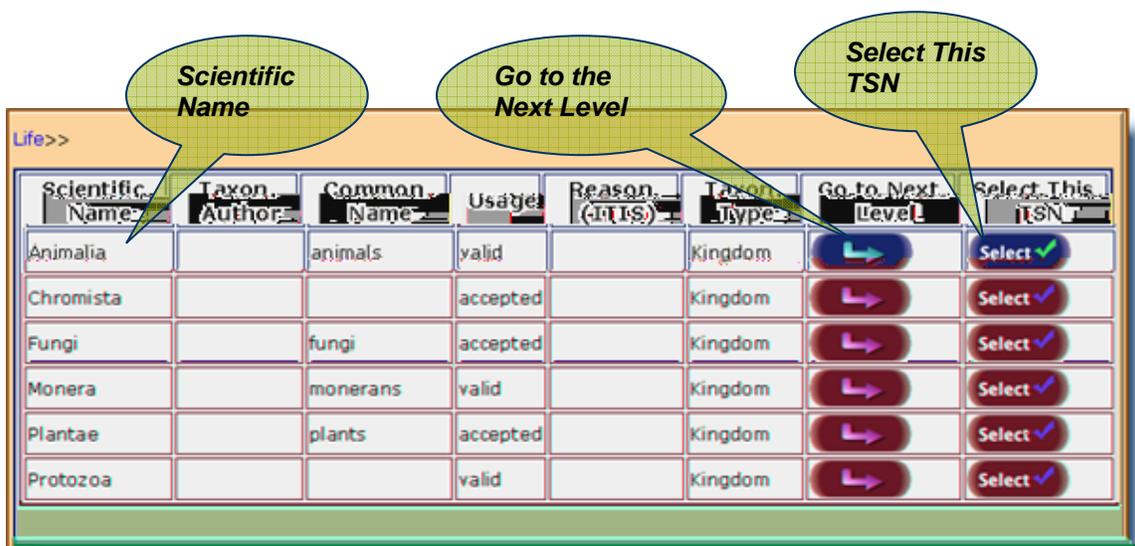


Figure 49 Taxonomic Name Selection Screen

If a new taxon name needs to be added select the **Add New Taxon** button that is visible from the family level. The **Add TSN** screen will popup. (This option is only available for authorized users.) New applicants will need to interrupt the application process and contact mbadmin@scs.fsu.edu if they need a particular Taxon added before choosing their Privilege/Primary/Secondary TSN. For complete instructions on this process see the [ITIS, Add New Taxon](#) section of this manual.

Note: Great care must be taken when adding new taxon names to the local copy of the database. New names must be accurate and accepted in the biological community. <http://www.itis.usda.gov/>.

Resume/CV: Your resume/CV will provide MorphBank with the verification of your expertise. This is required so the proper privileges can be assigned to your account. Using the **Browse** button, select the file that contains a copy of your resume/CV.

Subscribe to the MorphBank mailing list. The box is selected by default. If you do not want to be on the MorphBank mailing list click on the box to remove the check.

When the form has been verified for correctness, click the **Submit** button to send your request to MorphBank. A message confirming the submission will be seen on the screen as in this example.



NewUser information

Your request was just sent to the MorphBank admin team. You will receive an email after your account is created.

First Name*

Middle Initial

Last Name*

Once the account has been generated, you will receive notification through the email you entered on this form. At that time we ask that you change the initial password.

Select Groups

After login, the group(s) module(s) to which the user belongs will be listed on the screen.



Figure 50 Groups

Make a group selection (click on group name) that corresponds to the information that will be worked on in the current session. To work within another authorized group will require returning to this page for a new group selection.

Screen Use Tip: To return, click the **tools** button on the page header and choose **select group** from the list.



MorphBank Modules

After group selection, the user has the option to **Browse, Search, Submit** or **Edit** data or work with **Collections** and **Annotations**. Some options are based upon login permissions and are not available to all MorphBank members.

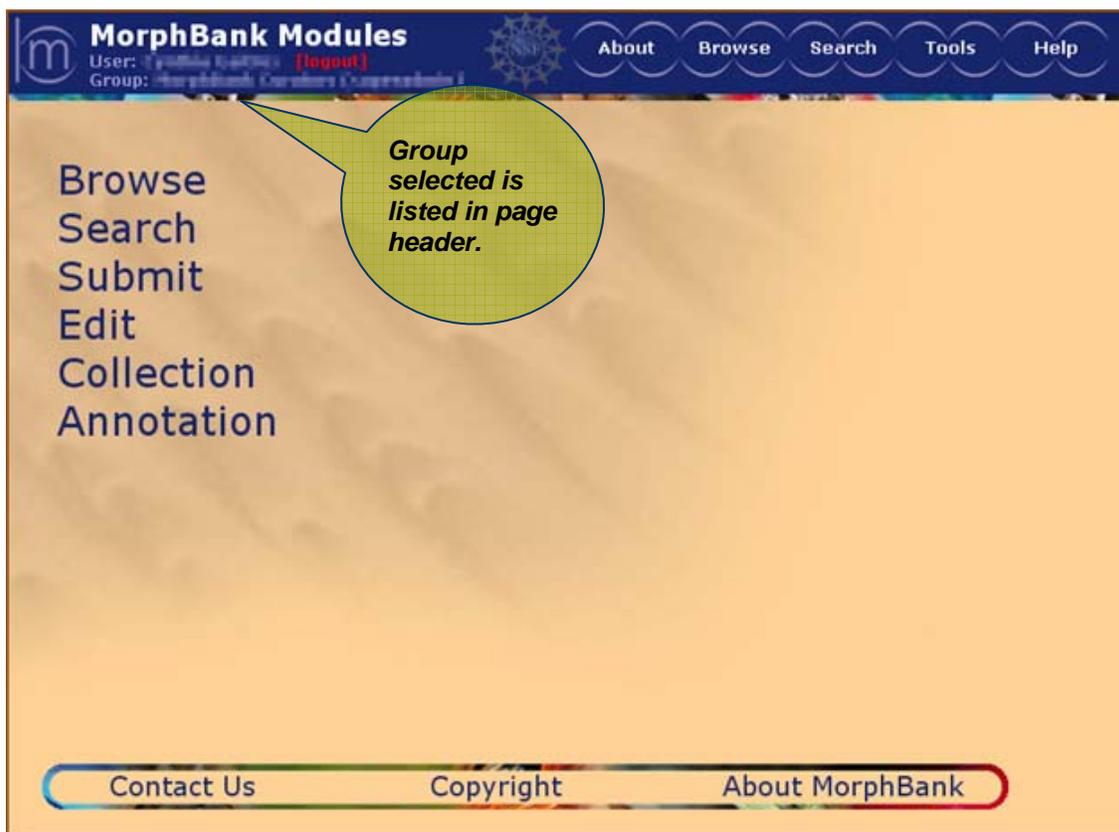


Figure 51 MorphBank Modules

Note: The instructions for “Submit”, “Edit” and “Collections” are covered here in MorphBank modules. For directions in the use of “Browse” or “Search” return to appropriate section in this manual.

Upload (Submit)

After selecting **Submit**, the screen reflects choices of **Locality, Specimen, View, or Image**.

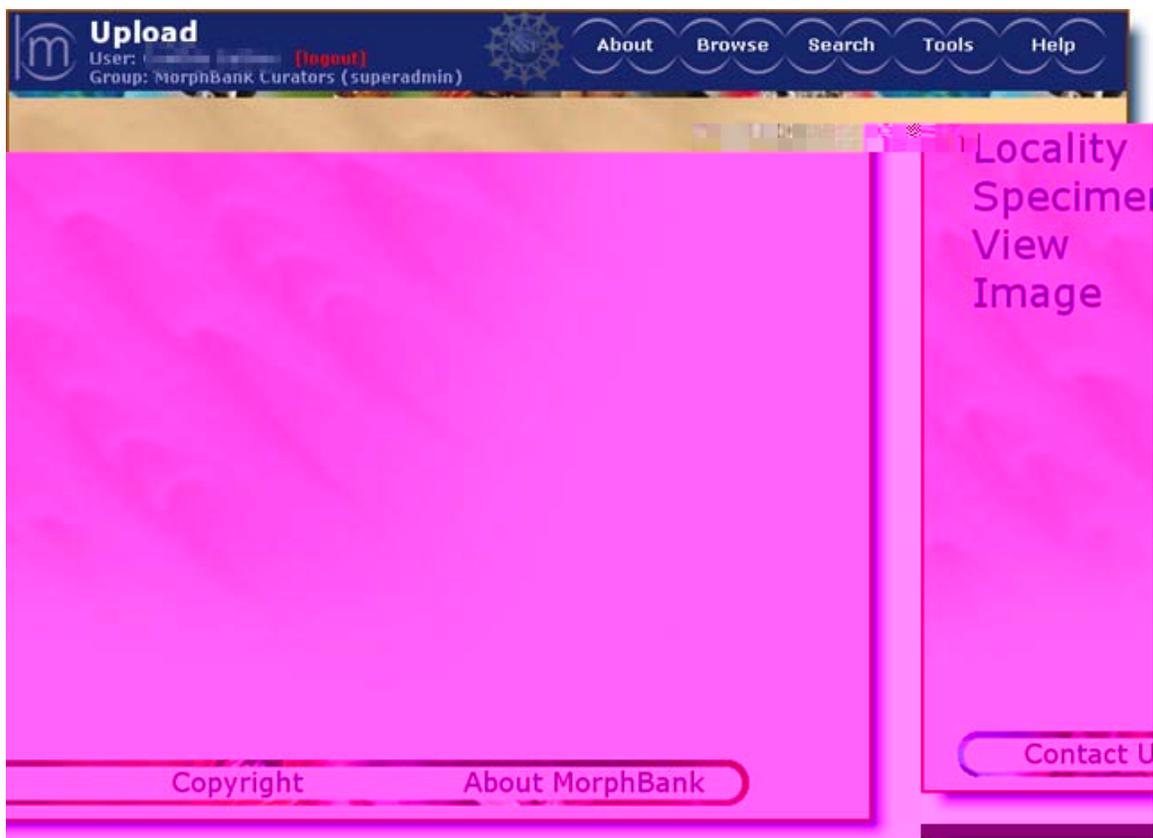


Figure 52 Upload (Submit)

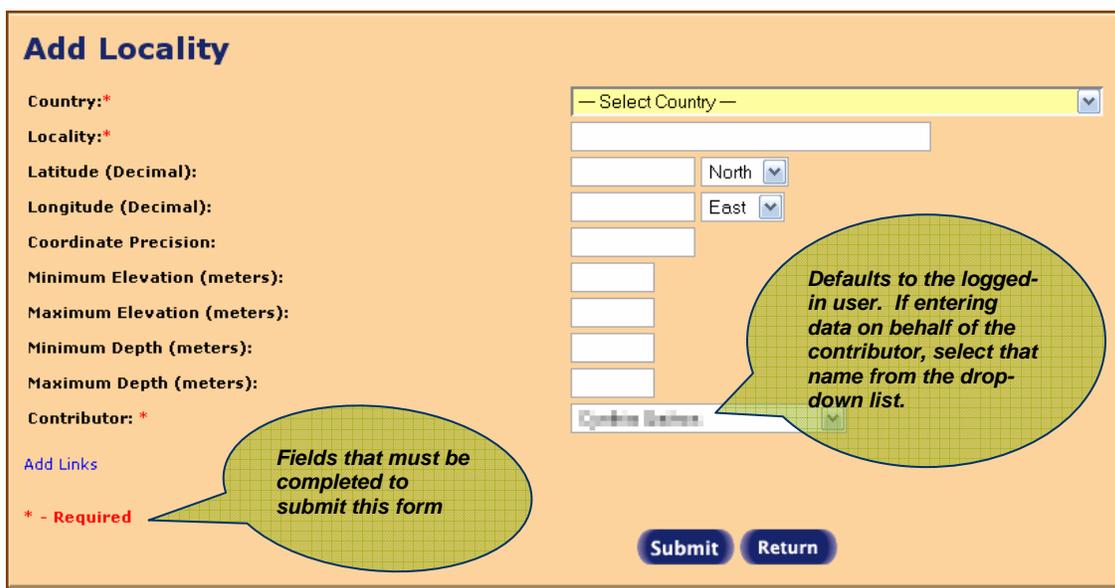
Note: The person logged-in will be the name of the person that displays in the “Submitter” section of records, i.e. [Figure 29](#) and [Figure 34](#)

The preferred order for submitting data is Locality, Specimen, View, and lastly Image. A locality must exist before a specimen can be added and before an image is uploaded, both a specimen and view should exist.

Upload (Submit): Add Locality

The **Add Locality** screen contains detailed information about the localities where the specimen was collected.

A locality must exist before a specimen can be entered.



The screenshot shows the 'Add Locality' form with the following fields and callouts:

- Country:** * (Required) - A drop-down menu with the text '— Select Country —'. A callout bubble points to it with the text: "Defaults to the logged-in user. If entering data on behalf of the contributor, select that name from the drop-down list."
- Locality:** * (Required) - A text input field.
- Latitude (Decimal):** - A text input field with a 'North' direction dropdown.
- Longitude (Decimal):** - A text input field with an 'East' direction dropdown.
- Coordinate Precision:** - A text input field.
- Minimum Elevation (meters):** - A text input field.
- Maximum Elevation (meters):** - A text input field.
- Minimum Depth (meters):** - A text input field.
- Maximum Depth (meters):** - A text input field.
- Contributor:** * (Required) - A drop-down menu with the text 'Choose States...'. A callout bubble points to it with the text: "Fields that must be completed to submit this form".
- Add Links** - A blue link.
- * - Required** - A red asterisk indicating required fields.
- Submit** and **Return** - Two blue buttons at the bottom right.

Figure 53 Add Locality

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 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 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 if possible.



 **Latitude**

Enter the latitude of the locality. Use the decimal format followed by north/south from the dropdown list. 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 such as <http://www.jeep.com/details/coord/>).

 **Longitude**

Enter the longitude of the locality. Use the decimal format followed by east/west from the dropdown list. 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 such as <http://www.jeep.com/details/coord/>).

 **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.

 **Contributor (Required)**

Select the name of the contributor (person having the authorization to release the images) from the dropdown list. The contributor can be different from the submitter (logged-in person entering the data). If you



need to add new entries to this list, please contact the MorphBank admin. group mbadmin@scs.fsu.edu.

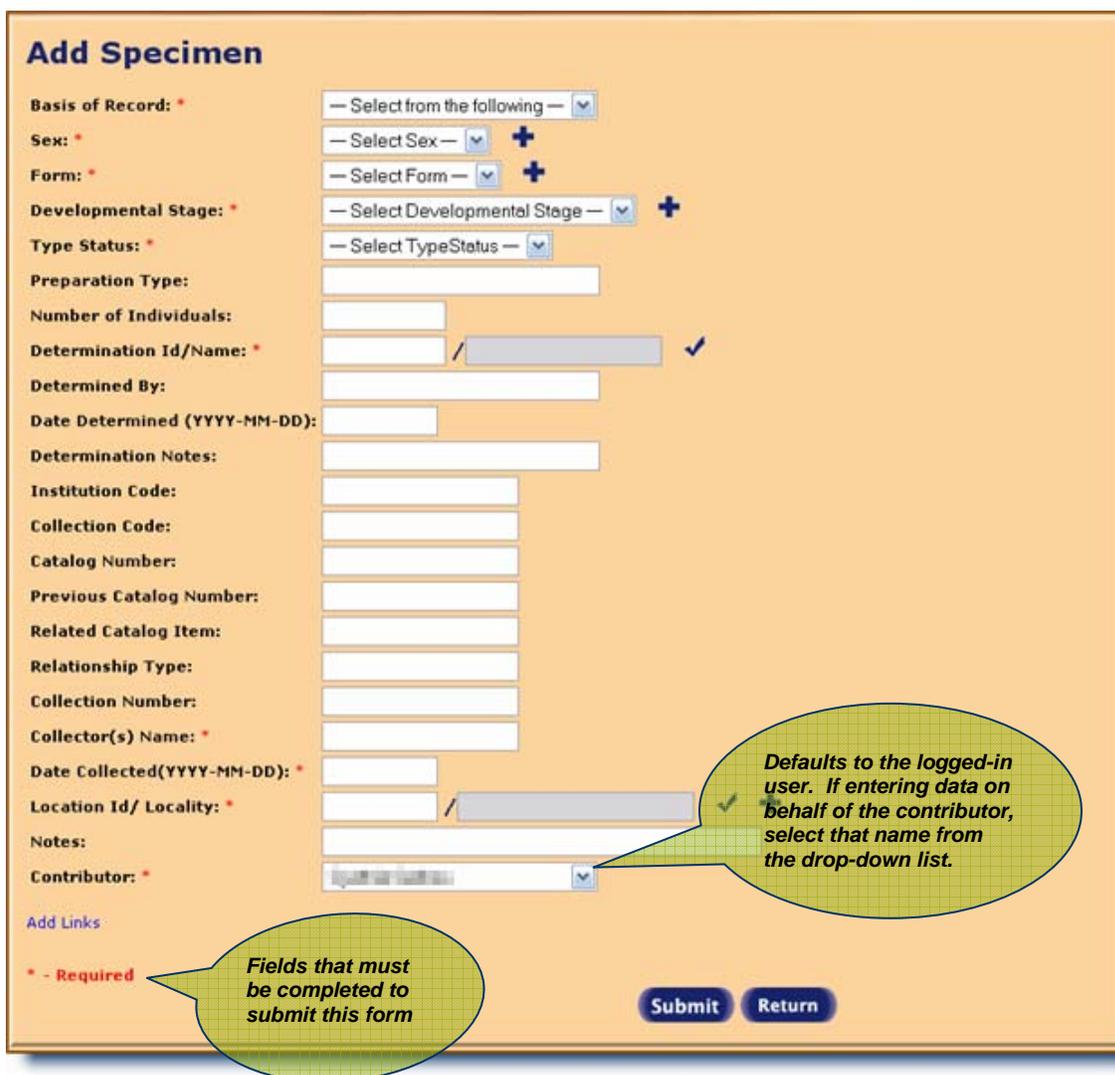
MorphBank provides an option to add **external links** to this record. For complete instructions on providing links refer to [External Linking](#) in the **Information Linking** section of this manual

When the **add locality** form has been completed, submit **Submit** to complete the add locality process. A message will confirm that ***you have successfully added a locality.*** From this point the user can continue to add additional localities or return to the **Upload (Submit)** screen.

Note: When this screen is activated from the “Add Specimen” upload screen no message will be seen. Instead, the new locality will appear in the appropriate field on the “Add Specimen” submit form.

Upload (Submit): Add Specimen

The data entered on the **Add Specimen** screen should provide information about the specimen and the parties involved in the collection of it. A locality must exist before a specimen can be added. If not previously added, provisions have been made on this screen to add the locality. Any instruction label that is followed by an * is a required field and must be completed before submitting.



Add Specimen

Basis of Record: *

Sex: * +

Form: * +

Developmental Stage: * +

Type Status: *

Preparation Type:

Number of Individuals:

Determination Id/Name: * / ✓

Determined By:

Date Determined (YYYY-MM-DD):

Determination Notes:

Institution Code:

Collection Code:

Catalog Number:

Previous Catalog Number:

Related Catalog Item:

Relationship Type:

Collection Number:

Collector(s) Name: *

Date Collected(YYYY-MM-DD): *

Location Id/ Locality: * / ✓

Notes:

Contributor: *

Add Links:

* - Required

Fields that must be completed to submit this form

Defaults to the logged-in user. If entering data on behalf of the contributor, select that name from the drop-down list.

Submit **Return**

Figure 54 Add Specimen

Basis of Record (Required)

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 (Required)

Choose one of the options from the drop-down list. The list contains a set of terms based on community consensus. The choices might consist of: Male, Female, Bisexual, Indeterminate (if the specimen was examined but the sex could not be determined), Unknown (if the specimen was not examined for its sex), Transitional (if the specimen is between sexes, like sequential hermaphrodites).

Other options can be added by selecting the add icon . This process is available only for those authorized through login permissions. (Only a lead scientist and coordinator of group can add new options). If a scientist needs additional options, please contact the MorphBank admin. group mbadmin@scs.fsu.edu.



Figure 55 Add Sex Accessed Through 

Enter the appropriate text on the **Add Sex** page (Figure 62) and submit . A

confirmation message will appear on screen to let the user know that the addition was successful. Choosing the select icon  will redirect the information back to the **Add Specimen** screen. The added information will be a permanent addition to the list of options. Now choose the appropriate sex from the drop-down list.

Form (Required)

Choose a description of the morphotype of the specimen. Use "Indeterminate" if you do not wish to apply a specific morphotype designation to the specimen.

If the specimen is of a morphotype that is not part of the drop-down list, a new form may be added by selecting the add icon . This process is available only for those authorized through login permissions. (Only a

lead scientist and coordinator of group can add new options). If a scientist needs additional options, please contact the MorphBank admin. group mbadmin@scs.fsu.edu.



Figure 56 Add Form Accessed Through +

Enter the appropriate text on the **Add Form** page (Figure 56) and submit **Submit**. A confirmation message will appear on screen to let the user know that the addition was successful. Choosing the select icon  will redirect the information back to the **Add Specimen** screen. The added information will be a permanent addition to the list of options. Now choose the appropriate form from the drop-down list.

Developmental Stage (Required)

Choose the developmental stage of the specimen from the drop-down list. If a new developmental stage category is needed a new one can be added by selecting the add icon . This process is available only for those authorized through login permissions. (Only a lead scientist and coordinator of group can add new options). If a scientist needs additional options, please contact the MorphBank admin. group mbadmin@scs.fsu.edu.



Figure 57 Add Developmental Stage Accessed Through +

Enter the appropriate text on the **Add Developmental Stage** page (Figure 57) and submit **Submit**. A confirmation message will appear on screen to let the user know that the addition was successful. Choosing the select icon  will redirect the information back to the **Add Specimen** screen. The added information will be a permanent addition to the list of options. Now choose the appropriate developmental stage from the drop-down list.

Type Status (Required)

Choose from the drop-down list, the type status of the specimen. The type status indicates the kind of nomenclatural type that a specimen

represents. The MorphBank system can store any number of determinations and type designations for a specimen; contact the MorphBank admin. group mbadmin@scs.fsu.edu if some of your specimens require more than a single type designation or determination.

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

Determination Id/ Name (Required)

To insure accuracy, the taxonomic id/name need to be selected ✓ from the Taxonomic Selection Screen. Traverse through the levels → until the appropriate scientific name is found. Then click the select icon **Select ✓**, the user will automatically be directed back to the **Add Specimen** screen where the appropriate name and id number will be filled in.

Scientific Name	Taxon Author	Common Name	Usage	Reason (ITIS)	Taxon Type	Go to Next Level	Select This TSN
Acanthocephala		spiny-headed worms	valid		Phylum	→	Select ✓
Annelida		annelids	valid		Phylum	→	Select ✓
Arthropoda		arthropods	valid		Phylum	→	Select ✓
Brachiopoda		bivalve coelomates	valid		Phylum	→	Select ✓
Chaetognatha		arrow worms	valid		Phylum	→	Select ✓

Figure 58 Taxonomic Selection

If a new taxon name needs to be added select the **Add New Taxon** button that is visible from the family level. The **Add TSN** screen will popup. (This option is only available for authorized users.) For complete instructions on this process see the [ITIS, Add New Taxon](#) section of this manual.



Note: Great care must be taken when adding new taxon names to the local copy of the database. New names must be accurate and accepted in the biological community. <http://www.itis.usda.gov/>.

 **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. The Date should be 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.

 **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 catalog 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.



 **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**

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

 **Collector(s) Name(s) (Required)**

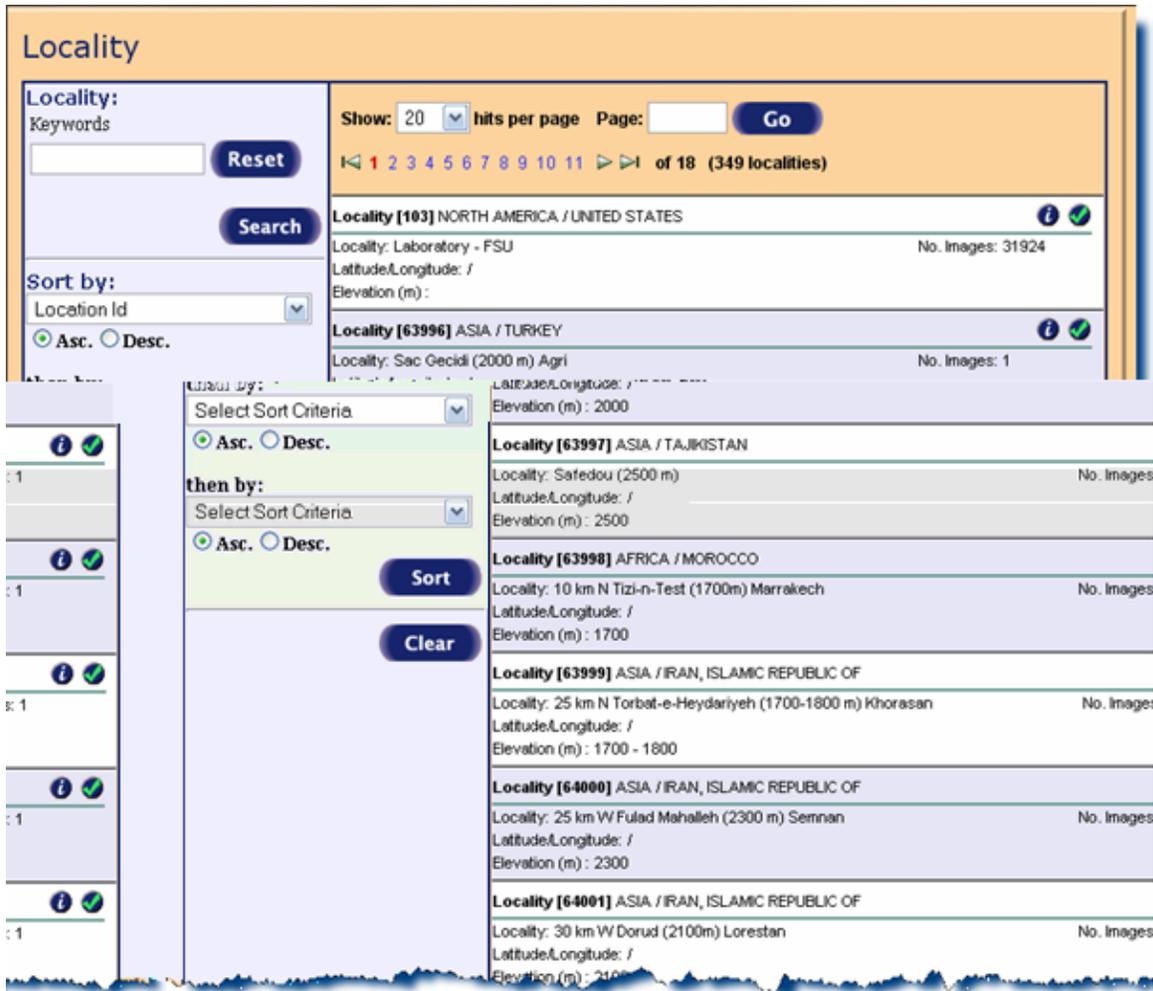
Enter the name(s) of the collector(s) responsible for collection of the specimen or taking the observation.

 **Date Collected (Required)**

Enter the date when the specimen was collected (date when the collection process began). 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. The date entered must be a current or past date.

 **Locality (Required)**

Enter the locality from which the specimen was collected. To insure accuracy, locality name/id needs to be selected ✓ from **Locality** selection screen.



The screenshot shows a web interface for managing localities. At the top, there's a search bar with a 'Reset' button and a 'Search' button. Below it, a 'Sort by:' section allows users to select a 'Location Id' and sort order ('Asc.' or 'Desc.'). A 'Sort' dialog box is open, showing 'Select Sort Criteria' and 'then by:' options, with 'Sort' and 'Clear' buttons. The main content area displays a list of localities, each with a title, location details, and a 'No. Images' count. For example, 'Locality [103] NORTH AMERICA / UNITED STATES' has 31924 images. A 'Go' button is visible in the top right corner of the search area.

Figure 59 Locality Partial Page

To sort the list of localities, select the **Sort By** criteria from the drop down list(s). The more criteria selected, (up to 3 levels) the more refined the sort will be.

Screen Use Tips:

The number of hits displayed on each page can be designated and a user can advance to a specific page number by listing that page and selecting the go **Go** button. Keep in mind that the quantity of information requested to display per page will affect the speed at which that screen loads (i.e. requesting 100 records per page will take longer to load than the screen that has only 10 records to load.)

Selecting the information icon  will display detailed information about that locality. Choosing the select icon  will redirect back to the add specimen page and the appropriate locality will be automatically filled in.



If the desired locality/id was not on the **Locality** screen, close the screen and select the add icon  from the **Add Specimen** screen (Figure 54). This will direct the user to **Add Locality** (Figure 59). (See the **Add locality** section of this manual for help in completing this form). When the new locality is submitted, the screen will redirect back to the **Add Specimen** page where the new locality/id will automatically be entered and the process of adding a specimen can continue where the user left off.

 **Notes**

Enter additional text notes related to the specimen record. This is a good place to add voucher label information (i.e. DNA, anatomical, etc.) or other information such as the duration of the collection/trapping sessions noting a range of dates the process took place.

 **Contributor (Required)**

Select the name of the contributor (person having the authorization to release the images) from the dropdown list. The contributor can be different from the submitter (person entering the data). If you need to add new entries to this list, please contact the MorphBank admin. group mbadmin@scs.fsu.edu.

MorphBank provides an option to add **external links** to this record. For complete instructions on providing links refer to [External Linking](#) in the **Information Linking** section of this manual

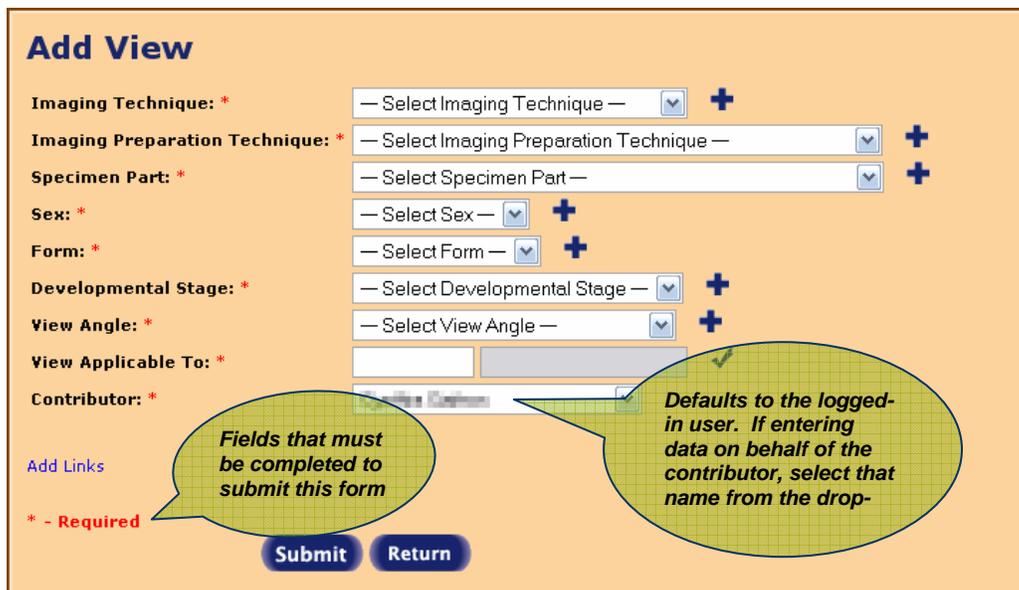
When the **Add Specimen** form has been completed, submit  to complete the add specimen process. A message will confirm that **you have successfully added a specimen**. From this point the user can continue to add additional specimens or return to the **Upload (Submit)** screen.

Note: When the “Add Specimen” screen is activated from the “Add Image” upload screen (Figure 69) no message will be seen. Instead, the new specimen will appear in the appropriate field on the “Add Image” upload form.

Upload (Submit): Add View

The data entered on the **Add View** screen should provide information about the view of the specimen to include imaging technique, preparation technique, specimen part, sex, form, developmental stage, view angle and highest taxon to which this view is applicable.

A view and specimen must exist before an image is uploaded.



Add View

Imaging Technique: * +

Imaging Preparation Technique: * +

Specimen Part: * +

Sex: * +

Form: * +

Developmental Stage: * +

View Angle: * +

View Applicable To: *

Contributor: *

Add Links

* - Required

Submit Return

Fields that must be completed to submit this form

Defaults to the logged-in user. If entering data on behalf of the contributor, select that name from the drop-

Figure 60 Add View

Imaging Technique (Required)

Choose from the drop-down list, the imaging technique used for this view. If the imaging technique used is not in the list, add the value by selecting the add icon +. This process is available only for those authorized through login permissions. (Only a lead scientist and coordinator of group can add new options). If a scientist needs additional options, please contact the MorphBank admin. group mbadmin@scs.fsu.edu.



Add Imaging Technique

Imaging Technique/Name

Description

Submit Cancel

Figure 61 Add Imaging Technique Accessed Through +

Enter the appropriate text on the **Add Imaging Technique** page (Figure 61) and submit

Submit. A confirmation message will appear on screen to let the user know that the addition was successful. Choosing the select icon  will redirect the information back to the **Add View** screen. The added information will be a permanent addition to the list of options. Now choose the appropriate imaging technique from the drop-down list.

Preparation Technique (Required)

Choose, the imaging preparation technique from the drop-down list used for the view. If the image preparation technique used is not in the list, add the value by selecting the add icon . This process is available only for those authorized through login permissions. (Only a lead scientist and coordinator of group can add new options). If a scientist needs additional options, please contact the MorphBank admin. group mbadmin@scs.fsu.edu.

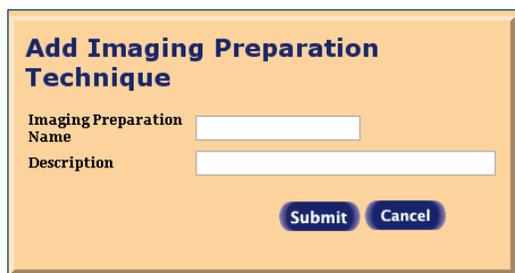


Figure 62 Add Imaging Preparation Technique Accessed Through 

Enter the appropriate text on the **Add Imaging Preparation Technique** page (Figure 62) and

submit **Submit**. A confirmation message will appear on screen to let the user know that the addition was successful. Choosing the select icon  will redirect the information back to the **Add View** screen. The added information will be a permanent addition to the list of options. Now choose the appropriate imaging preparation technique from the drop-down list.

Specimen Part (Required)

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 the value by selecting the add icon . This process is available only for those authorized through login permissions. (Only a lead scientist and coordinator of group can add new options). If a scientist needs additional options, please contact the MorphBank admin. group mbadmin@scs.fsu.edu.

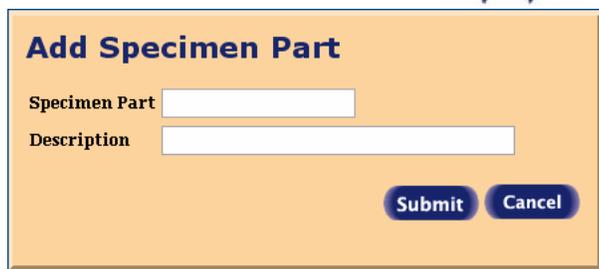


Figure 63 Add Specimen Part
Accessed Through +

Enter the appropriate text on the **Add Specimen Part** page (Figure 63) and submit **Submit**.

A confirmation message will appear on screen to let the user know that the addition was successful. Choosing the select icon  will redirect the information back to the **Add View** screen. The added information will be a permanent addition to the list of options. Now choose the appropriate specimen part from the drop-down list.

Sex (Required)

Choose one option from the drop-down list. The option chosen should be consistent with the sex of the specimens to which you plan to apply this view. 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. If sex is not an indeterminate, undetermined the appropriate sex is not in the drop-down list, add the value by selecting the add icon . This process is available only for those authorized through login permissions. (Only a lead scientist and coordinator of group can add new options). If a scientist needs additional options, please contact the MorphBank admin. group mbadmin@scs.fsu.edu.



Figure 64 Add Sex Accessed
Through +

Enter the appropriate text on the **Add Sex** page (Figure

64) and submit **Submit**. A confirmation message will appear on screen to let the user know that the addition was successful. Choosing the select icon  will redirect the information back to the **Add View** screen. The added information will be a permanent addition to the list of options. Now choose the appropriate sex from the drop-down list.

Form (Required)

Choose one option from the drop-down list. The option you choose should be consistent with the form of the specimens to which you plan to apply

this view. You may also 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. If the appropriate form is not in the drop-down list you can add the value by selecting the add icon **+**. This process is available only for those authorized through login permissions. (Only a lead scientist and coordinator of group can add new options). If a scientist needs additional options, please contact the MorphBank admin. group mbadmin@scs.fsu.edu.

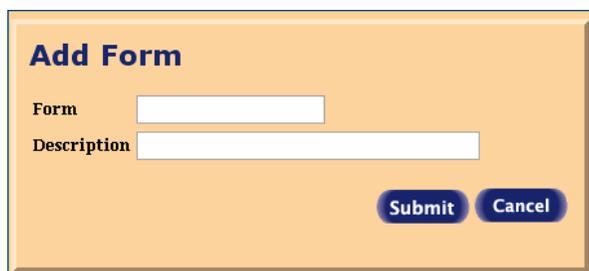


Figure 65 Add Form Accessed Through **+**

Enter the appropriate text on the **Add Form** page (Figure 65) and submit **Submit**. A confirmation message will

appear on screen to let the user know that the addition was successful. Choosing the select icon  will redirect the information back to the **Add View** screen. The added information will be a permanent addition to the list of options. Now choose the appropriate form from the drop-down list.

Developmental Stage (Required)

Choose from the drop-down list, the developmental stage of the specimen presented in the view. The Stage you select should be consistent with the Stage entered in the **Add Specimen** screen 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. You can add the value by selecting the add icon **+**. This process is available only for those authorized through login permissions. (Only a lead scientist and coordinator of group can add new options). If a scientist needs additional options, please contact the MorphBank admin. group mbadmin@scs.fsu.edu.



Figure 66 Add Developmental Stage Accessed Through **+**

Enter the appropriate text on the **Add Developmental Stage** page (Figure 66) and

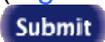
submit . A confirmation message will appear on screen to let the user know that the addition was successful. Choosing the select icon  will redirect the information back to the **Add View** screen. The added information will be a permanent addition to the list of options. Now choose the appropriate developmental stage from the drop-down list.

View Angle (Required)

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 selecting the add icon . This process is available only for those authorized through login permissions. (Only a lead scientist and coordinator of group can add new options). If a scientist needs additional options, please contact the MorphBank admin. group mbadmin@scs.fsu.edu.



Figure 67 Add View Angle Accessed Through 

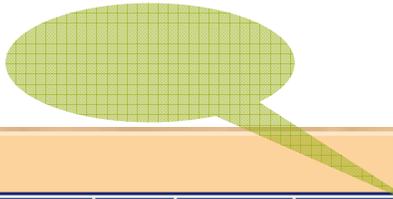
Enter the appropriate text on the **Add View Angle** page (Figure 67) and submit . A confirmation

message will appear to let the user know that the addition was successful. The added information will be a permanent addition to the list of options.

 **View applicable to (Required)** 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.

To insure accuracy, taxonomic names need to be selected  from **Taxonomic Selection** Screen. Select the name of the highest taxon to which this view is applicable. Traverse through the levels  until the appropriate scientific name is found. Then click the select icon , it will automatically direct the user back to the add view screen and the appropriate name will be filled in.

Scientific
Name



Life >> Animalia

Scientific Name	Taxon Author	Common Name	Usage	Reason (ITIS)	Taxon Type	Go to Next Level	Select This TSN
Acanthocephala		spiny-headed worms	valid		Phylum		Select ✓
Annelida		annelids	valid		Phylum		Select ✓
Arthropoda		arthropods	valid		Phylum		Select ✓
Brachiopoda		bivalve coelomates	valid		Phylum		Select ✓
Chaetognatha		arrow worms	valid		Phylum		Select ✓



Note: When the “Add View” screen is activated from the “Add Image” upload screen (Figure 69) no message will be seen. Instead, the new view will appear in the appropriate field on the “Add Image” upload form.

Upload (Submit): Add Image

The data entered on the **Add Image** screen should provide information about the image to upload, the specimen to which the image belongs, and its view.

The image file should be in the form of (bitmap [.bmp], joint photographic experts group [.jpeg, .jpg], and tag information file format [.tiff]). (**Phillips SEM** users see **warning notation** in the **Image to Upload** and **Magnification** sections below).

Both a specimen and a view should exist before uploading an image. If not previously added, provisions have been made on this screen to add a specimen and a view.

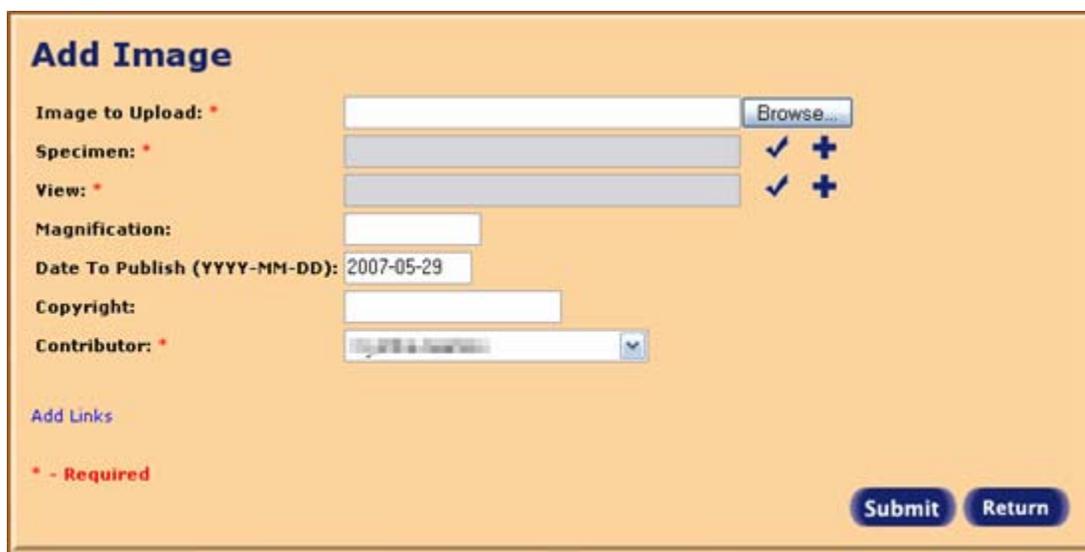


Figure 69 Add Image - Prior to Image Selection

Note:

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 of a specific locality, that information should be masked before sending the image to MorphBank. When propagating the “add locality” screen 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).

Image to Upload (Required)

Browse or enter the location and name of the image to upload. Image files to upload need file extensions of (bitmap [.bmp], joint photographic experts group [.jpeg, .jpg] or tag information file format [.tiff]).

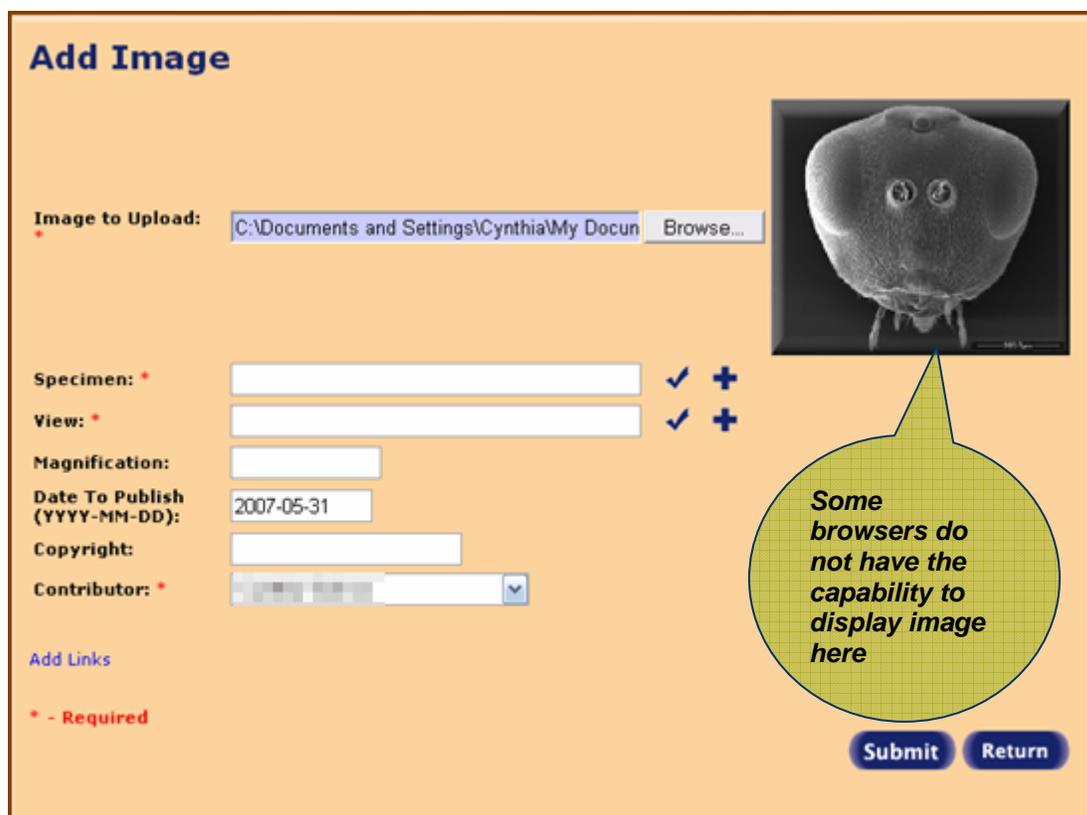
WARNING: Philips SEM users

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.



The screenshot shows the 'Add Image' form with the following fields and elements:

- Image to Upload:** A text box containing the file path 'C:\Documents and Settings\Cynthia\My Docu...' and a 'Browse...' button.
- Specimen:** A text box with a checkmark and a plus sign to its right.
- View:** A text box with a checkmark and a plus sign to its right.
- Magnification:** A text box.
- Date To Publish (YYYY-MM-DD):** A text box containing '2007-05-31'.
- Copyright:** A text box.
- Contributor:** A dropdown menu.
- Buttons:** 'Submit' and 'Return' buttons at the bottom right.
- Callout:** A green speech bubble pointing to the image preview area with the text: "Some browsers do not have the capability to display image here".

Figure 70 Add Image-After Image Selection

Specimen (Required)

Enter the specimen from which the image was taken. To insure accuracy, specimen names need to be selected ✓ from **Specimens** selection screen. The specimen must exist before you can add an image.

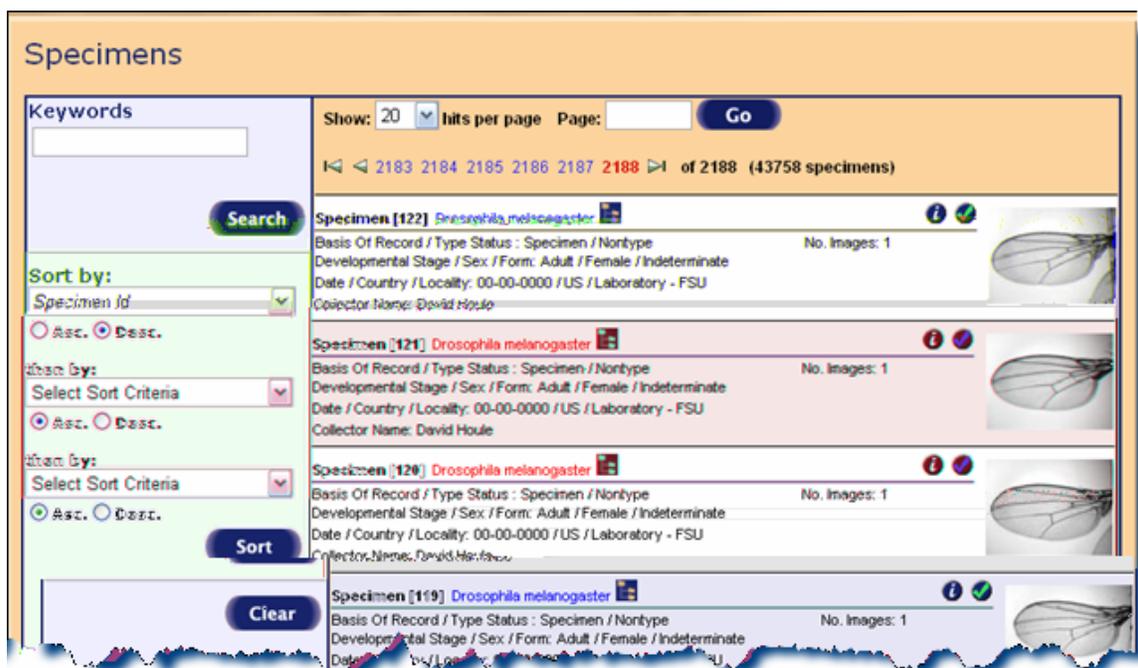


Figure 71 Specimens- Partial Page

To sort the list of specimens, select the **Sort By** criteria from the drop down list(s). The more criteria selected, (up to 3 levels) the more refined the sort will be.

Screen Use Tips:

The number of hits displayed on each page can be designated and a user can advance to a specific page number by listing that page and selecting the go button. Keep in mind that the quantity of information requested to display per page will affect the speed at which that screen loads (i.e. requesting 100 records per page will take longer to load than the screen that has only 10 records to load.)

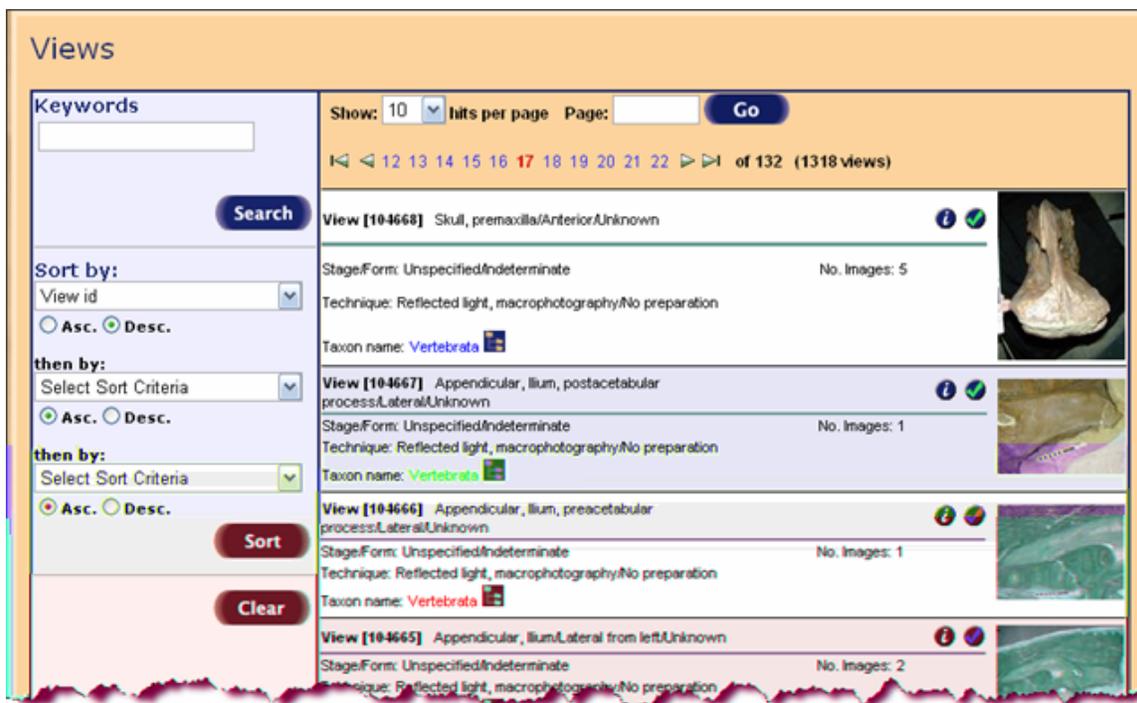
Selecting the information icon will display detailed information about that specimen. Choosing the select icon will redirect back to the **add image** page and the appropriate specimen will be automatically filled in.

To add a new specimen that is not in the **Specimens** selection screen, select the add icon . This will direct the user to the **Add Specimen** screen (Figure 71).

(See the **Add Specimen** section of this manual for help in completing this form). When the new specimen is submitted, the screen will redirect back to the **Add Image** page where the new specimen will automatically be entered and the process of adding an image can continue where the user left off.

Views (Required)

Enter the view describing the image to be uploaded. To insure accuracy, views need to be selected ✓ from the **Views** selection screen. A view must exist before uploading an image.



The screenshot shows the 'Views' page in Morphbank. On the left, there is a search and sorting interface. The 'Keywords' field is empty, and the 'Search' button is visible. Below it, the 'Sort by' section has a dropdown menu set to 'View id', with 'Asc.' and 'Desc.' radio buttons. The 'then by:' section has two dropdown menus, both set to 'Select Sort Criteria', with 'Asc.' and 'Desc.' radio buttons. 'Sort' and 'Clear' buttons are at the bottom of this section. The main content area shows a list of views. At the top, it says 'Show: 10 hits per page Page: [] Go'. Below that, navigation arrows and 'of 132 (1318 views)' are shown. The list contains four view entries, each with a title, details, and a thumbnail image. The first view is 'View [104668] Skull, premaxilla/Anterior/Unknown' with 5 images. The second is 'View [104667] Appendicular, ilium, postacetabular process/Lateral/Unknown' with 1 image. The third is 'View [104666] Appendicular, ilium, preacetabular process/Lateral/Unknown' with 1 image. The fourth is 'View [104665] Appendicular, ilium/Lateral from left/Unknown' with 2 images. Each entry includes 'Stage/Form: Unspecified/Indeterminate', 'Technique: Reflected light, macrophotography/No preparation', and 'Taxon name: Vertebrata'.

Figure 72 Views-Partial Page

To sort the list of views, select the **Sort By** criteria from the drop down list(s). The more criteria selected, (up to 3 levels) the more refined the sort will be.

Screen Use Tips:

The number of hits displayed on each page can be designated and a user can advance to a specific page number by listing that page and selecting the go  button. Keep in mind that the quantity of information requested to display per page will affect the speed at which that screen loads (i.e. requesting 100 records per page will take longer to load than the screen that has only 10 records to load.)

Selecting the information icon  will display detailed information about that view. Choosing the select icon  will redirect back to the **Add Image** page and the appropriate specimen will be automatically filled in.

To add a new view that is not in the **Views** selection screen, select the add icon . This will direct the user to the **Add View** screen ([Figure 72](#)).

(See the **Add View** section of this manual for help in completing this form.) When the new view is submitted, the screen will redirect back to the **Add Image** page where the view will be automatically entered and the process of adding an image can continue where the user left off.

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.

WARNING: Philips SEM users

Magnification Recording Problem:

For Philips machines (and perhaps others), users may choose any size and resolution to output the images and they will have variable magnification based upon the output choices.

To Fix:

If the machine is calibrated correctly for high-resolution tiff digital output then the magnification will be correct. However, not all SEM machines are calibrated in this manner and your SEM technician should be consulted. It is also suggested to print a scale bar on all images.



m Date to publish

Enter the release date for the images. The release date can be maximally five years from the date of inclusion of the images in MorphBank. If you leave this field unchanged, the default date is 6 months from inclusion of the images in MorphBank.

m Contributor (Required)

Select the name of the contributor (person having the authorization to release the images) from the dropdown list. The contributor can be different from the submitter (person entering the data). If you need to add new entries to this list, please contact the MorphBank admin. group mbadmin@scs.fsu.edu.

MorphBank provides an option to add **external links** to this record. For complete instructions on providing links refer to [External Linking](#) in the **Information Linking** section of this manual

When the add image form has been completed, submit **Submit** to complete the add image process. A message will confirm that ***you have successfully added an image***. From this point the user can continue to add additional images or return to the upload screen.

Note:

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 of a specific locality, that information should be masked before sending the image to MorphBank. When propagating the “Add Locality” screen 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.

Edit

Use **Edit** to change **Locality, Specimen, View, Image, Annotation or Collection** information; or view and request changes to data in the **Imaging Technique, Imaging Preparation Technique, Specimen Part, Sex, Form, Developmental Stage, View Angle or Link Type** tables. Edit is available for use by those logged-in users who have contributed data into MorphBank and have a need to edit that data.

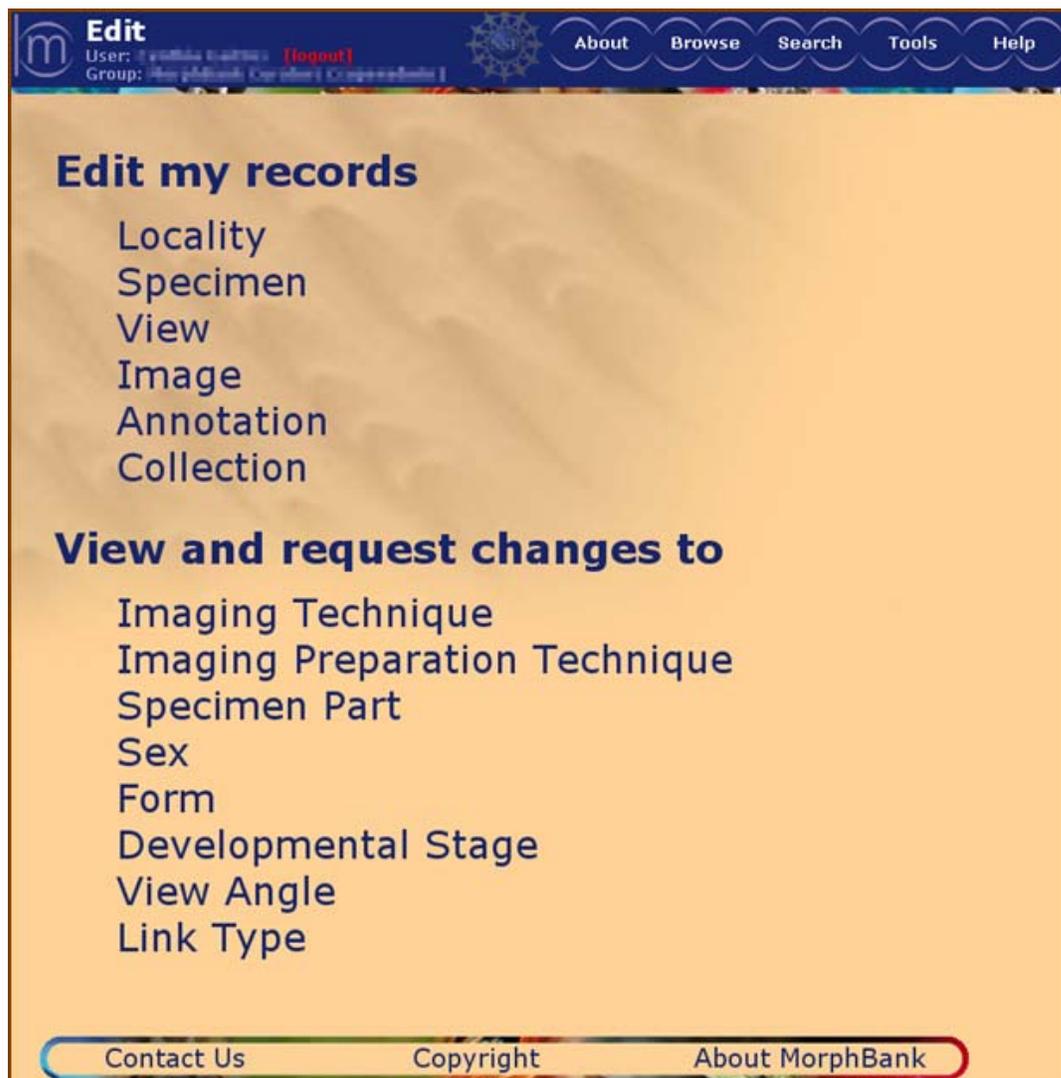


Figure 73 Edit

Edit: Locality

Choose **Edit Locality** when there is a need to change locality data that was previously contributed to MorphBank.

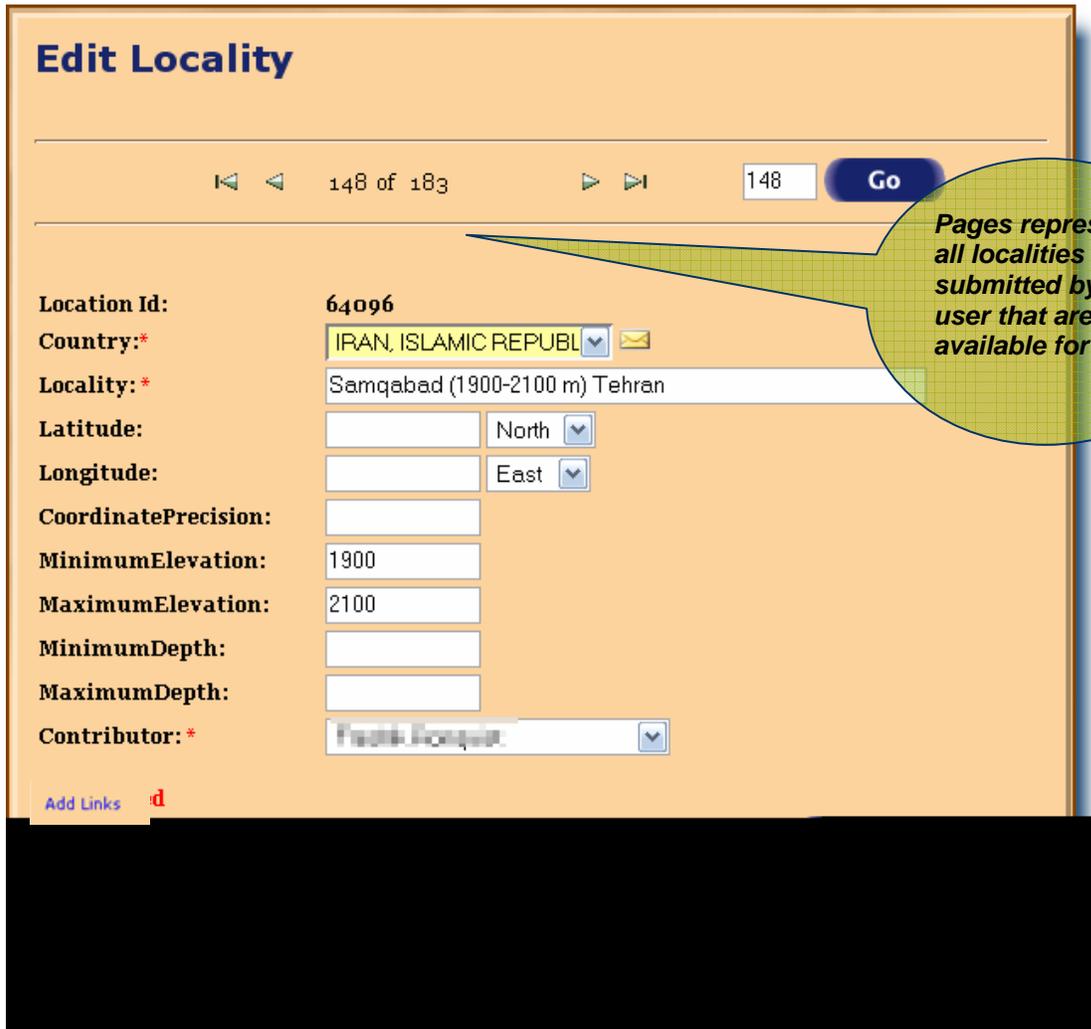


Figure 74 Edit Locality

The page numbers reflect the records that are available for edit. To find a previously contributed locality, users can advance through the data using the arrows or go to a particular page number by typing it in and selecting the **Go** button. For a more efficient way, users can go to **Browse Locality >Keyword Search**





then click on the **Edit** icon to edit the specimen.
The instructions for completing the fields on this page can be found in [submit/add localities](#).

****To complete the **Edit Locality** process, select **Update**.**

A screen will popup that requires a response from the user (Figure 75).

Selecting **yes** will send the user back to the **Edit Locality** screen where a confirmation message will confirm that the update(s) has been made. Selecting **no** will send the user back to the **edit** Screen. Selecting **cancel** will send the user back to the **edit Locality** screen without making any changes.

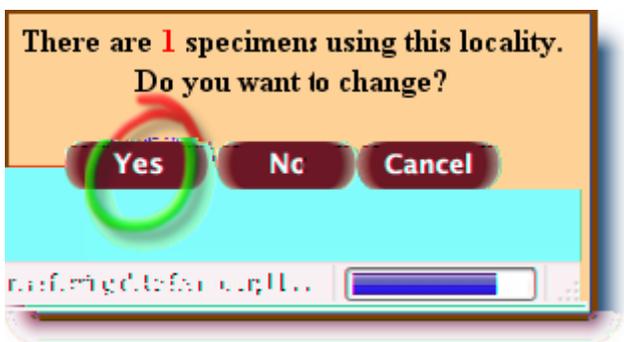
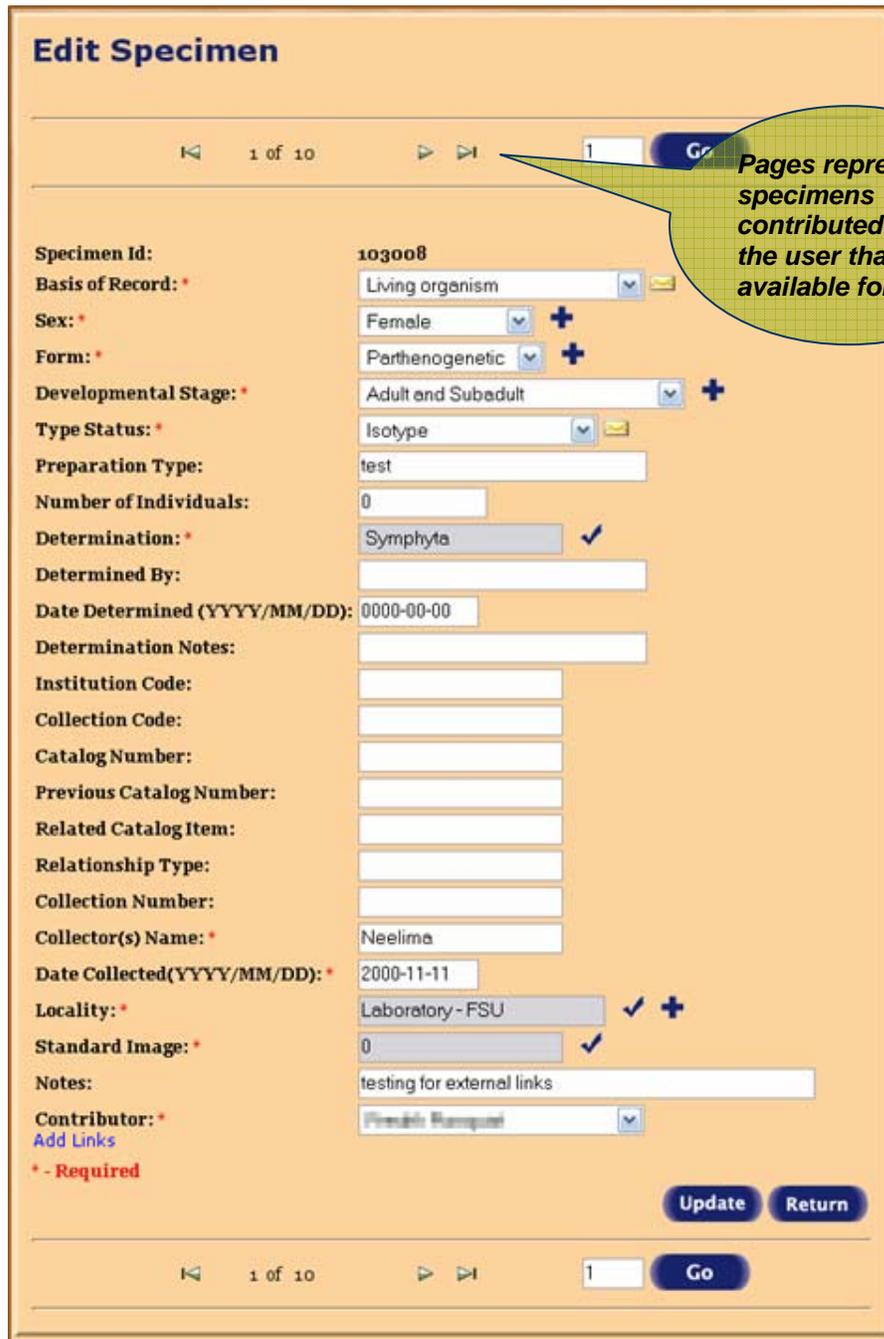


Figure 75 Edit Locality Confirmation

Edit: Specimen

Choose **Edit Specimen** when there is a need to change specimen data that was previously contributed to MorphBank.



Edit Specimen

1 of 10 1 Go

Specimen Id: 103008

Basis of Record: * Living organism

Sex: * Female +

Form: * Parthenogenetic +

Developmental Stage: * Adult and Subadult +

Type Status: * Isotype

Preparation Type: test

Number of Individuals: 0

Determination: * Symphyta ✓

Determined By:

Date Determined (YYYY/MM/DD): 0000-00-00

Determination Notes:

Institution Code:

Collection Code:

Catalog Number:

Previous Catalog Number:

Related Catalog Item:

Relationship Type:

Collection Number:

Collector(s) Name: * Neelima

Date Collected(YYYY/MM/DD): * 2000-11-11

Locality: * Laboratory - FSU ✓ +

Standard Image: * 0 ✓

Notes: testing for external links

Contributor: * Pirene Plaque

Add Links

* - Required

Update Return

1 of 10 1 Go

Pages represent specimens contributed by the user that are available for edit.

Figure 76 Edit Specimen

The page numbers reflect the specimens that are available for edit. To find a previously contributed specimen, users can advance through the data using the arrows or go to a particular page number by typing it in and selecting the **Go** button. For a more efficient way, users can go to **Browse Specimen>Keyword Search**



then click on the **Edit** icon to edit the specimen.

With the exception of the **standard image** field, the instructions for completing the other fields on this page can be found in [submit/add specimen](#).

The **standard image** is the image best represents the specimen. The default image is the first image entered for that specimen. If another image is desired as the standard display image, click on the ✓ and choose it from the list of images. When the desired image is found, select it ✓ and return to the **Edit Specimen** page.

To complete the **Edit Specimen process, select **Update**. A screen will popup that requires a response from the user (Figure 77). Selecting **Yes** will send the user back to the **Edit Specimen** screen where a confirmation message will confirm that the update(s) has been made. Selecting **No** will send the user back to the **Edit** screen. Selecting **Cancel** will send the user back to the **Edit Specimen** screen without making any changes.

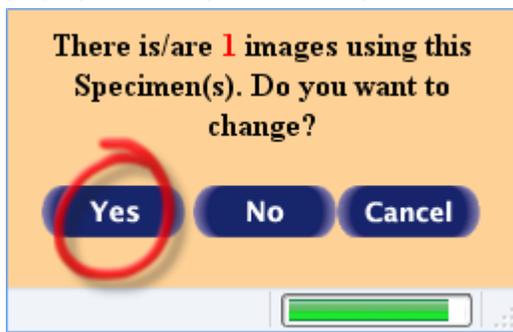
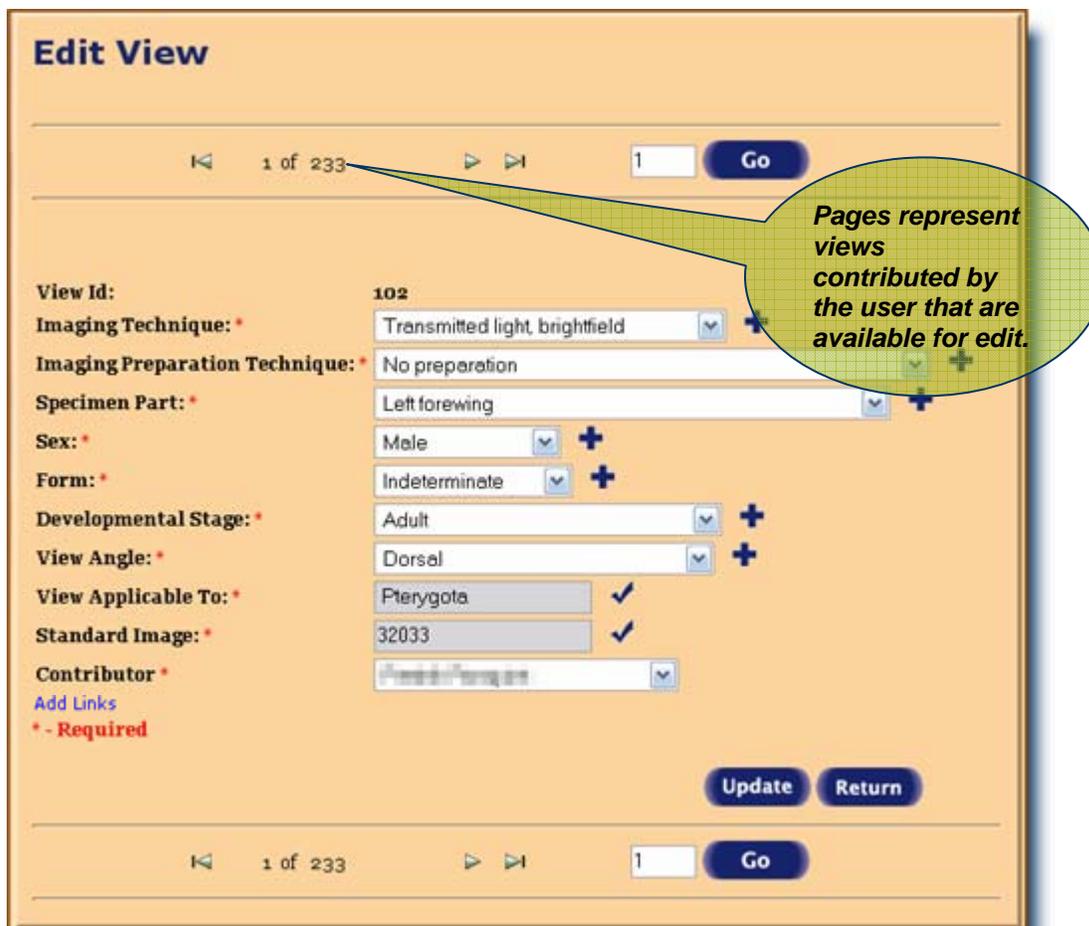


Figure 77 Edit Specimen Confirmation

Edit: View

Choose **Edit View** when there is a need to change view data that was previously contributed to MorphBank.



Edit View

1 of 233 1 Go

View Id: 102

Imaging Technique: * Transmitted light, brightfield +

Imaging Preparation Technique: * No preparation +

Specimen Part: * Left forewing +

Sex: * Male +

Form: * Indeterminate +

Developmental Stage: * Adult +

View Angle: * Dorsal +

View Applicable To: * Pterygota ✓

Standard Image: * 32033 ✓

Contributor * Pteridoptera

Add Links

* - Required

Update Return

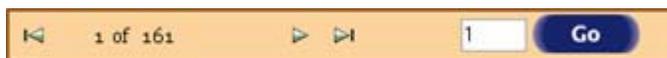
1 of 233 1 Go

Figure 78 Edit View

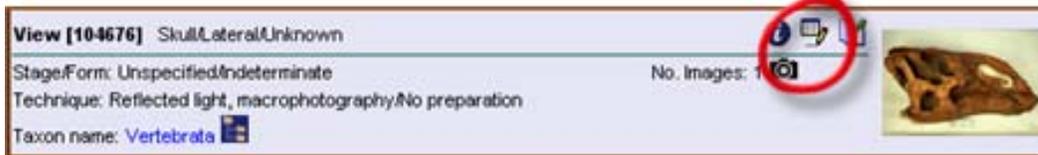
The page numbers reflect the views that are available for edit. To find a previously contributed view, users can advance through the data using the

arrows or go to a particular page number by typing it in and

selecting the **Go** button. For a more efficient way, users can go to **Browse View>Keyword Search**



1 of 161 1 Go



then click on the **Edit** icon to edit the view.

The instructions for completing the **Imaging Technique, Imaging Preparation Technique, Specimen Part, Sex, Form, Developmental Stage, View Angle, and View Applicable To** fields on this page can be found in [submit/add view](#).

The **Standard Image** is the image that best represents that view. The default image is the first image entered under that view. If another image is desired as the standard display image, click on the ✓ and choose it from the list of images. When the desired image is found, select it  and return to the **Edit View** page.

******To complete the **Edit View** process, select . A screen will popup that requires a response from the user ([Figure 79](#)) Selecting yes will send the user back to the **Edit View** screen where a confirmation message will confirm that the update(s) has been made. Selecting **No** will send the user back to the **Edit** screen. Selecting **Cancel** will send the user back to the **Edit View** screen without making any changes.



Figure 79 Edit View Confirmation

Edit: Image

Choose **Edit Image** when there is a need to change associated image data that was previously contributed to MorphBank by the logged-in user.

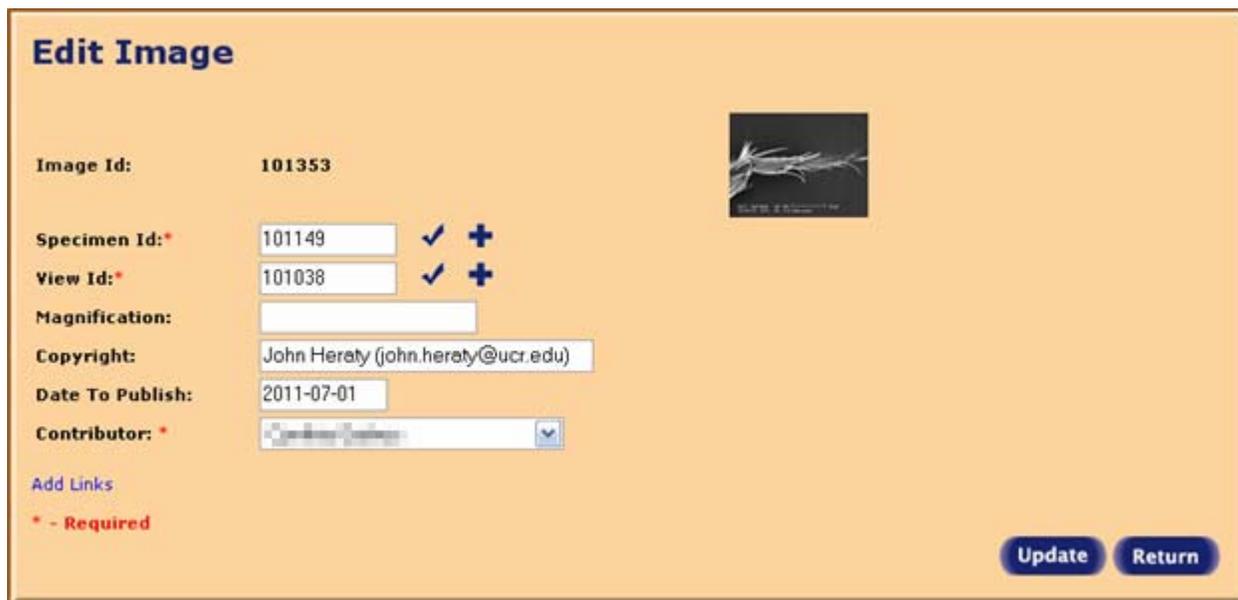
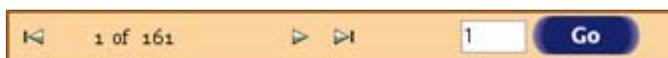


Figure 80 Edit Image

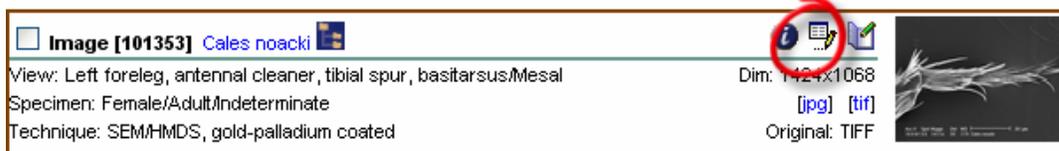
From **Edit Image** users can only change to a different **Specimen Id** or **View Id** or add a completely new **Specimen** record or **View** associated with the selected image. Users cannot currently edit the existing **Specimen** record, **View**, or **Locality** data from this page. For example, go directly to **Edit Specimen 101149** or **Edit View 101038** to change data in those objects.

The page numbers) reflect the images that are available for edit as shown in [Figure 78](#) (not illustrated in figure 80 because the contributor has only one image in this example)



To find a previously submitted image users can, advance through the data using the arrows or go to a particular page number by typing it in and selecting the **Go** button. For a more efficient way, users can go to **Browse Image>Keyword Search**





then click on the **Edit** icon to edit the image.

To edit associated image data:

Specimen related data:

- Add a new **Specimen** (click on the **+**)
 - Select a different already existing **Specimen id** (click on the **✓**)
- Note: To edit an existing Specimen see below

View related data:

- Add a new **View** (click on the **+**)
 - Select a different already existing **View id** (click on the **✓**)
- Note: To edit an existing View see below

Change the Magnification, Copyright, Date-to-Publish and Contributor data by typing in the new data or selecting it from the drop-down list.



To edit an existing **Locality, Specimen or View** associated with an Image:

Advance to the MorphBank Browse

- Browse **Specimen** >Keyword Search for desired **Specimen** >Click on the Edit Icon  for that **Specimen**.
- Browse **View** >Keyword Search for desired **View** >Click on the Edit Icon  for that **View**.
- Browse **Locality** >Keyword Search for desired **Locality** >Click on the Edit Icon  for that **Locality**.

Or, using the ID Information in the **Edit Image screen** above,

- Browse **Specimen** > Keyword Search: **107243** > click on Edit Icon .
- Browse **View** > Keyword Search: **93098** > click on Edit Icon .
- For the **Locality** associated with an Image, use the **Edit Specimen** page which displays the current **Locality** and **Locality Id** associated with that Specimen.
Users may:
 - add a different **Locality** for that Specimen (+) or
 - change to a different **Locality** (✓) already in Morphbank or
 - Browse **Locality** > Keyword Search by **Locality Id** > Click on the **Edit** Icon  to change portions of the **Locality** data for that Specimen Record.

Note: The Locality may be associated with more than one Specimen. If users need to leave the Locality as it is for the other specimens, add a new locality with [Add Locality](#), then use the ✓ feature to select the newly created Locality.

After changing any **Locality, Specimen, View or Image** data, complete the **Edit Image** process, by selecting .

A screen will popup that requires a response from the user (Figure 81).



Selecting **Yes** will send the user back to the **Edit Image** screen where a confirmation message will confirm that the update(s) has been made. Selecting **No** will send the user back to the **Edit** screen. Selecting **Cancel** will send the user back to the **Edit Image** screen without making any changes.

Figure 81 Edit Image Confirmation

Edit: Annotation

Edit Annotations contains the previously entered annotation data that can be edited by the owner (only available if the annotation is not yet published.) Make note that the type of annotation can not be altered.

Edit Annotation is accessed through the **Annotation Manager** by selecting **Tools/ Annotation Manager** or **Tools/Edit Annotation**.



The **Edit Annotation** screen will come up when the user clicks on the title of the annotation that is to be edited.

Clicking on the annotation title will bring up the Edit Annotation screen.

Annotation Manager								
Id [▲]	Title	Type Annotation	Object Id	Object	Date Created	Publication Date	Add	Delete
100020	Test Determination	Determination	70736	Image	2006-07-28	2006-09-01	add	×
104133	Test of Annotation Location	General	99697	Image	2006-08-15	2006-08-14	add	×
104134	Test 2 of Annotation Tool Arrow Location	General	99697	Image	2006-08-15	2007-02-14	add	×
104135	Arrow Location, Lower Left	General	99697	Image	2006-08-15	2007-02-14	add	×
104136	Test of Arrow, Upper Left	General	99697	Image	2006-08-15	2007-02-14	add	×
104137	Determination	Determination	99697	Image	2006-08-16	2007-02-15	add	×
104138	Determination	Determination	70736	Image	2006-08-17	2007-02-16	add	×
104139	Determination	Determination	99697	Image	2006-08-18	2007-02-17	add	×
104140	Determination	Determination	99697	Image	2006-08-18	2007-02-17	add	×
104141	Annotation without label on Arrow	General	99697	Image	2006-08-23	2007-02-22	add	×

Update

Figure 82 Edit Annotation

This Figure Contains Test Data

Annotation Record of Image [70756-Cynips douglasi]

Type of Annotation

Related Annotations

Taxonomic Name	Taxon Author	Prefix	Suffix	A	D	S
<input checked="" type="radio"/> Cynips douglasi	Temporary TSN Name	none	none	2	1	1

Determination Annotation

Determination Data Fields

Determination Action *

New Taxon ✓

Prefix

Suffix

Materials used in Id

Source of Identification *

Resources used in Identification *

Common Annotation Fields

Title *

Comments *

Image Label: ✓

X-Coord

Y-Coord

Date To Publish (YYYY/MM/DD) *

*-Required

Figure 83 Edit Annotation

This Figure Contains Test Data

The information included on the **Edit Annotation** screen reflects all the previous data that was included on the original annotation. To edit the information on this page, click on the appropriate area to highlight the data and type in or select the corrected information. Make note that the type of annotation can not be changed; however, if the annotation has not been published, it can be deleted entirely and reentered under the proper type. Help in filling out the data fields on this page can be obtained in

[Add Annotations](#) located in this manual.

Edit: Collection

Edit Collection contains the previously entered collection data that can be edited by the owner (only available if the collection is not yet published.)

Edit Collection is accessed through the **Collection Manager** by selecting **Tools>Collection Manager** or **Tools>Edit Collection**.



id	Name	Date to Publish	Date Created	Last Modified	Objects	Delete
[110776]	Johan Collection	2006-12-31	2006-12-03	2006-12-05	[20]	X
[105535]	Winner	2007-02-27	2006-08-27	2006-08-27	[4]	X
[100909]	Cynips Leg Collection	2007-02-01	2006-08-01	2006-08-29	[3]	X
[93092]	Cynips collection	2007-01-20	2006-07-20	2006-12-07	[5]	X

Figure 84 Edit Collection

The following items can be edited on the **Collection Manager** screen:

- Alter the collection name
- Change the date to publish
- Select a collection to delete

All changes must be followed by clicking on the update button to register the change.

To change items in a collection, click on the **Collection id** number. The previously assembled collection of images will come up. To get complete instruction on editing **Collections** go to the [Collections](#) area of this manual.

Edit: View and Request Changes to Imaging Technique

This option is open to any logged-in user. The user will be presented with a list of all the **Imaging Techniques** currently available in the MorphBank database.

Edit Imaging Technique

Imaging Technique *	Description *
Auto-Montage	Auto-Montage description
Reflected light, macrophotography	Reflected light, macrophotography description
Reflected light, scan	Reflected light, scan description
Transmitted light, brightfield	Transmitted light, brightfield description
SEM	Scanning Electron Microscope
Imaging Technique test data	Imaging Technique test data description

* - Required

Update
Return

Figure 85 Edit and Request Changes to Imaging Technique

This Figure Contains Test Data

Most users are not authorized to directly make amendments to the records in the MorphBank tables. Therefore, users are asked to send a change request to the MorphBank team. To request a change to any of the descriptions, left click on the field, make the appropriate modification, and select the Update button.

Transmitted light, brightfield	Transmitted light, brightfield description
SEM	Scanning Electron Microscope
Imaging technique test data	Data used to test the edit imaging technique

Make desired changes on the screen

The resulting screen displays the requested change(s) (Figure 86). Review the change(s) (select **Cancel** or **Return** if additional revisions are needed). The user is encouraged to enter supplementary information in the free text comment field. Comment field entries might include reasons or opinions on why the change should be made; or other information such as questions, or observations about the technique or description. To send the message and comments to the MorphBank team, select the **Send** button. A confirmation message will verify that the message was sent. The MorphBank team will review all change messages and determine if adjustments to records are needed.

You do not have permission to edit records in the table . Would you like to request a change by sending a message to MorphBank team

Table:	Imaging Technique
Record:	77756
Field Name:	Imaging Technique
Old Value:	
New Value:	imaging technique test data
Field Name:	Description
Old Value:	
New Value:	data used to test the edit imaging technique
No. of Views using this value:	0

User Comments:

Send **Cancel**

Figure 86 Request Changes to MorphBank Tables

This Figure Contains Test Data

Edit: View and Request Changes to Imaging Preparation Technique

This option is open to any logged-in user. The user will be presented with a list of all the **Imaging Preparation Techniques** currently available in the MorphBank database (Figure 87).

Edit Imaging Preparation Technique

Imaging Preparation Technique *	Description *
Air dried, gold coated	Air dried, gold coated description
Cleaned in absolute ethanol	Cleaned in absolute ethanol description
Cleaned in absolute ethanol, air dried, mounted in Euparal	Cleaned in absolute description
Cleaned in ammonia, air dried, gold coated	Cleaned in ammonia, air dried, gold coated description
Cleaned in ammonia, mounted in Euparal	Cleaned in ammonia, mounted in Euparal description
Cleared in KOH, mounted in Euparal	Cleared in KOH, mounted in Euparal description
Cleared in KOH, platinum-coated	Cleared in KOH, platinum-coated description
No preparation	No preparation description
Pressed and Dried	Pressed and Dried description
UNKNOWN	Unknown description

* - Required

Figure 87 Edit and Request Changes to Imaging Preparation Technique

This Figure Contains Test Data

Most users are not authorized to directly make amendments to the records in the MorphBank tables. Therefore, users are asked to send a change request to the MorphBank team. To request a change to any of the descriptions, left click on the field, make the appropriate modification, and select the button.

The instructions and examples for the remainder of this process can be found at [View and Request Changes to Imaging Techniques](#)

Edit: View and Request Changes to Specimen Part

This option is open to any logged-in user. The user will be presented with a list of all the **Specimen Parts** currently available in the MorphBank database. (Figure 88)



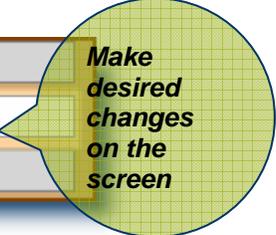
Figure 88 Edit and Request Changes to Specimen Part

This Figure Contains Test Data



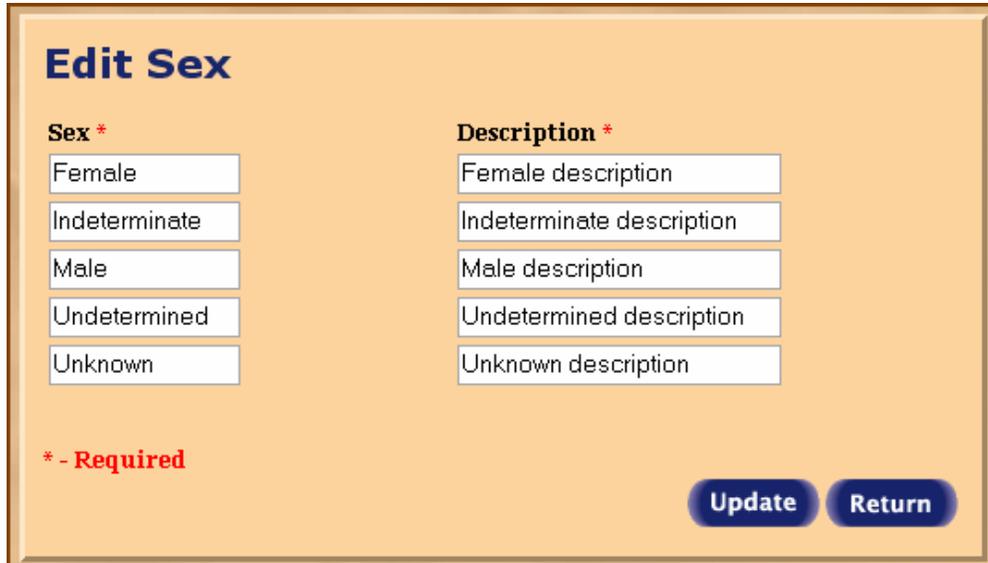
Most users are not authorized to directly make amendments to the records in the MorphBank tables. Therefore, users are asked to send a change request to the MorphBank team. To request a change to any of the descriptions, left click on the field, make the appropriate modification, and select the  button.

Apex of ovipositor	Apex of ovipositor description
Big Toe	The right big toe
Body	Body description



Edit: View and Request Changes to Sex

This option is open to any logged-in user. The user will be presented with a list of all the **Sex** options currently available in the MorphBank database (Figure 89).



Sex *	Description *
Female	Female description
Indeterminate	Indeterminate description
Male	Male description
Undetermined	Undetermined description
Unknown	Unknown description

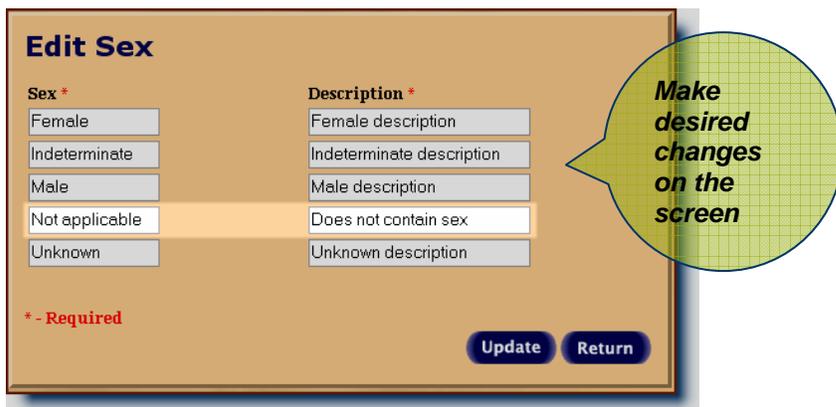
* - Required

Update Return

Figure 89 Edit and Request Changes to Sex

This Figure Contains Test Data

Most users are not authorized to directly make amendments to the records in the MorphBank tables. Therefore, users are asked to send a change request to the MorphBank team. To request a change to any of the descriptions, left click on the field, make the appropriate modification, and select the  button.

A screenshot of a web form titled "Edit Sex". The form has two columns: "Sex *" and "Description *". The "Sex *" column has five dropdown menus: "Female", "Indeterminate", "Male", "Not applicable", and "Unknown". The "Description *" column has five text input fields: "Female description", "Indeterminate description", "Male description", "Does not contain sex", and "Unknown description". The "Not applicable" dropdown and "Does not contain sex" text field are highlighted with a yellow background. A green speech bubble with a grid pattern points to the "Not applicable" dropdown and contains the text "Make desired changes on the screen". At the bottom left, there is a red asterisk and the text "* - Required". At the bottom right, there are two buttons: "Update" and "Return".

Sex *	Description *
Female	Female description
Indeterminate	Indeterminate description
Male	Male description
Not applicable	Does not contain sex
Unknown	Unknown description

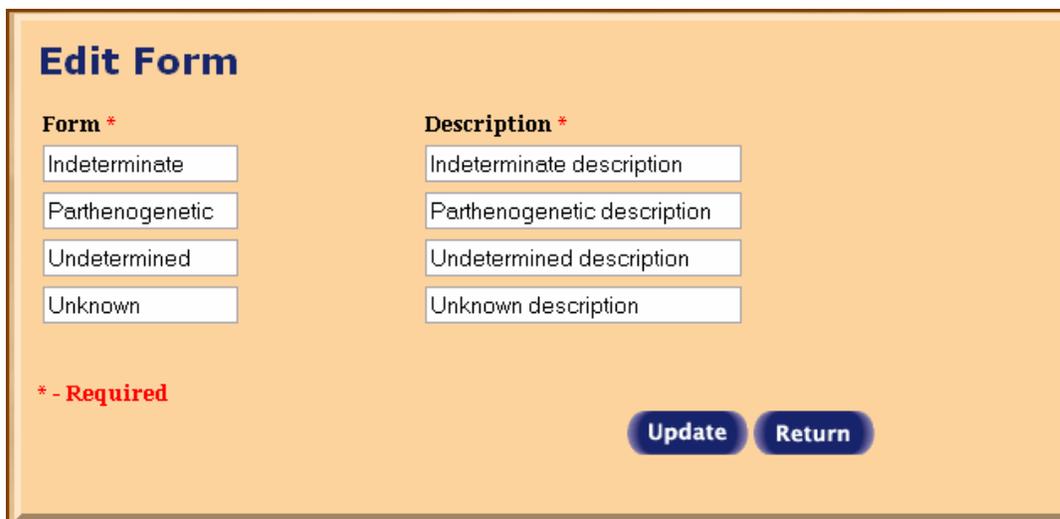
* - Required

Update Return

The instructions and examples for the remainder of this process can be found at [View and Request Changes to Imaging Techniques](#)

Edit: View and Request Changes to Form

This option is open to any logged-in user. The user will be presented with a list of all the **Form** options currently available in the MorphBank database (Figure 90).



Form *	Description *
Indeterminate	Indeterminate description
Parthenogenetic	Parthenogenetic description
Undetermined	Undetermined description
Unknown	Unknown description

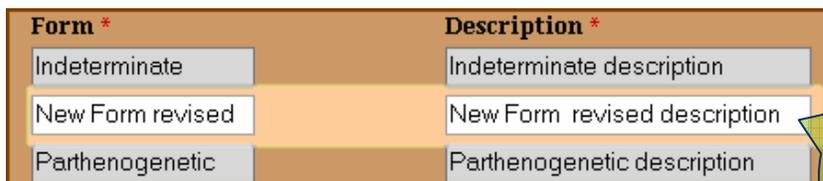
* - Required

Update Return

Figure 90 Edit and Request Changes to Form

This Figure Contains Test Data

Most users are not authorized to directly make amendments to the records in the MorphBank tables. Therefore, users are asked to send a change request to the MorphBank team. To request a change to any of the descriptions, left click on the field, make the appropriate modification, and select the **Update** button.



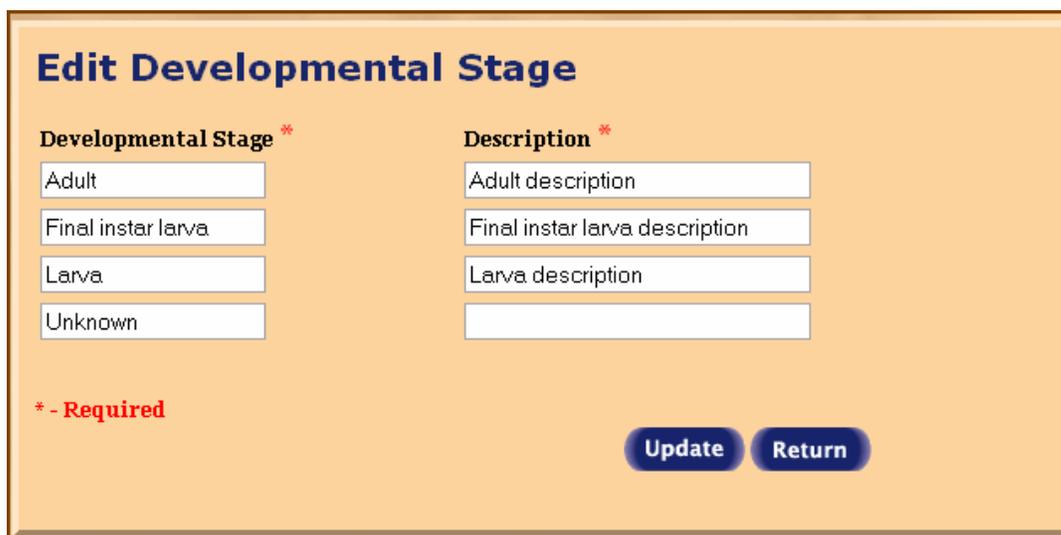
Form *	Description *
Indeterminate	Indeterminate description
New Form revised	New Form revised description
Parthenogenetic	Parthenogenetic description

Make
desired
changes
on the
screen

The instructions and examples for the remainder of this process can be found at [View and Request Changes to Imaging Techniques](#)

Edit: View and Request Changes to Developmental Stage

This option is open to any logged-in user. The user will be presented with a list of all the **Developmental Stage** options currently available in the MorphBank database (Figure 91).



Developmental Stage *	Description *
Adult	Adult description
Final instar larva	Final instar larva description
Larva	Larva description
Unknown	

* - Required

Update Return

Figure 91 Edit and Request Changes to Developmental Stage

This Figure Contains Test Data

Most users are not authorized to directly make amendments to the records in the MorphBank tables. Therefore, users are asked to send a change request to the MorphBank team. To request a change to any of the descriptions, left click on the field, make the appropriate modification, and select the **Update** button.



Larva	Larva description
Unknown	Developmental stage not known

Make desired changes on the screen

The instructions and examples for the remainder of this process can be found at [View and Request Changes to Imaging Techniques](#)

Edit: View and Request Changes to View Angle

This option is open to any logged-in user. The user will be presented with a list of all the **View Angle** options currently available in the MorphBank database (Figure 92).

View Angle *	Description *
Anterior	Anterior description
Anterodorsal	Anterodorsal description
Anteroventral	Anteroventral description
Dorsal	Dorsal description
Dorsolateral from left	Dorsolateral from left description
Herbarium Specimen	Herbarium Specimen description
Internal	Internal description
Lateral	Lateral description
Lateral from left	Lateral from left description
Lateral from right	Lateral from right description
Left anterior, right posterior	Left anterior, right posterior description
Left dorsal	Left dorsal description
Left dorsal, right ventral	Left dorsal, right ventral description
Left posterior, right anterior	Left posterior, right anterior description
Left ventral, right dorsal	Left ventral, right dorsal description
Posterior	Posterior description
Posterodorsal	Posterodorsal description
Posteroventral	Posteroventral description
Right dorsal, left ventral	Right dorsal, left ventral description
Ventral	Ventral description

* - Required

Update Return

Figure 92 Edit and Request Changes to View Angle

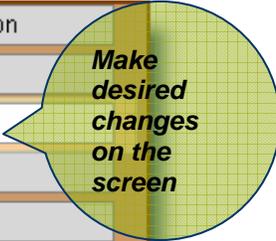
This Figure Contains Test Data

Most users are not authorized to directly make amendments to the records in the MorphBank tables. Therefore, users are asked to send a change request



to the MorphBank team. To request a change to any of the descriptions, left click on the field, make the appropriate modification, and select the **Update** button.

Left posterior, right anterior	Left posterior, right anterior description
Left ventral, right dorsal	Left ventral, right dorsal description
New posterodorsal	New posteroventral description
New ViewAngle	New ViewAngle description
Posterior	Posterior description



The instructions and examples for the remainder of this process can be found at [View and Request Changes to Imaging Techniques](#)

Edit: View and Request Changes to Link Type

This option is open to any logged-in user. The user will be presented with a list of all the **Link Type** options currently available in the MorphBank database (Figure 93).



Link Type *	Description *
GenBank	GenBank sequences
Google Maps	Google maps
Institution	Institutions
Other	Others
Project link	Not provided
Publication	Publications

* - Required

Update Return

Figure 93 Link Types

Most users are not authorized to directly make amendments to the records in the MorphBank tables. Therefore, users are asked to send a change request to the MorphBank team. To request a change to any of the descriptions, left click on the field, make the appropriate modification, and select the **Update** button.



Google Maps	Google maps
Institution	Institutions
Other	Description of Others
Project link	Not provided

**Make
desired
changes
on the
screen**

The instructions and examples for the remainder of this process can be found at [View and Request Changes to Imaging Techniques](#)



Collections

A collection is a group of images that are assembled from the MorphBank database by MorphBank members for the purpose of viewing and/or manipulating (e.g. rearranging the order, editing, and/or annotating, etc.) and storing the group of images for future use.

Note: In upcoming versions a collection will include images and other objects such as: annotations, groups, localities, publications, specimens, users or views.

- Collections must have at least one image/object. Deleting the last image will leave an empty collection. Do not delete it.
- Collections have an order based the owner's criteria. The initial order will correspond to the order the objects were initially selected.
- Collections are identified by a unique internal id.
- Collections are published (viewable to the world) when released by the creator (default 6 months if not otherwise notified).

Guidelines for working with collections: A User may have multiple collections that will be identified by a name on the screen. Since the collection will have a unique internal identifier, the name may be duplicated but is not recommended.

Unpublished owned collections:

- A user may alter the makeup of their own unpublished collection by adding or deleting images.
- An image can be added to a user's unpublished established collection.

Note: There are no restrictions as to the number of objects in a collection. However, due to speed considerations, the user should exercise caution not to exceed 100 high resolution images per collection.

- A user may delete one or more images (or an entire collection) from an unpublished, owned collection.



- A user may change the order of the images in their own unpublished collections.
- A collection owner may move an image from one unpublished collection to another owned, unpublished collection.
- An owner of an unpublished collection may annotate that collection.

Unpublished collections owned by other users:

- A user may browse and view unpublished collections of other users within groups to which he/she belongs.
- A user may make a copy of an unpublished collection of another user provided they belong to the same group.
- A user may copy an image from any collection to another unpublished, owned collection.
- A user may annotate an unpublished collection owned by another member in the group.

Published collections:

- A user may make a copy of any published collection. (This copy then becomes an unpublished collection owned by the user and group who created it.)
- A published collection cannot be edited by anyone but may be annotated.

The user's group/user's collection relationship:

- The user's collection will be shared with a group in MorphBank. The user must declare which group they belong to before they create the collection and that collection is shared with the declared group.
- The collection will be immediately viewable to all users in that group. (The collection cannot be accessed by the world until it is published).
- Although the owner may alter their own collection, other members of the group may not (but they may annotate it).
- Other members of the group may make a copy of another user's collection and thus create their own personal copy.

Managing collections: The **Collection Manager** offers the user a list of all the collections that have been created under the current username and group (**Figure 94**). To access other collections under the same username but created under another authorized group, return to the **Select Group** screen and login under that group.

Screen Use Tip:

To return to **groups**, click the **tools** button on the page header and choose **select group** from the list.



There is no limit on the number of collections a user may have.

New collections are created or copied through **Browse-Images**, **Browse-Collections** or through the results of a **Search**. Access all collections owned by other users in MorphBank thru the **Browse/Collections** screen. The **Collection Manager** (manager of the user's personal collections) is directly accessed by choosing **Collection Manager** from the **Tools** menu.

id	Name	Date to Publish	Date Created	Last Modified	Objects	Delete
[100016]	New Collection	2007-01-28	2006-07-28	2006-08-22	[10]	X
[99502]	Steve Lepidoptera	2006-01-27	2006-07-27	2006-07-27	[5]	X
[99501]	steve test	2006-01-27	2006-07-27	2006-07-27	[20]	X
[98661]	wasp heads 2	2007-01-26	2006-07-26	2006-07-26	[20]	X
[98660]	New Collection	2006-01-26	2006-07-26	2006-07-26	[1]	X

Figure 94 Collection Manager

This Figure Contains Test Data

Tag descriptions for [Figure 94](#)

Tag 1- **Rename a collection:** highlight the current name and type in the new name.(The default name is “new collection”).

Tag 2-**Select a date to publish:** type in any date from the date created to 5 years from that date. (The publish date defaults to 6 months from the date the collection was established.) The boxes that are highlighted in white can be changed. The other selections are already published and can not be altered

Tag 3 -**Delete a collection:**

The last column in the collection manager is the delete column. To delete a collection, click on the delete **X** icon. A confirmation message will appear

prior to completing the delete. If the icon is “greyed out”, the collection is already published and cannot be deleted.

Tag 4 -Update:

All changes on the collection manager page must be registered to become permanent. To register changes, click on the update  button.

Tag 5 -View, edit or annotate a selected collection:

Every collection is issued a unique MorphBank collection id. Selecting the desired id number from the collection manager displays the requested collection on the screen.

Tag 6 -Collection manager header:

Click on the column headers to sort the list of the applicable data by number order, alpha order, date order, etc.

Collection identifier	one head test	2006-11-30	2006-05-31	2006-06-19	[2]	X
[77732]	New Collection	2006-12-01	2006-06-01	2006-06-19	[13]	X
[77724]	Plant Collection	2006-06-18	2006-06-14	2006-06-16	[7]	X
[77731]	new plant collection	2006-12-20	2006-06-20	2006-06-20	[17]	X
[77732]	plant collection 3	2006-12-20	2006-06-20	2006-06-22	[25]	X
[77733]	New Collection	2006-12-20	2006-06-20	2006-06-22	[0]	X



Figure 95 Collection Manager Example of Published Collection

This Figure Contains Test Data

Published collections cannot be altered. However, by selecting the published collection identifier from the collection manager the user may view, copy or annotate a published collection.



Figure 96 SampleCollection
This Figure Contains Test Data

Tag descriptions for [Figure 96](#)

Tag 1 -**Tools:**



- To use **Tools**, images in the collection need to be tagged by using the check box in the lower left hand corner of each image. When the image is selected, its screen is highlighted so selected images are visible at a glance.
- **Copy or move checked objects:** Users have the option of copying or moving objects to a new collection or to another owned, unpublished collection. Check the images to include, then select the desired option from the dropdown list.
- **Label checked objects:** Users have the option of labeling the checked images by taxon name, specimen id, specimen part or view angle. Select the desired label criteria from the dropdown list.

- Annotate checked objects: Users can annotation an image (single annotation) or an entire collection of images at one time (mass annotation). Complete instructions for this process can be found in [Add Annotations](#) located in the **Annotations chapter** of this manual.

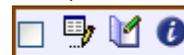
Figure 97 Three Images Selected to Annotate

This Figure Contains Test Data

- Delete checked objects: Users can permanently delete any of the checked images from an unpublished collection by selecting this option (checking all of the images in the collection deletes the entire collection). A confirmation message will appear prior to completing the delete.

Tag 2 –Collection display settings:

- Collection images display size: The default, most manageable image size is **small** due to load speed and space requirements. Other choices are **medium** or **large** (May take longer to load). The aspect ratio is retained for all choices.
- Post It: Hovering over an image in a collection will display a **post it** note containing additional information. This feature can be turned off by selecting the appropriate radio button.
- Icons: Each image in a collection contains a row of icons (selection box, edit, annotate, information) that may be turned on or off as needed.



Tag 3 -Save the order:

The order of the images in the collection can be changed manually. Drag and drop the image(s) into the new location ([Figure 98](#)). Retaining the new order requires selecting the **Save Order** button. If this is not done,

the order will revert back to the previous state when exiting out of the collection.

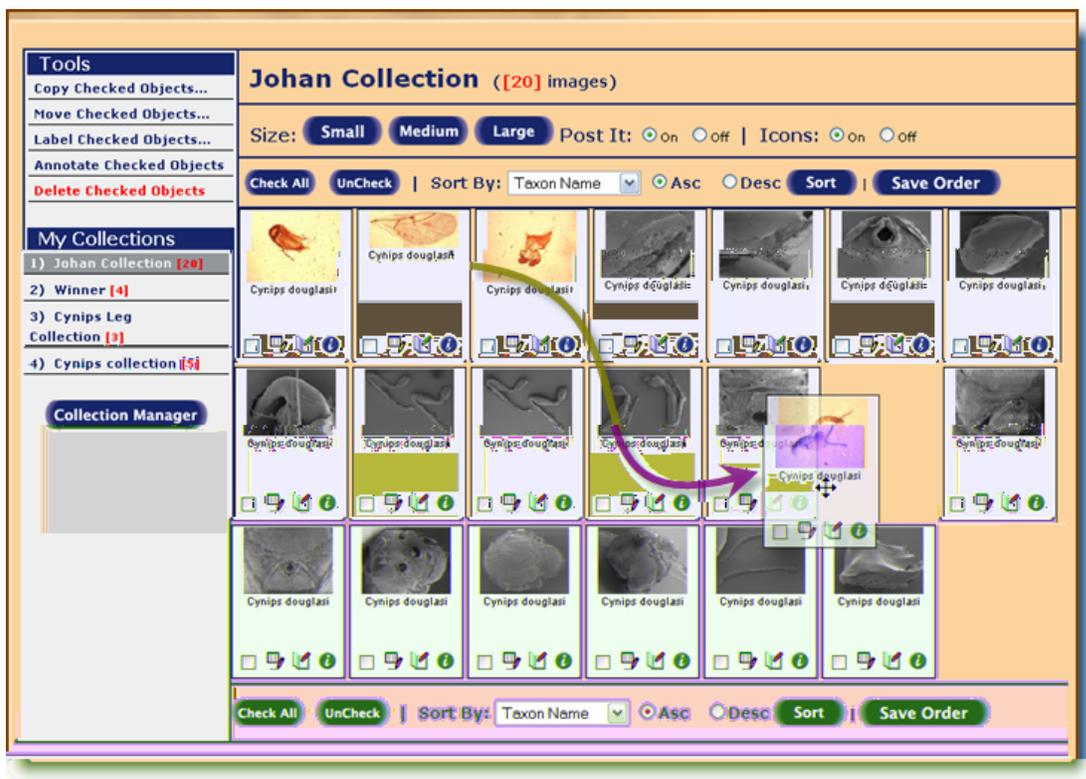


Figure 98 Collection Order Rearrangement

This Figure Contains Test Data

Tag 4 -Collection list:

Offers the user a list of all the collections that have been created under the current username and group. The current collection that is being displayed is highlighted dark grey. The collections which are light grey are published collections. The red number in brackets corresponds to the number of images in the collection. Clicking on a collection will display the collection contents and saved order. To access other collections under the same username but created under another authorized group, return to the **Select Group** screen and login under that group. There is no limit on the number of collections a user may have.

Screen Use Tip:

To return to **groups**, click the **tools** button on the page header and choose **select group** from the list.



Tag 5 -Check buttons:

These buttons are used to check or uncheck an entire collection of images.

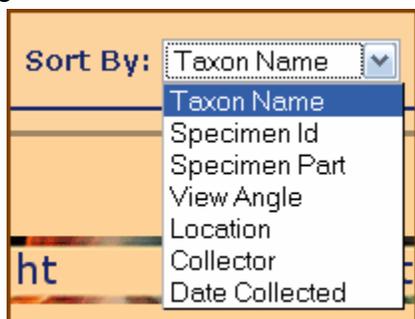
Tag 6 -Number of images:

This number reflects the current number of images in the collection.

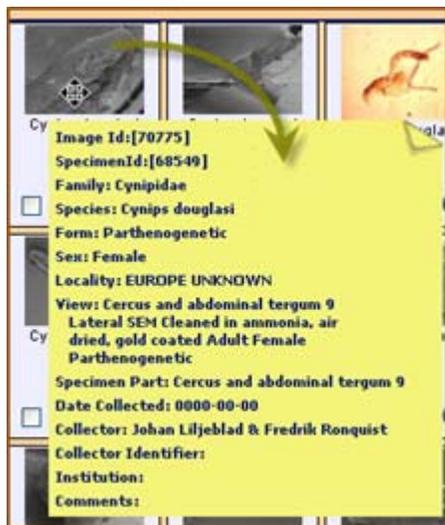
Tag 7 -Published collection:

Published collections show up as grayed items on the collection list. They can be viewed, copied to another collection or annotated but not altered in any other way.

Tag 8 -Sort:



The sort option enables the user to organize their collection in a more desirable order. Select the sort criteria from the dropdown box and click on the **sort** button. This will save your collection in the sorted order.



Tag 9 -Images:

The image tiles contain the image and options for annotating  the image, editing the title  of the image or displaying the single show feature  for the image. In addition, clicking on the image will bring up the [FSI Viewer](#) and hovering the mouse pointer over the image tile will display an informative Post it note pertaining to that image.

Figure 99 Collection Information Post It Note



Annotation

Annotation allows users to add additional information to objects in the MorphBank relational database. An annotation is a comment about an object (usually an image or collection) that is stored separately from the object itself. Annotations are identified in MorphBank by a unique internal id.

The created annotations are published (viewable to the world) when released by the creator (default 6 months if not otherwise notified).

Note: Initially, only images and specimens have annotation options but in future versions, users will be able to annotate any MorphBank object (i.e. image, specimen, locality, view, publication, annotation, etc).

Guidelines for working with annotations:

A user may have multiple annotations that will be identified by a title on the screen. Since the annotation will have a unique internal identifier, the name may be duplicated but is not recommended. (When making mass annotations all will have the same initial title in the annotation manager.)

Any logged-in user can annotate any image or collection that is released. Any logged-in user can annotate any image or collection that has not been released provided they belong to the group who owns the image or collection.

Unpublished owned annotations:

- A user may edit the makeup of their own unpublished annotations.
- A user may delete an unpublished, owned annotation.

Unpublished annotations owned by other users:

- A user may browse unpublished annotations of other users within groups to which he/she belongs.
- A user may view unpublished annotations of other users within groups to which he/she belongs.

Published annotations:

- Published annotation cannot be edited.
- Published annotations are viewable to the world.



The user's group/user's annotation relationship:

- The user's annotation will be shared with a group in MorphBank. The user must declare which group they belong before they create the annotation (declared through **Select Group** in the login process) and that annotation is shared with the declared group.
- The annotation will be immediately viewable to all users in that group (The annotation cannot be accessed by the world until it is published).
- Although the owner may edit their own unpublished annotation, other members of the group may not.

Annotations Manager

The **Annotation Manager** offers the user a list of all the annotations that have been created under the current username and group (Figure 100). There is no limit on the number of annotations a user may have. To access other annotations under the same username but created under another authorized group, return to the **Select Group** screen and login under that group.

Screen Use Tip:

To return to **groups**, click the **tools** button on the page header and choose **select group** from the list.



The **Annotation Manager** (manager of the user's personal annotations) is directly accessed by choosing **Annotation Manager** from the **Tools** menu (located on the opening MorphBank screen or on the page header).

Id [▲]	Title	Type Annotation	Object Id	Object	Date Created	Publication Date	Add	Delete
100020	Test Determination	Determination	70756	Image	2006-07-28	2006-09-01	add	X
104905	General Annotation	General	70756	Image	2006-08-21	2007-02-20	add	X
110237	Text XML Document Annotation	XML	63952	Image	2006-10-22	2007-04-21	add	X
110238	2nd Test of XML Upload	XML	63952	Image	2006-10-22	2007-04-21	add	X

Figure 100 Annotation Manager

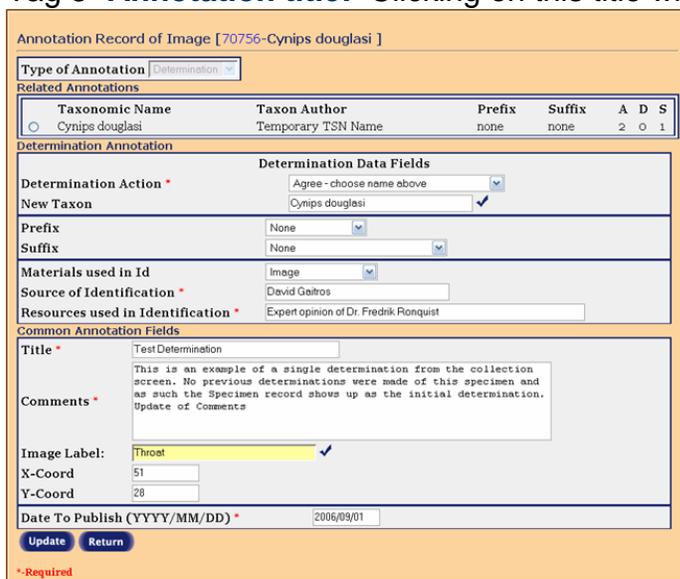
This Figure Contains Test Data

Tag information for [Figure 100](#)

Tag 1-**Annotation manager header**: Click on the column headers to sort the list of the applicable data by number order, alpha order, date order, etc.

Tag 2 -**Annotation id**: This is a MorphBank-issued identifier. Click on it to view the associated annotation.

Tag 3 -**Annotation title**: Clicking on this title will take the user to the **Edit**

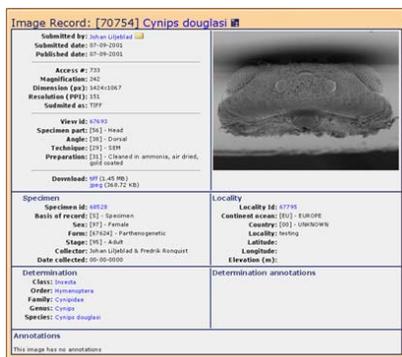


Annotation screen (Figure 101). This screen contains the previously entered annotation data that can be edited by the owner. Take note that the type of annotation can not be altered. (**Edit Annotation** is only available to the owner if the annotation is not yet published.) Complete instructions on this area can be found in the [Edit Annotation](#) area of this manual.

Figure 101 Edit Annotation

This Figure Contains Test Data

Tag 4 -**Annotation type**: There are currently four types of annotations possible: **Determination**, **General**, **Legacy** and **XML** (see **Types of Annotations** later in this chapter.)



Tag 5 -**Object id**: This represents the identifying number of the object (image, specimen, etc.) being annotated. Clicking on the id will take the user to the **Single Show** screen (Figure 102) that displays the record which contains the image and related information.

Figure 102 Single Show Image Record

Tag 6 -**Type of object being annotated**: Initially, only images and specimens will have annotation options but in future versions, users will be able to annotate

any MorphBank object (i.e. image, specimen, locality, view, publication, annotation, etc).

Tag 7 -Date created: This is the date that the annotation was submitted to MorphBank. It is automatically generated.

Tag 8 -Select a date to publish: Type in any date from the date created to 5 years from that date. (The publish date defaults to 6 months from the date the collection was established.) After changing the date(s) click on the update button  to register all the date changes in MorphBank.

Tag 9 -Add a new annotation: Clicking on **Add** will take the user to the **Add**

Annotation screen (Figure 103) where the user can add an additional annotation to the selected object. Directions for this process are located later in this chapter.

Tag 10 - Delete an annotation: The last column in the annotation manager is the delete column. To delete an annotation, click on the delete  icon. A confirmation message will appear prior to completing the delete. (This option is available only if the annotation is not yet published.)

Tag 11 -Update button: All alterations on the annotation manager page (date to publish changes) must be registered to become permanent. To register changes, click on the update  button.

Types of Annotations

- **Determination:** This is the most complex of the annotation types and is designed to offer biologist the ability to remotely collaborate on the determination (assignment of a taxonomic name); and to offer the ability to supply additional details concerning the taxonomic name associated with a specimen. When **Determination** is selected as the annotation type, additional field options will be available:
 1. Determination annotation will give users the ability to view and respond to a list of determination annotations that are related to the current object.
 2. Users can choose to comment on the previous determinations, select a new taxonomic name from the ITIS database, or add a new taxon.
 3. Users are required to provide MorphBank with the source of the identification (defaults to the name of the logged-in user) and resources used in making this determination annotation.

An annotation title, comments and date to publish are the remaining required fields in this option. (Details for this annotation type are located in the **Add Annotations** documentation below.)

Note: Even though the image was selected for annotation, it is really the associated specimen that is linked to the determination annotation. For example, if two users create a determination annotation using two different images from the same specimen, when the determination annotations are viewed for that specimen, both will be seen as related annotations. If a determination annotation is written for a collection of images there will be an identical determination annotation record written for each specimen in the collection.

- **General:** This annotation type is used to add general comments about an image or collection of images. The required fields in this option include an annotation title, general comments and date to publish (The publish date defaults to 6 months from the date the collection was established.) (Details for this annotation type are located in the **Add Annotations** documentation below.)



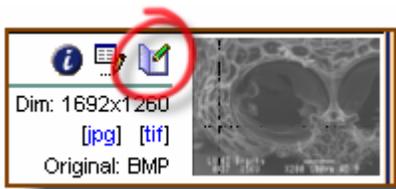
- **Legacy:** General and legacy annotations differ only in the source of the annotation. Data in a legacy annotation was previously generated and stored elsewhere prior to the inclusion in MorphBank. As in a general annotation, a legacy annotation is used to add general comments about an image or collection of images. The required fields in this option include an annotation title, general comments and date to publish (The publish date defaults to 6 months from the date the collection was established.) (Details for this annotation type are located in the **Add Annotations** documentation below.)
- **XML:** This option allows the user to upload an XML document into the MorphBank database and use it as a general annotation. All other fields match the general and legacy annotations. The required fields include an annotation title, general comments and date to publish (The publish date defaults to 6 months from the date the collection was established.) The XML document is limited in size to 64K. (Details for this annotation type are located in the **Add Annotations** documentation below.)

Add Annotations

New single (one at a time) or mass (multiple) annotations are added through the **Add Annotation** or **Mass Annotation** screens.

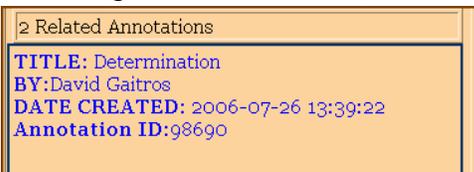
Adding new single annotations:

Single annotations are created through **Browse-Images**, through the results of a **Search**, through an existing annotation (i.e. annotation manager, annotation-show, related annotations etc.) or through a **Collection** (i.e. browse-collection, collection, collection-show etc.)



To reach the add annotation screen, logged-in users can select the annotation icon  located beside the thumbnail image of the record to be annotated as seen in **Browse-Images** or through the results of a search.

The **Add Annotation** screen can also be accessed in **Annotation Manager** by selecting the **Add** column, or in other annotation screens by clicking anywhere there is a selectable **Related Annotations** area (noted by blue highlighted type). The related annotation screen contains a dropdown menu for add annotations.



Users can also access the single annotation process from **My Collection**, by checking one image in a collection (check the box in the lower left side of the image). Then click on **Annotate Checked Objects** or select the annotation icon  located beside the thumbnail image of the record to be annotated



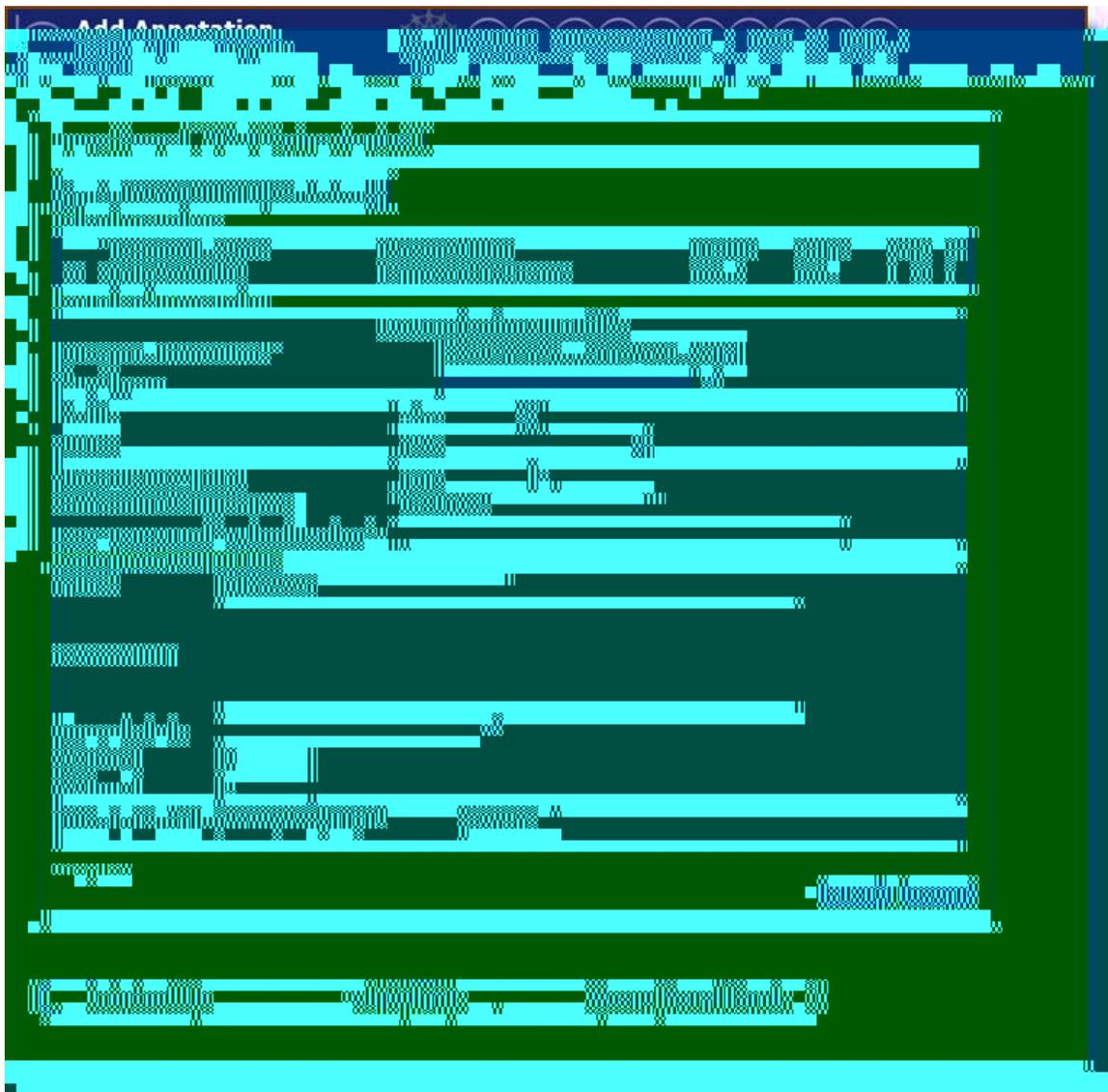


Figure 103 Add Annotation

This figure contains test data

All required fields are followed by an *.

-  Type of annotation: (**Required field**) The default selection for this field is **Determination**. The other options of **General**, **Legacy**, and **XML** are selected from the drop-down list.

-  Related annotations: (available only with the annotation type of **Determination** selected.) The user can select from a list of previously submitted, related determination annotations for that image (or related images) To select the related annotation, click on the radio button to the left of the taxonomic name. This field also contains a history of the previous annotations (author, prefix/suffix, A (agree with taxon name), D (disagree with taxon name), S (number of specimen(s) associated with this determination and collection of images).

Attributes of **Related Annotations** in the list for a single determination annotation:

1. All annotations in the list have the same specimen (specimen id)
2. All annotations in the list must be determination annotations
3. Included in the related annotations list is the initial determination placed in the specimen record.

This means that all of the images associated with a single specimen will have the same related annotations visible in a determination annotation. See [Figure 106](#) for detailed information regarding related annotations.

-  Determination action: (**Required field** that is available only with the annotation type of **Determination** selected.) and choose to agree, disagree, or agree with qualification (to agree with the taxon but not with a listed prefix or suffix.)

Agree: The user must choose a previous determination using the radio buttons to the left of the related annotation. An annotation record will be added that agrees with that taxonomic name, prefix and suffix.

Disagree: The user must choose a previous determination using the radio buttons to the left of the related annotation. An annotation record will be added that disagrees with that taxonomic name, prefix and suffix.

Qualify lowest rank: The user must choose a previous determination using the radio buttons to the left of the related annotation. Additionally, the user will have the ability to qualify the taxon with a prefix and/or suffix. (These appear only after the qualify option is selected) The combination of taxonomic name/prefix/suffix must be unique (if there is a duplicate, an **Agree** annotation will be added).

-  New taxon: (available only with the annotation type of **Determination** selected.) If no related annotation was chosen from the list, the user has the option of selecting a new Taxon name from a list. To insure accuracy, taxonomic names need to be selected  from the **Taxonomic Selection Screen**. Traverse through the levels  until the appropriate scientific name is found. Then click the select icon , it will automatically direct the user back to the add annotation screen and the appropriate name will be filled in.

If a new taxon name needs to be added select the **Add new Taxon** button that is visible from the family level. The **Add TSN** screen will popup. (This



option is only available for authorized users.) For complete instructions on this process see the [ITIS, Add New Taxon](#) section of this manual.

Note: Great care must be taken when adding new taxon names to the local copy of the database. New names must be accurate and accepted in the biological community. Adding a new taxon name commits the user to the responsibility of submitting a change to the Department of Agriculture <http://www.itis.usda.gov/>.

m Prefix/suffix: (available only with the annotation type of **Determination** selected; and only available if user chose to agree with qualification or chose a new taxon name.) Uses can choose a prefix or suffix from the appropriate drop-down list to qualify their determination action.

Prefix options include:

- *None*
- *Not*
- *Aft (akin to)*
- *Cf (compare with)*
- *Forsan (perhaps)*
- *Near (close to)*
- *Of lowest rank*
- *? (questionable)*

Suffix options include:

- *None*
- *Senso latu (in the broad sense)*
- *Senso Stricto (in the narrow sense)*
- *Of lowest rank*

m Materials used in id: (available only with the annotation type of **Determination** selected.) Indicate the materials examined to formulate this determination annotation by selecting an option from the drop-down list.

m Source of identification: (**Required field** that is available only with the annotation type of **Determination** selected.) Enter the name of the person who made the determination. The default for this option is the logged-in user. The name can be changed if the annotation is being made on behalf of someone else.

m Resources used in identification: (**Required field** that is available only with annotation type of **Determination** selected.) Indicate the resources used to support the determination annotation. This is a free text entry for information such as citations of literature or expert opinion.

m Title: (**Required field**) Click on this field to change or enter a title for the annotation. The default title is **Determination** for a determination annotation. For other types of annotations enter an appropriate descriptive title.



- **Comments:** (**Required field**) Enter comments to support the annotation or comments that might aid other users to understand the particulars of this annotation, or add any other information that might be useful to keep with the annotation. Examples: explain why the specimen was identified with the particular taxon, comment on an image marker placement etc.
- **Image label:** When annotating a single image, the user has the option of identifying a location on the image to associate a pointer and label (If annotating a group of images this option will not be available).

To add a marker to the image, select the beside the **Image Label** field. The current image will display. Click on the screen (do not drag) where the point of the marker is to be located. To reposition the marker, click on the screen in the new location. The old marker will be replaced by a new marker.

The marker color can be selected. Click the radio button next to the desired color (choices are red [default], blue, yellow and green).

To add a label to the marker, type the label in the **Annotation Label** field provided on the screen.

Note: Only one marker and label is available for each annotation. Multiple markers require separate annotations for each desired marker and label.

When the image has been marked and labeled, select submit. The screen returns to the add annotation screen. If a marker label was added, it will show up in the **Image Label** box. As long as the annotation is not yet published, a submitted marker can be changed through edit annotation.

- **X/Y coordinates:** This field will display automatically after a marker has been placed on the image. It is not suggested that the coordinates be manually changed by the user. The location of the marker on the image is represented as a percentage (%) of pixels from the left of the image (x) and from the top of the image(y).
- **Date to publish:** (**Required field**) Type in any date from the date created to 5 years from that date. (The publish date defaults to 6 months from the date the collection was established.)
- **Submit/Return:** Select **Submit** to upload the annotation data to MorphBank and go back to the place where the annotation was initiated or select **Return** to go back to that screen without submitting any data.

Adding new mass annotations:

A user with a login account can annotate a group of images called a “mass annotation”. Mass annotations can be made through any area in MorphBank that accesses collections i.e. **Browse-Collection, Collection, Collection-Show**, etc. By selecting all or any subset of a group of images, a user can request to annotate that collection by calling the add annotation screen and entering the data. This will cause an through the

heSwon



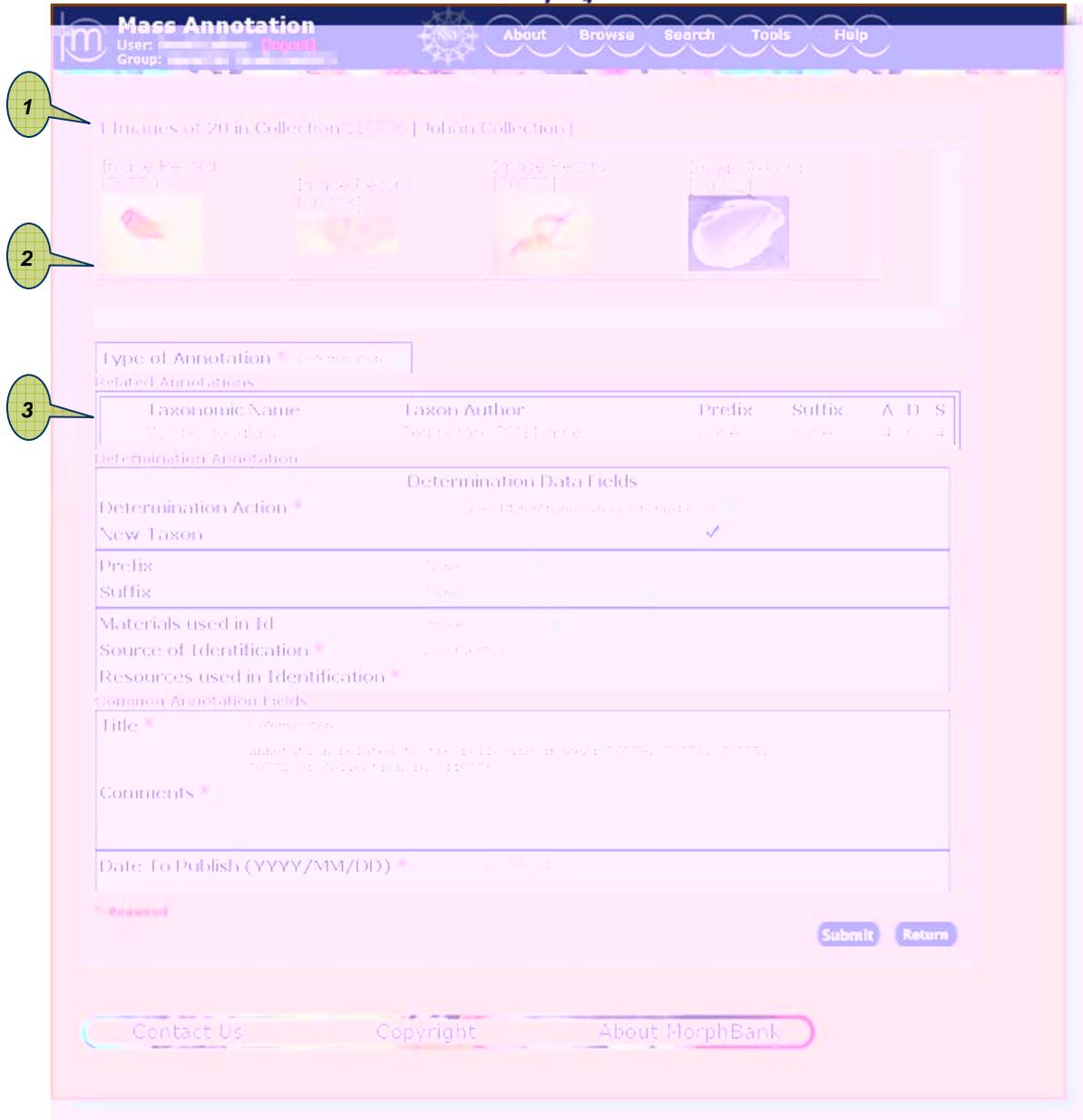


Figure 104 Mass Annotation

This figure contains test data

All required fields are followed by an *

Tag descriptions for [Figure 104](#)

Tag 1– Mass annotation heading: This displays the collection id and name that the mass annotation was initiated from as well as the number of images that were selected to annotate from the collection.



Tag 2– Image thumbnails: This list of thumbnails represents the images that are included in this mass annotation. The list will scroll as needed to display all included images.

Tag 3- Related annotations: (available only with the annotation type of **Determination** selected.) This list will contain all specimens associated with the images contained in tag 2 above.

Taxonomic name - represents the lowest level taxonomic name of the specimen.

Taxon Author - Author of the taxonomic name from the ITIS database.

History – This contains the historic data relating to prefix(s)/suffix(s) and totals regarding previous annotations associated with this determination. A (agree with taxon name), D (disagree with taxon name), S (number of specimen(s) with that taxonomic name and collection of images).

The instructions for the remaining fields contained on the mass annotation page can be found in the [Add Single Annotation](#) section of this manual.

Note: The reference to image markers and labels on the add annotations page are not available for mass annotations.

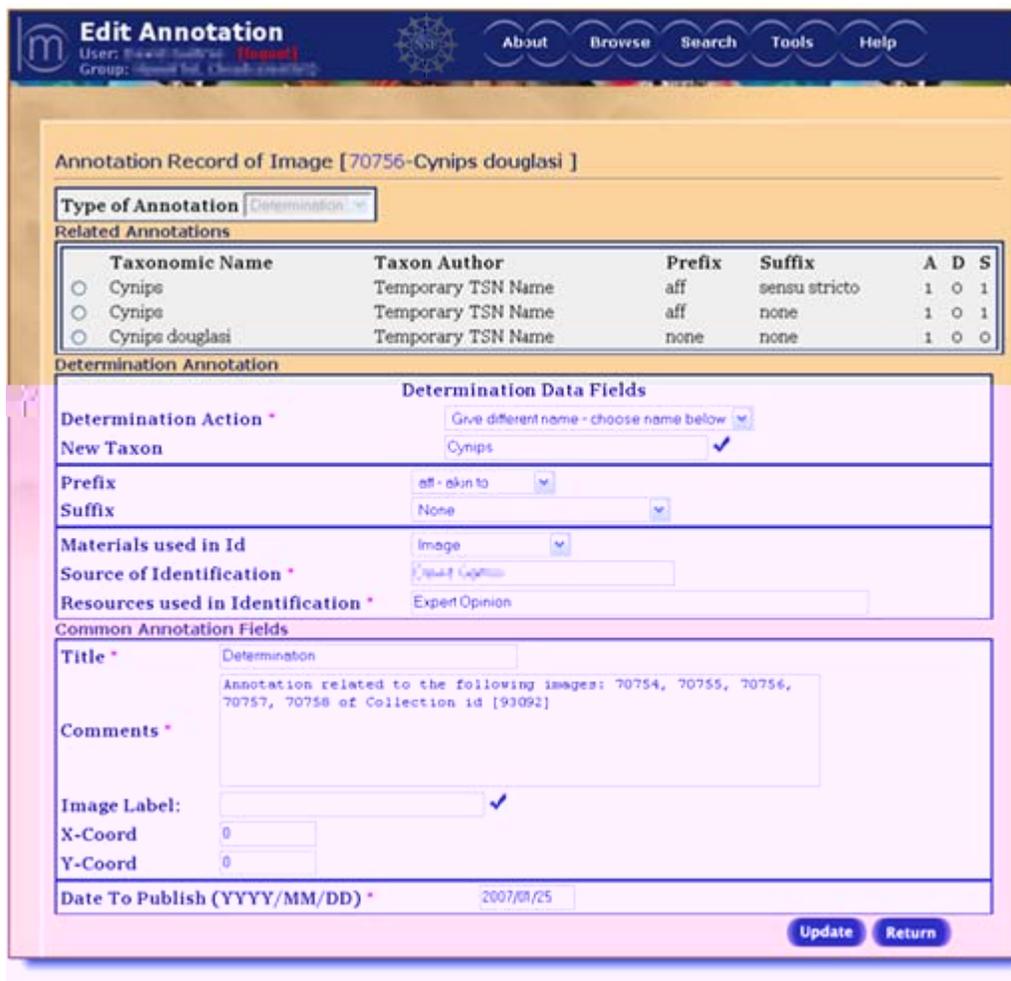
Edit Annotations:

Edit annotations contains the previously entered annotation data that can be edited by the owner (only available if the annotation is not yet published.) Take note that the type of annotation can not be altered.

To access edit annotations click on the tools menu and select **Edit Annotation** or from the **Annotation Manager** click on the title of the annotation to edit,



Complete instructions can be found in the [Edit Annotation](#) area of this manual.



Edit Annotation
 User: [username] (Required)
 Group: [group]

Annotation Record of Image [70756-Cynips douglasi]

Type of Annotation: Determination

Related Annotations

Taxonomic Name	Taxon Author	Prefix	Suffix	A	D	S
<input type="radio"/> Cynips	Temporary TSN Name	aff	sensu stricto	1	0	1
<input type="radio"/> Cynips	Temporary TSN Name	aff	none	1	0	1
<input type="radio"/> Cynips douglasi	Temporary TSN Name	none	none	1	0	0

Determination Annotation

Determination Data Fields

Determination Action *
 Give different name - choose name below

New Taxon
 Cynips ✓

Prefix
 aff - akin to

Suffix
 None

Materials used in Id
 Image

Source of Identification *
 Expert Opinion

Resources used in Identification *
 Expert Opinion

Common Annotation Fields

Title *
 Determination

Comments *
 Annotation related to the following images: 70754, 70755, 70756, 70757, 70758 of Collection id [93092]

Image Label: ✓

X-Coord
 0

Y-Coord
 0

Date To Publish (YYYY/MM/DD) *
 2007/08/25

Update Return

Annotations Record Show:

This is an example of an annotation record page displayed from the **Annotation Manager / Id** (first column). MorphBank **Single Show** is an efficient way to display large amounts of information. For complete documentation on single show refer to [MorphBank Show](#) in the **Information Linking** section of this manual.



Id*	Title	Type Annotation	Object Id	Object	D
100020	Test Determination	Determination	70756	Image	26

Annotation Record: [100020] Title = Test Determination

Contributed By: David Gaitros

Date Contributed: 07-28-2006

Last Modified: 07-28-2006

Publish Date: 09-01-2006

Specimen Id: [68530]

Sex: Female

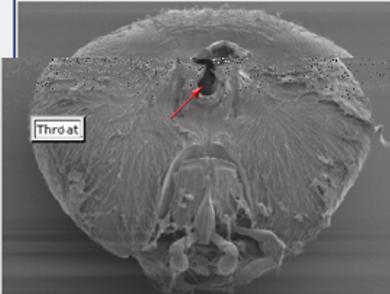
Collector: Johan Liljeblad & Fredrik Ronquist

Species Name: Cynips douglasi

Object Id: [70756]

Object Type: Image

Type of Annotation: Determination



Comments

This is an example of a single determination from the collection screen. No previous determinations were made of this specimen and as such the Specimen record shows up as the initial determination. Update of Comments

Related Annotations to this image

TITLE: Test Determination
TYPE ANNOTATION: Determination
BY: David Gaitros
DATE CREATED: 2006-07-28 13:44:01
RELATED ANNOTATIONS OF ID:[100020]
SINGLE SHOW OF ANNOTATION ID:[100020]

TITLE: General Annotation
TYPE ANNOTATION: General
BY: David Gaitros
DATE CREATED: 2006-08-21 14:36:14
RELATED ANNOTATIONS OF ID:[104905]
SINGLE SHOW OF ANNOTATION ID:[104905]

Select to access Related Annotations page

Related Annotations:

Determination Data

Specimen Id: [68530]

Taxonomic Serial Number: [999000435] Cynips douglasi

Taxonomic Name: []

Prefix: [none]

Suffix: [none]

Type Determination: [agree]

Source of Id: [David Gaitros]

Resources used in Id: [Expert opinion of Dr. Fredrik Ronquist]

Materials used in Id: [Image]

Taxonomic Name	Taxon Author	Prefix	Suffix	A	D	S
Cynips	Temporary TSN Name	none	none	2	0	1

Figure 105 Single Show-Annotation
 This Example Contains Test Data



In **Annotations Record Show**, the user is presented with a list of all annotations associated with the object to include all annotations related to the image and specimen.

Clicking on this section will bring up the **Related Annotations** page which contains all the tools needed for a user to research annotations associated with the current annotation record.

Use the Related Annotation page to:

- View a scrollable list of all images related to the annotation of the same specimen, images with the same taxonomic name, images with the same view, and images in collections to which the current image belongs.
- Email an annotation to another party for viewing.
- View related image, specimen or view data. This option utilizes the MorphBank Show option to display a full set of information on the image data, the specimen data, or data about the view associated with the image.
- Add a new annotation to the current image by calling the single add annotation screen. Or sort the current list of related annotations

Related Annotations:

Related Annotations contains all the tools needed for a user to research annotations associated with the current annotation record.

The **Related Annotation** page is designed to display all of the information associated with a particular annotation and display links to detailed data on the specimen, image, view, locality, and determination. Additionally, **Related Annotations** permits the user to view the image in more detail using a commercial image viewer product called the **FSI Viewer from Neptune Labs**.

Since any single object within MorphBank may have several related objects, this screen displays some of those relationships. The user can, by selecting the related image drop-down menu, display other images related to the current image, specimen of the image, species, images with the same view, or all of the images in collections where the current image is also contained.

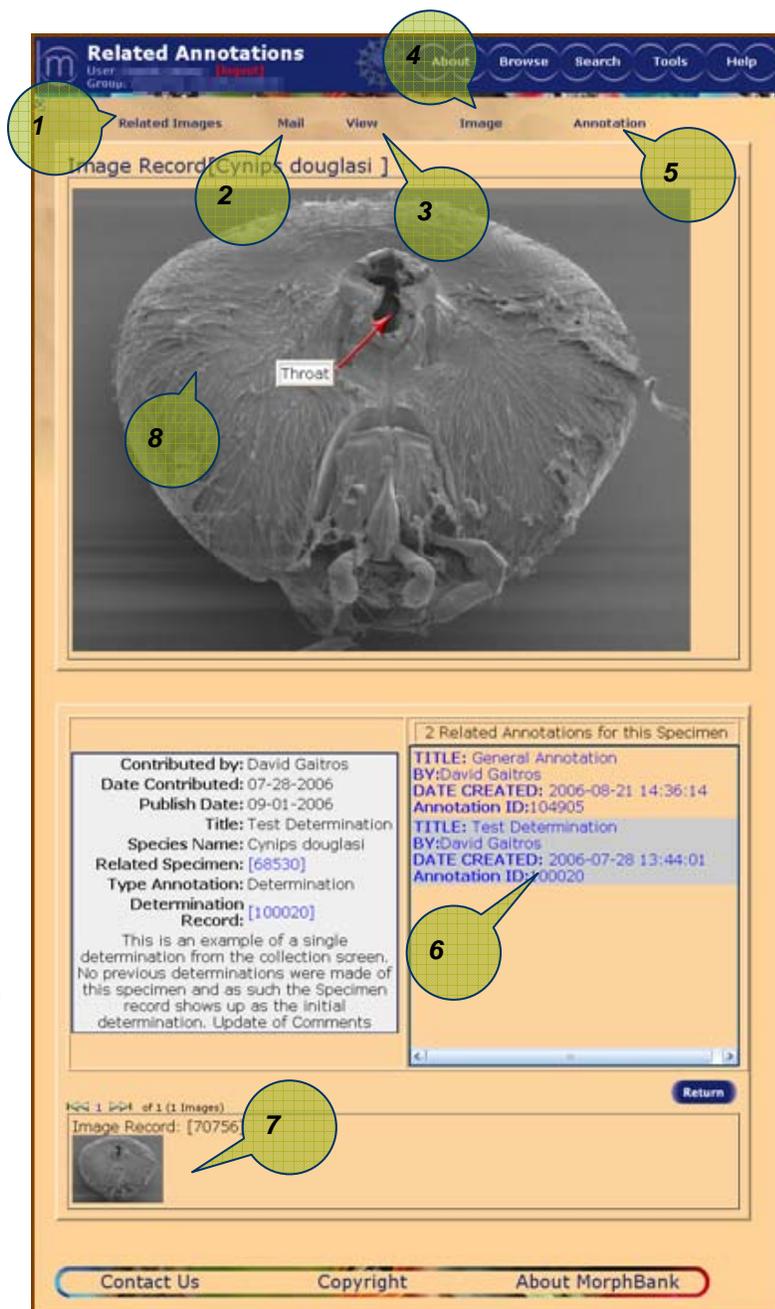


Figure 106 Related Annotations

This Figure Contains Test Data

Tag descriptions for [Figure 106](#)

Tag 1: Clicking on **Related Images** will display a drop-down list for the user to select which category of **Related Annotations** to display. The related images will display in the list at the bottom of the page.



Tag 2: The **Mail** option allows users to email the annotation URL to any valid email address for viewing with an accompanying user supplied message. A sent



email contains the text along with a MorphBank URL that will allow the recipient to view the image using the **MorphBank Show** feature.



Tag 3: The View drop-down box displays a selection choice of record data types that can be displayed on the screen.

Tag 4: This option brings up the commercial image viewer product called the FSI Viewer from Neptune Labs. This viewer gives the user many more viewing options.



Complete instructions for this viewer can be found at [FSI Viewer](#) located in this



manual,

Tag 5: Use this option to add an annotation or sort the onscreen list of related annotations by title, author, or date. The previous order of related annotations and collection images are maintained

Tag 6: List of related annotations. This list is also a hot-link that allows the user to display that annotation data on the current web page. Select to reveal that annotation

Tag 7: List of related images. This is where the images from tag 1 above are deposited. Additionally, clicking on the thumbnail images of the related images will display related annotations associated with that image.

Tag 8: . The image is shown in a larger format than normally seen in the rest of MorphBank. The image displays any designated annotation marker and label, (overlaid arrow and label). Clicking on the image brings up the image viewer which allows the image to be viewed in more detail using a commercial image viewer product called the FSI Viewer from Neptune Labs.